

Software Project Management

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Fifth Edition

Project Evaluation and Programme Management

Chapter Two

Main Topics to Be Covered

- The business case for a project
- Project portfolios {
 - Aspectos clave de la gestión de cartera
 - definición de cartera (proyectos que incluyen)
 - gestión de cartera
 - optimización de cartera
- Project evaluation {
 - individual projects
 - Cost benefit analysis {
 - especificaciones técnicas...
 - generan costes...
 - Cash flow forecasting
- Programme management {
 - como calcular beneficio... diferentes formas...
 - como se coordinan varios proyectos...
- Benefits management {
 - los proyectos coordinados tienen mejor comportamiento...
 - Puedes pasar de este punto.

The Business Case

Antes de hacer cualquier proyecto, ¿tendría éxito?

- **Feasibility studies** can also act as a 'business case'
justificación para empezar el proyecto...
- Provides a justification for starting the project
Buenos beneficios... superan a los de desarrollo?
- Should show that the benefits of the project will exceed development, implementation and operational costs
- Needs to take account of business risks
Tener en cuenta los riesgos del negocio.

Contents of a Business Case

1. Introduction/ background
2. The proposed project
3. The market
4. Organizational and operational infrastructure *que usamos para construirlo.*
5. The benefits *beneficios.*
6. Outline implementation plan *como vamos a conseguirlo.*
7. Costs *Costes*
8. The financial case *financiación*
9. Risks *Riesgos*
10. Management plan

Content of the Business Case

- **Introduction/background**

Describes a problem to be solved or an opportunity to be exploited

- **The proposed project** *Proposito del proyecto.*

A brief outline of the project scope

- **The market**

The project could be to develop a *new product* or a *new service capability*. The likely demand for the product or service would need to be assessed

Content of the Business Case - (ii)

- **Organizational and operational infrastructure**

How the organization would need to change. This would be important where a new information system application was being introduced

- **Benefits**

These should be express in financial terms where possible. In the end it is up to the client to assess these – as they are going to pay for the project

Content of the Business Case - (iii)

Como vamos a conseguirlo...

- **Outline implementation plan**

How the project is going to be implemented. Which activities can be outsourced, which are best kept in-house. Key decision points, or *Milestones*, where check on the state of implementation

- **Costs**

The implementation plan will supply information to establish these. A schedule of expected costs

Content of the Business Case - (iv)

- **Financial case**

Combines costs and benefit data to establish value of project

- **Risk**

Distinguish between *project risk* - threats to successful project execution - from *business risk* - factors threatening the benefits of the delivered project. In business case the main focus is on business risk

Project Portfolio Management

varios proyectos ✓

Asigna las responsabilidades a los integrantes del proyecto... hay un gestor global que determina esto...

- The concerns of project portfolio management include:
 - Evaluating proposals for projects
 - Assessing the risk involved with projects *evaluación de riesgos...*
 - Deciding how to share resources between projects
 - *No hagas esto p.ej. ya esta por ejemplo... otro proyecto ya lo hizo.* Taking account of dependencies between projects
 - Removing duplication between projects
 - Checking for gaps

Project Portfolio Management - (ii)

There are three elements to PPM:

- **Project portfolio definition**
 - Create a central record of all projects within an organization
 - Must decide whether to have **ALL** projects in the repository or, say, only ICT projects
 - Note difference between new product development (NPD) projects and renewal projects e.g. for process improvement

→ Proyectos que contiene un producto que se lanza, o proyectos internos para mejorar el rendimiento como una nueva oficina

Project Portfolio Management - (iii)

- **Project portfolio management**

Actual costing and performance of projects can be recorded and assessed

- **Project portfolio optimization**

Information gathered above can be used achieve better balance of projects e.g. some that are risky but potentially very valuable balanced by less risky but less valuable projects

You may want to allow some work to be done outside the portfolio e.g. quick fixes

Vamos a evaluar si un proyecto da beneficios o no.

