

WEEK 10: COMMON PITFALLS IN CLOUD ADOPTION



WORKFORCE DEVELOPMENT



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RECAP: WEEK 9

Accelerating time-to-market and fostering innovation.

Business Imperative: The need for speed and agility in today's competitive landscape.

Key Themes: Innovation, agility, and cloud-based acceleration.

Strategic Impact: How rapid delivery impacts revenue and customer satisfaction..

- Week 1-2: Introduction to Cloud Technology
- Week 3-5: Cloud Strategy and Architecture
- Week 6-7: Use Cases and Real-World Applications
- Week 8-9: Benefits and Value Proposition
- Week 10-12: Challenges and Risks
- Week 13-14: Interactive Simulations and Practical Exercises
- Week 15: Course Review and Final Assessment

OVERVIEW



Understanding the Hidden Challenges in Your Cloud Journey

Focus: Azure-specific risks and broader cloud challenges

Objective: Introduce key pitfalls and prepare for risk mitigation discussions

OVERVIEW OF CLOUD ADOPTION PITFALLS

Complex Cost Models: Misestimations in expected savings

Data Integration Issues: Challenges merging legacy with cloud systems

Security & Compliance Gaps: Risks due to misconfigurations

Operational Disruptions: Unplanned downtime or performance bottlenecks

Vendor Dependency: Risks associated with over-reliance on a single provider

OVERESTIMATING COST SAVINGS

Unrealistic ROI: Overly optimistic forecasts

Hidden Expenses: Overlooked operational costs and migration fees

Azure Pricing Variability: Unpredictability in consumption-based models

Budget Overruns: Financial planning discrepancies

Resource Wastage: Over-provisioning due to misestimation



OVERESTIMATING COST SAVINGS – CONT'D

ROI Misconceptions: Based on ideal conditions rather than real usage

Underestimated Migration Efforts: Complexity of transferring data and applications

OpEx vs. CapEx Shift: Misinterpreting long-term operational expenses

Forecasting Errors: Inaccurate predictions of resource utilization

MISUNDERSTANDING PRICING MODELS

- Cloud providers offer pay-as-you-go pricing, which can be unpredictable.
- Costs can vary based on usage, time of day, and other factors.
- Companies may not account for peak usage periods or unexpected growth.
- Azure provides various pricing options, such as reserved instances for savings
- It's important to understand and choose the right pricing model for your needs.



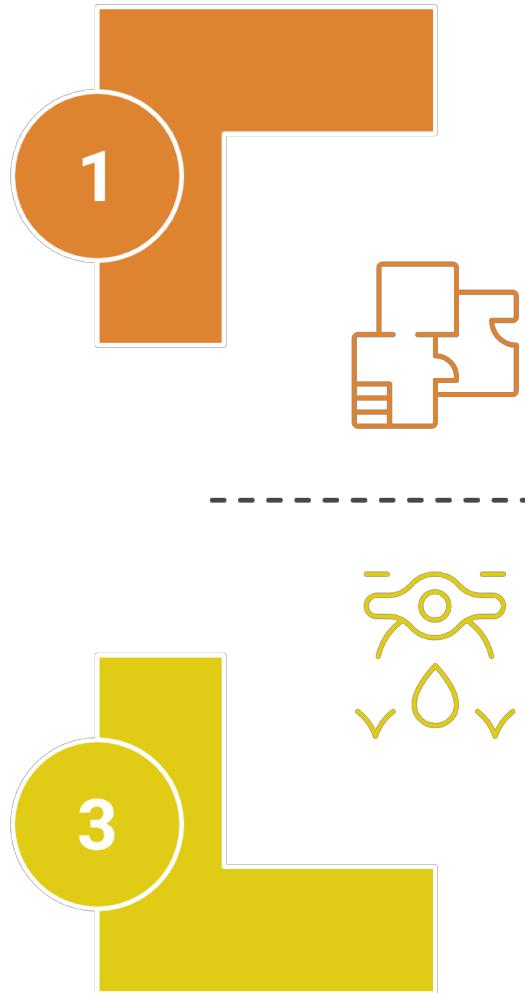
OVERLOOKING HIDDEN COSTS

- Data transfer costs, especially for large datasets or frequent transfers.
- Costs associated with data egress (transferring data out of the cloud).
- Storage costs for retaining data over time.
- Costs of third-party services or APIs used in the cloud.
- Regularly reviewing and understanding all components of the cloud bill is essential.

