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CLOUD COMPUTING FROM THE PERSPECTIVES OF SMALL AND MEDIUM-SIZED ENTERPRISES (SMEs)

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ABSTRACT

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This thesis was purposed to combine the information and communication technology (ICT) world and that of the business, by using resources such as cloud computing (CC) and business units such as small and medium-size enterprises.

The aim was to bring attention of the present changes brought by the advent of cloud computing to the business world taking into consideration factors of economics of scale, security, adaptability, practicality, friendliness, and more. This thesis was meant to paint the theoretical and practical view of the various types of cloud computing, models, examples, deployments, commercialization, and security as usage is concern. The aim was to ascertain the advent of cloud computing (CC) provided in today's lucrative ventures for organizations to outsource their ICT solutions.

Small and medium-size enterprises (SMEs), contribute hugely to the gross domestic product (GDP) of many economies around the world, most especially that of the European Union (EU) where they stand as the backbone of economy. Definitions to SMEs were studied and then similarities and differences analyzed as they vary with geographical location.

The objective of the thesis was to enlighten of what cloud computing (CC) is, especially from the perspectives of SMEs, portray its various kinds, and services offered by the its platforms. The aim was to ascertain the various resources offered by the platforms on cloud computing to businesses and organizations, especially SME's, and the progress they can achieve when on the cloud.

The thesis also includes a study of selected case companies (Foodora, Wolt, Airbnb and Zalando) that started as small enterprises, but have been able to grow substantially by the use of cloud computing-based solution. The study was based on the data they had over time provided as to their growth on their respective websites. These cases serve as examples to support the idea that irrespective of the challenges that came as a result of the sizes and resources of SMEs as start-ups, they were able to grow and go global with ease and less cost, thanks to being on the cloud.

Key words
Cloud computing (CC), cloud migration, globalization, small and medium-sized enterprises (SME's)

CONCEPT DEFINITIONS

Cloud computing

"Cloud computing (CC) is the on-demand delivery of IT resources over the internet with a pay-as-you-go pricing model" (AWS 2021). It is cost effective to access IT resources such as computing power, databases and storage than the purchasing, owning and maintaining of physical data centers and servers. CC is seen by the National Institute of Standards and Technology (NIST) as; CC is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management efforts or services provider interaction. The CC is characterized by five essentials qualities; On-demand self-service, Broad network access, Resource pooling, Rapid Elasticity, Measured Service. (Peter & Grance 2011.)

Cloud migration

It is the process of deploying data, application, or other business elements to a cloud computing environment. This deployment is like a physical move except it involves moving resources, data, application, and IT processes from on-prime to the cloud. Some migration strategies include.

- ❖ Rehosting; Companies use IaaS (Infrastructure-as-a-Service) to recreate same on-prime infrastructure on the cloud.
- ❖ Refactor; They reuse existing codes and frameworks but run their applications on PaaS (Platform- as-a-Service).
- ❖ Revise: This involves partially rewriting or expanding the code base which can be deployed using either Rehosting or refactoring.
- ❖ Rebuild; This can be a labor-intensive process which involves rewriting and re-architecting the application from ground up on a PaaS (Platform-as-a-service).
- ❖ Replace; All about discarding their old application and soliciting an already built application to be run on a SaaS (System-as-a-Service) from a third party.

(Cloudflare 2020)

Globalization

The Oxford dictionary sees globalization as a process in which businesses or other organizations develop international influence or start operating on an international scale. Another school of thought sees globalization as representing global integration of trade, investments, information technologies and cultures. Government policies designed to open economies domestically and internationally to boost development of poorer countries and raise standards of living for their people are what drives

globalization. However, these policies have benefited everyone base on their level before entering the markets (Anderson, S., 2021).

Amongst the several models of globalization like; multiculturalism, Literary theory, cultural studies, literacy criticism, capitalism, World literature, Group identity, Literacy, I will be writing on; Economic globalization, which is the increasing economic integration and interdependence of national, regional, and local economies across the world through an intensification of cross-border movement of goods, services, and capital. (Reingard 2001, 638-649.)

Small and medium-sized enterprises (SMEs)

I consider SMEs as the backbone for every economy (Khan, N. & Al-Yasari, A. 2016), and it is a period that determines the future size of a company depending on the vision of its owners. Whereas it should be noted that there is no standard definition for SMEs, but several economic unions have tailored definitions for this depending on their respective economic society (Ward, S. 2020). The EU, a similar system is used to define Small to Medium Enterprises. A business with a headcount of fewer than 250 is classified as medium-sized; a business with a headcount of fewer than 50 is classified as small, and a business with a headcount of fewer than 10 is considered a micro-business. The European system also considers a business's turnover rate and its balance sheet. (European Commission, 2005.)

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1 INTRODUCTION

The priority for every organization around the globe in this recent world of competitiveness is to increase productivity and efficiency in their services thus attaining increasing development. Cloud computing (CC) is attracting and gaining grounds with many organizations, also small and medium-sized enterprises (SMEs), are investing as it drives organizations with a productive potential to enhance efficient performance to increase productivity through faster innovation, resource flexibility and economic of scale. For close to a decade, SMEs have developed and are progressively expanding as Cloud Computing gives them the leverage of facilitating economic expansion, thus contributing to economic development, and for instance adding value to Gross Domestic Product (GDP) of several nations. As the competitiveness of increasing productivity and development services becomes demanding due to the trending technology development in the business and economic world today, many organizations and SMEs are adopting and engaging in Cloud Computing. There are several firms providing cloud services, like: Amazon, Microsoft Azure, Google Cloud Platform, Adobe, VMware, IBM Cloud, Rackspace, Red Hat and others.