Evaluation of Individual Projects

- Technical assessment → evaluar si la funcionalidad requerida se puede lograr con las tecnologías actuales que elaborem e desembocan (las tecnologías) en coste-beneficio
- Cost-benefit analysis
Coste beneficio
- Cash flow forecasting
flujo caja

Technical Assessment

*Podemos hacerlo con
las tecnologías requeridas?*

- *la dominamos?*
- *El coste de
dominante ...
merece la pena?*
- Evaluating whether the required functionality can be achieved with current affordable technologies.
- The cost of the technology adopted must be taken into account in the cost-benefit analysis

Costs-Benefit Analysis

Coste - benefício.

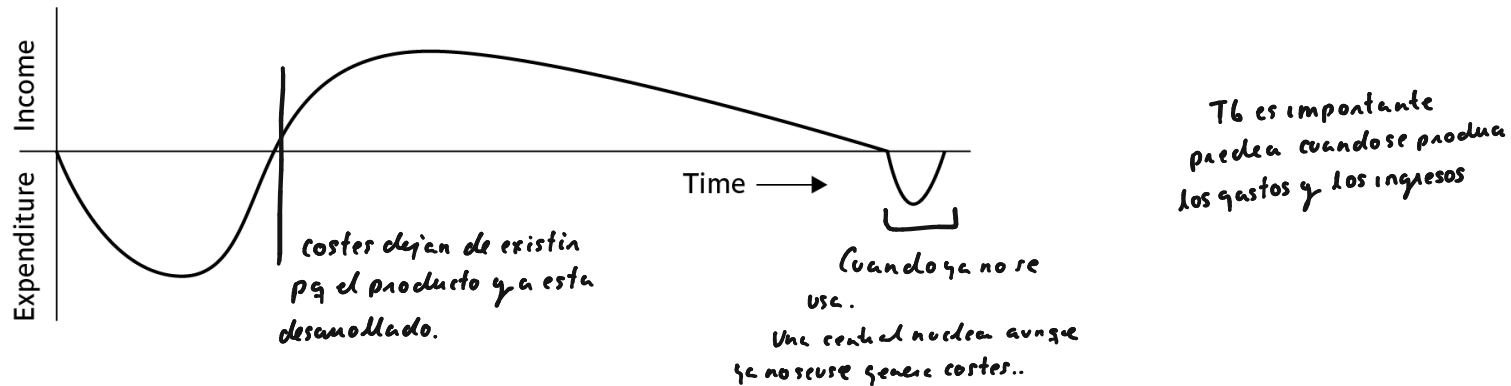
- Identify all the costs which could be:
 - Development costs
 - Set-up
 - Operational costs
- Identify the value of benefits
- Express costs and benefits in common units - money
- Check benefits are greater than costs

Exercise 2.1

Brightmouth College is considering the replacement of the existing payroll service by a third party, with a tailored, off-the-shell computer-based system.

- List some of the costs it might consider:
 - Development costs
 - Setup costs
 - Operational costs
- List some of the benefits:
 - Quantified and valued benefits
 - Quantified but not valued
 - Identified but not easily valued

Product/System Life Cycle Cash Flows



- The timing of costs and income for a product or system needs to be estimated
- The development of the project will incur costs
- When the system or product is released it will generate income that gradually pays off costs
- Some costs may relate to decommissioning – think of demolishing a nuclear power station

evalúan Coste - beneficio.

Cost-Benefit Evaluation Techniques

- Net profit *ganamos dinero en ese periodo.*

- Payback period *Cuando empiezo a ganar dinero...*

*No tiene en cuenta el cómputo de dinero total,
es decir, "el qué" como negar aquella que
amontice antes, sin tener en cuenta que otra
puede amortizar después y generar
más beneficios*

- Return of investment *Cuanto he ganado por el tiempo que espero...
Cuanto me retorna.*

- Net present value *Cual es la rentabilidad que obtengo.*

- Internal rate return *¿?*

interés de meter 100 ahora y sacar 110 en un año / tiene en cuenta el flujo de caja

Rendimiento / y las tasas de interés

Si te cobran un 10% de comisión, solo rentame todo en algo que te de un punto de cubrimiento el gasto del 10%, beneficio

*Compara la rentabilidad neta con la inversión requerida / no tiene en cuenta los flujos de efectivo
inyecciones de dinero en diferentes periodos etc*

Net Profit

benefício neto.

