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ITU-D Report on the Usage and Provision of Cloud Computing Services in Arab Countries

Presented by: Mr. Slaheddine MAAREF
Senior Advisor and Deputy Regional Director
ITU Regional Office for the Arab States
slaheddine.maaref@itu.int



Objective of the Study



- ❑ Improve the use and implementation of Cloud Computing Technology in Arab countries through:
 - assessing the situation of using and providing Cloud Computing in Arab Countries
 - identifying the main opportunities, barriers, issues and needs
 - proposing a set of relevant guidelines allowing all related stakeholders to benefit from the use of cloud computing technology at different levels

- ❑ In order to collect information and experiences on the consumption and the provision of cloud computing services in Arab Countries to be used to elaborate the report, a survey was disseminated in June 2018, and was sent to the 22 Arab countries

Overview on the Survey



Survey on :

Usage and Provision Of Cloud Computing Services in Arab Countries

Topic	Nb. of Questions	Overview
General Questions	12	Line of Business, internet connection type, number of CSPs and Data Centers in the country, most sectors using the Cloud in the country, social and economic advantages of Cloud Computing, ...
Use of Cloud Computing Services	15	Motivations for use, deployment models, cloud offerings and applications, costs, criteria for the choice of CSPs, advantages, internal and external barriers, ...
Provision of Cloud Computing Services	11	Motivations for provision, deployment models, provided cloud services, infrastructure requirements, challenges, ...
Towards an improved use and provision of Cloud Computing services	13	National initiatives, data protection and security, Capacity Building and Support, standardization requirements, data centers improvements, Experiences and success stories, ...

Overview on the Respondents



43 responses on the survey were received from
12 different Arab countries:

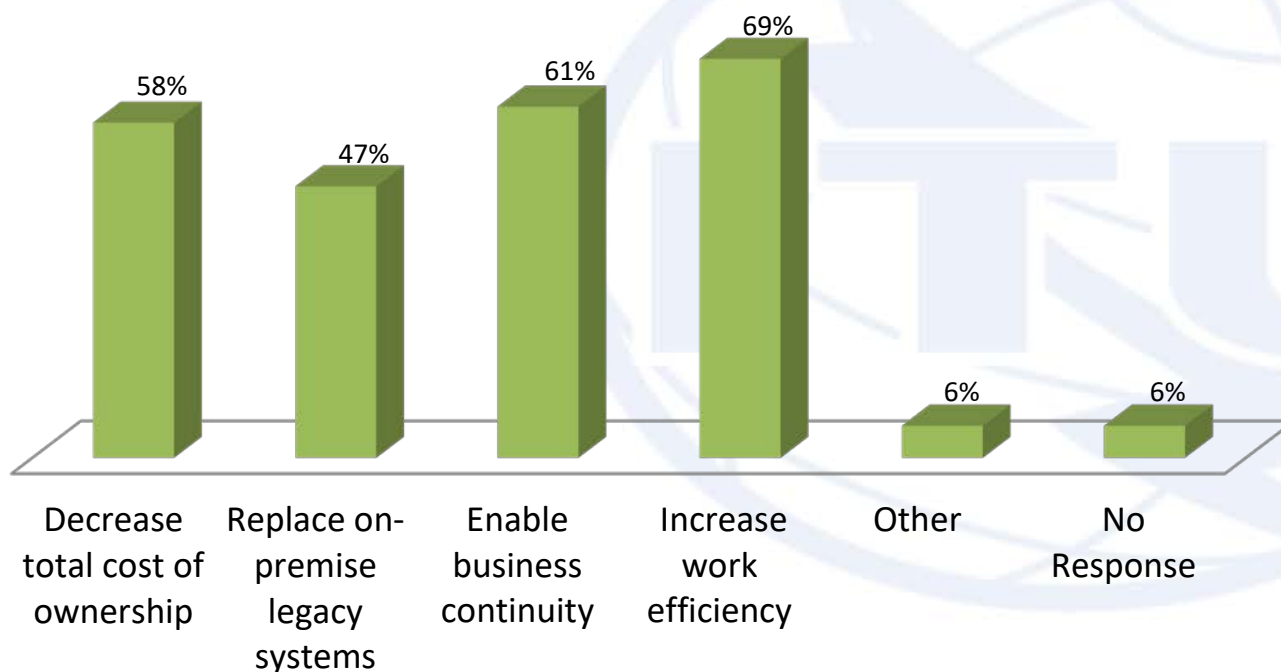
	Country	Number of Respondents
1	Comoros	1
2	Egypt	1
3	Iraq	1
4	Jordan	25
5	Kuwait	1
6	Palestine	1
7	Qatar	1
8	Saudi Arabia	2
9	Somalia	4
10	Sudan	1
11	Syria	1
12	Tunisia	4
Total		43

Respondent organizations are diverse
and belong to different sectors:

	Sector	Number of Respondents
1	Telecommunications/ICT	17
2	Education/research	14
3	Healthcare	2
4	Public services	5
5	Banking/finance	5
Total		43

Some Findings from the Survey (1/9)

