



International Centre for Organisational Management

DIPLOMA IN CONSTRUCTION PROCESS MANAGEMENT

INTRODUCTION

Parts of the construction industry worldwide are undoubtedly world-class. They have designed and built projects with considerable flair and delivered them on time, to budget and to the highest quality standards. However, in many parts of the industry traditional working practices still prevail within a culture wedded to defending professional vested interests and characterised by deep seated scepticism and resistance to change. In particular, designers, project managers, contractors and trade contractors continue to fail to integrate their activities and clients are often guilty of failing to produce a clear strategy for what they want from projects. Cut throat competition has increased these tendencies to operate in isolated, professional silos. This has led to low profitability throughout the supply chain, which has led in turn to a pre-occupation with the short-term, adversarial relationships with clients, suppliers and employees, inadequate investment in R&D, capital and people and disillusionment among investors, alongside failure to deliver a quality product on time and to budget.

To drive itself out of this regressive spiral requires a step change in behaviour, a culture shift, a radical change in the processes used to deliver projects.

Successful businesses worldwide have integrated their supply chains across design, manufacture and supply. This process based approach should be used in construction. In addition, the industry should focus on internal and external customer care, strategic and operational leadership, a process/quality driven approach to eradicating waste, the use of stretching performance targets, partnering based relationships, product development, innovation and clients taking a stronger leadership role.

Many companies and clients have begun to tackle the key problems and some exceptional results have emerged. However, there is still too little evidence of industry-wide sustained improvement in performance. The key constraints are two-fold. Firstly, the industry's traditional attitude to motivating its employees. Far too little investment has gone into technical and management training, a culture of organisational learning is often absent and too few managers recognise the need to modify their command and control, autocratic management style. Secondly, clients need to be more assertive in defining project strategies which insist that the key processes (e.g. design, project management and construction) are integrated on a day-to-day basis.

These problems are found on many major infrastructure projects, which is negatively affecting the abilities of many countries to seize the opportunities provided in the developing global economy. The need to change working practices is indisputable, as is the need to improve individual leadership competence. The action learning programmes to be offered by ICOM focus on ways of improving individual and organisational effectiveness along the whole supply chain. They integrate business, technical and people management skills. They create a practical, job-centred learning experience which will produce immediate benefits in the workplace and a measurable return on investment in training. They could also provide a nucleus around which infrastructure development in particular countries could be significantly increased.



ICOM's faculty has considerable experience of running programmes in the construction industry. They have delivered 6 programmes in major UK-based organisations, involving representatives of all parts of the supply chain, from clients such as British Land, through designers such as Fosters and Partners, structural engineers such as Whitby Bird, project managers/developers such as Mace and Stanhope and 4 main contractors in civil engineering and building (Costain, Wates, Gleeson, Laing O'Rourke) and dozens of trade contractors in their supply chains. They have also worked in the urban regeneration area in Liverpool and with the Sector Skills Council for the industry (formally the Construction Industry Training Board) who funded 4 programmes and with Constructing Excellence, where Dr Kinder is a member of the Leadership Committee.

These programmes have focused on integrating the construction supply chain. The pioneer programme in Costain included managers from their clients (Highways Agency, Thames Water), their consultants (Mott MacDonald, Scott Wilson) and their suppliers who were all trained together with project managers, project directors, quantity surveyors and finance managers from Costain. This group were divided up into small teams and given key issues to tackle group projects. One group defined a new procurement strategy which was adopted by the Board as the Company strategy. In Wates, one of the group project teams defined the key business processes of the company and granulated them down to key processes at every department and defined an assertive process for identifying waste and introducing continuous improvement techniques. In Gleeson, one of the groups defined a more effective method of defining the Engineering Division's business strategy, its CSF and KPI and how it should be cascaded into the organisation. These project teams were the highlight of the programmes and the participants were assertive with their directors in getting their recommendations implemented.

The part of each programme that had the greatest impact on performance was the individual projects. Each one focused on how the areas under each participant's managerial control could be improved. Individuals found problems such as gaps in how they managed their trade contractors and design teams, how project aims and objectives were not clearly defined, how meetings were poorly chaired, how little control supervisors had over the workplace and how labour productively was to name but a few issues. Individuals were pressed to define their business implementation plans, to implement them and to learn from the process.