Is the difference between the total costs and the total income over the live of the project

Year	Cash-flow	Year	Cash-flow
0	- 100,000	3	10,000
1	10,000	4	20,000
2	10,000	5	100,000
		Net profit	50,000

*investimos 100K
→ y ganamos 10K*

Net Profit

- '*Year 0*' represents all the costs before system is operation
- '*Cash-flow*' is value of income less outgoing
- **Net profit** value of all the cash-flows for the lifetime of the application

Four Project Cash Flow Projections (end of year totals in £) - Table 2.1

Year	Project 1	Project 2	Project 3	Project 4
0	- 100K	-1,000K	-100K	-120K
1	10K	200K	30K	30K
2	10K	200K	30K	30K
3	10K	200K	30K	30K
4	20K	200K	30K	30K
5	100K	300K	30K	75K
Net Profit	50K	100K	50K	75K

Pay Back Period

aquí empiezo a ganar ya dinero.

This is the time it takes to start generating a surplus of income over outgoings. What would it be below?

Year	Cash-flow	Accumulated
0	- 100,000	- 100,000
1	10,000	- 90,000
2	10,000	- 80,000
3	10,000	- 70,000
4	20,000	- 50,000
5	100.000	50.000

Pay Back Period

- Last year in which the accumulated cash flow was negative + (absolute accumulated cash flow at the end of that year / cash-flow for the next year)

In the previous example:

$$4 + \frac{|-50,000|}{100,000} = 4.5 \text{ years}$$

Periodo donde hay un equilibrio entre coste-beneficio.

Exercise 2.3

Consider the four projects cash flow given and calculate the payback period for each of them

Return On Investment (ROI)

- Provides a way of comparing the net profitability to the investment required

$$ROI = \frac{\text{Average annual profit}}{\text{Total investment}} \times 100$$

beneficio medio anual?

Retorno de la inversión.

In the previous example

- $\text{Average annual profit} = 50,000/5 = 10,000$
- $ROI = 10,000/100,000 \times 100 = 10\%$

Exercise 2.4

Consider the four projects cash flow given and calculate the return on investment for each of them

Net Present Value

Would you rather I gave you £100 today or in 12 months time?

- If I gave you £100 now you *could* put it in savings account and get interest on it.
- If the interest rate was 10% how much would I have to invest now to get £100 in a year's time?
- This figure is the **net present value** of £100 in one year's time

Discount Factor

- Discount factor = $1 / (1 + r)^t$
 - r the interest rate (e.g. 10% is 0.10)
 - t is the number of years
- In the case of 10% rate and one year
Discount factor = $1 / (1 + 0.10) = 0.9091$
- In the case of 10% rate and two years
Discount factor = $1 / (1 + 0.10)^2 = 0.8294$

Applying Discount Factors

Year	Cash-flow	Discount Factor	Discounted cash-flow
0	-100,000	1.0000	-100,000
1	10,000	0.9091	9,091
2	10,000	0.8264	8,264
3	10,000	0.7513	7,513
4	20,000	0.6830	13,660
5	100,000	0.6209	62,090
		NPV	618

Internal Rate of Return

- Internal rate of return (IRR) is the discount rate that would produce an NPV of 0 for the project
- Can be used to compare different investment opportunities
- There is a Microsoft Excel function which can be used to calculate

*No es lo mismo en un
mercado maduro... que
emergente.
hace una evolución de riesgos...*