Motivations for Cloud Services Adoption

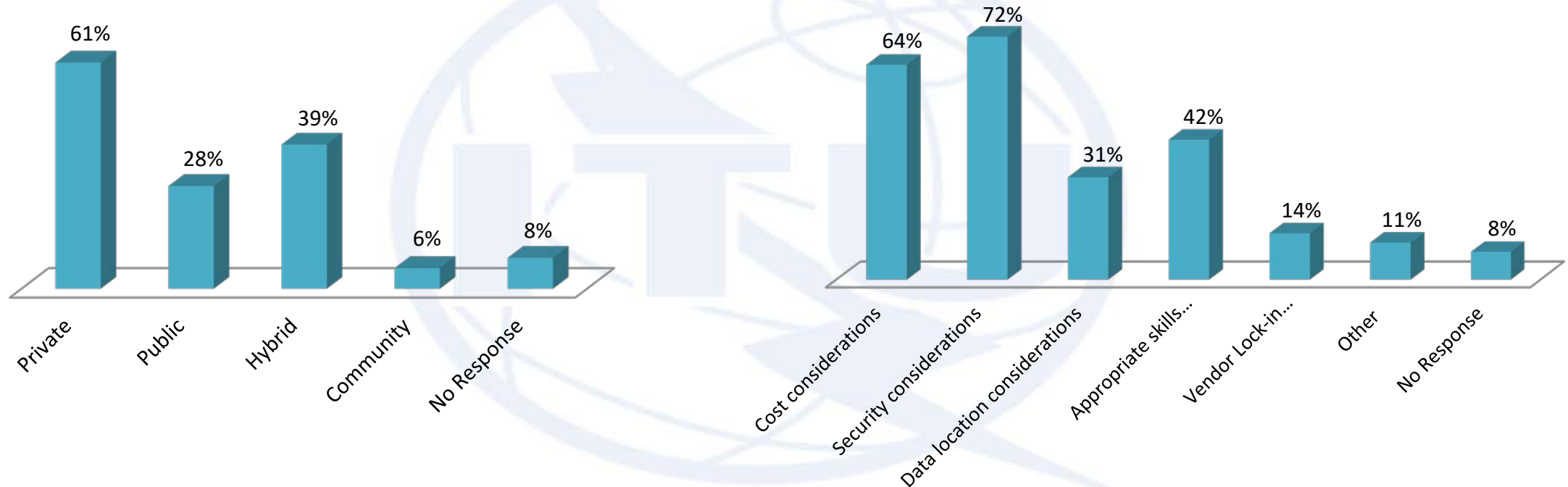


The main motivation for Arab organizations to migrate to the cloud is to **increase work efficiency**, mainly by:

- improving collaboration within the organization's staff
- enhancing mobility
- offering office tools and productivity-enhancing applications on the cloud

Some Findings from the Survey (2/9)