As a direct result of the success of these projects the Sector Skills Council for Construction (formerly the CITB) commissioned Dr Kinder to develop a state of the art approach to management development for the industry. Generic action learning programmes were produced for 5 management levels in a typical construction company. For example, in a Diploma in Project Management the workshops could include the following:

CONTENT OF WORKSHOPS

Workshop 1 - Business Strategy in Construction and the Learning Process

Overview

This module lays the foundation for the programme by setting it within the context of the UK construction industry and within the business strategy of the company. The focus is on how the corporate strategy is defined and cascaded into the organisation and how it impacts on project management and the support functions. The cost, quality and delivery problems of the industry and the suggested solutions are highlighted, as are the behavioural changes needed at all levels. The theme of learning how to become more personally effective is introduced and the individual and group projects set up.

Specific Aims

To provide an understanding of business strategy and how it should be cascaded into the organisation so it influences working practices and behaviour at the project level. To focus on improving customer satisfaction, on the integration of the supply chain and on the role of the project manager as business leader of an effective team and how the individual acquires the appropriate competences.

Content

What business are you in. Product range and profitability, new product development, which markets are you in and which do you want to be in, competitor analysis, customer range, focus, value and satisfaction, shareholder value, diversification, acquisition, consolidation. How to market the product, marketing principles.

The business strategy cascade. Critical success factors, key business processes, cross-functional process teams, departmental "strategies" and alignment with project strategies. The project as a business and the project manager as a "general manager".

Construction the fragmented industry. Past performance, the solutions of Latham, Egan, Rethinking Construction etc., the industry's response, nature of change required (e.g. focus on client and user needs and costs, collaboration along supply chain, new contracts, single point responsibility, a new management style, culture of cooperation on site etc.) The future?

The learning process. Work place learning, projects, personal development plans, how to reflect on performance and manage one's own development, and the competences required by a modern project manager (technical, managerial and personal.) The project manager as business team leader.

Learning Outcomes

- Ø An understanding of how the subject of business strategy has developed, of the best models of business strategy and how they are used in practice and how they apply to the client's industry and company.
- Ø An understanding of the key subjects which should be covered in business strategy (product development, innovation and price, the market, customers and competitors.) An understanding of the business environment, of the basic principles of marketing and how a construction company, having defined client value, can market its products appropriately (e.g. do they organise into product/customer streams?)
- Ø An understanding of the key strategic issues facing the industry. In construction we introduce this subject via the Latham and Egan reports, the Clients Charter, Better Public Buildings and Modernising Construction.
- Ø An understanding of the business strategy of each organisation, presented by the CEO, its critical success factors, key business processes and key performance indicators and how a business strategy should be developed and cascaded into the organisation to condition the behaviour of all parts of the business. A comparison of best practice with how strategy is devised in the organisation. That is, a detailed critique of the strategy process in the company.
- Ø An understanding of how to apply the learning from the workshop to the participants' own departments leading to the construction of a departmental strategy statement, which becomes a key part of the individual project.
- Ø The detailed outcomes of the learning process part of Workshop One have been covered above. The programme is set within three contexts:
 - The international and national economies. Participants are encouraged to read the quality press, news journals (e.g. The Economist) and the trade press.
 - A definition of the characteristics of excellent organisations using TQM models (e.g. EFQM, Baldrige).
 - The principles of action learning as a delivery mechanism for organisational development.
 - Participants emerge with an understanding of the principles behind each of the above contexts.

Workshop 2 – Integrating the Supply Chain Process

Overview

The key strategic issue in construction is the need to improve radically the cost, quality and delivery of the product to the client as mentioned earlier. The primary cause of poor value delivered to the client is the lack of integration of the supply chain, that is, the inadequacy of the process along the value chain from client need, through design to the bidding process, appointment of sub-contractors, build, and whole life performance of the building. Workshop Two deals with this subject of integrating the total construction process from client need to client satisfaction focusing on the role of project manager. This supply side integration is critical in increasing quality and productivity, reducing project times, increasing cash-flow efficiency and thus minimising risk, getting “it” right first time, and designing out health and safety risks at source.

Specific Aims

To understand the nature and implications of integrating the supply chain process from satisfying client need through appropriate design, project build and management of sub-contractors and manufacturers to client satisfaction with the cost, quality and delivery of the product and its through-life cost. To get delegates to see projects as a total business, to develop an entrepreneurial “business mindset” approach to project leadership. To clarify the role of project manager in upstream activities such as agreeing clients’ requirements, advising on potential design options, identifying project risks, etc.