From this, the research gained interest to ascertain the opportunities offered by the Cloud Computing platform to SMEs and the later progress achieved when on cloud. The research will be an eye opener to learn and understand more about the potential impact of Cloud Computing to SMEs ventures. The research progress will expose understanding of the advent of Cloud Computing provided in today's lucrative ventures for organizations to outsource their information and communication technology (ICT). More understanding will be gained on how other SMEs can venture in Cloud Computing to enhance productivity, resources efficiency and performance thus attaining growth. To summarise, the purpose of this paper is to show how cloud computing can permit small and medium-sized Enterprises (SMEs) to go global with the ability of those enterprises to be managed internationally thanks to Cloud Computing and also without them breaking borders physically. My personal motivation for choosing this topic is to pave a better future for my career as an Amazon Web Service (AWS) Solution architect technician plus to complete my present Bachelor's Degree Programme in Business Management.

The research report consists of two phases.

❖ Firstly, it looks at what SMEs and CC are all about

❖ Secondly, the research looks at the indicators that describe the present strength of selected well-known and rapidly grown former SMEs that have very successfully expanded to global business by the support of CC solutions.

This research will add to others to contribute to the experiences on cloud computing adoption, especially from the viewpoint of growth-oriented SMEs. It will also provide information to aid SMEs to scale up to resources demand resulting to an increased development.

2 SMALL AND MEDIUM-SIZED ENTERPRISES (SMEs)

Many economies today are driven by companies of different services and production diversity, majority of which are SMEs. SMEs are defined with respect to different geographical boundaries using different criteria. However, SMEs are categorically defined by some based on, the employees' population, total net assets, investment and sales levels. But the most commonly defined category looks at the population or number of employees, having a variation of upper and lower size limit on the population of employees in SMEs (Adam & Musah 2015). For instance, majority defines and categorizes SMEs to constitute a maximum of 250 employees while other define SMEs using terminology like: SMME (Small Macro and Medium-sized Enterprises) SMBs (Small to Medium Businesses).

Whether it is known to some as "Small and medium-sized enterprises or Small to medium-sized enterprise", there is no universally accepted definition for SMEs, but the fact that all definitions carry a threshold number of employees should have depending on their geographical location and a threshold amount of income or capital they should have depending on their economic union.

SMEs can be argued to be the backbone for every economy, and it is a period that determines the future size of a company depending on the ambitions of its owners. Whereas it should be noted that there is no standard definition for SMEs, but several economic unions have tailored definitions for this depending on their respective economic society. In the EU, a similar system is used to define Small to Medium Enterprises. A business with a headcount of fewer than 250 is classified as medium-sized; a business with a headcount of fewer than 50 is classified as small, and a business with a headcount of fewer than 10 is considered a micro-business. The European system also considers a business's turnover rate and its balance sheet. (European Commission, 2005).

Taking a closer look at definition of an SME by the Finnish Office of Statistical studies (In Finnish language; "Tilastokeskus"), small and medium-sized enterprises (SMEs) are defined as enterprises which have fewer than 250 employees and have either annual turnover not exceeding EUR 50 million (EUR 40 million before 2003), or an annual balance-sheet total not exceeding EUR 43 million (EUR 27 million before 2003) and which conform to the criterion of independence as defined below. Independent enterprises are those which are not owned as to 25% or more of the capital or the voting rights by one enterprise, or jointly by several enterprises, falling outside the definition of an SME or a small enterprise, whichever may apply.

SMEs play very significant contribution to the GDP of every nation economy and great impact to the labor market. Many nations around the globe are increasing recording the establishment of SMEs in their economies and most importantly at the nation's community levels. As the business world is rapidly embodied and influenced by novel technologies for productive and efficient performance, it is seen that, the world of SMEs with its expertise are confronted and or threatened to adopt novel technology strategies that can greatly render them outstanding in performance and efficiency with respect to their services.

The introduction of Cloud Computing is a strategic tool that is seen to greatly increase the productive contribution and efficient performances of SMEs in the business world of recent times. SMEs typically demonstrate solid regional connections by contributing significantly to the solid financial grounds at community levels than bigger enterprises. The progressive emergence of SMEs into the utilization of CC thus remains a beneficial approach to the economy and the SMEs in particular.

2.1 Types of SMEs

SMEs operate in every global location today and they represent majority of the businesses trending around the globe. The category or type of SMEs is specific by country to country. This implies every country has a different definition and categorizes SMEs differently. However, the categorization of SME types are based on the following characteristic or traits.

- ➢ Annual sales
- ➢ Number of employees
- ➢ Amount of assets owned by entity
- ➢ Market capitalization
- ➢ A combination of the above traits

However, looking at the number of employees as a trait, SMEs are independent entities with different number of employees, for instance, the United State of America defines SMEs differently from one industry to another. The United States defines SMEs among other traits as entities that with not more than 500 workers. Some SMEs are defined to have less than 50 employees, some countries categorize SME's to have a total of 200 worker. However, the general categorization emphasizes on SMEs constituting about 250 employees as an upper range in companies' size. (CFI 2020.)

TABLE 1. SME categories. (European Commission 2021)

Company category	Staff Headcount	Turnover or Balance sheet total
Medium-sized	< 250	≤ € 50 m or ≤ € 43 m
Small	< 50	≤ € 10 m or ≤ € 10 m
Micro	< 10	≤ € 2m or ≤ € 2m

As seen from Table 1, these ceiling values shows the category of the company to the number of staffs plus her equal to, minimum or maximum turnover per annum and they only apply to individual firms, implying that a firm that is part of a larger group may need to include staff headcount/turnover/balance sheet data from the group too. This definition was carried out in 2005 and later evaluated in 2012 by the European Union Commission who did not see any need for a major revision. (European Commission 2021.)