Dealing with Uncertainty: Risk Evaluation

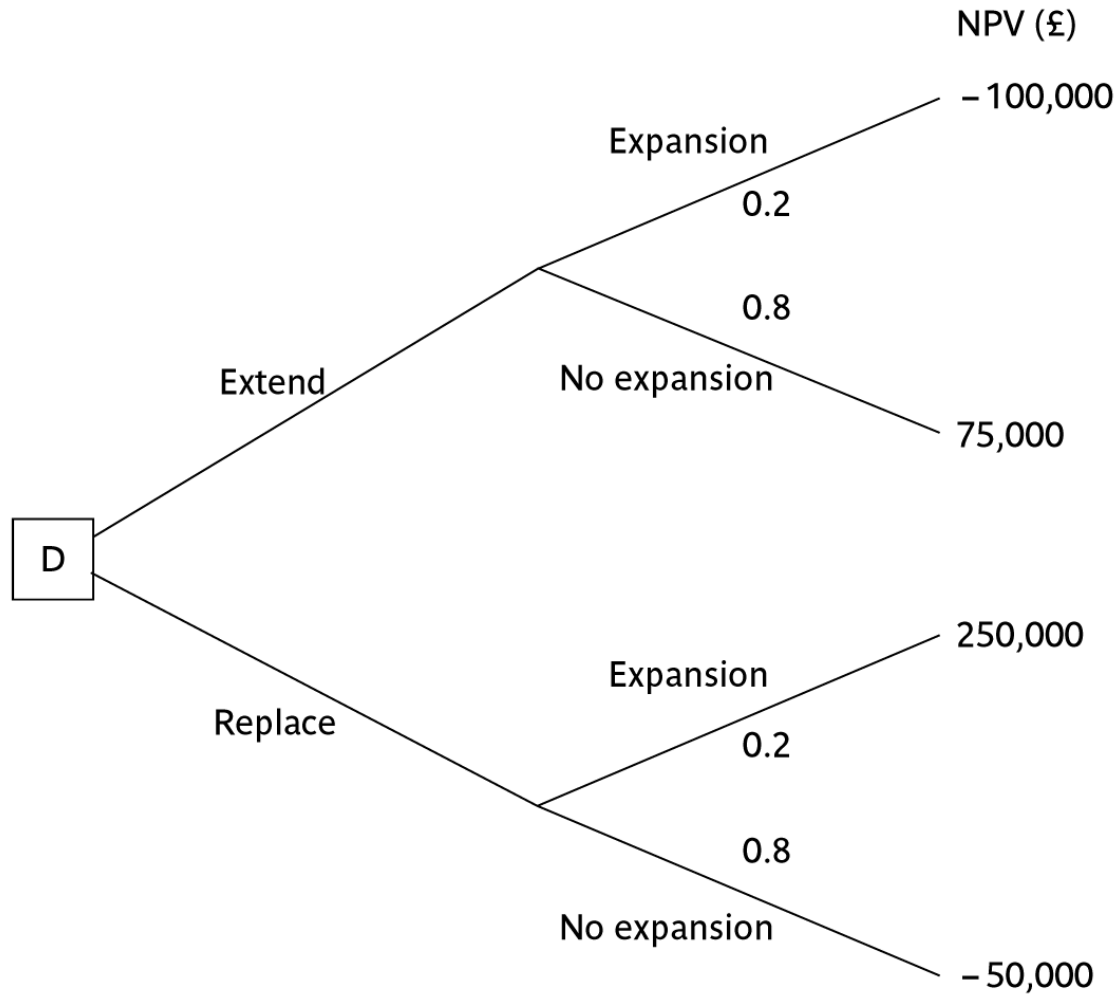
- Project A might appear to give a better return than B but could be riskier
- Could draw up draw a project risk matrix for each project to assess risks – see next overhead
- For riskier projects could use higher discount rates

Example of a project risk matrix

Cómo se evalúan los riesgos.

Risk	Importance	Likelihood
Client rejects proposed look and feel of site	H	-
Competitors undercut prices	H	M
Warehouse unable to deal with increased demand	M	L
Online payment has security problems	M	M
Maintenance costs higher than estimated	L	L

Decision trees



*Portfolio: Conjunto de proyectos
que tiene una organización.*

Si los preguntas entre ellos...

Programme Management

programa como "un grupo de proyectos que se gestionan de forma coordinada para obtener beneficios que no serían posibles si los proyectos se gestionaran de forma independiente".


One definition ¹

A group of projects that are managed in a coordinated way to gain benefits that would not be possible were the projects to be managed independently

¹ Ferns. International Journal of Project Management. August 1991

Cómo se distribuyen los proyectos.
—
Cómo cooperan entre sí.

Programmes May Be

- Strategic *Estatégicos*  *que van en una línea... Varios proyectos pueden implementar una sola estrategia.*

- Business cycle programmes 

- Infrastructure programmes 

- Research and development programmes

- Innovative partnerships

↓
empresas se unen...
para trabajar en coordinación con
nuevas tecnologías.

de una misma app, cada uno se ocupa de una cosa...

Cada actividad podría tratarse como un proyecto distinto. pero se coordinarían como un programa.

que proyectos entran dentro del presupuesto. dentro de su ciclo de proyectos.

