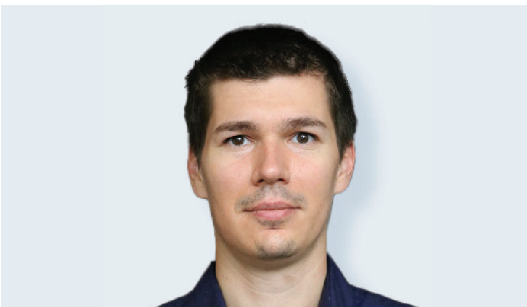


Cloud Governance



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1. Introduction

During the past years we have continued to see stable growth in cloud services adoption across the industry. With greatly expanding portfolios of cloud service offerings tailored to address the customer needs in the areas of data analytics, machine learning, and microservices, the reliance on cloud infrastructure for many enterprises has gone way beyond traditional conservative usage. During the challenging times of COVID-19 pandemic in 2020-2021, we observed many organizations take strategic decisions for complete migrations of their IT infrastructures into the cloud. On the other side of the scale, many successful businesses were leveraging the cloud for their operating model from the very beginning.

Effective governance mechanisms and C-level commitment are crucial for accelerating the digital business transformation as well as achieving the benefits offered by a cloud journey, such as accelerated growth, rapid innovation, global reach, and optimized IT costs.

Running an IT environment which is largely defined by the cloud-native capabilities and workflows requires drastic evolution of the governance model to be supportive of such operations. The organizations are facing a significant challenge of ramping up and maintaining required skillset, fostering agile working culture and DevOps environments, as well as establishing corresponding roles and responsibilities for the involved teams.

Ability to leverage cloud services effectively is underpinned by a set of foundational capabilities within the organization. These capabilities span across multiple functional domains and must be backed by well-established interaction models between different functions, enabling decentralized decision making while staying within clearly defined regulatory and risk boundaries.

From the business perspective, the executives should focus on ensuring that cloud investments accelerate the pace of digital transformation and the desired business outcomes. Common stakeholders that determine and steer the success of cloud adoption include the Board Members, CEO, CFO, COO, CIO, and CTO. As innovation and digital transformation of the business is a continuous journey, it requires considerable adjustment of the business and IT strategy to enable benefits realization at various stages and maturity levels of the cloud adoption.

Some good practices for effective cloud governance that fall in with the area of C-level responsibilities are:

- Fostering ongoing partnership between the business functions and teams. For effective cloud value realization, organizational alignment serves as a bridge between technology and the business, so that technology changes are leveraged by the business units producing business outcomes.
- Establishing dedicated cloud adoption program and the corresponding teams who are responsible for the overarching technology and architectural aspects of using the cloud, facilitating the right skills and knowledge across the organization.
- Reliance of the business and IT strategy on deliverables that cloud adoption program is committed to, executive sponsorship and involvement of the business stakeholders into the steering committees for major initiatives of the cloud adoption program such as large-scale application and infrastructure migrations.
- Adjustment of the HR strategy, creation of dedicated job profiles, and skills development plans to support cloud adoption program needs. Fostering agile business culture based on continuous innovation and enablement of the product teams for quick and autonomous decision making.
- Risk management, security and compliance functions applying controls frameworks that are designed for use with the cloud technologies, thus allowing continuous extension of risk management and governance processes into all domains of the operated cloud environment.

The proven approach to accelerating initial phases of the cloud journey for many organizations is establishing a Center of Excellence team for the cloud. This dedicated cross-functional team serves as an overarching enablement mechanism for the cloud adoption. It is typically responsible for supporting involvement and incorporation of the business strategy into the capabilities delivered out of the cloud, shaping the operating model for the cloud usage, and facilitating the right degree of interaction between development and operation teams.

The Center of Excellence is also responsible for engaging resources required for building up shared infrastructure and services as well as maintaining centralized view of the entire cloud-based environment.

Risk management, security and compliance procedures are extended into the cloud operations by means of centralized guardrails that define safe boundaries for decentralized product development and operations while maintaining the right degree of autonomy for technical decision making within DevOps teams.

2. State of the Art Cloud Governance in Switzerland

Swiss ICT market is leaning towards ever increased adoption of cloud services for many modern product portfolios.

Financial organizations in Switzerland being bound by utmost strict regulatory requirements around data protection have taken a challenge to redefine and adapt their service delivery models so that the usage of global service providers has become viable for many business cases.

Establishment of strong governance models with clear separation of roles and responsibilities as well as re-definition of contractual and control frameworks made it possible to demonstrate compliance with strict regulatory landscape for increasing volumes of cloud-based data processing by the Swiss companies.¹

3. AWS Cloud Governance

Amazon Web Services (AWS) is the world's most comprehensive and broadly adopted cloud platform, offering over 200 fully featured services from data centers globally.