Looking at the SMEs categories on the above table 1 indication, according to the EU Recommendation (2003), zone of SME types, analytically shows the main factors that determine whether an enterprise is an SME:

1. Staff headcount
2. Turnover or balance sheet.

Thus, companies with number of staff headcount staff of <250 and having a turnover or balance sheet total of ≤ € 50 m/≤ € 43 m are termed Medium-sized SMEs companies. Also, companies with number of staff headcount staff of <50 and having a turnover or balance sheet total of ≤ € 10 m/≤ € 10 m are termed Small SMEs companies, and companies with number of staff headcount staff of <10 and having a turnover or balance sheet total of ≤ € 2 m/≤ € 2 m are termed Micro SM companies (European Commission/EU Recommendation 2003).

2.2 Importance of SMEs

SMEs are the most trending companies adopted around the globe and greatly play a vital role in advancing development by adding significant economic and social values to communities, economies and global. Looking at; creating a sound/healthier and more competitive economy, that favours flexibility and innovation, aid larger enterprises and incentive to the government are some significant traits with respect to the importance of SMEs. (CFI 2020.)

The following list introduces the diverse importance and significance of SMEs, laying more emphases to our recent society of today. SMEs place diverse significance and importance that can create great value and expansion to the growth of a company businesses in a global scale. This comes here in:

Create a Sound/Healthier and more Competitive Economy

SMEs stimulate business competition for product designs, cost (prices) and efficiencies. The absence of SMEs in the entrepreneur world can cause larger companies to hold control on virtually all the active areas.

Favors Flexibility and Innovation

Several innovations and technology developments are endorsed to SMEs. Larger companies typically focus on developing old products to produce more quantities to gain benefits on the dimensional economy generally. Companies of such focus and functions remain less flexible comparatively to small and medium-sized enterprises. However, small and medium-sized enterprises gain successful benefits through the increasing motivation on producing novel products and services, rendering them capable of adapting faster to the changing requirements of the market.

Aid Larger Enterprises

SMEs assist larger entities in some operation sectors that they have capability of supplies. Larger enterprises engage in several activities which can make them less efficient. Thus, with the easy flexibility of SMEs, supplies and distribution of finished products from larger enterprises are easily facilitated and efficiently developed by SMEs.

Incentive to the Government

SMEs are not left behind when it concerns value addition of finance to the government. As recognitions, SMEs offer regular tax payment and loans.

2.3 Common Organograms (Organizational Structures) of SMEs

Any organization, business entity or company that aims to strive high in performance must have a structure or organogram. An organogram is technical instrument that can aid small business entities in strategic implementations. Organogram help SMEs to formalize the entities chain of com-mand, facilitates decision-making process, enhance responsibilities and accountability aspects and also enhance enterprise operating performances.

An organogram creates a hierarchical foundation in SMEs to increase efficiency and effectiveness of business operations. There exist different types of organizational structure which are not specific to SMEs. Simple structure, functional structure and product structure are commonly the organogram type or organizational structure typically employed by SMEs in their business operations and functions (Lorette, K. 2019).

Simple Organizational Structure

This organogram constitutes the manager (owner) and the workers, where the manager is the general supervisor who actively operates at all functions in the business. The control span in this organogram is a centralize approach where authority comes from above, having the manager (owner) making majority of the business decisions. The manager is dependent on the entities informal relations than the formal policies procedures or regulations to communicate decisions to workers (employees). The manager adopts engagements that directly support his business decisions.

Functional Organizational Structure

Functional organogram works in a delegating approach where authority is bestowed to personnel as a manager to oversee specific business operations and functions. This is an evolving approach where authority can rotate in the organization. However, the growth company demands and obliges an owner to

delegate business responsibilities to other employees. In this case, the functional organograms allow employees to report to the functional managers on their individual functions and responsibilities. Under a functional coordination employees and leadership is functional expertise oriented. Thus, the designation of authority permits the manager/ owner to narrow their connection on business functions and emphasize their potentials on customer / supplier relations and the de-sign and implement formal business strategies. Policies and procedures enable communication and also direct employee's activities. The functional organograms employ a hierarchical system based on the job role for each employee. Above all, this organizational structure sets employees of peculiar responsibilities to function and operate towards a mutual goal.

Product Organogram/ Organizational Structure

The product structure permits the manager (owner) to allocate decision-making duties to product managers. Therefore, the product manager directs and demand employees of these activities and functions to produce and sell specific product/product line. Thus, managers in this light, build expertise in business functions that support certain product line like production, acquisition and marketing.

3 CLOUD COMPUTING

Cloud computing (CC) is a service that offers a network of remote servers hosted on the internet for data storage, management and storage rather than using local servers hence reducing cost related aspects like infrastructure to name a few.

As an innovation and technology evolution shift, CC is a technology instrument that provide easy access and means where all computing command of computing infrastructure, applications, business practices to individual cooperation can be conveyed to clients as services anywhere and anytime is demanded, needed/required.

3.1 Overview and Development

CC is seen by the National Institute of Standards and Technology (NIST) as a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable re-sources for instance; networks, servers, storage, applications, and services, that can be rapidly provisioned and released with minimal management efforts or services provider interaction. CC is characterized by five essentials qualities.

- ❖ On the demand self-service
- ❖ Broad network access
- ❖ Resource pooling
- ❖ Rapid Elasticity
- ❖ Measured Service

(Peter &Grance 2011)

Cloud computing is a novel technology and communication advancement in computing over the past decades that has contributed to the optimization of IT performances of organizations and SME's with minimal infrastructural cost. Cloud computing in its rising demand in organizations as well as SME's facilitates a faster innovation, offers flexibility of resources and economic of scale.

According to NIST (National Institute of Standard and Technology) in the US, as a broadly accepted definition, CC is a model that enables a convenient on-demand network access to a share pool of configurable computing resources like; servers, networks, storage, services and applications that can rapidly provisioned and discharge through service providers (Mell & Grace, 2009). In a simplified term, CC is a process of storing and retrieving business information through the internet than through a computer hard drive (Sultan 2013, 272-278).

