Grade 12 A/L ICT · Lesson 7

7.5 Preliminary Investigation and Feasibility Study

Syllabus 7.5. Before building a new system, analysts do a **preliminary investigation**: identify problems in the current system, suggest alternative solutions and prioritise needs. A **feasibility study** then checks **technical, economic, operational and organisational** feasibility, often with a **cost–benefit** and **payback** calculation.

1. Preliminary investigation

- Identify problems: slow service, errors, duplicated data, lost files.
- Suggest alternative solutions: improve manual process, buy a package, build a new system.
- Prioritise needs: urgent and high-benefit problems first.

2. Four types of feasibility

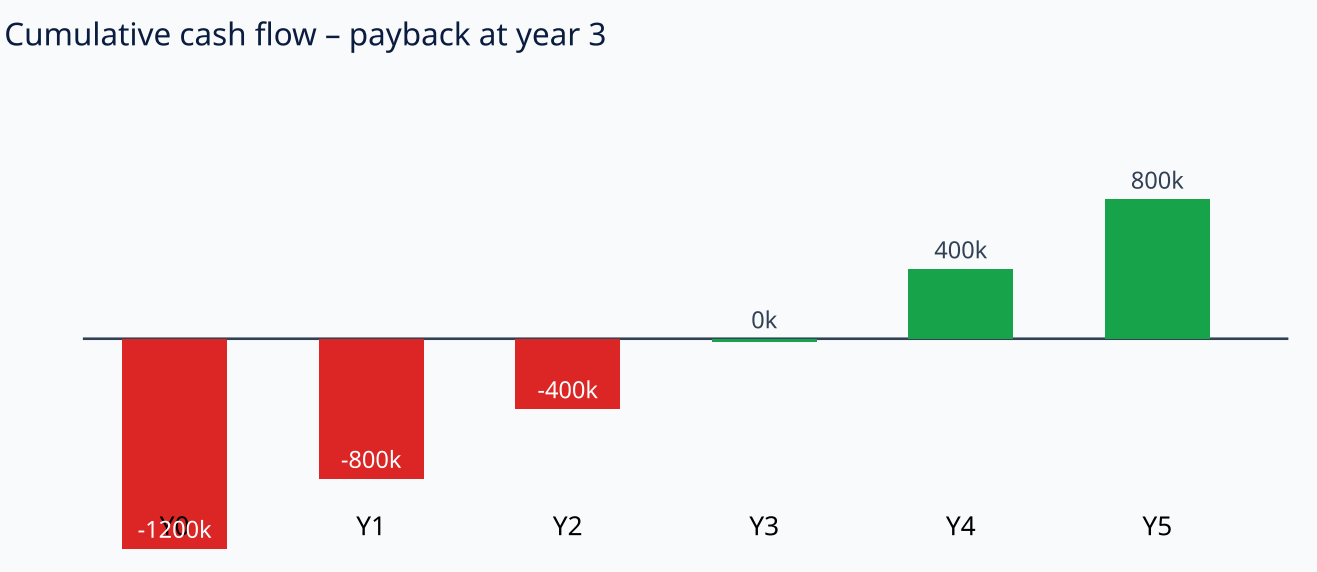
Technical
Do we have (or can we get) the hardware, software and skills?

Economic
Do benefits outweigh costs? (cost–benefit, payback)

Operational
Will users accept and use it in daily work?

Organisational
Does it fit the goals, structure and policies of the organisation?

3. Cost–benefit and payback



Cumulative cash flow

Year	Cumulative cash

© 2026 schoolict.net (Ruwan Mangala Suraweera) · All rights reserved

Year 0	Rs. −1,200,000
Year 1	Rs. −800,000
Year 2	Rs. −400,000
Year 3	Rs. 0
Year 4	Rs. 400,000
Year 5	Rs. 800,000

🧱 **Worked example: A system costs Rs. 1,200,000 to build. It saves Rs. 500,000 a year and costs Rs. 100,000 a year to run. Find the payback period and the 5-year ROI.**
Net benefit = Rs. 500,000 − Rs. 100,000 = **Rs. 400,000 per year**. Payback = Rs. 1,200,000 ÷ Rs. 400,000 = **3 years**. 5-year net gain = 5 × Rs. 400,000 − Rs. 1,200,000 = Rs. 800,000, so ROI = Rs. 800,000 ÷ Rs. 1,200,000 × 100 = **66.67%**.