Circunstancia donde no están relacionados los proyectos pero necesitan

información común para coordinarlos. Varios departamentos.

innovación... tasa de riesgo/facundo del proyecto.

beneficio alto → Riesgo alto.

investigación.

innovación.

Programme Managers vs Project Managers

general - específico.

gestión de programa y gestión proyecto ↗ *busca beneficios propios y comunes.*

Programme manager

- Many simultaneous projects
- Personal relationship with skilled resources
- Optimization of resource use
- Projects tend to be seen as similar

Project manager

- One project at a time
- Impersonal relationship with resources
- Minimization of demand for resources
- Projects tend to be seen as unique

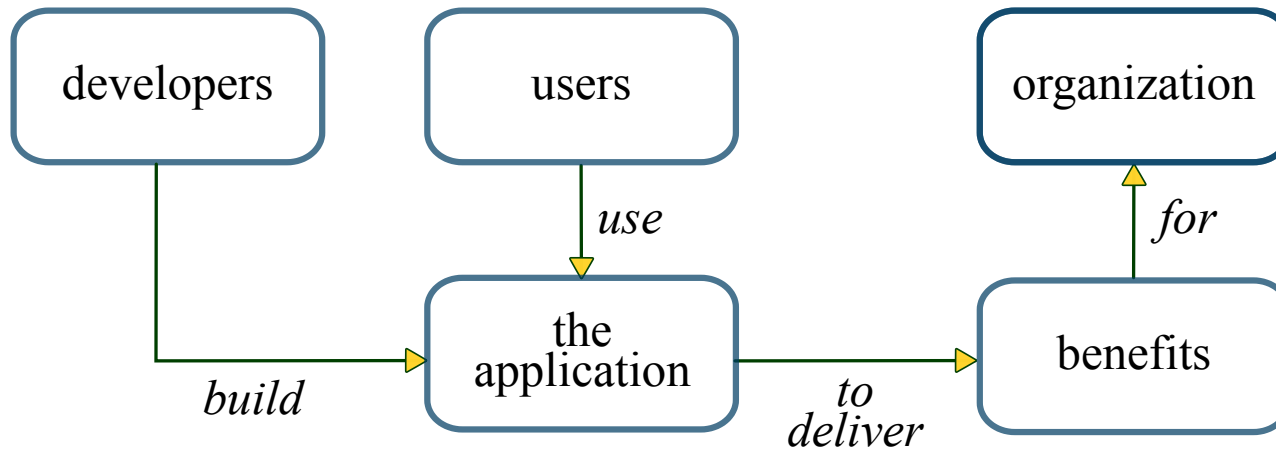
Strategic Programmes

- Based on OGC approach
- Initial planning document is the **programme mandate** describing
 - The new services/capabilities that the programme should deliver
 - How an organization will be improved
 - Fit with existing organizational goals
- A **programme director** appointed a champion for the scheme

Next Stages/Documents

- **The programme brief** – equivalent of a feasibility study: emphasis on costs and benefits
- **The vision statement** – explains the new capability that the organization will have
- **The blueprint** – explains the changes to be made to obtain the new capability

Benefits Management



- Providing an organization with a capability does not guarantee that this will provide benefits envisaged – need for *benefits management*
- This has to be outside the project – project will have been completed
- Therefore done at *programme level*

Benefits Management (ii)

To carry this out, you must:

- Define expected benefits
- Analyse balance between costs and benefits
- Plan how benefits will be achieved
- Allocate responsibilities for their achievement
- Monitor achievement of benefits

Benefits

These might include:

- Mandatory requirement
- Improved quality of service
- Increased productivity
- More motivated workforce
- Internal management benefits

Benefits - (ii)

- Risk reduction
- Economies
- Revenue enhancement/acceleration
- Strategic fit

Quantifying Benefits

Benefits can be:

- Quantified and valued e.g. a reduction of x staff saving £ y
- Quantified but not valued e.g. a decrease in customer complaints by x %
- Identified but not easily quantified – e.g. public approval for a organization in the locality where it is based

Remember!

- A project may fail not through poor management but because it should never have been started
- A project may make a profit, but it may be possible to do something else that makes even more profit
- A real problem is that it is often not possible to express benefits in accurate financial terms
- Projects with the highest potential returns are often the most risky