CC concept stipulates that the utility of CC reaches the end-user via a computing outlet. The outlet employed facilitates the deliverance of cloud computing services. CC is characterized by; broad network access, on-demand self-service, Rapid elasticity, resource pooling and measured services. However, CC constitutes four deployment and three service models. CC is facilitated by public, community, private and hybrid deployment models. These deployment models facilitate the deliverance of three major services to its end-user (Adam & Musah 2015).

As technology advancement is fundamental to economic operations performances, cloud computing remains an increasing need that is rapidly being adopted by many organizations around the world so as to enjoy the facilities rendered and prevailing benefits provided by CC. Cloud computing offers diverse services where SME's can venture and attain resource flexibility, in-creasing innovation thus establishing economic growth.

In a contemporary perspective, cloud computing is dated to commence in the 1960s, but many believe that the initial employment of cloud computing was established on the 9th of August 2006 when Eric Schmidt CEO of Google submitted the word during an industry conference.

Organizations and companies in the previous years of industrialization employ traditional methods of physical data storage and other strategies to render their services and record efficient performances. Haven being exposed in the technology era, CC is rapid gaining grounds in the business world today as it records a historic shift of information communication technology, as many cloud computing models are established in remote data environment, which facilitate organizations, companies to perform faster in innovation, flexibility, resource availability and more and most importantly enabling entities to record efficient performance with lesser infrastructure cost and investment.

It can be argued that it is time to park servers which acted as traditional host for data and services and move to the cloud. A cloud refers to a distinct information technology (IT) environment that is designed for the purpose of remotely provisioning scalable and measured IT resources. Also, cloud is a word that is utilized to represent" internet" which focuses on a large pool of operational resources like; hard and software that can be accessed via the internet (Vouk 2008). The cloud services are gradually becoming a household name not just for companies but for us as individuals to easily store our data on virtual data bases erected all around the world. An example is the Amazon which offers the AWS and also the Fujitsu which offers/holds the SAP system on the cloud. This is a set of centralized IT resources providing remote access to a network of networks. And this name originated as a metaphor from the internet. A vivid sketch of illustrating local IT environment and the CC environment can be seen in the subsequent pages on the figures section.

The past decades have recorded an increasing interest in the adoption of CC by enterprises. CC presents the capability of potentially reshaping the manner in which enterprises receive and manage their business needs for computing resources cost-effectively and proficiently. Looking at share service aspect, CC is regarded an innovative model for IT service sourcing that creates values for enterprises that adopts it. CC supports enterprises focus on the business core services and activities resulting to increase in productive performances. The engagement of CC by enterprises is increasing in today's technology world due to flexibility, scalability, simplicity and agility offered to enterprises. An established survey on the adopting rate of CC by enterprises indicated that 77% of large enterprises and 73% of SME's are adopting CC already some years ago (El-Gazzar 2014).

3.2 Perspectives of Cloud Computing

Cloud computing as a briefed is a computing paradigm with virtual network of remote servers allowing users to store, process and access data; hence offering an on-demand computation services with features like elasticity, scalability, security and redundancy (Kulkarni 2015). Below, I will be looking briefly on the various perspectives of cloud computing which is going to range from the business and technical perspective of cloud computing.

Business Perspective of CC

With CC becoming the trend and new way to do business, more and more organisations are opting for the cloud model to work. But before this rush, organisations and businesses depended on service companies which offered the structure. These service companies act as vendors of infrastructures to the companies which intend was very expensive to purchase and maintain, but with cloud being readily available at lesser cost before and more now, and being offered by a variety of host companies, they are a higher influx of companies opting for this new technology. But it should be noted that there is a thin line when differentiating when to outsource and when to use cloud. These aspects are:

- ❖ Level of Control
- ❖ Security
- ❖ Managing the business

(Wideskills 2021).

Technical Perspective of CC

The technical perspective of CC deals with virtualization of the operating system, computer, application, or any computing resource. The term is virtualization refers to users or applications communicating with virtual resources, which multiple operating systems can run on system. This technology involves the movement of the physical systems and resources to a virtualized environment, which can be on-site or off-site. The major types of virtualizations can be seen in the list below:

- ❖ Storage virtualization
- ❖ Hardware virtualization
- ❖ Operating system virtualization.

(Wideskills 2021).

3.3 Deployment Models

Deployment in CC is basically the various location, environment or flavors in which companies can choose to host their activities base on your requirements and needs (Tariq & Hasan 2010). These models are applied to different uses and emphasis are laid on their strengths and weaknesses (Cady, A. 2016). These, locations/environment/flavors are in four kinds which we will see below:

Public Cloud Model

This is the most familiar model of the clouds and requires minimal savvy to utilize. This cloud infrastructure model is provided as a general utilization, to an organization/industry group or general public. Cloud service provider own, host, manage and market this cloud services as cloud vendors (a third party) from one or several data centers. This model is "external to the consumers" implying users have no relation to its deployment, customization and maintenance of its infrastructure. This cloud model is use daily as data is synchronized to the cloud: smartphones and laptops will automatically sync data to the cloud which can be access from any device and place. Examples of public cloud service providers include Google App Engine, Apple Inc for iCloud, Amazon Elastic Cloud (EC2), Samsung Inc for Samsung cloud, Google's cloud, AWS, and Simple Storage Services (S3) (Mather, T. et al., 2009).

Private (Internal) Cloud Model

This is broadly the opposite of the later but has its own benefits. Although it is hosted and managed privately, its popularity is progressively increasingly. Here the cloud infrastructure is managed by an organization as a single utility. This cloud is employed internally and is managed in-housed and or with strict utilization access only to organization users (Yang & Tate 2012). However, the basis of this model is that all infrastructures are structured in-house for a company's own use and is not advertised or seen by the public. Private clouds offer the sincerest form of control and are just as private and secure as they are configured to be. It should be noted that, private cloud holds the savers, and it is prudent to emphasize on risk assessment and mitigation. Some clouds offer the possibility for storing your data in multiple availability zones (Multi A-Z) for failovers in times of disaster.

