

# Implementation of cloud computing in Albania and related security concerns

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# SHORT BIO



Ergest ALITE graduated from the Faculty of Electrical Engineering, Telecommunication Branch in 2002. He holds an MPA diploma in Economics from 2013 and he has worked as adjunct lecturer at the Polytechnic University of Tirana from 2010. He has an extensive experience in the Information Technology field since 2004, starting from the very bottom, as a specialist, to management positions. Currently he holds the position of Department Manager of Information Technology, NOC & Service Desk Department. He is PHD Candidate at the Polytechnic University of Tirana, Faculty of Information Technology. His work focuses on the analysis of security in the Cloud Computing technology.

# TOPICS OF INTEREST

- ▶ **Adoption of Cloud Computing Technology into small Markets.**
  - ▶ **Accuracy of DOI model and TOE framework for Small and Developed Countries.**
  - ▶ **Security in Cloud Computing from Regulatory aspects for countries out EU.**
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# INTRODUCTION

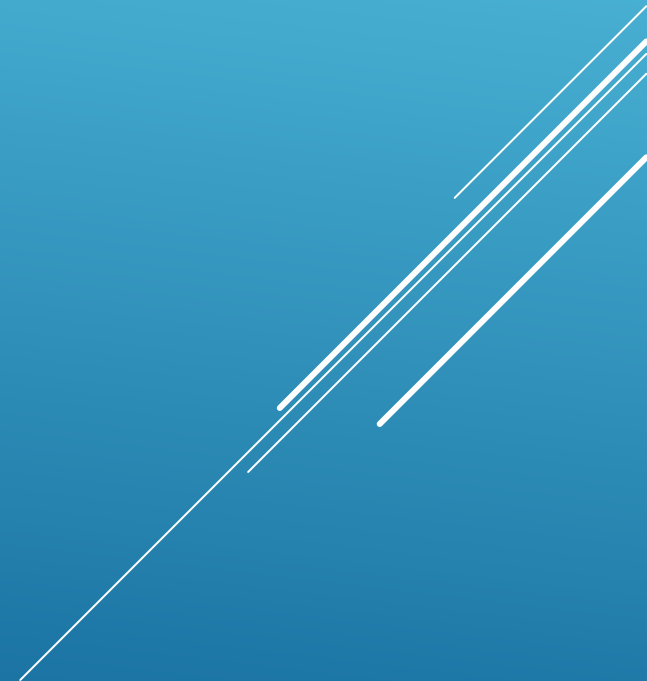
- Cloud Computing technology is revolutionizing Information Technology (IT) services nowadays.
- Almost all major IT hardware and software companies are focusing on delivering these services.
- All application development companies are trying, through customer requests, to switch all their services from their offices to the cloud platforms of their respective companies.
- Microsoft is performing this through pushing its customers to get Cloud Services during respective Enterprise Agreement renewal .
- SAP has already announced that it will provide support for on premise platforms up to 2025, and after this time it will interrupt support services for customers who still have on premise platforms

# CLOUD COMPUTING TRENDS AND APPROACHES

- Although the strategy from global companies and technology leaders is clear, most clients and local companies are not yet aware, and do not own a strategy on how to approach accordingly.
- Two approaches are mainly followed by companies.
  1. *the 1<sup>st</sup> approach, being based on establishing a partnership with global companies, and become resellers of their services*
  2. *the 2<sup>nd</sup> approach, being based on making own investments and operating independently for similar services.*
- First approach advantages :
  - a. No CAPEX
  - b. Only OPEX

# CLOUD COMPUTING TRENDS AND APPROACHES ...

- First approach disadvantages :
  - a. the client is always the provider's client
  - b. small profit margins
- Second approach advantages :
  - a. Service is local
  - b. Customers remain with the company.
- Second approach disadvantages :
  - a. Investment costs are very high.
  - b. Not profitable for small markets.



# SITUATION IN ALBANIA

- In Albania Cloud Computing technology is not yet finding widespread support and application among users and providers of information and telecommunication services
- This situation is characterized by several factors that directly influence the development of such technology:
  - ❑ Firstly, the Albanian market is considered small and therefore demand is extremely trivial.
  - ❑ Secondly, required investments (CAPEX) for Cloud Computing technology are relatively substantial and do not justify the low market demand.
  - ❑ Thirdly, there is no legal regulatory framework in place to protect and stimulate the development of such technology within the Albanian territory.

# SITUATION IN ALBANIA ...

- Although the indicators of providing Cloud Computing services are not at their optimum in the current domestic market, there is an expectation of market reaction and interest for the upcoming years.
- This will come as a result of the Albanian businesses' own demand for such services (example Hotels, Agricultures Companies, etc.).
- This spirit will be further intensified by the current brain drain situation (the migration of IT specialists to European Union countries), and this lack in Human Resources will drive businesses to choose such services as a feasible, and effective option.
- However, globalization and pricing policies set by big players are negatively affecting developing countries, like Albania and are not favoring respective demand coming from these countries. Price differentiation for these countries is imperative in order to boost service request as well as to extend usage of Cloud Computing technology throughout the country.



# IMPLEMENTATIONS IN ALBANIA

- 1. Public Sector – Services provided by National Agency for Information Society.** -- In 2008, the Albanian Government started the implementation of Cloud Computing technologies for its purposes. This implementation was designed, and followed by the National Agency for Information Society (NAIS)
- 2. Private Sector – Services provided by ALBtelecom** -- In April 2013, for the first time in the Albanian market, the implementation of a real public cloud infrastructure was launched. This implementation was carried out by ALBtelecom, and it was aimed for the entire range of businesses in Albania; starting from SOHOs, and ending with large businesses. This infrastructure was providing guarantee, quality, and faster delivery time of the given service through two data centers, one in Tirana, and the other in Elbasan
- 3. Private Sector – Services provided by Vodafone Albania** -- On April 19<sup>th</sup>, 2013, Vodafone launched its new service, called Vodafone Cloud, in the Albanian market. The initiative undertaken by Vodafone became an ongoing strategy of Vodafone Group, offering the cloud Services to all its subscribers in all subsidiaries of the company.