DATA TRANSFER & INTEGRATION ISSUES

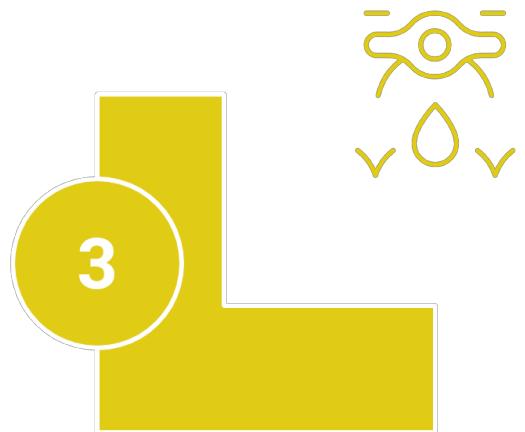
Legacy System Mismatch

Legacy System Mismatch is complex but has low impact.



Bandwidth Constraints

Bandwidth Constraints are simple with low impact.



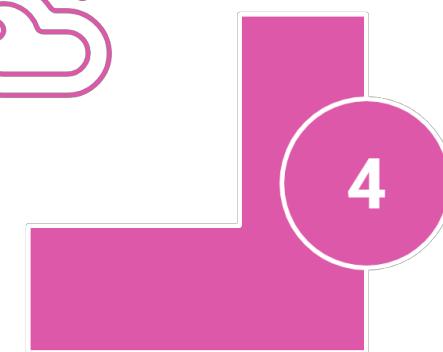
Azure Integration Risks

Azure Integration Risks pose high impact and complexity.



Data Latency

Data Latency has high impact but is less complex.



ANALYSIS- DATA TRANSFER & INTEGRATION ISSUES

Hidden Data Egress Fees: Unexpected charges for data movement

Security Vulnerabilities: Increased risk of breaches during transfers

System Downtime: Integration errors causing service interruptions

Technical Debt: Accumulated issues from patchwork integrations

Mitigation Tactics: Best practices using Azure Data Factory and API Management

ACTIVITY: GROUP DISCUSSION

Scenario:

A mid-sized retailer is migrating two on-premises SQL Server databases (3 TB total) and a 5 TB Windows file share into Azure.

- They provision an Azure DMS instance and deploy a self-hosted IR VM on the same server that hosts the file share.
- Databases are moved to Azure SQL Managed Instances in East US; file shares go into a StorageV2 account in West US.
- Over two weeks of cut-over testing, testing tools generate ~1 TB/day of inter-region traffic.

Outcomes:

- Monthly Azure bill spikes by \$12 000, driven by 14 TB of cross-region egress.
- DMS tasks repeatedly fail to read files via IR, logging authentication and network errors.

Tasks

- Identify at least two key pitfalls from the scenario.
- Brainstorm practical mitigation strategies using Azure.

SECURITY & COMPLIANCE CHALLENGES



Regulatory Complexities: Navigating multiple compliance standards

Data Privacy Risks: Protecting sensitive information in the cloud

Misconfiguration: Common errors leading to security breaches

Access Control Issues: Inadequate identity and access management

Incident Response Deficiencies: Poorly prepared breach responses

ANALYSIS - SECURITY & COMPLIANCE CHALLENGES

Shared Responsibility Model: Clarifying what Azure secures vs. your responsibilities

