Imperial College London

Manual on Capital Investment Appraisal Model

Version 1
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Contents

Introduction

This Manual* provides guidance on the Capital Investment Appraisal Model, 'Appraisal Model', to be applied for projects made available to users to meet the diverse project needs. The Model is for all Imperial College building and refurbishment projects over **£1m.**

The purpose of the Appraisal Model is to assess the viability of a project and the value it generates. In the context of a business case, the primary objective of the investment appraisal is to place a value on benefits so that the costs are justified.

Using this Manual

There are three Excel template models to be used for the 'Appraisal Model':

i) Academic Projects
ii) Non-Academic Projects – Related Ventures
iii) Non-Academic Projects – Support Services.

Each Model has unique complexities relating generally to the different types of income and costs that result from the proposed investment (e.g. if it is renting space, what level of service various tenants require, if it is Academic, are the students home/overseas and undergraduate/ postgraduate which have very different implications for the likely fee income).

For advice or guidance on the Model, please contact the College's Head of Capital Investment and Appraisal or the College's Capital Accountant.

**Please note that the full Manual will be published in due course once the new structure of the Estates Projects team has been confirmed and the College Governance structure has been updated.*

Section 1: Key components of Capital Investment Appraisal Model

1.1 Capital Investment Appraisal Model

The Appraisal Model has been designed to evaluate the financial benefits of a single construction or refurbishment project.

The Excel Model template is structured across several tabs as follows:

1. **Project Dashboard –** Highlights key outputs of the investment modelled scenario against sensitivities applied

2. **Model Assumptions/Salary Costs –** Variables which are applied to inputs tab

3. **Inputs –** This is where all estimates relating to expected costs and associated income should be entered.

4. **Investment Appraisal –** Calculates ratios used for determining the financial viability of the project.

5. **Income and Expenditure Summary –** Brings the estimates entered in the inputs tab together into an Income and Expenditure for the new project with the cash flow NPV.

6. **Notes –** Any additional information or calculations

There are three Excel template models, one for Academic projects which allows for the unique complexities involved with assessing an Academic project and two templates for non-Academic projects - Related Ventures and Support Services. The unique complexities relate generally to the different types of income and costs that result from the proposed investment (e.g. if it is renting space, what level of service various tenants require, if it is Academic, are the students home/overseas and undergraduate/ postgraduate which have very different implications for the likely fee income).

The Models forecast a summary of relevant marginal costs (excluding depreciation) and use the following capital appraisal measures such as NPV and IRR.

The fixed rates implemented in the Model which have been set by the Capital Investment Appraisal team are:

- Discount rate
- General Inflation rate
- Estates Facilities costs
- Staff costs
- Attributed costs

These rates are not flexible due to the complex nature. Inputs which can be adjusted by the user have been specifically clarified in the Model. These are the estimates relating to expected costs and associated income. *See Section 1.6 Inputs.*

Please enter all amounts to £'000s, income as negative and expenses as positive into the Model.

1.2 Users of the Model

The Model is only available to the Super Users who will be trained to use the Model.

For the **Academic** projects:
Super Users are the Faculty Finance Officer's (FFOs) or Deputy FFOs from the departments who are responsible for completing the Investment Appraisal.

For the **non-Academic** projects:
Related Ventures = a member from the Corporate Financial Controller's team
Support Services = a member from the Support Services Finance team

Users should use the Inputs tab for populating specific income and costs e.g. student numbers and mix. However if the Super User has a preference to use their own detailed workings there is "free" space available at the end of this tab to do so. The only fixed requirement is that all of the correct fields are populated on the summary income & expenditure statement and for key workings to be available to the Capital Investment Appraisal team for review.

1.3 Assumptions

The fundamental assumptions governing the calculations and those used to arrive at estimated income and expenditure figures are clearly stated in the appraisal.

For example, assumptions such as the Discount rate and Inflation rates are set by the Capital Finance and Appraisal team. The Model can produce NPV's over a 60 year duration. This is to take into account the fact that the year of construction which cannot begin from more than two years than the current year, with the longest construction period of three years. Within the period prior to the construction period, this will include the design and professional fees.