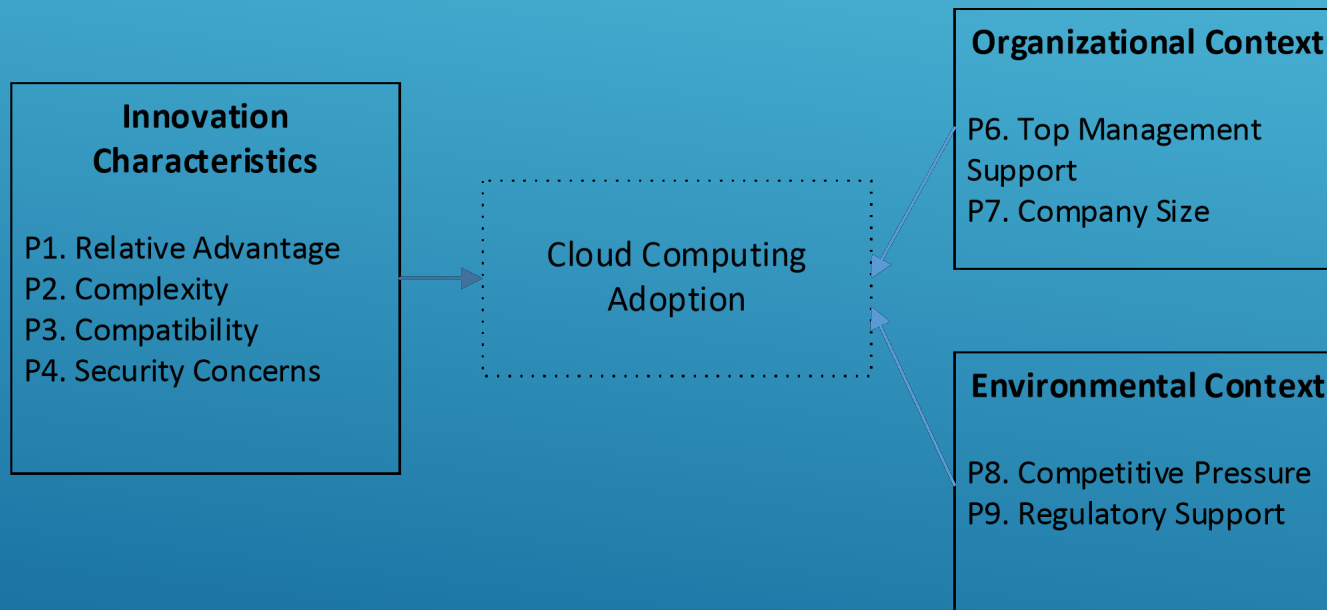
# THEORETICAL BACKGROUND

The most well-known theories about technology adoption at company level are the DOI model, and the TOE framework.

- I. ***Diffusion of innovation (DOI)*** - DOI is a theory that examines how, and in which way new technologies, especially IT ones are adopted, and accepted among different communities and cultures.
  
- II. ***Technology, organization, and environment (TOE) framework*** - The process by which a company or organization adopts and implements technological innovations is influenced by the technological context, the organizational context, and the environmental context.

# RESEARCH METHOD

Our research method by combining the DOI model, and the TOE framework



# RESEARCH METHOD ...

## Innovations Characteristics

- **Relative advantage** - P1. Relative advantage will positively influence Cloud Computing implementation.
- **Complexity** - P2. Complexity will negatively influence Cloud Computing implementation.
- **Compatibility** - P3. The high compatibility will positively influence Cloud Computing implementation.
- **Security concern** - P4. Security concerns will positively influence Cloud Computing implementation.

## Organizational Context

- **Top Management support** - P5. Top management support will positively influence Cloud Computing adoption.
- **Company size** - P6. Firm size will positively influence Cloud Computing adoption.

## Organizational Context

- **Competitive pressure** - P7. Competitive pressure will positively influence Cloud Computing implementation.
- **Regulatory support** - P8. Regulatory support will positively influence Cloud Computing implementation.

# SURVEY RESULTS, SECURITY AND PRIVACY CONCERNS AND MISSING REGULATORY SUPPORT

A survey was taken, among 250 IT community members all around Albania. 55% of the people were from the private sector, 30% from public sector, and the rest, i.e. 15% freelancers, and employees of non-profit organizations.

***Main Result - Cloud computing is not usually adopted, and implemented in Albania.***

- One of the main reasons according to outcomes was the fact that there exists a big concern regarding security, and privacy.
- It consist of the fact that users think their data may be used for unknown purposes, without them being aware, without prior consent, or approval.
- The Law For Protection of Personal Data is not guarantying subscribers Data's Security and Privacy.

# CONCLUSIONS

- ❑ **Albania has already hit the road towards the Cloud Computing era.** Although implementations are few in number, they are very important from the technological and economic viewpoints.
- ❑ In the Albanian legislation, currently there exists an **open space** for legal obligations to be met by companies for storing, processing, and securing of data that are residing in cloud computing platforms.
- ❑ **The lack of national laws for personal data protection** has made the provision, and development of cloud computing services even less demanding, and with a shift towards Europe's service.

**END**

