

# Unit 20: Critical Evaluation Management

Unit code:	D/504/4381
QCF level:	6
Credit value:	15

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## Aim

This unit enables learners to understand the significance of critical evaluation management for the identification and management of a variety of risks during contracting, procurement and construction phases. Learners will develop skills to manage risks and disputes in a project environment using recognised tools and techniques and evaluate the completed project.

## Unit abstract

Risk management is a methodology for identifying, analysing and managing the risks involved in any activity or process. It is a logical and systematic process for improving decision making.

This unit provides learners with a thorough understanding of the principles of risk management and the techniques used to assess and manage risks. Learners will evaluate the tools/techniques available to identify risks and approaches used to manage them. Learners will produce risk management plans for contracting, procurement and financial risks.

This unit will develop learners' understanding of dispute resolution procedures and techniques. Learners will understand how disputes are resolved through effective management and conciliation.

Learners will be able to evaluate the construction processes against the client's needs and project objectives. They will apply knowledge management techniques to ensure that lessons learned (including best practices) are available for future use.

## Learning outcomes

### On successful completion of this unit a learner will:

- 1 Understand the principles and techniques of risk management
- 2 Be able to critically appraise the contractual risks for a given project
- 3 Be able to contribute to resolving disputes
- 4 Be able to evaluate construction processes.

## Unit content

### 1 Understand the principles and techniques of risk management

*Risk management principles:* risk in construction projects (time, cost and quality); decision making; uncertainty and assumptions; systematic and structured

*Risk management approaches:* formal and informal approaches; types of risk, (human, environmental, design, construction and financial); risk identification; risk analysis, (probability, impact); risk allocation; processes (risk workshops; tools, e.g. Project Management Information Systems (PMIS), Risk Management Software (RMS))

*Risk management techniques:* qualitative and quantitative risk assessment; risk analysis (decision trees, Monte-Carlo technique, Delphi model)

### 2 Be able to critically appraise the contractual risks for a given project

*Contracting and procurement:* typical processes; known and unknown risks; risk allocation strategies; payment mechanisms; contingencies and allowances

*Financial risks:* types of finance; appraisal and validity; typical risks; design and build; Private Finance Initiative (PFI) projects

### 3 Be able to contribute to resolving disputes

*Dispute resolution procedures:* contractual; statutory; employment; legal; civil

*Dispute resolution techniques:* Alternative Dispute Resolution (ADR); Proportional Dispute Resolution; mediation; negotiation; conciliation; conflict management

### 4 Be able to evaluate construction processes

*Evaluation:* project brief (time, cost, quality); client needs; design processes; contracting and procurement; environmental performance; best practices; comparison to Key Performance Indicators (KPIs)

*Legislation and approved codes of practice:* current legislation relevant to the home country; UK legislation to include the Health and Safety at Work etc Act (1974), the Construction (Design and Management) Regulations (2007), approved codes of practice and guidance notes, the Management of Health and Safety at Work Regulations (1999)

*Quality considerations:* e.g. material and workmanship samples; testing of materials and workmanship (including sub-contract suppliers and manufacturers); supervision of own and sub-contracted labour

*Environmental considerations:* e.g. law, national, local and company policies, strategies for environmental protection during the construction process; environmental impact of construction e.g. materials manufacture, embodied energy, on-site construction, prefabrication

*Knowledge management:* processes (sharing and reuse); systems, e.g. intranet, decision-support systems, document management systems; approaches (Communities of Practice, training, mentoring)

## Learning outcomes and assessment criteria

<b>Learning outcomes</b> On successful completion of this unit a learner will:	<b>Assessment criteria for pass</b> The learner can:
LO1 Understand the principles and techniques of risk management	1.1 Critically evaluate risk management processes used in a specific project to manage financial risks 1.2 Analyse the techniques used to risk manage the procurement of a given project
LO2 Be able to critically appraise the contractual risks for a given project	2.1 Produce a risk management plan for the procurement of a specific project 2.2 Justify a financial risk management plan for a given project
LO3 Be able to contribute to resolving disputes	3.1 Justify the dispute resolution procedures used to settle a contractual dispute with a private client 3.2 Critically evaluate the dispute resolution technique used to resolve a contractual dispute design and build contract
LO4 Be able to evaluate construction processes	4.1 Evaluate the construction processes against client's needs for a given project 4.2 Evaluate a Health and Safety plan for a given project 4.3 Evaluate the use of environmental assessments for construction projects 4.4 Devise knowledge management techniques to disseminate project evaluation data for the given project

## Guidance

### Links to National Occupational Standards, other BTEC units, other BTEC qualifications and other relevant units and qualifications