Content

- Ø The new construction process. Integration of client needs, design, planning, construction, sub-contractors and manufacturers, i.e. a primary “process” owned by all members of the supply chain. Delivering value to the customer by taking initiatives at three levels. First, at industry level to challenge the strategy of companies by demanding that they put client and end user needs before their short- term focus on costs and to focus on single point procurement. Second, at company level, to focus on partnerships, new collaborative working practices and performance measurement. Third, at project level, to encourage multi-disciplinary project delivery teams based on collaboration, cooperation and trust in the implementation of the design and construction process.
- Ø How to integrate the design and construction functions, how the design brief is developed (statement of need, strategic belief, detailed design brief and project brief). Review the participants involved at each stage and their relative responsibilities. Requirements and deliverables for each stage and project responsibility. How to involve specialist sub-contractors in the total process at the appropriate time.
- Ø What are the alternatives to competitive tendering? Two stage bidding and other initiatives. The changes needed in the bidding process to accommodate Rethinking Construction ideas. How to bid as a joined-up supply chain. How to win the business.
- Ø What does a modern procurement department do? How to analyse and categorise suppliers, how to reduce their number, how to help suppliers improve their performance, how to get project managers to follow agreed procurement strategy, etc.

- Ø The new contractual environment and the key commercial issues. Types of contracts, (e.g. those that encourage team integration such as prime contracting, design and build, PFI), penalty clauses, legal and regulatory requirements etc.
- Ø Process management. How to draw process maps, identify and remove non-value added activities and waste, define costs of poor quality, set up quality improvement teams and how to benchmark key processes.
- Ø The role of the project manager in the upstream activities of defining the clients' needs, the strategic aims, viability and design and integrating these into the project planning and preparation phase (concept development, project brief, scheme design, scope definition, cost agreement), i.e. clarifying the project's scope and definition. Project life cycle.
- Ø Project appraisal and risk management (risk identification, assessment, mitigation and contingency). Conducting an environmental impact assessment.
- Ø Specification of project requirements. Analysis of what is to be achieved within timescales and costs, defining ways of achieving required outcomes, procurement, labour and capital requirement strategies, quality control plans, change control procedures. Drafting and redrafting specification of requirements and gaining approval of relevant parties.
- Ø Value management and engineering.
- Ø The management of costs during design.
- Ø The role of measurement in achieving the above. An introduction to the performance management approach and management by fact.
- Ø How the changes involved in the above are integrated into other initiatives going on in the organisation.

Learning Outcomes

- Ø An understanding of how projects should be run as a business and how to apply a strategic and operational approach to achieving this.
- Ø An understanding of the factors which have to be in place if the value delivered to clients is to improve (i.e. clearly defined client needs/value, integrated supply chains, integrated project activities, manage costs collaboratively, a focus on continuous improvement and on people development).
- Ø An understanding of what improved client value and satisfaction means (good whole life value and performance, excellent design and functionality delivered within budget, on time and defect free) and how this is measured (e.g. reduced capital cost, improved functionality, reduced whole life costs, greater cost and time certainty).
- Ø An understanding of how the separation of design from construction and the late involvement of specialist sub-contractors has contributed to project delays, poor quality and cost overruns.
- Ø An understanding of the limitation of competitive tendering and what the alternatives are.

- Ø An understanding that in the future bidding will increasingly be done by integrated or 'joined up' supply chains within virtual organisations and project delivery will be done by integrated teams which move from project to project, learning as they go, driving out waste and embracing a culture of continuous improvement.
- Ø An understanding that the traditional approach to procurement (i.e. based on price, multi-sourcing, treating suppliers badly etc.) has to change. This will embrace reducing the number of suppliers, categorising suppliers (strategic, preferred etc.), procuring nationally in part, involving sub-contractors in design, recognising that procurement represents a major area of business opportunity and that to compete successfully key suppliers must be recognised as vital resources of the company. In addition to recognise that procurement decisions must shift from a 'price focus' to a 'total cost focus'.
- Ø An understanding that integrated supply chain management in construction is much wider than even a modern approach to procurement. In addition to building effective supplier relationships, it involves defining what the client means by value, integrating project activities, managing costs collaboratively, changing internal processes to focus on developing a continuous improvement culture and developing and mobilising people in a more progressive way (see the Building Down Barriers model).
- Ø An understanding of the changing relationships in the supply chain and how to manage these.
- Ø An understanding of the modern approach to bidding for work.
- Ø An understanding of modern contractual, commercial and risk management issues.
- Ø An understanding of how to draw and analyse process maps and how to remove waste.
- Ø An understanding of how the project manager should get involved in the design of the project and in defining the client's needs. An understanding of the project planning and justification stage.
- Ø An understanding of value management and value engineering techniques.
- Ø An understanding of the importance of performance measurement.
- Ø An understanding of how the changes involved in the above dovetail into other initiatives being taken in the organisation.