Continuous Auditing: The need for regular security checks

Encryption Standards: Importance of securing data at rest and in transit

Monitoring Tools: Using Azure Security Center and Sentinel

Incident Management: Developing a robust response plan

INADEQUATE SKILLS & TRAINING

Skills Gap: Insufficient cloud expertise among staff

Training Deficiencies: Lack of continuous education on new tools

Certification Needs: Underinvestment in professional development

Misunderstanding Cloud Concepts: Basic principles often misunderstood

Operational Errors: Mistakes stemming from inadequate knowledge



ANALYSIS – SKILLS GAP IN CLOUD ADOPTION

Training Programs: Importance of continuous, up-to-date education

Certification Incentives: Encouraging team certifications on Azure

Knowledge Transfer: Structured internal programs to share expertise

Performance Impact: How skills gaps directly affect project outcomes

Mitigation Strategies: Leveraging Microsoft learning resources and partnerships

UNDERESTIMATING MANAGEMENT & TRAINING COSTS



- Training staff to use new cloud technologies.
- Managing and monitoring the cloud environment.
- Costs associated with hiring or contracting cloud experts.
- Ongoing maintenance and updates.

EXAMPLE: COST OVERRUN PROBLEM

A software company, expected 30% cost savings by moving to Azure. However, they experienced a 10% increase in costs.

Reasons: High data transfer costs and underutilized resources.

Impact: Budget exceedance affected other projects.

Risk: Increased scrutiny from executive management.

POP QUIZ:

What is a common reason for overestimating cost savings in cloud adoption?

- a) Accurate pricing models
- b) Misunderstanding pricing models
- c) Low data transfer costs
- d) Efficient resource utilization



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OVERRELIANCE ON AUTOMATION WITHOUT OVERSIGHT

Automation Dependency: Excessive trust in automated systems

Configuration Errors: Automated processes may propagate misconfigurations

Lack of Human Insight: Missing contextual analysis from experts

Monitoring Gaps: Overlooked issues due to automated alert fatigue

Fallback Procedures: Insufficient manual backup plans



ANALYSIS – AUTOMATION RISKS

Process Audits: Regular reviews of automated tasks

Human-in-the-Loop: Integrating manual checks into automated workflows

Error Handling: Configuring systems to flag and escalate anomalies

Monitoring Tools: Using Azure Monitor to complement automation

POOR VENDOR MANAGEMENT



Contract Ambiguity: Vague service-level agreements (SLAs)

