Methodology Chapter

Case Study: Transition to Cloud-Based Infrastructure in a Mid-Sized UK Technology Firm

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1. Research Design

This research adopted a **qualitative single-case study design** to examine how a mid-sized UK technology firm planned and implemented the migration of its on-premises systems to a cloud-based infrastructure. Cloud adoption is a complex organisational process involving people, technology and workflow changes; therefore, an in-depth case study was considered the most appropriate research strategy.

The qualitative design enabled an exploration of the lived experiences of IT managers, project leads and operational staff. The focus was on understanding how strategic decisions were made, how teams navigated technical challenges, and how the organisation adapted its processes during migration.

This research design aligns with the study's objectives:

1. To explore organisational decision-making during cloud migration.
2. To examine staff experiences and perceptions of the migration process.
3. To identify challenges associated with cloud adoption in mid-sized firms.
4. To understand how cloud migration influences workflow, performance and IT culture.

A single-case approach allowed the researcher to analyse a real organisational scenario in depth, generating insights that may apply to similar tech firms undergoing digital transformation.

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2. Case Selection

The firm was selected using purposive sampling based on these criteria:

- mid-sized UK technology company (150–300 employees)
- recently migrated core systems to a cloud platform (within 2–3 years)
- diverse IT team (developers, DevOps engineers, infrastructure specialists)
- publicly documented digital transformation intentions
- willingness to participate in research

The company selected had migrated from legacy on-premises servers to **Amazon Web Services (AWS)** and adopted hybrid cloud architecture for certain applications.

This case represented a typical mid-sized digital firm in the UK, making it an appropriate setting to study cloud adoption from both technical and organisational perspectives.

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3. Participants and Data Sources

To ensure a well-rounded understanding, the study included participants and documents directly related to the cloud migration process.

3.1 Participants (Primary Data)

Ten participants were recruited from different roles within the firm:

- 2 infrastructure engineers
- 2 DevOps specialists
- 2 back-end developers
- 1 project manager overseeing the migration
- 1 cybersecurity lead
- 1 product owner
- 1 IT support engineer

This mix ensured representation across strategy, implementation, security, development and support.

All participants had direct involvement with system changes, deployment workflows or cloud management during or after the migration.

3.2 Documentary Sources (Secondary Data)

The following documents were reviewed:

- cloud migration strategy documents
- system architecture diagrams (pre- and post-migration)
- internal project plans and roadmaps
- risk assessment reports
- internal communication memos
- DevOps policy guidelines
- incident reports and system performance logs (anonymised summaries)

These documents provided organisational context, validated staff experiences, and helped trace the migration timeline.

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4. Data Collection Procedures

4.1 Semi-Structured Interviews

Interviews served as the primary data source. A semi-structured approach ensured consistency while allowing technical staff to describe their experiences in detail.

Key interview areas included:

- rationale for cloud migration
- planning and decision-making processes
- migration tools used (e.g., AWS migration tools, Terraform, CI/CD pipelines)
- challenges and unexpected issues
- impact on performance, collaboration and workflow
- security and compliance considerations
- long-term organisational learning

Interviews lasted 35–60 minutes and were conducted remotely via Zoom or Teams. All were recorded with participant consent and transcribed manually.

4.2 Document Review

Document review occurred before and after interviews.

Before interviews, documents were used to map:

- the timeline of migration
- major project milestones
- the firm's technical architecture

After interviews, documentary evidence was used to strengthen interpretation and support triangulation.

4.3 Researcher Notes

The researcher kept reflexive notes during and after each interview to record emerging ideas, contradictions, and analytical leads.

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5. Data Analysis

Data were analysed using **theme-based pattern matching**, a common approach in organisational and technology-related case studies.

The analysis followed Braun and Clarke's (2006) six-phase thematic analysis method.

5.1 Familiarisation

All transcripts and documents were read several times. Notes were taken on early impressions, including recurring ideas about workflow disruption, security concerns, system performance, and collaboration changes.

5.2 Coding

Line-by-line coding produced initial codes such as:

- “legacy system limitations”
- “resistance to change”
- “improved deployment frequency”
- “need for upskilling”
- “tooling mismatch”
- “security improvements via cloud controls”
- “unexpected downtime during migration”

Codes focused on both technical and organisational issues.

5.3 Theme Development

Codes were grouped into broader themes including:

1. **Drivers of Cloud Migration**
2. **Technical Challenges and Integration Issues**
3. **Staff Adaptation and Skills Development**
4. **Impact on Workflow and Team Collaboration**
5. **Security, Compliance and Risk Management**
6. **Benefits Realised Post-Migration**

5.4 Reviewing Themes

Themes were compared across participants and documents to ensure they reflected organisational reality. Conflicting accounts were noted and examined.

5.5 Defining and Refining Themes

Themes were refined to ensure clarity and coherence. Subthemes were added, such as:

- “automation of deployments”
- “shift to DevOps culture”
- “improved scalability and cost predictability”
- “pressure on infrastructure staff to reskill”

5.6 Producing the Narrative

Themes were woven into a final analytical narrative that aligned with research aims and accurately represented the experiences of technical staff.

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6. Ethical Considerations

Given that the research involved operational processes and proprietary internal systems, the following ethical measures were taken:

- Ethical approval obtained through the researcher’s university.
- Company approval granted through a senior manager (gatekeeper consent).

- Participants received detailed information sheets and provided written consent.
- All company-specific details (name, products, architecture specifics) were anonymised.
- No sensitive system information, credentials or internal security processes were collected.
- Data stored on encrypted, password-protected devices.

Participants were informed of their right to withdraw at any time.

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7. Ensuring Rigour and Trustworthiness

7.1 Triangulation

Using interviews, documents and researcher memos allowed cross-validation of findings.

7.2 Member Checking

Participants reviewed short theme summaries to confirm accuracy.

7.3 Detailed Audit Trail

All decisions during coding and theme refinement were documented.

7.4 Reflexivity

The researcher maintained awareness of their own assumptions about cloud technology, ensuring interpretations were grounded in participant accounts rather than preconceived ideas.

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8. Limitations

Several limitations were acknowledged:

- Single-case studies limit generalisability to other organisations.
- Some documents were unavailable due to confidentiality restrictions.
- Staff recollections may focus on more memorable challenges rather than routine processes.
- The researcher could not observe daily workflows directly due to company privacy requirements.

Despite these limitations, the aim was to generate contextual understanding rather than statistical generalisation, which aligns with qualitative case study methodology.

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9. Summary

This methodology provided a rigorous qualitative approach to exploring cloud migration within a mid-sized UK technology firm. Using a combination of interviews, documentary evidence and thematic pattern matching, the study captured the technical, organisational and cultural aspects of digital transformation.

The approach adheres to established case study principles and offers a robust foundation for analysing how cloud adoption shapes operational workflows, team collaboration and technology strategy in real-world organisational environments.