Adopted Cloud Deployment Models

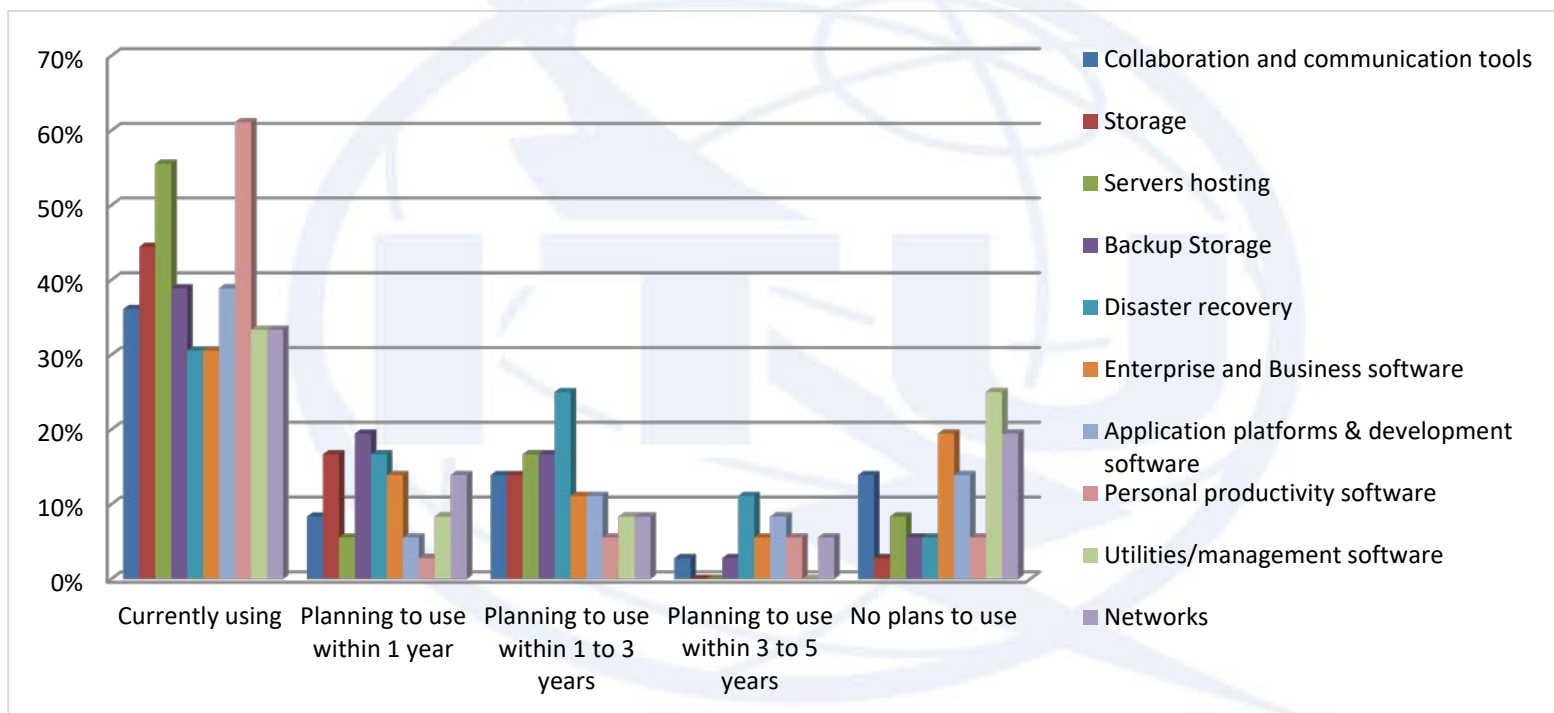


The **Private Cloud Computing** is the most adopted deployment model by Arab organizations (61% of respondents)

Security is the most important factor that influences the choice of the cloud deployment model by Arab organizations (72% of respondents)

Some Findings from the Survey (3/9)

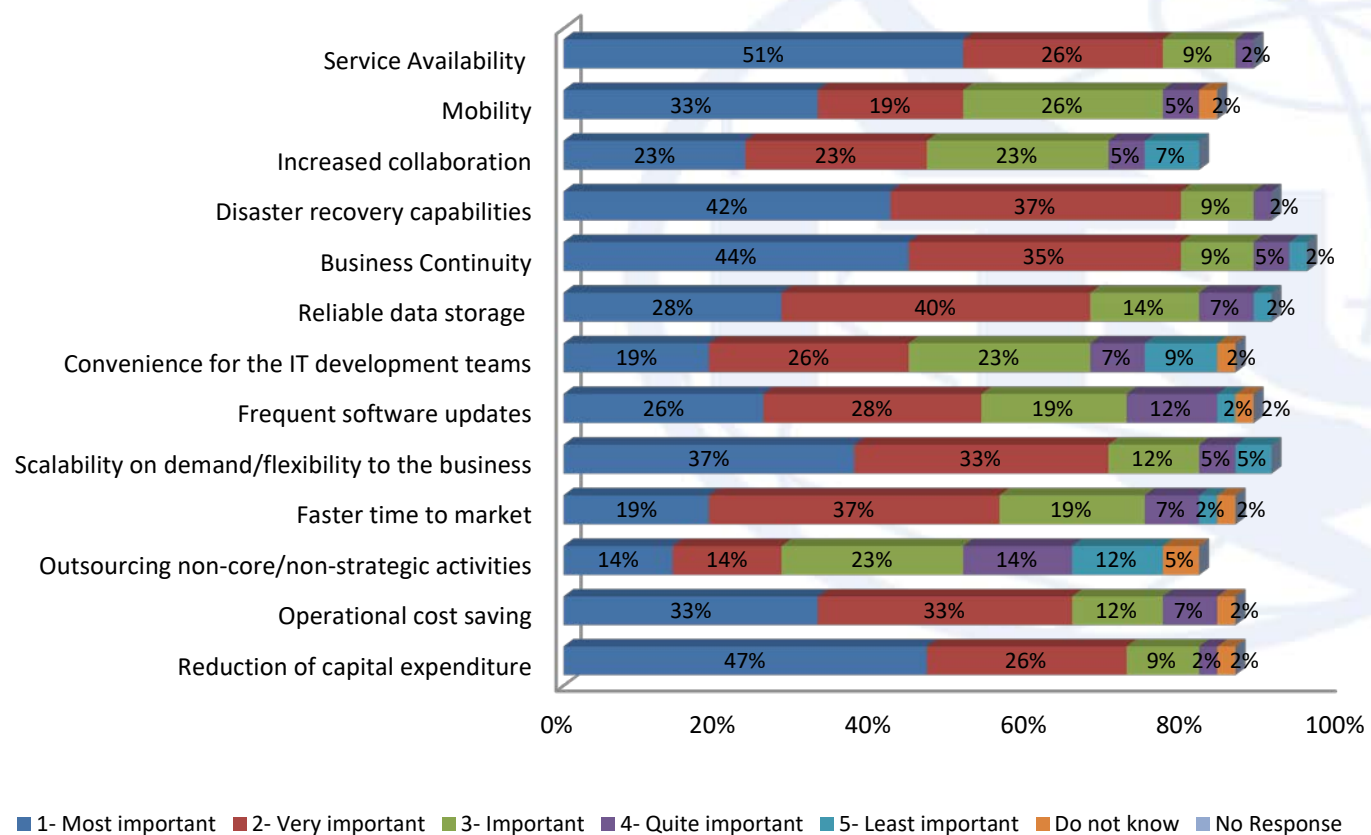
Cloud Computing Services and Applications