Dependency Risks: Over-reliance on a single vendor's capabilities

Support Limitations: Inadequate vendor support and communication

Cost Escalation: Unforeseen fees hidden in contracts

Negotiation Challenges: Lack of flexibility in vendor agreements

ANALYSIS - VENDOR MANAGEMENT PITFALLS

Clear SLAs: Importance of detailed service-level agreements

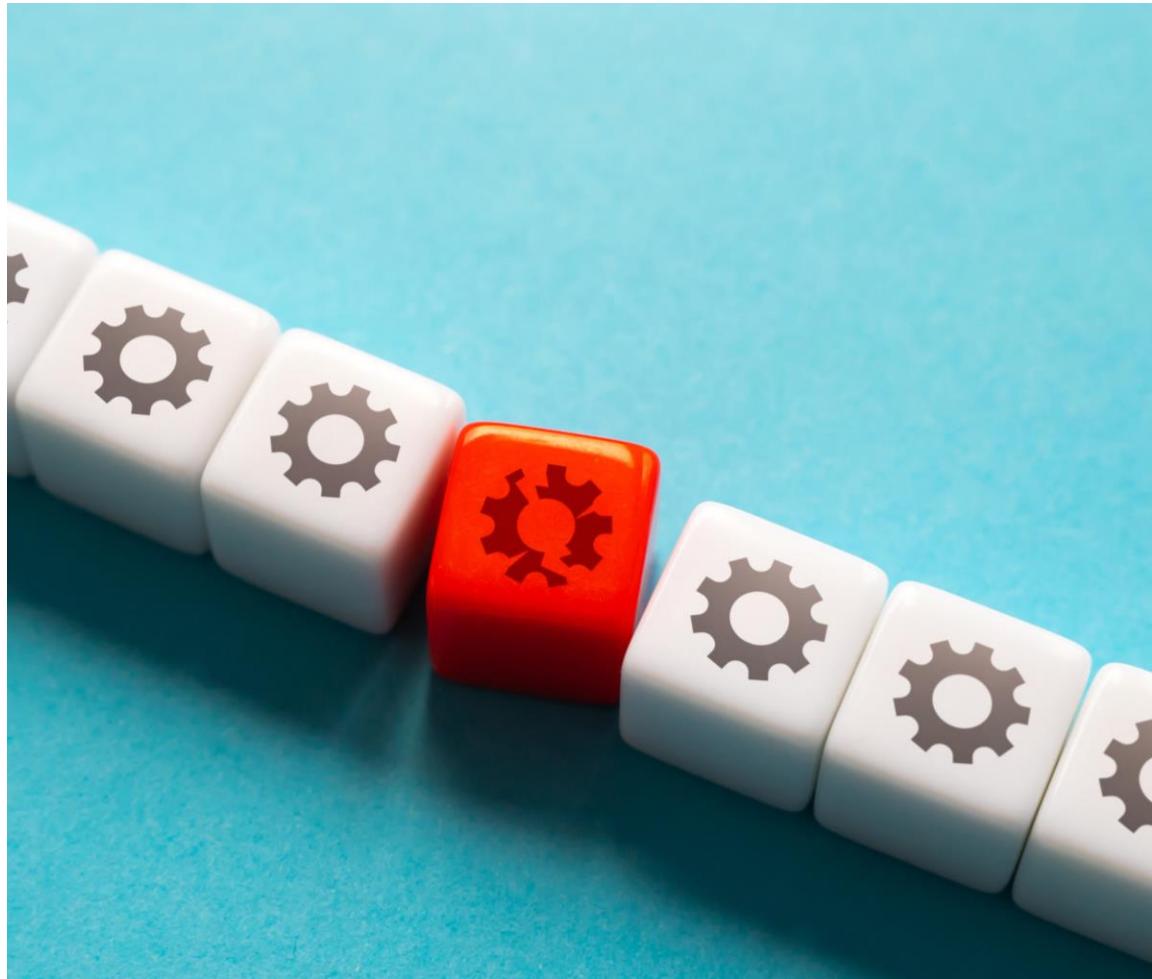
Exit Strategies: Planning for vendor migration or multi-cloud scenarios