Community Cloud Model

Community cloud infrastructure is defined as communal where it is employed by many organizations. This model tends to be good for SME's because it offers greater level of uniqueness in its configuration than a public cloud, but it is exclusive like the private cloud. This is geared at organizations with common values that have common privacy and security needs and compliance requirements. Also, the organization can have same vision that can managed or have as third person that can either be manage on or off site (Marinos & Brisco 2009, Mell & Grance 2011). Examples of users of such cloud system are healthcare industries and universities.

Hybrid Cloud Model

This cloud is typically characterized by two (2) or more cloud models (public, community and or private) clouds. An organization will jointly use the two platforms for both functions." Going public with some resources and maintaining her privacy for her in-house data". This is good for business to differentiate data before hosting publicly. This provides a cost-effective solution to enterprises with complex needs. Examples of such users are e-commerce enterprises and Facebook.

3.4 Cloud computing service models

The introduction of CC model provides cost effective and flexible technology access in the market enabling businesses to perform faster than using the traditional approach. CC has many end-users with different needs in scale and service types (Kacharava 2015). CC constitutes three cloud service models that reach out to end-users at different category.

- ❖ Platform as a Service (PaaS)
- ❖ Infrastructure as a Service (IAAS)
- ❖ Software as a Service (SaaS).

Software as a Service (SaaS)

Companies or organizations using SaaS to engage with providers of solutions they seek and require. With this service, consumer is provided with an application running on the cloud infrastructure. Here

solution provision is expected to directly meet employee's needs and demands the provider to ensure availability of service always. The consumer can access the ap-plication via multiple devices through either thin client interface, such as web browser (for example, web-based email), or program interface This model does not provide the consumer the ability to manage or control the underlying cloud infrastructure which includes network, servers, operating systems, and storage, but SaaS provide solution that employs servers, soft-ware and bandwidth. It should be noted it also comes with limited number of user's interface. SME's use SaaS for email servers (severs that permit real time communication), and storage servers.

Platform as a service (PaaS) model

This allows the consumer to deploy onto the cloud infrastructure consumer-created or acquired applications created using programing languages, libraries, services, and tools supported by the provider. PaaS provides IT solutions to organizations involved in application development. PaaS being the host environment enable organizations to employ web-based platform and develop online application (Lawton 2008, 16-19). Consumer do not manage or control the under-lying cloud infrastructure of networks, servers, operating systems, or storage, but the consumer has control over the application and possible settings for the application-hosting environment. This service model also, develop and facilitate the use of software, hardware and operating system infrastructure to service users, enabling service users to develop novel applications with minimal cost.

Infrastructure as a service (IaaS) model

IaaS is a basic service where the provider provides the hardware and technology for computing power, operating system, storage, and infrastructure. However, the consumer is to provision processing, storage, networks, and other fundamental computing resources where the consumer is able to deploy and run arbitrary software, which can include operating system and applications. IaaS is seen as an online service that abstract end-users from physical computing re-sources, backups, data partitioning, scaling, location and security. In its simply term and notably, consumer cannot manage or control the underlying cloud infrastructure (Peter & Grance 2011, The NIST Definition of Cloud Computing). IaaS model provides applications that manage systematic maintenance resiliency development and backup targets and added resources like firewall, IP addresses load balancer and more (Kacharava 2015).

4 SMES ON THE CLOUD

The objective and priority of every business, organization or company operation is to create a positive impact, be highly competitive and most importantly record benefits. With the global competitiveness in the utilization of information and communication technology by several organizations and companies in gaining expansion and development grounds, SMEs in this recent time has not been left behind.

The economic and competitive nature of the world today puts every existing and aspiring organization on the run to become highly flexible so as to gain grounds. However, having resource, management and technology limitations and challenges, SME's are not left out as many SME's seek to pave ways to attain a competitive level by establishing cloud computing technology as a significant development strategy.

Although many SMEs are typically limited and challenged with current technology and resources availability, CC remains an instrumental and productive strategy that can enable and greatly facilitate SMEs to become very competitive and become very significant to their economy and to themselves more than ever.

As a prevailing aspect globally, SMEs are generally limited in the acquisition and usage of ICT resources, comparatively to their larger enterprise counterparts for several reasons. SMEs are challenged with diverse operations of the novel ICT and sustainability development concerns (Wang, Y. 2016). Fundamentally SMEs are managed with limited resources thus experiencing different levels of ICT adoption challenges comparatively to the bigger organizations having adequate resources. In a simple understanding SMEs are limited with managerial know-how and resources rendering them immature to adopt innovations.

From the exposed challenges faced by SMEs, the introduction, adoption and establishment of cloud computing technology provide SMEs with scalability, flexibility, business agility, and opportunities to manage cost effectively (Buyya et al., 2009). However, CC is seen to be very instrumental for SMEs; it allows SMEs clients' accessibility to computing power with limited infrastructural investment, it provides broad network access, increased elasticity, resource pooling, on-demand self-service, and measured services, thus CC enable SMEs to produce efficient productive performances. Thus, SMEs embracing ICT can grow faster, realised increased in export and increased in human resources (Kelly, T. 2013.)

4.1 Strategic and Practical Perspectives to SMEs on CC

The competitive enterprise world can greatly be developed through the employment of advance ICT services. Employing advance ICT services enable SMEs to become competitive in the market with bigger enterprises (Ahson & Ilyas 2010, 59)

The complexity of management issues associated to networking, software and hardware is increasing in traditional information technology settings, making it crucial for small and medium-sized enterprises to hire IT experts to instrument and maintain IT services. CC provides suitable solutions to IT concerns by facilitating scalable abilities and infrastructures to SMEs (Sharma et al. 2010, 144-149). CC provides direct access to contemporary IT solutions that enable SMEs to increase their services by improving customer relationship and market scope. CC maximizes SMEs investment returns helping SMEs to active in the constantly demanding cooperate setting effectively (Velte, Velte. & Elsenpeter 2009). CC does not only improve IT data centres in SMEs but also identifies fundamental transformations in information technological services like how IT is utilized, delivered, and released to users from place to place (Sultan, N., 2011).