The responses to the survey show that **personal productivity software** (61% of respondents), **servers hosting** (56% of respondents) and **storage** (44% of respondents) are the most Cloud Computing services currently used by Arab organizations

Some Findings from the Survey (4/9)

Cloud Computing Advantages

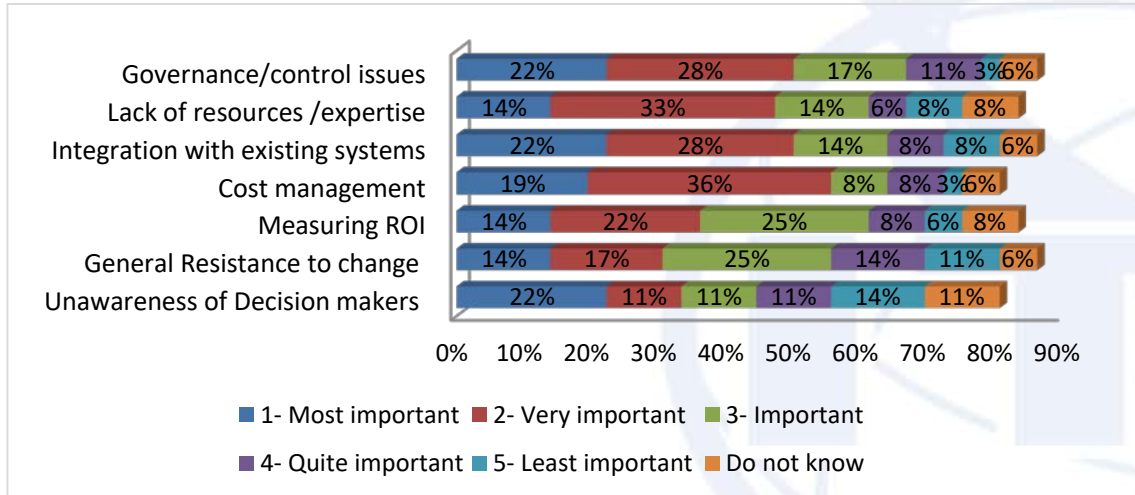


- According to the survey's findings, **service availability** was ranked as the most important advantage of Cloud Computing for Arab organizations (51% of respondents)
- High importance was also given to other advantages such as the **reduction of capital expenditure** (47% of respondents), **business continuity** (44% of respondents) and the **disaster recovery capabilities** (42% of respondents)



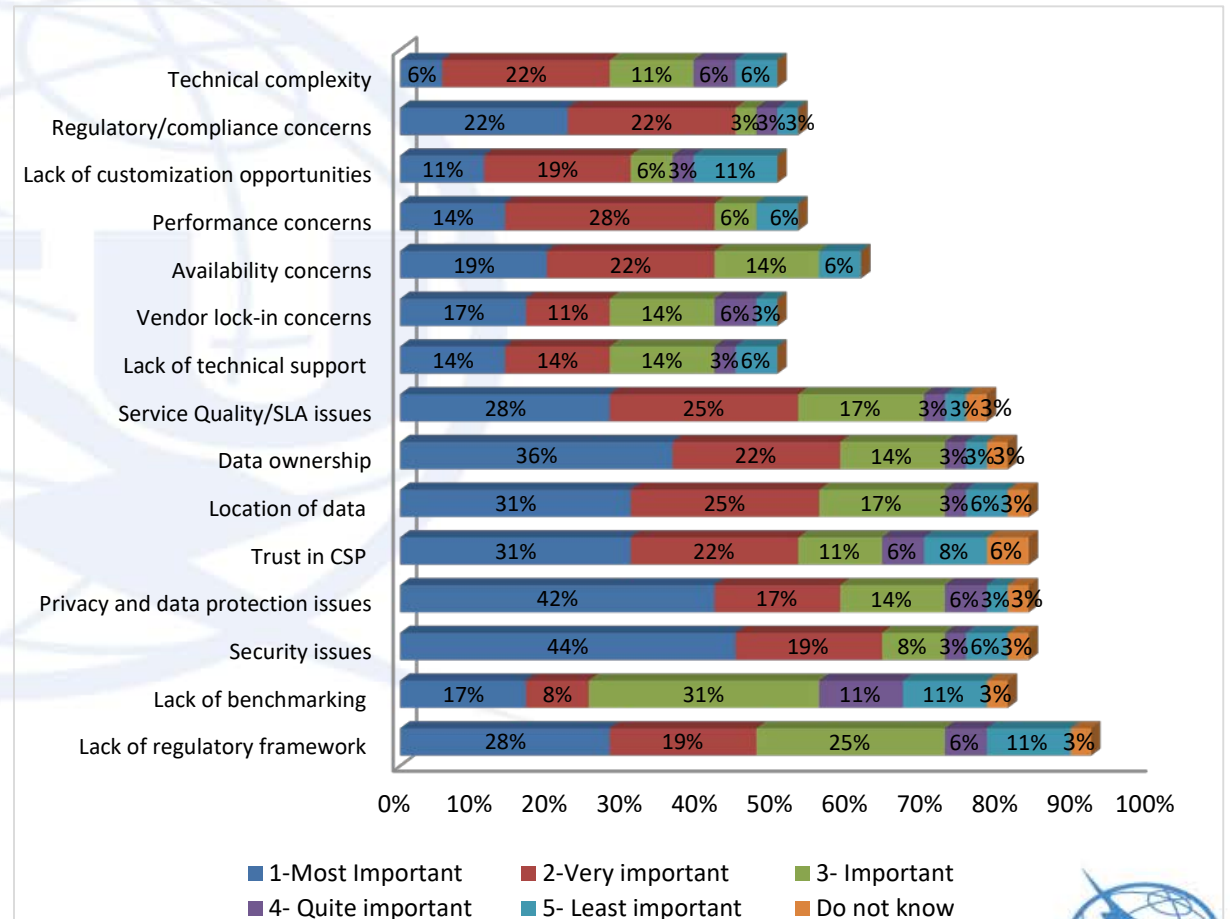
Some Findings from the Survey (5/9)