The learning outcomes associated with this unit are closely linked with:

Level 4	Level 5	Level 6
Unit 1: Design Principles and Application for Construction and the Built Environment (D/601/1245)	Unit 4: Management Principles and Application for Construction and the Built Environment (T/601/1249)	Unit 1: Major Project (Y/503/7221)
Unit 7: Construction and Maintenance of Buildings (F/601/1254)	Unit 5: Group Project in the Construction Industry (K/601/1250)	Unit 7: Construction Management (H/504/4351)
Unit 9: Law and Contract for Construction and the Built Environment (R/601/1257)	Unit 8: Technology of Complex Buildings (J/601/1255)	Unit 8: Construction Financial Management (K/504/4352)
Unit 13: Environmental Impact of Construction (A/601/1270)	Unit 11: Contractual Procedures and Procurement for Construction and the Built Environment (T/601/1266)	Unit 10: Asset Management in Construction and the Built Environment (T/504/4354)
	Unit 14: Economics for Construction and the Built Environment (J/601/1272)	Unit 11: Commercial Management in the Construction Industry (A/504/4355)
	Unit 15: Production Management for Construction (L/601/1273)	
	Unit 61: Project Design, Implementation and Evaluation (L/601/0995)	
	Unit 62: Research Project (K/601/0941)	

### This unit has been informed by the following National Occupational Standards:

- CCOL4/O14 Evaluate and confirm work methods and programme in construction in construction
- BEDCL4/O20 Contribute to the resolution of disputes
- BEDCL4/O02.1 Evaluate complex issues and generate solutions.

**Essential requirements**

Learners should have access to project level data covering scope, original brief, procurement and financial arrangements, design and handover details. There should be adequate records of any disputes/conflicts that arose concerning the project.

**Delivery**

A considerable amount of time should be allocated for tutor input so that learners have a sound understanding of risk management principles, approaches and techniques. Centres may consider investing in industry standard software to manage information and risk. Considering the nature of the unit, the delivery should be supported with number of case studies and learners should produce risk management plans and carry out evaluations. Role play and inquiry-based learning for dispute resolution will enhance the learners' experience.

**Assessment**

The design of this unit allows a variety of assessment methods. It is recommended to use presentations and time-constrained activities where learners can demonstrate their understanding and skills in critical evaluation management.

## Resources

### Books and guides

British Standards Institution (BSI) – *An Introduction to Knowledge Management in Construction* (BSI, 2003) ISBN 978-0580333439

British Standards Institution (BSI) – *BS ISO 31000: Risk Management – Principles and Guidelines* (BSI, 2009) ISBN 978-0580675713

British Standards Institution (BSI) – *BS31100: Risk Management – Code of Practice and Guidance for the Implementation of BS ISO 31000* (BSI, 2011) ISBN 978-0580716072

Burtonshaw-Gunn S – *Risk and Financial Management in Construction* (Gower Publishing, 2009) ISBN 978-0566088971

Dallas M – *Value and Risk Management – A Guide to Best Practice* (Blackwell, 2006) ISBN 978-1405120692

Eastman C, Teicholz P, Sacks R and Liston K – *Bim Handbook: A Guide to Building Information Modeling for Owners, Managers, Designers, Engineers and Contractors*, 2nd edition (John Wiley and Sons, 2011) ISBN 978-1118021699

Flanagan R and Norman G – *Risk Management and Construction*, 2nd Edition (Wiley-Blackwell, 2007) ISBN 978-1405131490

Macfarlane J and Manwaring J – *Dispute Resolution: Readings and Case Studies*, 3rd edition (Emond Montgomery Publications, Limited, 2010) ISBN 978-1552393703

Smith D and Tardif M – *Building Information Modeling: A Strategic Implementation Guide for Architects, Engineers, Constructors, and Real Estate Asset Managers* (John Wiley and Sons, 2009) ISBN 9780470250037

Smith N, Merna T and Jobling P – *Managing Risk in Construction Projects*, 2nd edition (John Wiley and Sons, 2009) ISBN 978-1405172745

Wu D – *Modelling Risk Management in Sustainable Construction* (Springer, 2010) ISBN 978-3642152429

### Journals

<i>The Architects' Journal</i>	<a href="http://www.architectsjournal.co.uk">www.architectsjournal.co.uk</a>
<i>Architectural Engineering and Design Management</i>	<a href="http://www.ingentaconnect.com/content/earthscan/aedm">www.ingentaconnect.com/content/earthscan/aedm</a>
<i>Construction Management and Economics</i>	Taylor and Francis Group
<i>The Journal of Financial Management of Property and Construction</i>	Emerald