Comparatively to big business, industries and or enterprises, SMEs access to financial and human resources is low. Thus, lacks aptitudes to efficiently elevate their IT systems to attain shifting business necessities effectively. However, the SMEs incapability of implementing modern technologies in their businesses diminishes the likelihoods to engage in extremely innovative business environment and also to contend with prevailing competitors (Sharma et al. 2010, 144-149).

However, cloud computing adoption enables diverse services for SMEs like; provision of storage services, collaboration, IT infrastructure, specifically; private cloud infrastructure. Thus, SMEs operating with minor IT sectors can charge for IT services than buying IT services, therefore utilizing their limited resources. From findings, CC adoption by small and medium-sized enterprises indicates that enterprises are motivated and encouraged to employ CC services via the internet to heighten business competencies and performances (Alshamaila et al. 2013, 250-275).

CC has developed as a common subject in recent times, due to the size, resource, information technology expertise and other CC limitations of specific benefit to SMEs. However, migrating internal IT

data and applications to the cloud is associated with a wide range of risks and challenges. Thus, security, confidentiality, auditability, regulatory compliance and other risks must be verified before adopting novel technologies. Migrating data, applications/services to the cloud, expose businesses to novel threats and weaknesses that require appropriate assessments (Priyadarshinee, P. et al. 2014). The migration of data and applications to cloud can also pose some compatibility difficulties. Also, SMEs may experience increases in the following concerns:

* ❖ Protection of Critical Infrastructures
* ❖ Information Assurance and Trusted Computing
* ❖ Privacy and Freedom of Information
* ❖ Laws and Regulation on Technology Security

CC vendors conduct and manage software, operations, hardware, back up and help desk, and software development, software as a service and platform control respectively. Addressing IT issues can pave advancing ways for other small and medium-sized enterprises to adopt Cloud computing. The present market is characteristically competitive; therefore, enterprises aspiring to establish and grow essentially need to adopt IT innovations like CC.

The findings were revealed that an enterprise becomes more cost effected, secured, global, proned to growth and highly competitive when it's on cloud. For example, AWS offers a more complete migration solution and has registered millions of active customers and a global presence since 2006. AWS experiences have come from aiding organizations of all ages, industries and geographies migrating to cloud, (Amazon Web Services, Inc, 2020). Hence with such companies realizing an average 31% of infrastructure cost, saving 7X fewer downtime hours in 2018, offering 63 availability zones globally in 22 Regions for organizations and its staff productivity boost of 62% (Carvalho & Marden 2018).

If companies switch to CC, they can save, energy money and time. These resources can be utilized on other value-adding capacities of the business. It makes companies more efficient and productive, principally true for SMEs. If several companies switch to CC the payback for companies and the economy is much higher, thus, bringing efficiency to the economy and environment. However, large scale services result to economies of scale resulting to efficient operations (Priyadarshinee, P. et al. 2014).

The innovative and technological benefits, from CC remain a motivating factor as well other factors that can drive many SMEs to use CC technology. Gaining a complete awareness of CC importance and potential is very important for SMEs. the following uses of CC in SME's are discussed here in.

Cloud computing is considered as an important and interesting technology in SMEs. SMEs are attracted towards the use of cloud services to manage their business operations, reduce trivial hitches of CC through the implementation of suitable strategies. With the utilization of CC. SMEs become more competent and successful in their entity operations and in their market performances.

Due to the limitations of the existing infrastructural settings, that cause most SMEs not to meet their defined expectation, CC adoption and utilization allow SMEs to concentrate more on their core business and gain more control of the markets while their entire outsourced IT is taken care of on a CC platform (Khan, N. & Al-Yasiri, A. 2015)

The uncertainties in data security and privacy concerns of SMEs are well protected through service providers in the employment of CC. CC services are greatly compatible the provision of IT structures making and easy use access. However, CC technologies are of great importance as they offer user-friendly and comfortable services.

CC services are greatly consistent and reliable with enterprise values and technological requirements. Also, the trial ability usage before services implementations provided by CC enables SMEs to take or make the best decision of choice selection on the most suitable service providers needed. The trial ability of CC services is significant to SMEs because it allows SMEs to follow agility of CC and change of direction at any time as required. The flexibility factor motivates small and medium-sized enterprises to select CC services that enable them control densities and prevent capital expenditures (Ilkka & Khan, 2016).

4.2 Global benefits of SMEs on the CC

CC plays principal role in demonstrating the inadequacies and incompetence of small and medium-sized enterprises. CC adds greatly to the principal competitiveness, growth and advancement of SMEs. SMEs adopting CC are capable of potentially utilizing modern IT by minimizing cost (Oliveira &

Martins 2010, 1337-1354). CCs are currently and constantly used by several business entities; big, medium and small sized entities to increase their benefits and productive performances (Adam & Musah 2015, 115-139).

"Digitalization is advancing at breath-taking speed, and to be successful you need to be one step ahead of the competition at all times. Right now, for example, everyone is talking about the Internet of Things, or IOT which we have been engaging in since the day we started," says Tuominen. (Coastline 2018.)

Taking a business or a product to the world's audience no longer requires foreign offices. With extra resources, the CC is levelling the playing field and enabling to make inroads into lucrative new markets. It should be noted that, SMEs that embrace technology grow faster, export more and employ more people.