Regular Reviews: Periodic evaluation of vendor performance

Cost Transparency: Insisting on clear, upfront pricing

Collaboration: Establishing strong communication channels

INCONSISTENT PERFORMANCE MONITORING



Lack of KPIs: Undefined performance metrics

Delayed Issue Detection: Slow response to performance degradation

Monitoring Silos: Isolated data sources hindering holistic view

Tool Misalignment: Inadequate or incompatible monitoring tools

Operational Impact: Performance issues affecting end-user experience

ANALYSIS - PERFORMANCE MONITORING

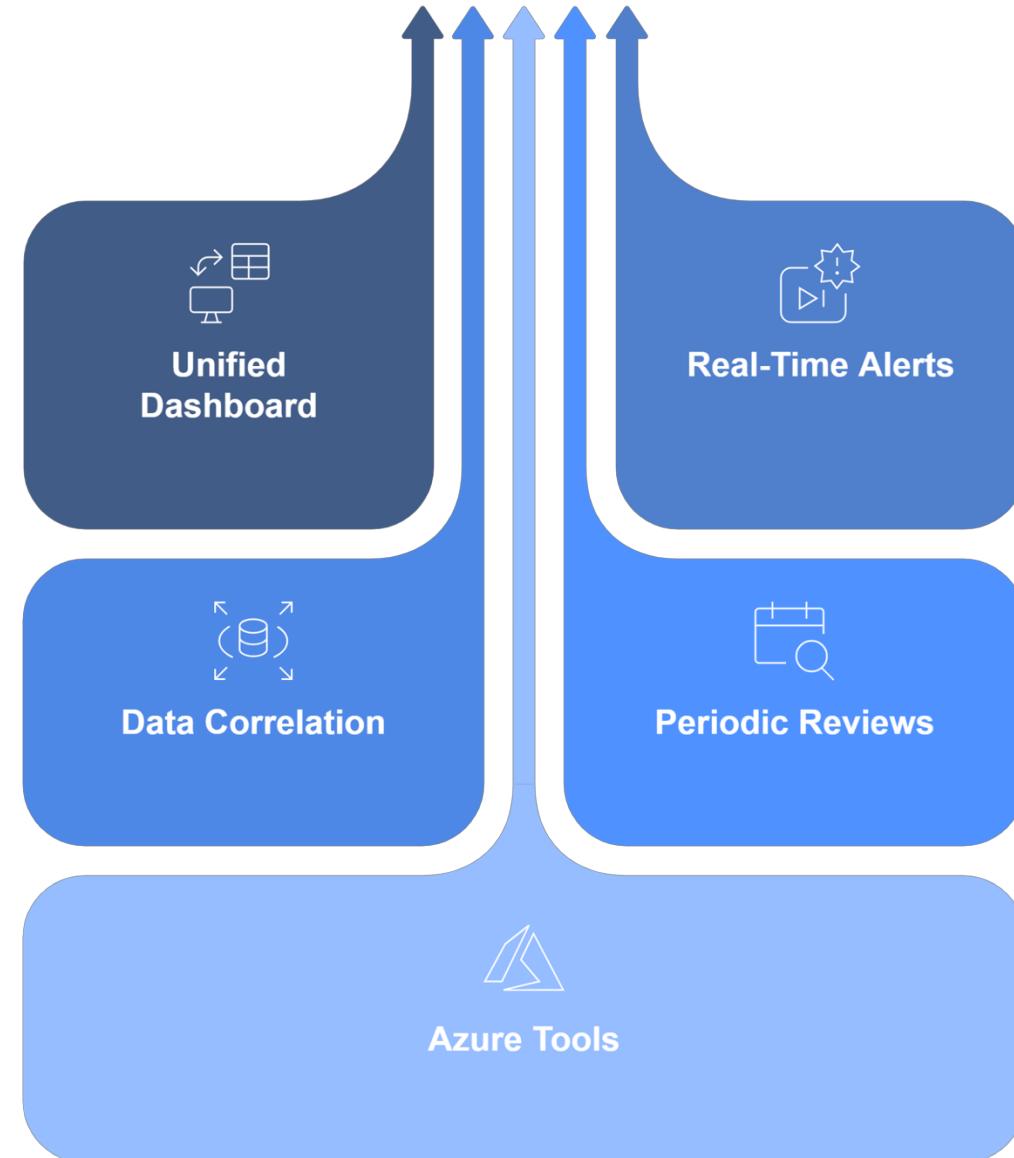
Unified Dashboard: Creating a single pane of glass for monitoring

Real-Time Alerts: Configuring instant notifications for performance dips

Data Correlation: Integrating data from multiple sources

Periodic Reviews: Regular analysis of performance metrics

Azure Tools: Leveraging Azure Monitor and Log Analytics



ANALYSIS - RESOURCE MANAGEMENT

Right-Sizing: Aligning resources with actual usage

Auto-Scaling: Using dynamic scaling to match demand

Cost Analysis: Regular reviews with Azure Cost Management

Performance Metrics: Tracking resource utilization continuously

Optimization Tools: Employing Azure Advisor for recommendations



ACTIVITY - BRAINSTORMING

- List common challenges related to the skills gap in cloud adoption.
- Break into groups
- Brainstorm potential solutions such as training programs, certifications, and peer-to-peer knowledge sharing.
- Present ideas with the class
- Vote on the most promising ideas and discuss how these might be implemented in your teams/departments.