Workshop 3 – Managing the Construction Project One

Over view

Supply side integration and the importance of long term relationships (dealt with in Workshop 2) are critical for effective project delivery. However, the delivery of client satisfaction is essentially down to how the project leader manages activities and resources on site. They have to be “general managers” with a business mindset and with the appropriate knowledge and understanding, technical and management skills and personal competences. This module will cover how these competences can be acquired and, in particular, how a performance management/continuous improvement culture can be introduced into the project.

Specific Aims

This module will deal with the role of the “modern” project manager, the management activities of coordinating the building of the asset at an appropriate profit level, how to control costs, quality and delivery, how to manage materials, plant and equipment on site, how to lead an effective project team, how to manage sub-contractors and their labour, how to introduce a continuous improvement and performance measurement culture and how knowledge management can be introduced.

Content

- Ø Role of a “modern” project manager as an entrepreneurial business manager and a “general manager” with control over all resources. Involvement with clients in defining project strategy, with designers and in managing specialist sub-contractors’ involvement in upstream activities. Develop and maintain relationships with stakeholders (clients, bosses, subordinates, consultants, local authorities, etc.) Involvement in defining procurement practice and other activities where head office controls corporate strategy (e.g. I.T and H.R.) Responsibility for ensuring knowledge management (capture and transfer of knowledge from one project to the next) is taken seriously.
- Ø How the project manager should be managed. Role of construction manager is vital. They must manage project managers effectively, e.g. run regular management meetings to share experiences (C.I., knowledge management etc.) Act as conduit from EXCO and up to EXCO.
- Ø Project manager as team leader. Selection of the team. What are the characteristics of effective project teams? Allocation of work to teams and individuals. Agreeing objectives, work plans and working methods with teams and individuals. Roles and responsibilities of team members, especially of Q.S. Organisational structure of the project. Cluster structure and management. Managing the team to produce high levels of commitment and effectiveness and ensure this “culture” cascades into the project staff, including sub-contractors. Introduce a commercially aware performance management, continuous improvement, measurement focused approach to delivering “right first time” working practices. Provide feedback to teams and individuals on their performance.
- Ø How to enhance working relationships. How to develop and maintain relationships with stakeholders (clients, customers, bosses, subordinates, consultants, local authorities, etc.) How to communicate and consult effectively. Difference between consultation and involvement. Listening skills. How to delegate. Interpersonal sensitivity. How to encourage innovation and creativity. Openness and integrity.

- Ø Chairing and participating in meetings. Agendas and objectives, be prepared, discourage unhelpful digressions, involve everyone, communicate decisions, etc.
- Ø Performance management. Define the key processes of the project and measure performance via KPIs. Ensure these are dovetailed into corporate KBP and KPIs. Ensure everyone on the project thinks process (not construction), measurement and costs of poor quality. Allocate work, agree objectives, assess performance and provide feedback.
- Ø Conflict resolution and problem solving skills.
- Ø Knowledge Management. Ensure key points of learning about effective delivery of projects is discussed and documented.
- Ø Environmental management and compliance.

Learning Outcomes

- Ø The role of a modern project manager as a general manager running a “business”.
- Ø The process of how a project manager should be managed.
- Ø The role of project manager as team leader.
- Ø How to enhance working relationships.
- Ø How to chair and participate in meetings.
- Ø How to implement performance management techniques.
- Ø How to resolve disputes and solve problems.
- Ø How to implement a knowledge management strategy.
- Ø How to implement an environmental strategy.