Internal Barriers to Cloud Services Adoption



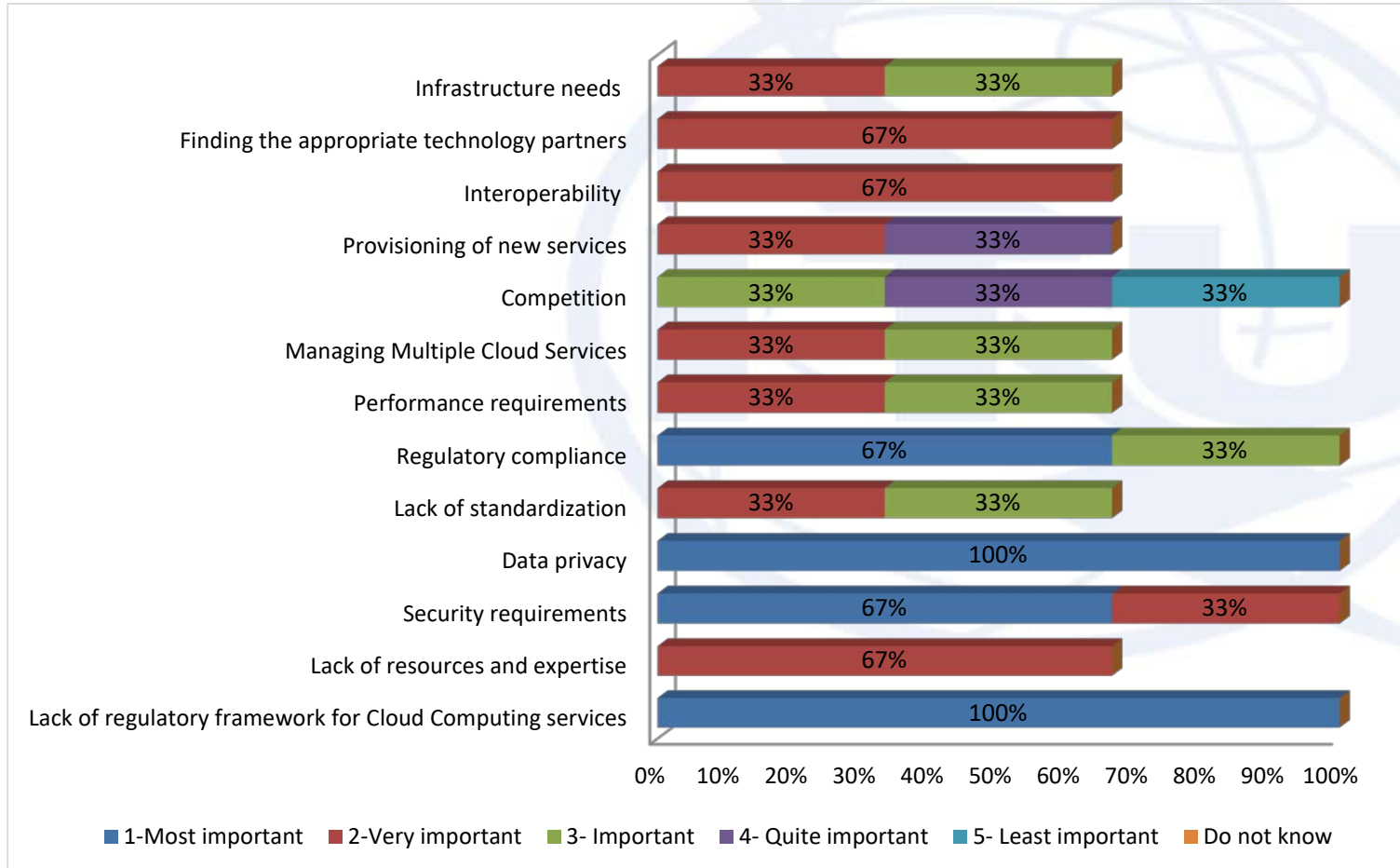
According to the survey's respondents, **Privacy and data protection** issues are the most important external barriers to Cloud Services Adoption in Arab countries while **Governance/ control issues, integration with existing systems** and **unawareness of decision makers about the potential of the Cloud** are the most important internal barriers

