

Introduction to Project Resources

Introduction to Project Resources

(A quick-reference guide for students and new project managers)

1. What Are Project Resources?

Category	Definition	Typical Examples
Human Resources	People who perform the work	Project manager, developers, designers, QA testers, subject-matter experts
Material Resources	Physical items consumed or used	Hardware, raw materials, printed documents, prototypes
Equipment & Tools	Devices or software that enable work	Laptops, servers, CAD software, testing rigs, cloud services
Financial Resources	Money allocated to the project	Budget line items, contingency funds, cost-of-ownership estimates
Information & Knowledge	Data, documentation, expertise	Requirements specs, standards, lessons-learned databases, intellectual property
Time	The schedule window within which work must be done	Project calendar, milestones, deadlines

Key idea: All resources are **limited** and must be planned, acquired, monitored, and controlled throughout the project lifecycle.

2. Why Resource Management Matters

1. **Cost Control** – Over-allocating staff or buying excess material inflates the budget.
2. **Schedule Adherence** – Insufficient resources cause delays; too many can create bottlenecks (e.g., coordination overhead).
3. **Quality Assurance** – The right expertise and tools are essential for delivering the required quality.
4. **Stakeholder Satisfaction** – Properly resourced projects meet expectations and maintain trust.

Introduction to Project Resources

5. **Risk Mitigation** – Knowing resource constraints helps anticipate and plan for potential issues (e.g., skill shortages).
-

3. Resource Planning Process (High?Level)

1. Identify Resource Requirements

- Derive from the Work Breakdown Structure (WBS) and activity list.
- Estimate quantity, skill level, and duration for each resource type.

2. Determine Availability

- Check internal capacity (staff calendars, equipment inventories).
- Assess external sources (vendors, contractors, outsourced services).

3. Develop the Resource Management Plan

- Document how resources will be acquired, allocated, monitored, and released.
- Include roles & responsibilities, resource calendars, and cost rates.

4. Create Resource?Loaded Schedule

- Assign resources to activities in a project schedule tool (e.g., MS Project, Primavera).
- Review for overallocation and adjust (leveling, smoothing).

5. Obtain Approvals & Acquire Resources

- Secure budget sign?off, contracts, and staffing commitments.

6. Monitor & Control

- Track actual usage vs. plan (time?sheet data, equipment logs).
 - Update forecasts, resolve conflicts, and re?allocate as needed.
-

4. Key Tools & Techniques

Technique

When to Use

Output

Introduction to Project Resources

Resource Breakdown Structure (RBS)	Early planning	Hierarchical list of all resource types
Expert Judgment	Estimating skill levels, effort	Refined estimates
Analogous & Parametric Estimating	Similar past projects	Quick, high-level resource quantities
Resource Calendars	Scheduling	Availability matrix (who/what is free when)
Resource Leveling	Overallocations in schedule	Adjusted start/finish dates or re-assigned resources
Critical Chain Method	Projects with tight buffers	Buffer-protected schedule
Earned Value Management (EVM)	Performance tracking	Cost and schedule variance metrics
Software Tools	Ongoing management	Gantt charts, resource histograms, dashboards (