UNMANAGED SHADOW IT

Unauthorized Systems: Use of unapproved cloud applications

Security Risks: Increased vulnerability from unsanctioned tools

Data Silos: Fragmentation of data across systems

Compliance Issues: Difficulty enforcing policies

Management Oversight: Lack of visibility into all IT assets

ANALYSIS – RISKS OF SHADOW IT



Centralized Monitoring: Establishing a unified view of all cloud resources

User Education: Training staff on approved systems

Policy Enforcement: Implementing strict guidelines on IT procurement

Regular Audits: Conducting periodic reviews of IT assets

Integration Tools: Using Azure Management tools to detect unauthorized apps

INSUFFICIENT PLANNING FOR DISASTER RECOVERY

Lack of DR Strategy: No comprehensive recovery plan

Unpreparedness: Inability to quickly restore services

Data Loss Risks: Critical data not backed up

Testing Deficiencies: Failure to simulate disaster scenarios

Business Impact: Prolonged downtime affecting revenue and reputation

ANALYSIS - DISASTER RECOVERY

Comprehensive DR Plan: Documented procedures and responsibilities

Regular Drills: Simulate disasters to test response

Backup Strategies: Implement robust data backup solutions

Azure Tools: Use Azure Site Recovery for automated DR

Continuous Improvement: Update DR plans based on test outcomes



UNDERESTIMATING NETWORK COMPLEXITY

Complex Architectures: Difficulty integrating various network components

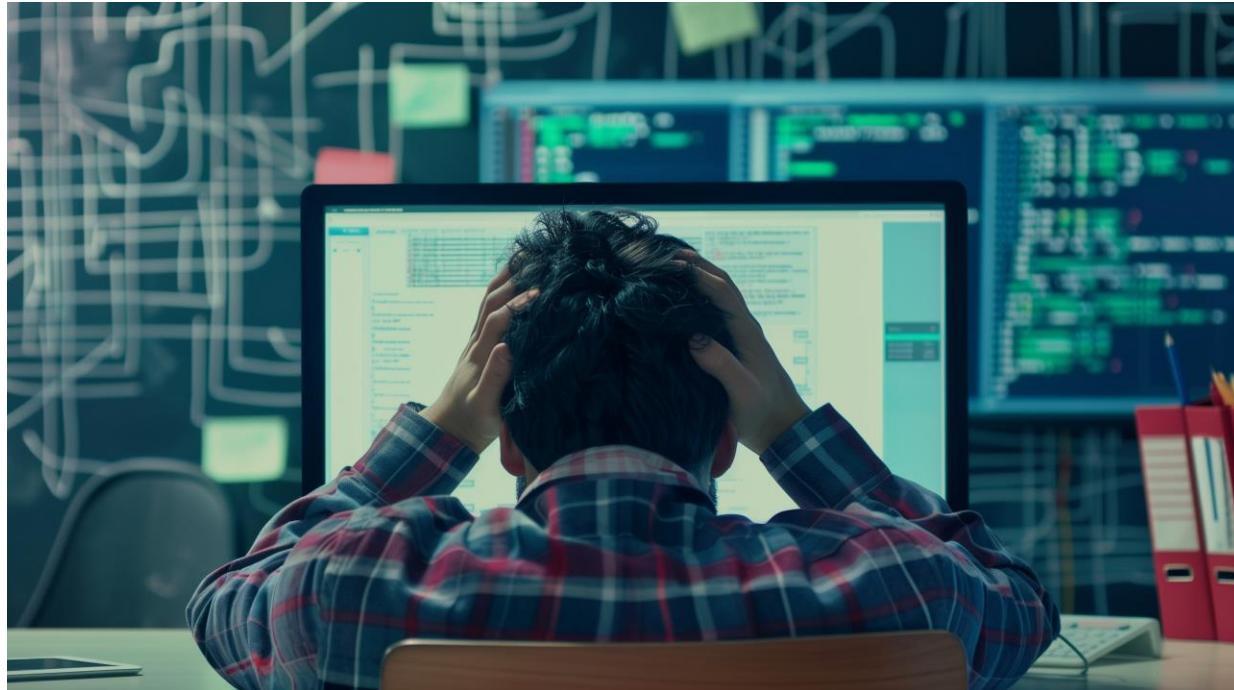
Bandwidth Limitations: Insufficient capacity leading to slow performance