4.3 Reasons for and benefits of SMEs to migrate to the cloud

As the technology and innovation world today keep advancing, many business performance flexibilities are challenged. On CC there is an enabling characterized gain, CC offers great potential to enable flexible performance and cost effectiveness services. However, CC is a trending technology that is attracting existing enterprises today to remain competitive, record increasing business performance and also gain benefits.

Despite the prevailing challenges, CC allows SME's to experience, faster innovation, economic of scale and flexibility. Thus, going global with the help CC infrastructures is an increasing priority and object by several SME's to attain efficiency in their services, record outstanding performances, record benefits and also contribute on added value in diverse aspects on social and economic wise.

The CC is all about delivering computing as a service rather than a product that runs on a system on your premise. As for SME's, the global benefits of being on Cloud are mostly economical; with the CC platform doing away with the cost of entering new markets as: cost of hardware, offices, and software acquisition. The CC offers a four key global advantage for SME's; flexibility, scalability, easy accessibility, and pay-per-use models (Khan, I, 2015). Some CC uses (advantages) to SME's are discussed herein.

Trading of Capital Cost

It is very costly for SMEs who are generally characterized to have limited resources, to run and maintain traditional servers. Which will entail, purchasing of new infrastructures to host the increase customer's base. Capital Cost can be traded for expenses related to purchasing of physical servers and data centers. Internet site (Castillo, F. A. 2020).

Improved Scalability and Sustainability

CC provides through is platforms the possibility of the customers to scale up and down their CC resources bas on their desired use per time. We have seen before now that, scaling of resources in a traditional IT infrastructure is most often time consuming hence a downtime in IT provision. For example, Microsolf Azure average uptime 99.995% across her cloud infrastructure, meaning a total 26 minutes per year of downtime in till 2020 (Impact Networking, LLc. 2021

Go global in Minutes

For example, AWS Cloud has 81 availability zones within 25 geographical regions around the world (AWS, Inc. 2021). There are almost 6 Regions, with close to 8.4 million data centers around the world (Mlitz, K. 2021). With the many regions just a click away from any SME, their applications can be deployed to all with just some clicks to these regions, hence minimizing latency rate while offering a better browsing performance to her users at little or no cost as to hosting traditional severs (AWS, Inc. 2021).

Economies of Scale

It is now evident that the CC brings at the disposal of SMEs high level of technology that use to be available for large companies with heavy financial backing. For instance, SME's dealing in internet security services no longer need to displace an agent to serve their customers at their locations because the CC has offered the IaaS for multiple internet-based programs. Flexibility permits the running of software off the cloud to be extremely easy; hence enabling a lot of software's to be web-based. While

on a lesser note, some marketing software's runs on the devices (computers) with an email style of logging in. some examples are the SAP customer relationships management (CRM).

Scalability as another key advantage, based on the constant market changes, it is necessary for SMEs to possess the qualities of adaptability and flexibility, to counteract the changes of the global scene. On the cloud, as changes results, we can either scale up or down our cloud base resources. And it's on a pay-pay-use bases, hence being very cost-effective foe SMEs.

Several rationales motivate many SMEs to adopt or move to the cloud. The following are some important reasons discussed that motivate SMEs to move to the cloud computing services (Mikkonen & Khan, 2016).

Cost Effectiveness

Flexibility and scalability in resource utilization is seen to lead organizations to decrease capital expenditure and operational costs. CC enable SMEs to control financial expenditure on widespread upgrades as CC provides assistances in continuous installation and updates at very rational costs. On issues of maintenance requirement, SMEs do not pay expenses because it remains the vendor's responsibility in updating, upgrading and maintaining cloud. However, CC allows SMEs to compete in the market by offering cost reduction structures and innovative IT solutions. Notably, most small and medium-sized enterprises save substantial amount of IT expenses after going on CC.

Flexibility and Scalability in Resource Utilization

Unequalled flexibility is offered to SMEs by cloud computing, this enables SMEs to manage their versatility and usage policies. One of the most cloud computing imperative benefits is the provision of data storage facilities. This factor motivates small and medium-sized enterprises to move on to clouds. About half of SMEs populaces are known to adopt CC due to the delivery of data storage facilities factor.

Data storage facilities are flexible on clouds giving SMEs the freedom to pay only for the space capacity consumed. By so doing, this gives SMEs the control and decision to either increase or decrease their storage space at any time as required to attaint business requirements. Thus, CC offers a virtual benefit to IT business that requires resource accessibility on demand to experience fast development.

Data Security

From onset, security breaches and data losses on cloud were questionable causing SMEs to raise eye brawls as a concern. However, the evolution of CC and some of its IT advantages and security concerns have decreased over time. CC is recently utilized in security networks due to the high degree of securities and integrities of user data it offers.

Lower Technology Risk

Despite the financial prevailing returns of CC, SMEs readiness to utilize IT infrastructures decreases technology risk levels in SMEs. Considering which ever cloud computing services an SME chooses to use, both the software and the hardware receive regular updating to meet consumer demands and with option of auto scaling resources to meet present demand with price (AWS 2018), also, major cloud providers in the industry provide assurance of their CC services. Also, the risk of data unavailability in CC is critically minimized. These advantages act as evidence and prove for SMEs to gain more of trust in CC providers' services which allows them to use their storage (Mikkonen & Khan 2016).

Effective IT Support

The corporative productivity of small and medium-sized enterprises has been heightened through cloud-based framework implementations in IT sectors. SMEs can receive actual IT support any-time as CC empowers service providers to operate from devices. Potentially specialized IT experts can provide services to SMEs from any global location at reasonable costs. SMEs can spend more on training of their human resources when other costs are reduced because of cloud computing. In this way, organization performance can be highly improved by following some effective strategies. For example, at AWS (Amazon Web Services), supports are categorise in three domains; 24*7 support access (documentation, whitepaper & support forums), AWS trusted Advisor and AWS Personal Health Dashboard (Amazon Web Service, Inc. 2021)

Technical Skills

Organizations in this recent era strategically are decreasing paperwork operations to increase IT utilization at all levels in their organization. Therefore, to engage IT innovation in organization operations,

it become vital for organizations to employ skilled IT expatriates that possess effective know-how on computing, expertise that can effectively maintain and update online operations. The establishment of IT applications related to CC can assist small and medium-sized enterprises (SMEs) to select efficient approaches that can enhance technical efficiency, thus enabling SMEs to be competitive in the market (Mikkonen & Khan 2016).