Workshop 4 - Managing the Construction Project Two

Overview and Specific Aims. As Workshop 3

Content

- Ø Development of commercial awareness by project managers and other line staff. Understanding of project value and how profit can be enhanced while giving client value for money. Cost of specialist sub-contractors (cost transparency), designers and other suppliers. Detailed understanding of cost of operations on a daily basis and how waste can be reduced.
- Ø Models of project management. Project lifecycle. Linking projects to corporate strategy. Principles of project management. Replacement of sequential procurement with simultaneous engineering (designs for building and maintenance methods and costs of construction developed in parallel). Use of clusters to manage projects. Value management and engineering and other value enhancing techniques.
- Ø The project planning and justification stage. Project definition and alignment with strategic plans. Project appraisal (setting objectives, identifying options, evaluating risks, financial planning, gaining approval to proposals). Scope of contract documents. Developing the specification. Project financial planning. Change control procedures.
- Ø Assessing and managing project risks. Risk management processes, project information relating to project risks, significance of project risks.
- Ø Developing the procurement strategy within corporate policy. Choosing appropriate suppliers. Deciding on plant and equipment supply. Delivery scheduling.
- Ø Defining and scheduling project tasks. Task sequences and dependencies. Evaluating and adjusting the project schedules. Handling variations and modifications (e.g. dealing with situations which give rise to applications for extensions of time). Application of incentives and penalties.
- Ø Assigning resources to accomplish the tasks. Resource planning (e.g. last planner for manpower, J.I.T. approaches for materials, logistics). Understanding the problems which can arise. Learning from past mistakes. Establishing the control mechanisms. Planning tools. (GANTT etc.)
- Ø Control of costs, quality and delivery – Process Mapping. Map out the key project processes and eliminate waste etc. Benchmark equivalent process etc. Control project costs against budgets. Key financial drivers. Whole life costs, target costs, open book accounting. Elimination of unnecessary costs. Control project against agreed quality standards. Measurement and improvement of product quality (TQM models). Continuous improvement of processes. Control project progress against agreed schedules. Balancing time –v- costs. Identify and document variation in planned progress. Value for money. Audit.
- Ø Manage materials, plant and equipment on site. Monitor, maintain and improve supplies of materials to meet project requirements and manage suppliers effectively. Identify, allocate and plan the deployment of plant and equipment on site. Monitor use of plant and equipment on site.

- Ø Project finalisation and closure. Acceptance trials and commissioning. Rectification and referral. Taking over and completion certificates. Project closure reporting. Maintenance contracts, warranties and guarantees.

Learning Outcomes

An understanding of:

- Ø Models of project management.
- Ø Project planning and justification.
- Ø Project risk and its consequences.
- Ø How to develop a procurement strategy.
- Ø How to define and schedule project tasks.
- Ø How to assign resources to accomplish the tasks.
- Ø How to control costs, quality and delivery.
- Ø How to use process mapping to remove waste.
- Ø How to manage materials, plant and equipment.
- Ø How to develop commercial awareness.
- Ø The project finalisation and closure process.

Workshop 5 – Managing People and Quality

Overview

The business environment requires construction companies to change their working practices and the behaviour of staff at all levels. The industry is under-achieving, its clients are unhappy with its output, it has low profitability, it invests too little in R & D and training and it is adversarial.

Developing long term collaborative relationships along the whole supply chain within a culture of continuous improvement will require a comprehensive programme of organisational and individual change within companies. It will require changes in strategy, in organisational structure, in working practices, in the way senior managers treat their subordinates, in the competences required to manage effectively, in the way people are trained, paid and motivated, etc. Employees will need to learn new ways of thinking, acting and reacting. This involves unlearning old ways, which is often painful and resisted by many. The thinking behind these changes in ways of working and behaviour should be led by a highly competent human resource function, but should be implemented by well trained line managers. How this is done is the subject of this workshop.

Specific Aims

To define the role of a modern H.R. department and the relationship with line managers given responsibility for maximising the effectiveness of their people. To give line managers an understanding of best practice in the areas of human resource strategy, organisational structure, compensation, training methodologies and performance management. To reinforce participants' personal development plans with best practice in managerial and personal competency development, particularly in leadership and building effective teams. To develop a quality driven agenda by outlining the principles of total quality management featuring process management, continuous improvement, internal customers, performance measurement and the management of change.

Content

- Ø The development of the H.R. function through the administrative and personal phases to the modern business partner model. The development of the behavioural science and organisational development approach. Joint consultation, industrial democracy, productivity bargaining and job enrichment. How redundancies and downsizing have interrupted the development of the H.R. function. The H.R. function in crisis.
- Ø A model of a modern H.R. function. Can proactive H.R. practices lead to improved business performance? High performance work systems and total factor productivity. The new employment contract. Competency development and the learning organisation.
- Ø The role of the people and technically competent project manager who is responsible for managing their people resource, that is, project managers are their own H.R. managers supported by specialists from the H.R. function.