💡 Shorter payback = less risk. Always use net yearly benefit (benefit minus running cost).

🚀 **Beyond the syllabus (2026 update)** *Not required for the exam – read for interest.* Cloud subscriptions in 2026 turn large one-time costs into monthly costs, which changes payback sums.

Key Words

Preliminary investigation – First study of problems and possible solutions.

Feasibility study – Study of whether a project is practical and worthwhile.

Technical feasibility – Availability of technology and skills.

Economic feasibility – Whether benefits exceed costs.

Operational feasibility – Whether users will accept and use the system.

Organisational feasibility – Fit with organisation goals and policies.

Cost–benefit analysis – Comparing total costs with total benefits.

Payback period – Time for net benefits to repay the cost.

Return on investment – Net gain as a percentage of cost.

Tangible benefit – Benefit measured in money.

Intangible benefit – Benefit hard to measure, e.g. customer goodwill.

Alternative solution – Another possible way to solve the problem.

© 2026 schoolict.net (Ruwan Mangala Suraweera) · All rights reserved

Sample Q&A

1. Tasks in preliminary investigation?

> **Answer:** Identify problems, suggest alternatives, prioritise needs.

2. Why do a feasibility study?

> **Answer:** To avoid wasting money on a project that cannot succeed.

3. Define economic feasibility.

> **Answer:** Checking that benefits outweigh costs.

4. What is operational feasibility?

> **Answer:** Whether staff will accept and use the new system.

5. Calculate payback for the example.

> **Answer:** Rs. 1,200,000 ÷ Rs. 400,000 = 3 years.

6. Give an intangible benefit.

> **Answer:** Better customer satisfaction or staff morale.

MCQ

1. Checking if staff will accept a new system is

A. operational feasibility
B. black box testing
C. technical feasibility
D. direct deployment
E. economic feasibility

2. Comparing costs with benefits is

A. economic feasibility
B. technical feasibility
C. operational feasibility
D. data migration
E. unit testing

© 2026 schoolict.net (Ruwan Mangala Suraweera) · All rights reserved

3. Having the right hardware and skills is

A. gap analysis
B. technical feasibility
C. organisational feasibility
D. economic feasibility
E. pilot deployment

4. Cost Rs. 1,200,000, net benefit Rs. 400,000 a year: payback is

A. 2 years
B. 2.4 years
C. 6 years
D. 4 years
E. 3 years

5. 5-year ROI in the worked example is about

A. 41.67%
B. 66.67%
C. 100.00%
D. 150.00%
E. 33.33%

6. Fit with company goals and policies is

A. organisational feasibility
B. phased deployment
C. technical feasibility
D. black box
E. system testing

7. Customer goodwill is a

A. payback period
B. intangible benefit
C. tangible cost
D. hardware cost
E. running cost

8. The FIRST task of a preliminary investigation is to

A. migrate data
B. train all users
C. identify problems in the current system
D. write program code
E. deploy in parallel

© 2026 schoolict.net (Ruwan Mangala Suraweera) · All rights reserved

9. Which term means: “First study of problems and possible solutions”?

A. Intangible benefit
B. Organisational feasibility
C. Payback period
D. Preliminary investigation
E. Technical feasibility