As the number of AWS customers in Switzerland has grown, so has the size of AWS's presence in the country. More than ten thousand customers in Switzerland now use AWS each month to build their businesses and expand their geographic reach. Many large and medium-sized businesses across Switzerland such as Homegate, Novartis, and Swiss Post are moving their mission-critical workloads to AWS.

1 Public Cloud for Public Services <https://www.lauxlawyers.ch/en/public-cloud-for-public-services/>.

Leveraging on the vast experience of various customer organizations worldwide migrating and running their IT in the cloud, AWS has come up with a proven set of best practices and governance principles for their customers to support their cloud journey. Structural alignment of the governance mechanisms with multiple organizational perspectives as well as clear allocation of roles and responsibilities are at the core of the best practices facilitated by AWS. The below section outlines key perspectives encompassed by the suggested framework.

4. Responsibilities and Roles

The AWS Cloud Adoption Framework (AWS CAF) leverages AWS experience and best practices to help the organizations digitally transform and accelerate their business outcomes through innovative use of AWS.

The figure below provides an outline of the main delivery capabilities comprising the best practices described in the AWS CAF framework.



Figure 1 AWS Cloud Adoption Framework (CAF) capabilities²

From the Governance Perspective of the AWS CAF framework, to define a solid foundation for the cloud adoption journey the organizations should establish the corresponding management functions and roles:²

- Program and project management. Delivering interdependent cloud initiatives in a flexible and coordinated manner. Complex cross-functional cloud transformation initiatives require careful coordination, especially in more traditionally structured organizations.

Program management is especially critical since many of these interdependencies only become obvious during delivery phase. Managing interdependencies by alignment of multiple initiatives for optimized or integrated costs, schedule, effort, and benefits.

- Benefits management. Ensuring that business benefits associated with the cloud investments are realized and sustained. Success of the transformation is determined by the resulting business benefits. Clear identification of the desired benefits upfront allows for prioritization of the cloud investments and tracking the transformation progress over time.

² AWS Cloud Adoption Framework (CAF) / Governance Perspective <https://docs.aws.amazon.com/whitepapers/latest/overview-aws-cloud-adoption-framework/governance-perspective.html>

- Risk management. Leveraging the cloud to lower the risk profile. Identifying and quantifying operational risks related to infrastructure availability, reliability, performance, and security, and business risks related to reputation, business continuity, and organization's ability to quickly respond to changing market conditions.
- Cloud financial management. Planning, measuring, and optimizing the cloud costs. Combining the ease of resource provisioning and agility benefits provided by the cloud with financial accountability and fine-grained cost allocation to individual teams or units.
- Application portfolio management. Managing and optimizing the application portfolio in support of the business strategy. Applications underpin the business capabilities and link them to the associated resources.
- Data governance. Exercising authority and control over the data assets to meet stakeholder expectations. Business processes and analytics capabilities depend on accurate, complete, timely, and relevant data. The organizations should define and assign key data governance roles, including data owners, stewards, and custodians.
- Data curation. Collecting, organizing, leveraging, and enriching metadata to establish inventory of data products in a Data Catalog. A Data Catalog facilitates data monetization and self-service analytics by helping data consumers quickly locate relevant data products as well as understand their context, such as provenance and quality.

Roles and responsibilities described above are foundational to a governance framework which is capable of sustaining long term success of the cloud adoption journey. They are closely collaborative with the Center of Excellence and define a branch of technology and business resources with a focus on leading the organization on its cloud adoption journey that maps to the most important needs of the business.

5. Required Skills

Effective cloud governance model needs to account for the skills required to operate in the cloud as well as the long-term cultural shift in the organization. To be successful in digital transformation, the organizations should leverage their core values while facilitating new behaviors and mindsets that would help in attracting and retaining people with the right skills and aspiration for continuous improvement and innovation at ever increasing pace.

Leadership skills required for driving the cloud adoption initiatives must support and enable self-organized cross-functional product teams. Such teams should be empowered for autonomous decision making aimed at delivering outcome-oriented transformational changes to their products.

To help in driving the innovation and digital vision of the organization, affinity to technology and cloud fluency should be extended to all leadership profiles including the C-suite, with senior leaders being well-versed with, and excited about the chances brought by the modern technology trends.³

6. Summary

Expanding the business operations into the cloud is a considerable strategic challenge for every organization. It requires close collaboration and effective feedback loop between the business and IT as well as establishment of a foundational governance framework supportive of evolving cultural and product delivery aspects. These disciplines should be governed by a dedicated Center of Excellence enabling scalable and accelerated cloud adoption.

Clearly defined business objectives and performance expectations are essential to long term success and value proposition of a cloud adoption program. It ensures C-level sponsorship and reliance of the business strategy on the capabilities and products delivered by the cloud.

Effective cost optimization and continuous risk management spanning throughout the cloud infrastructure domain are essential to continuous increase in maturity and consolidation of cloud-based capabilities.

3 Building a Cloud Operating Model <https://docs.aws.amazon.com/whitepapers/latest/building-cloud-operating-model/building-cloud-operating-model.html>