- Ø Organisational design and structure. How line and support functions can be organised. Organisations designed around functions and products/customers. Centralisation and decentralisation. Matrix organisations. Command and control of empowered approaches. Principles of organisational structure. Number of levels, span of control, role clarity, deputies etc. Cummins and Shell case studies. Current organisational trends. Design of jobs, job enrichment and enlargement. Role of supervisors and first line managers. How specialist sub-contractors are built into the structure. Clusters.
- Ø Training and development. The training illusion (does it improve performance?). Work based learning. Appraisals and career development. Managers' involvement in personal development. Mentoring. Competency-based training. Continuous professional development. Life-long learning. The learning organisation. Staff training, CSCS cards.
- Ø Compensation systems. Pay systems that support the business needs of the organisation and motivate employees to engage in behaviour that organisations need to succeed. Traditional salary systems, comparability, job evaluation, narrow pay bands (narrow division of labour), movement through the bands, base pay options, variable pay (individual team, company wide). Does money motivate? Modern pay systems (broad banding, skill based pay, added value bonus schemes, etc.) Harmonisation of terms and conditions. Reward systems and organisational change.
- Ø Dealing with poor performance and redeploying. Counselling. Implementing the disciplinary and grievance procedures. Dismissals. Redeployment.
- Ø Health and Safety strategy and implementation.
- Ø Developing a quality driven agenda. Internal and external customer needs. Design for quality. Right first time. Process management and waste eradication. Continuous improvement ethic. Performance measurement. Benchmarking. Self-assessment tools (EFQM, Baldrige).

Learning outcomes.

These are related to H.R. management. Developing personal, managerial and technical competences is dealt with under the personal development plan (PDP).

An understanding of:

- Ø The business context within which the H.R. function has to operate.
- Ø How the H.R. function has developed and where their company fits into the various stages.
- Ø The content of the behavioural science approach to motivation, consultation, job content.
- Ø What a modern H.R. department does and, in particular, how it helps line managers run their departments more effectively.
- Ø What a line manager should do to maximise the contribution of their subordinates, that is, to perform as their own H.R. manager.
- Ø H.R. strategy, how it fits into the organisation's business strategy and how it affects how the "students" run their departments.

- Ø How organisations should be structured to contribute to organisational effectiveness and how this should be applied to the “students” own departments.
- Ø How jobs can be redesigned to lead to maximum personal motivation.
- Ø Modern compensation systems and how they can be applied to the organisation and projects.
- Ø How training can be designed so it contributes to improving organisational and individual effectiveness.
- Ø How to deal with poor performance.
- Ø How to define and implement a health and safety strategy.
- Ø How to introduce a quality driven agenda designed to improve performance by improving the product (e.g. building quality into processes) and reducing costs (e.g. removing waste).
- Ø Self assessment quality management tools (EFQM, Baldrige).

Workshop 6 - Managing the Financial, Commercial and I.T. Environments

Overview

To play the role of general manager running a business, a project manager requires an understanding of basic finance, especially around the accurate identification and control of costs, cash flow and what the financial drivers are on their project. They also need to understand the essential contractual issues and what risk management is all about. In addition, modern contractual issues around PFI and PPP are becoming increasingly important, as is how projects are to be financed in the future.

The construction industry needs to communicate large volumes of complex information. However, the diversity of the projects and the large number of different stakeholders operating in value chains which are rarely integrated, make information generation and sharing difficult. I.T. can help construction companies reduce these problems. However, a lack of focus on business requirements, under-investment in I.T. equipment and systems and training, and a lack of common information standards and formats present major barriers for effective information exchange in the industry.

The widespread development of web-based tools and techniques has created many opportunities for construction companies willing to develop an I.T. vision. Cheaper communications is expanding these possibilities from traditional accounts-based information into engineering data, commercial tendering and procurement transactions.

Specific Aims

To give the project manager an understanding of appropriate financial and commercial issues to be able to perform the role of general manager of a project, where they are in control of total resources (money, materials, capital, equipment and people). In particular, to complete the range of measurement tools necessary to use performance management techniques on the project.

To develop an understanding of how a construction company can use Information Technology (IT) and Information Systems and Applications (IS) to gain competitive advantage, particularly at project level. To capitalise on the technologies and use web-based technology delivered through an enterprise portal to give controlled access to all systems for all users. These systems will include, for example, document management, project design management, business collaboration and e-business capability (e.g. bills of quantities, purchase orders, invoices). To focus on how IT/IS can be used to manage projects more effectively.