External Barriers to Cloud Services Adoption



Some Findings from the Survey (6/9)

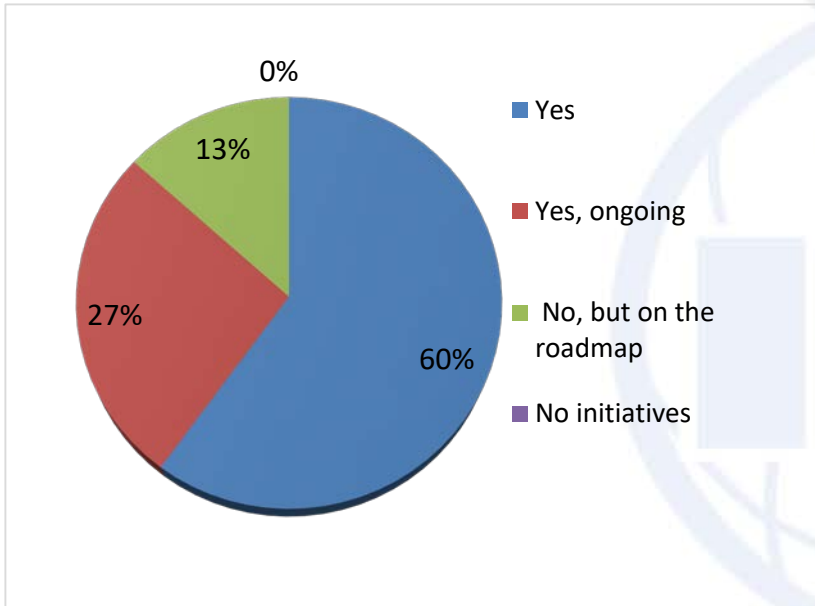
Challenges of Cloud Service Providers



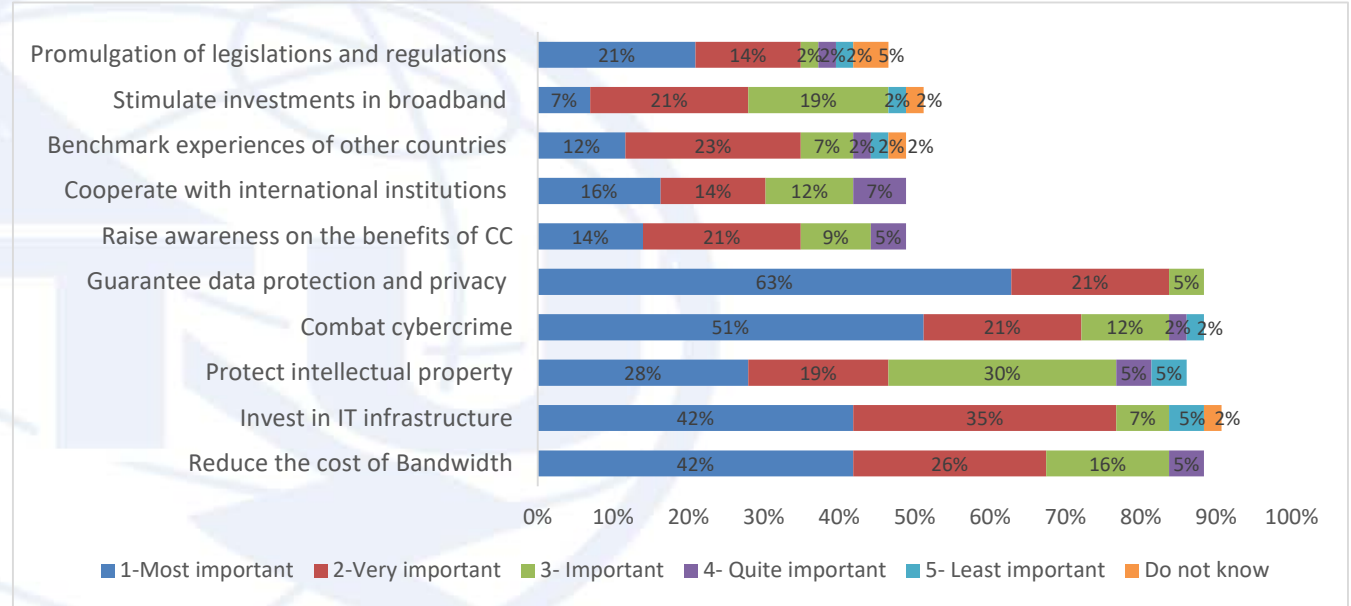
The **lack of regulatory framework for Cloud Computing services** and **data privacy** are the top two challenges for Arab Cloud Service Providers