Latency Issues: Delays in data transmission

Configuration Errors: Misconfigured network settings in Azure

Scalability Problems: Networks not designed for growth

ANALYSIS - NETWORK COMPLEXITY RISKS



Network Mapping: Detailed diagrams of network architecture

Performance Monitoring: Continuous tracking of network performance

Azure Tools: Utilize Azure Virtual Network and ExpressRoute

Scalability Planning: Design networks for future growth

Best Practices: Follow established guidelines for network configuration

LACK OF SCALABILITY PLANNING

Static Configurations: Systems not designed to scale dynamically

Resource Constraints: Limited capacity during peak demand

Forecasting Failures: Inaccurate predictions of growth

Infrastructure Rigidity: Inflexible systems leading to delays

Cost Implications: Increased expenses when scaling ad hoc

ANALYSIS – SCALABILITY ISSUES



Dynamic Scaling: Implement auto-scaling in Azure

Forecasting Tools: Use predictive analytics for resource planning

Modular Architecture: Design systems that can be easily expanded

Cost Analysis: Regularly review resource usage versus costs

Azure Advisor: Leverage recommendations for scalable improvements

MISALIGNED BUSINESS AND IT OBJECTIVES

Communication Gaps: Poor coordination between business and IT teams

Divergent Priorities: Conflicting goals and metrics

Unclear KPIs: Lack of measurable outcomes linking IT to business goals

Resource Misallocation: Investments that do not support strategic objectives

Stakeholder Disconnect: Failure to involve leadership in IT decisions



INADEQUATE CHANGE MANAGEMENT

Resistance to Change: Cultural barriers within the organization

Poor Communication: Lack of clear messaging about changes

Process Disruptions: Transition issues during cloud migration

Training Gaps: Insufficient preparation for new systems

Employee Frustration: Low morale and productivity losses

Clear Communication: Transparent messaging about changes and benefits

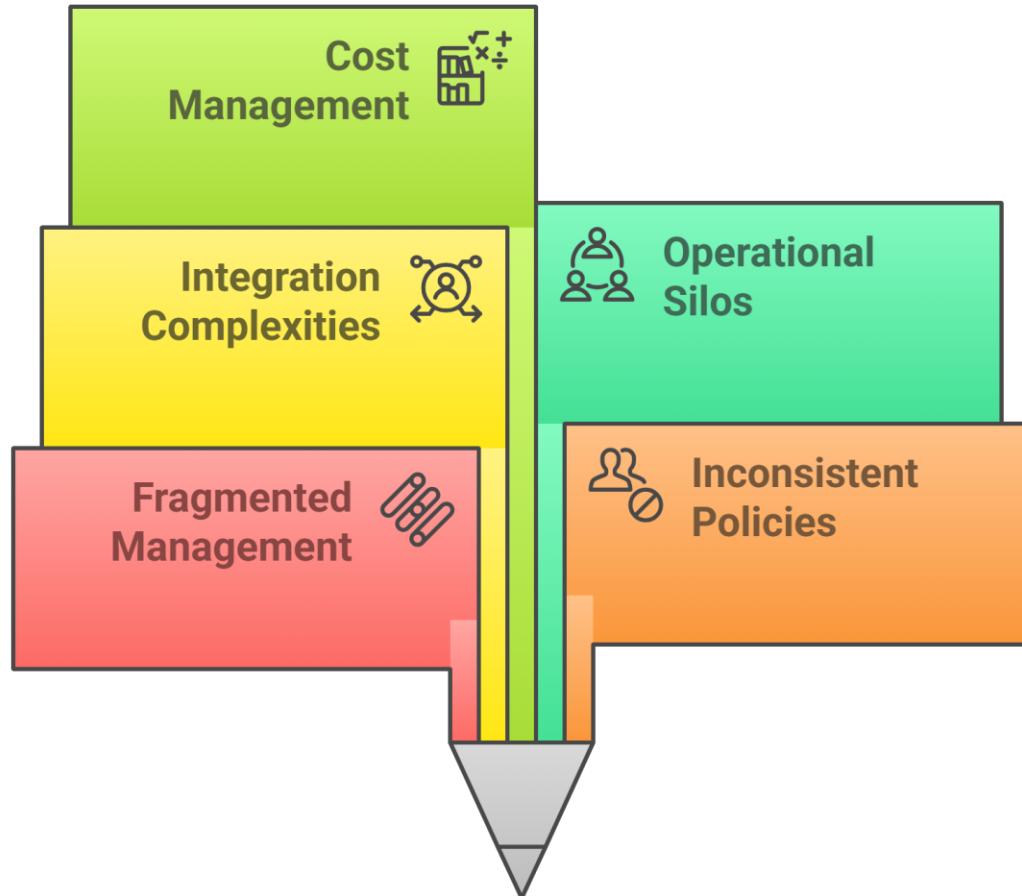
Training Programs: Comprehensive education on new systems