Content

- Ø The link between the business and financial strategies of the organisation. Key financial drivers (volume, management of supply chain, repeat business, staff, competence etc) and appropriate measures of financial performance. Management by Fact.
- Ø What the Finance Director expects from project managers. Understanding of the basics; what is a business, how is the project a business, profit and loss, cash flow, managing a budget, cost planning, working capital, etc.
- Ø Project finance. Where will the money come from for PFI etc. projects? The cost of capital, investment appraisals, risk evaluation in project financing, cash flow and sensitivity analysis.

- Ø The link between the business and the commercial strategy. Contract strategy, traditional strategies, design and build variants, prime contracting, PFI/PPP contracts, framework agreements. Adversarial –v- cooperative approaches. Commercial strategy behind contracts, notice of payments. Procurement from the Q.S. viewpoint. Lessons learnt from design and build contracts in pre-contract and contract stages. Dispute resolution.
- Ø Risk management. How risk has changed with changes in contracts. Transfer of risk to contractors. Impact of failure to address risks. Strategic risk management. Cadbury/Turnbull and corporate governance, strength of corporate balance sheet. Project level risk management. Project risk registers. Company risk management policy and procedures. Need for change in behaviour towards risk. Risk in selection and management of sub-contractors.
- Ø Control of costs revisited. Whole life costs, target costs, open book accounting, incentivisation, role of project manager in controlling costs (c.f. the Q.S.), continuous improvement and cost savings. Importance of cash management.
- Ø How to develop an information strategy plan. How the IT/IS strategy should be integrated into the business plan. Why IT/IS strategies have failed in the past. Identify the business position. Examine current capabilities and technologies. Develop a system and technology roadmap and prioritise solutions. Review company's business processes and identify the business areas to be covered. Determine information flows and system needs. Carry out a cost/benefit analysis. Develop an implementation plan. Should outsourcing be used? Case study.
- Ø Implementation of the strategy. Barriers to implementation. How to gain line management commitment and set up a project team. Determine time scale and resources. Size and structure of IT department. The budget for implementation. Network, portal and software required. Scope of implementation to cover design, supply chain, project management, customer relations, H.R., finance, etc. What to focus on to gain competitive advantage. Map out the new business processes wish to achieve. Changes must be process-led, not IT-led. Manage expectations. Case study.
- Ø E-construction. The internet economy. Web enabled technologies (email, video and audio conferencing, work flow management, portals, service providers). The B2B processes.
- Ø Web enabled Project Management_ Take a holistic view of a project from client brief to ultimate completion and maintenance i.e. role is to manage flow of activities through whole life cycle of project concentrating on activities that add value. What is data exchange? Types of data exchange. Software available. Expertise needed on site. Activities required.
- Ø Process improvement and an IT self-assessment tool. Levels of process maturity. Characteristics of each level. Case studies of process improvement. The self-assessment tool. Type of activities (gaining work, doing work, support work). Levels of IT used (from not used to integrated). The self-assessment framework applied to business areas etc. (marketing, tender preparation, procurement, etc.)



Learning Outcomes

An understanding of:

- Ø The link between the financial and the business strategy.
- Ø How financial ratios contribute to performance management.
- Ø How to treat the project as a business.
- Ø Basic finance; profit and loss, cash flow, budgets, cost planning, etc.
- Ø How projects may be financed in the future, PFI, etc.
- Ø The link between the commercial and the business strategy.
- Ø Modern contract strategy in its various forms (e.g. prime contracting, PFI, framework agreements).
- Ø Lessons learnt from recent experience with new contracts.
- Ø Dispute resolution.
- Ø Risk management in financial and contract terms. Impact of failure to assess risk. How behaviour needs changing to manage risk effectively.
- Ø How to control costs on site and how the Q.S. and the project manager should cooperate to reduce costs.
- Ø How to develop an IT/IS strategy plan and how this is integrated into the business strategy.
- Ø How to implement an IT/IS strategy, barriers to success. How to gain line management commitment.
- Ø What e-commerce in construction is.
- Ø What web-enabled project management consists of.
- Ø How IT/IS can assist process improvement.
- Ø How to do an IT self-assessment exercise.
- Ø Future directions of IT/IS development.
- Ø The elements of successful change management.

--oOo--