1.4 Sensitivity Analysis

Sensitivity analysis is a technique to identify key variables and risks which help to reflect the 'Base case', 'Sensitivity 1 case' and 'Sensitivity 2 case' scenarios. It involves repeating the appraisal calculation with the value of the cost or benefit set at the upper or lower end of the range of likely estimates, and possibly at some intermediate values to explore the Model potential.

The Model includes the ability to run up to 3 different sensitivities for Base case, Sensitivity 1 case and Sensitivity 2 case.

For Academic projects the following items can be 'flexed' in these sensitivities:

- Inflation expenditure e.g. staff costs
- Student fee income inflation
- Research/Overhead costs
- Construction costs i.e. high or low cost option

For non-Academic projects the following items can be 'flexed' in these sensitivities:

- Total Income
- Total Expenditure
- Construction costs i.e. high or low cost option

Sensitivity analysis provides an indication of why a project may not be viable. The Finance Personnel should review critical variables to assess whether or not there is a strong possibility of events occurring which will lead to a negative NPV.

1.5 Scenario

To run different scenarios it is necessary to save different versions of the model to capture the relevant information.

Please ensure that the formatting of the different version of the model is not altered in order to be able to carry out comparable auditing assessments.

The following items can be changed to create a different Scenario:

- Different student intake each year
- Different numbers of Staff
- Different recovery rate for Research
- Different building size or area for refurbishment (this will also dictate a change in construction cost)

1.6 Minimum Inputs

Academic model:

- *Year for the start of construction*
- *Construction costs*
- *Tuition fee rates*
- *Student mix*
- *Student numbers*
- *Research and Teaching staff numbers*
- *Other income*
- *Estates Facilities costs (South Kensington Campus)*
- *Attributable costs (excluding Estates Facilities costs)*
- *External Funding*
- *KPIs*

Non- Academic model:

For related ventures:

- *Details of rental rates charged*
- *Rental income*
- *Assumption of Occupancy levels*
- *Opportunity costs for the assets*
- *Ongoing maintenance costs e.g. where the facilities management costs include lease charges.*
- *Service charge costs*
- *Gross development value – the market value of the completed proposed development when sold. The GDV represents the estimated gross income before deducting the development expenditure.*
- *Residual land value – this is the process of valuing the land with development potential.*
- *Rental Yield – this is the rate of income return over the cost associated with the investment property based on the market value of the property.*
- *Loan to value - the ratio of a loan to the value of the property.*
- *Lease agreement terms.*

For other capital projects:

- *Details of the sales mix/ sales volume*
- *Membership/ Accommodation income*
- *Sales price*
- *Refurbishment costs*
- *Room & equipment Hire income*
- *Lease costs*
- *Staff costs*

1.7 Fixed rates in the Model

The following rates have been set by the Capital Finance and Appraisal team and are fixed in the Model:

- Discount Rate
- Inflation rates for **Standard cost inflation** and **Tender price inflation** **(Student Fee inflation can be amended by Super Users)**
- Facilities Management costs.

1.8 Funding

The sources of funding options available for **Academic** projects are:

- College Tuition Fees
- College/ Departmental Funding
- Donations
- HEFCE Funding
- Research Funding

The Model can calculate debt funding repayments, although the current Imperial College policy is that Academic projects will be funded by the College without the need for debt.

1.9 Discount Rate

The discount rate is fixed, set by the Capital Finance and Appraisal team and will be reviewed annually. The rate used as the discount rate is determined by using the College's current cost of capital (WACC) in addition to the risk factor. This includes both the finance lease for Griffon Studios and unsecured debt.

Academic projects discount rate

The current discount rate for Academic projects is currently set at the current College cost of capital which is **3%**.

Non-Academic projects discount rate

The discount rate for non-Academic projects is currently set at RPI+ **4%**. This is higher in comparison to the Academic projects due to the fact this is not core College activity and this level of return can be generated from the Unitised Scheme. The College's Financial Planning and Analysis team is responsible for providing an RPI forecast and this is hard-coded within the model (currently assumed to be 2.5%).

1.10 Inflation

The Essential inflation rates per the 'Inflation Index' are fixed:

- The Cost Inflation rate has been set at 2.5% and calculated for each year from the start of the project.
- The Tender Price Inflation rate for future Major Refurbishments has been set at 5%

Specific Academic inflation rates:

The Super user has flexibility in the following rates as long as it is consistent throughout the Model:

- The Teaching Income Inflation rate has been set at 3%.
- The Research Income Inflation rate has been set at 0%
- The Pay Inflation rate has been set at 2.5%.