Phased Rollouts: Gradual implementation to reduce disruption

Feedback Mechanisms: Allowing staff to share concerns and suggestions

Leadership Involvement: Ensuring top-level support and sponsorship

MISMANAGEMENT OF MULTI-CLOUD



- **Fragmented Management:** Difficulty managing diverse cloud providers
- **Inconsistent Policies:** Varying security and governance standards
- **Integration Complexities:** Challenges in data synchronization across clouds
- **Operational Silos:** Isolated teams managing different clouds
- **Cost Management:** Difficulty tracking expenses across platforms

STRATEGIES FOR MANAGING MULTI-CLOUD

Centralized Management: Implement unified cloud management platforms

Consistent Policies: Standardize security and governance across providers

Integrated Monitoring: Use tools that aggregate data from all clouds

Cross-Cloud Training: Educate teams on managing diverse environments

Cost Consolidation: Leverage tools for comprehensive cost tracking

INSUFFICIENT OPERATION EXCELLENCE



Lack of Redundancy: Single points of failure in cloud architecture

Unplanned Downtime: Inadequate failover mechanisms

Limited Recovery Options: Incomplete backup and disaster recovery plans

Reactive Rather Than Proactive: Waiting for issues to occur

Impact on Business: Operational disruptions affecting revenue and customer trust

ENHANCING OPERATIONAL RESILIENCE

Redundant Architectures: Design systems with failover and backup solutions

Proactive Monitoring: Use tools to predict and prevent downtime

Disaster Recovery Plans: Develop and regularly test recovery procedures

Azure Tools: Leverage Azure Site Recovery and Backup

Continuous Improvement: Regularly update resilience strategies based on testing

IGNORING CLOUD VENDOR ROADMAPS

Regular Reviews: Monitor vendor updates and roadmaps

Strategic Alignment: Ensure vendor plans match your business objectives

Proactive Adoption: Plan for early adoption of beneficial features

Feedback Channels: Engage with vendors to influence product direction

Documentation: Maintain records of vendor roadmaps for strategic planning

POP QUIZ:

Which of the following is a common pitfall in cloud adoption?

- A: Overestimating cost savings
- B: Inadequate performance monitoring
- C: Unmanaged shadow IT
- D: All of the above
- E: None of the above



POP QUIZ:

Which of the following is a common pitfall in cloud adoption?

- A: Overestimating cost savings
- B: Inadequate performance monitoring
- C: Unmanaged shadow IT
- D: **All of the above**
- E: None of the above



INDIVIDUAL KEY TAKEAWAYS



Write down three key insights from today's session.

Highlight how these take aways influence your work.

COURSE REVIEW

This week we summarized major pitfalls in cloud adoption — from cost miscalculations and data integration issues to security challenges and licensing misunderstandings.

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NEXT WEEK: MANAGING CLOUD RISKS

In Week 11 we will focus on managing the risks that come with cloud adoption—particularly in an Azure environment.

We'll cover governance, security, vendor management, and more.

By the end of this session, you'll have actionable strategies to proactively manage and mitigate cloud risks.

Q&A AND OPEN DISCUSSION