10. Which term means: “Study of whether a project is practical and worthwhile”?

A. Alternative solution
B. Cost–benefit analysis
C. Feasibility study
D. Economic feasibility
E. Return on investment

11. Which term means: “Availability of technology and skills”?

A. Preliminary investigation
B. Operational feasibility
C. Tangible benefit
D. Technical feasibility
E. Payback period

12. Which term means: “Whether benefits exceed costs”?

A. Intangible benefit
B. Economic feasibility
C. Return on investment
D. Feasibility study
E. Organisational feasibility

13. Which term means: “Whether users will accept and use the system”?

A. Tangible benefit
B. Technical feasibility
C. Alternative solution
D. Operational feasibility
E. Cost–benefit analysis

14. Which term means: “Fit with organisation goals and policies”?

A. Economic feasibility
B. Preliminary investigation
C. Payback period
D. Intangible benefit
E. Organisational feasibility

© 2026 schoolict.net (Ruwan Mangala Suraweera) · All rights reserved

15. Which term means: “Comparing total costs with total benefits”?

A. Feasibility study
B. Operational feasibility
C. Cost–benefit analysis
D. Return on investment
E. Alternative solution

16. Which term means: “Time for net benefits to repay the cost”?

A. Technical feasibility
B. Preliminary investigation
C. Payback period
D. Organisational feasibility
E. Tangible benefit

17. Which term means: “Net gain as a percentage of cost”?

A. Economic feasibility
B. Cost–benefit analysis
C. Intangible benefit
D. Feasibility study
E. Return on investment

18. Which term means: “Benefit measured in money”?

A. Tangible benefit
B. Operational feasibility
C. Alternative solution
D. Technical feasibility
E. Payback period

19. Which term means: “Benefit hard to measure, e.g. customer goodwill”?

A. Return on investment
B. Preliminary investigation
C. Organisational feasibility
D. Economic feasibility
E. Intangible benefit

20. Which term means: “Another possible way to solve the problem”?

A. Cost–benefit analysis
B. Feasibility study
C. Tangible benefit
D. Alternative solution
E. Operational feasibility

© 2026 schoolict.net (Ruwan Mangala Suraweera) · All rights reserved

Structured Questions

1. Describe the three tasks of a preliminary investigation. *(3 marks)*

> Identify problems; suggest alternative solutions; prioritise information needs.

2. Explain technical and operational feasibility. *(2 marks)*

> Technical: hardware, software, skills available; operational: users accept and use it.

3. Explain economic and organisational feasibility. *(2 marks)*

> Economic: benefits exceed costs; organisational: fits goals, structure, policy.

4. Calculate payback and 5-year ROI for the example. *(3 marks)*

> Net Rs. 400,000/yr; payback 3 years; ROI 66.67%.

5. Distinguish tangible and intangible benefits. *(2 marks)*

> Tangible measured in money (saved wages); intangible not easily measured (goodwill).

Summary

- Investigate problems, alternatives and priorities.
- Feasibility: technical, economic, operational, organisational.
- Net benefit = benefit − running cost.
- Payback = cost ÷ net yearly benefit.
- ROI = net gain ÷ cost × 100.

MCQ answer key – 7.5

1. **A** – Operational.
2. **A** – Economic.
3. **B** – Technical.
4. **E** – Cost ÷ net.
5. **B** – Net gain ÷ cost.
6. **A** – Organisational.
7. **B** – Intangible.
8. **C** – Problems first.
9. **D** – Preliminary investigation – First study of problems and possible solutions.
10. **C** – Feasibility study – Study of whether a project is practical and worthwhile.
11. **D** – Technical feasibility – Availability of technology and skills.
12. **B** – Economic feasibility – Whether benefits exceed costs.
13. **D** – Operational feasibility – Whether users will accept and use the system.
14. **E** – Organisational feasibility – Fit with organisation goals and policies.
15. **C** – Cost–benefit analysis – Comparing total costs with total benefits.

© 2026 schoolict.net (Ruwan Mangala Suraweera) · All rights reserved

16. **C** – Payback period – Time for net benefits to repay the cost.
17. **E** – Return on investment – Net gain as a percentage of cost.
18. **A** – Tangible benefit – Benefit measured in money.
19. **E** – Intangible benefit – Benefit hard to measure, e.g. customer goodwill.
20. **D** – Alternative solution – Another possible way to solve the problem.

© 2026 schoolict.net (Ruwan Mangala Suraweera). All rights reserved.