1.11 Attributable costs

Non- Estates Facilities Central College costs include costs such as IT, HR and Registry costs. It is proposed to not use the weighting for different types of space in the Model for such costs.

The Support Services Finance Team will assist the Capital Finance and Appraisal Team to estimate the incremental effect of these costs on a case by case basis so that these costs can be added to the specific Investment Appraisals.

Space weightings are used in the attributable costs calculation for only Estates Facilities related costs as discussed below.

1.12 Estates Facilities costs

Estates Facilities (EF) costs include costs such as cleaning, utilities, security, maintenance, rates and postal etc.

The EF costs will be allocated by the type of incremental space being occupied and at a rate applicable to that space for Low, Medium and High costs. The Super Users will need to populate the table below in the input page which will allocate the total space between the different levels of EF costs.

High incremental space such as the Animal Medical & Research Facility will utilise more estates facility costs as it has a high security facility costs in order to be compliant with Home Office regulations in comparison to an ordinary lab facility.

In the Model there is a formula to calculate the different levels of EF costs. These are set by the Capital Finance and Appraisal team in conjunction with data from the Estates Facilities Director and guidance from the RICS Building Cost Information Service. The data will collate appropriate space types and costs for the location factor representing the London Borough of Kensington and Chelsea.

Input required by Super Users = split of incremental space by Low, Normal or High in the main input tab

Incremental Space	Apportionment of total space %	Example of Space Type
High	X%	Animal Medical & Research Facility
Normal	X%	Lab Facility
Low	X%	Office space/Lecture rooms
Total	**100%**	

1.13 Marginal costs

The Model calculates future incremental cash flows i.e. removing the inflated Business As Usual (BAU) values.

1.13.1 Calculation of incremental cash flows for New Buildings

If existing activity is being displaced and moved into a new building e.g. Chemistry Research Department moving out of the Chemistry Building at South Kensington and into a new Molecular Sciences Building at White City, the information required will be future cash flows for assuming the existing activity remains and then future cash flows for the new activity. The net income and expenditure statement for the 2 sets of data will then be input into the Model in order that the Investment Appraisal is only run on incremental cash flows.

1.13.2 Calculation of incremental cash flows for refurbishment

The information required will be the existing activity being refurbished, the information required will be the new costs to be inputted into the Model.

1.14 Staff salary costs

The College salary scales have been used with the average rates across the bands automatically calculated. The NIC and pension rate are revised by Central Finance each year and will be updated accordingly to the Model.

1.15 Service Teaching

Service teaching occurs where a course or a module is taught by a discipline area other than the area that is responsible for the degree. Service teaching can occur among Schools or Departments.

In the Model, the Service teaching includes the teaching split between Home and overseas students for Undergraduate, Postgraduate, Research and PhD students. 'Service Teaching Out' indicates it is for department only. Service Teaching In has been excluded from the Model as this is not in the control of the departments and it is dependent on the other department course structures. The Service Teaching Out has been set to zero in the Model and is amendable if applicable to the specific project.

1.16 KPIs

Key Performance Indicators (KPIs) are measurable values that demonstrate how effectively the College is achieving key business objectives. KPIs are used to evaluate the success at reaching targets.

For the Investment Appraisal Model, the Super Users are to analyse the inputs in the Model and derive specific KPIs relating to their department.

For Academic projects the following KPIs can be assessed:

- Contribution before attributed costs per Academic FTE/Staff FTE/Per Unit Space
- Taught Student FTE to academic FTE ratio
- Student FTE to academic FTE ratio
- PhD student FTE to academic FTE ratio
- Bursaries and fees remitted to Postgraduate FTE ratio
- Research to Academic ratio

The Super Users should compare the derived KPIs in the Model to their current metrics within their department and assess if the derived KPI is reasonable and in line with expectations.

For Related Venture projects, the following KPIs could be relevant:

- Rental Yield

1.17 Risk Assessment

The Model includes a Risk Assessment Matrix which analyses the risks impact against the likelihood of the risk occurring. Examples of risks could include the likelihood of a Virus outbreak in the labs or that the Building construction is delayed.

Super Users can input their risk assessment, the impact and likelihood of the risk occurring with the options of ‘High, Medium or Low’.