Some Findings from the Survey (7/9)

National Initiatives to Promote Cloud Computing



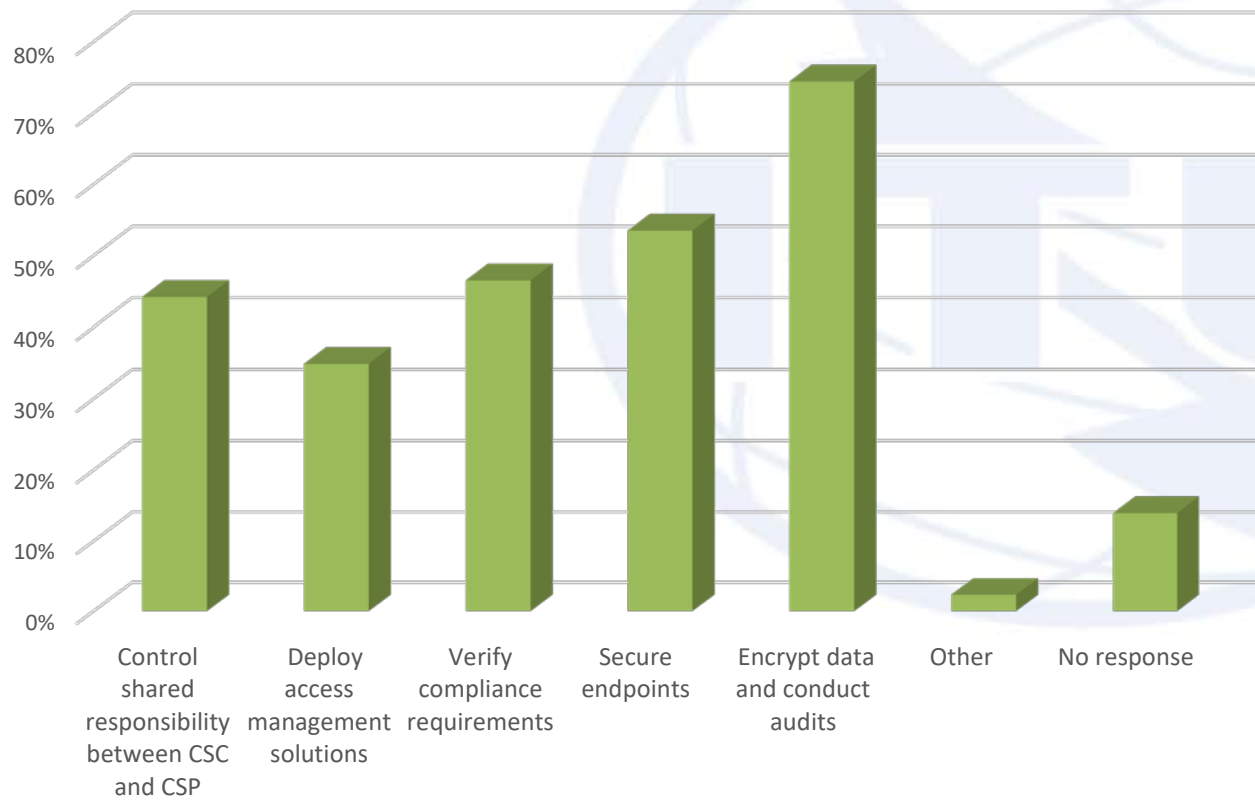
60% of the respondents mentioned that their countries have already launched national initiatives to promote Cloud Computing



The most recommended initiatives to be launched in order to promote Cloud Computing in Arab countries are to **guarantee data protection and privacy**, **combat cybercrime**, **reduce the cost of bandwidth** and **invest in IT infrastructure** such as implementing IXPs and building national data centers

Some Findings from the Survey (8/9)

Best Practices to enhance Security in the Cloud

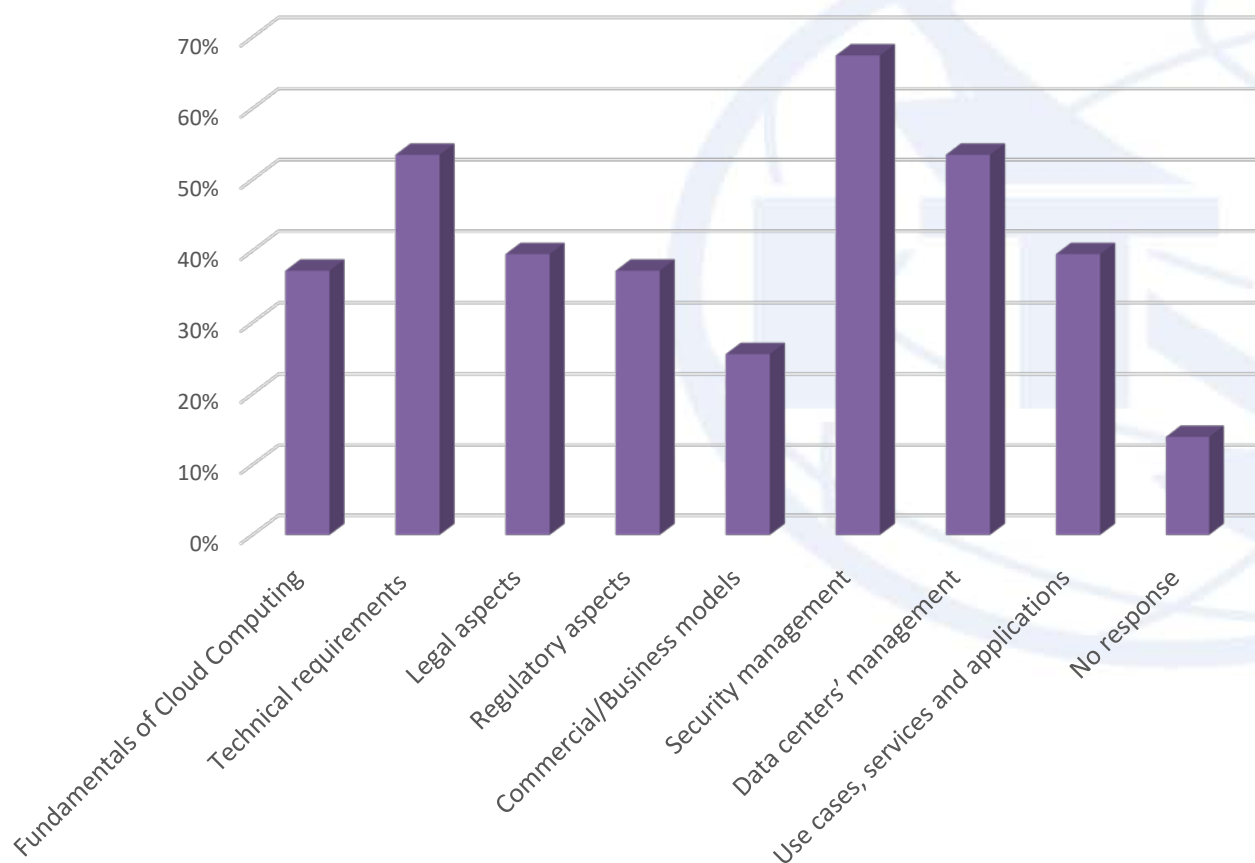


Encrypting Data and conducting audits were ranked as the most important and helpful best practices for Arab organizations to enhance security in the Cloud (74% of respondents) followed by **securing endpoints** (53% of respondents) and **verifying compliance requirements** (47% of respondents)



Some Findings from the Survey (9/9)

Need for capacity building



- The main area where capacity building is needed by Arab organizations in the field of Cloud Computing is **security management** (67% of respondents)
- Capacity building is also needed in the domains of **data centers management** and **technical requirements** including IT and networks (53% of respondents)

Some Recommendations (1/3)



- Arab Governments need to establish of a cloud computing regulatory framework which focuses on the regulatory issues related to Cloud Computing and defines clearly the rights and obligations of the main actors in the Cloud Computing ecosystem, essentially CSPs, Individual Customers, Government entities and organizations using the Cloud
- Building Data Centers in Arab countries could drive the use of Cloud Computing Services as the hosting of data outside the country is considered problematic and raises many concerns related to security and data protection
- The coordination of legislations between countries and sub-regions on data protection aspects in the cloud would be important to promote a wider use of Cloud Services inside the Arab region and to help local CSPs enter new markets
- More Internet exchange points (IXP) should be established in the Arab Countries, on national and/or regional basis

Some Recommendations (2/3)



- Policy makers and regulators in Arab countries should put in place policies and regulations that support the [development of broadband infrastructure](#) and ensure the availability and the affordability of broadband access for all citizens
- Concerns about [data security should not prevent Arab organizations from using cloud services](#) and benefit from their multiple advantages. The selection of the most suitable deployment model and of the right CSP that meet the requirements of the organizations in regards to security of data and compliance, could mitigate the security risks
- At a national scale, ICT Academic institutions should include [Cloud Computing studies in the university curriculum](#) and award degrees dedicated to Cloud Computing
- CSPs should establish a [team of experts certified](#) in many Cloud aspects and build strong partnerships with international companies specialized in Cloud Computing in order to help them build their data centers, install services platforms and enrich their services portfolio

Some Recommendations (3/3)



- Raising awareness about [Cloud Computing Advantages](#) may help convince top managers of organizations about the importance to migrate to the Cloud and reduce the impact of resistance to change
- Arab countries which are more advanced in Cloud usage and provision could [share their experiences](#) with other countries as well as develop best practices that could be helpful for the other countries
- [Arab countries should get more involved](#) in the standardization activities of international SDOs (Standards Development Organizations) and communicate on their needs for Cloud Computing standards and their concerns which could be addressed by standards in order to take account of them in future standardization work
- A [Task Force for Arab countries around Cloud Computing](#) could be created in order to further and effectively contribute to the standardization activities of international SDO and groups working on Cloud Computing standards



Thank you