4.4 Challenges Migrating to the Cloud for SMEs

According to Agarwal, S. (2018) on the Economic Times journal India, gaining knowledge about cloud is the principal aspect to modernization, transformation, and innovation. This is the most essential aspect that demands SMEs to take into consideration when and if considering migrating into cloud. As many entities and companies are aspiring as a burning priority and attraction to go on cloud, many still lack clear understanding and know-how on cloud strategies and need the necessary guidance and requirement on how to start towards the migrations step on cloud.

Despite some security concerns, CC risk levels are relatively minimal. CC can greatly provide best solutions to SMEs and also ensures an increasing productivity for cloud investors and investment if or when connected to the right organization as a CC partner. However, the previous years have registered a rapid transformation in IT environment and an increasing trend of SMEs migrating to cloud or adopting cloud, giving a clearer view, and understanding (Mikkonen & Khan 2016).

Cloud computing has become a universal topic in recent years. Due to size, resources, IT expertise and other constraints cloud computing could be of specific advantage to SMEs. However, migrating internal information technology data and applications to the cloud is associated with a wide range of risks and challenges

1. Security, confidentiality, auditability, regulatory compliance and a host of other risks must be verified before adopting any new technology. Migrating data, applications or services to the cloud exposes a business to a number of new threats and vulnerabilities, which need to be properly assessed. The migration of data and applications to cloud may also have some compatibility problems

2. In addition, SME increases a number of issues: Protection of Critical Infrastructures; Information Assurance and Trusted Computing; Privacy and Freedom of Information; and laws and Regulation of

IT Security. Hardware, software, operations, help desk, and back up are conducted by cloud vendors. Also, software as a service, software development and platform control are managed by the vendors (Priyadarshinee, P. et al. 2014).

5 CASE STUDIES: FOODORA, WOLT, AIRBNB AND ZALANDO

Objectively, the research seeks to investigate how cloud computing influenced the growth of the above case studies and permitted them to cost effectively go global, offering them the resources necessary for these companies to be managed internationally, attain economics of scale, maximize profit, possess a larger customer base, minimize cost and many other socio-economic aspects on the establishment of CC and to also investigate if without (CC), they could easily break borders without doing it physically.

To better understand the investigation, it would be necessary to keep in mind the below following points:

1. Where and when each case study company came from (background information).
2. Why and when they migrated on to the Cloud
3. The Cloud resources each uses to outsource their information and communication technology (ICT)
4. The strides each of these case study has been able to register as to enhance productivity, resource efficiency, performance and attaining competitive growth while on cloud
5. The way forward

5.1 Background of the Companies (Case Studies)

Case Study One: FOODORA

Foodora is a digital revolutionary company of the food delivery industry. It is an online food delivery brand originally based in German, offering meals in over 9,000 selected restaurants in the Nordic region. Foodora is a private base online food industry that was founded in 2014 having headquartered in Helsinki, Finland and with key players like: Shilei Zhang Hans, Skruvfors Joonas Kuronen, Elisabeth Mythre.

Foodora experience flexibility in cloud as it merged with Delivery Hero in 2015. Although it experiences different challenges, Foodora workers still find flexibility in their work operation. To go forward, Foodora considers using its data in a better way (Miltok 2016).

Founded or established under the name of Volo GmbH in Munich in 2014 of February and migrated to Berlin in April 2015 when acquired by Rocket Internet, this new company later acquired online food delivery companies such as: Hurrier of Canada, Suppertimes in Australia, and Heimschmecker in Austria which now operates under the Foodora mark. In September 2015, Delivery Hero gained Foodora from Rocket Internet which is now converged with Delivery Hero' upscale food delivery company called. Urban Taste, under the name Foodora. (Delivery Hero SE, 2021)

Delivery Hero under the banner Foodora who is now present in over 50 countries in four continents and a mission of a door-to-door delivery of everything. Born in 2008, Niklas Östberg began an online-food ordering service in Sweden and in 2011, the group Delivery Hero was founded along-side with the Hero Hub HQ in Berlin. In terms of growth, the company went public on the Frankfurt stock exchange in 2017 when it celebrated her IPO, and later joined the DAX, the leading market index in Germany listing the 30 largest companies trading on the Frankfurt stock exchange in 2020. (Delivery Hero 2021).

On Cloud

With a company growing by 100 percent year-over-year and struggling to scale its SAP application environment to support its growth by using its on-premises infrastructure. The company' SAP S/4HANA enterprise resource planning system receives orders and creates PDF-based invoices for each restaurant partner. "I quote; we expect to have hundreds of millions of daily transactions being executed in S/4HANA in the few years", says Niclas Hoye. Thanks to the advent of cloud computing, Delivery Hero could establish a global, centralized solution for processing orders and generating invoices, and this was when she migrated its S/4HANA environment to Amazon Web Services (AWS), using an Amazon Virtual Private Cloud (Amazon VPC). From Hoye, the decision on moving to the cloud was the progress other German companies were experiencing, such as Zalando.

Profiting for the scalability of AWS, Delivery Could process millions of orders from different countries from a central point without necessarily having physical offices in those countries of operation. AWS has also offered to the platform to try out new initiatives (development) without fear.

Benefits of AWS to Delivery Hero
- ➢ Processes up to one million orders daily within SAP S4/HANA
- ➢ Migrate SAP S/4HANA production instance to AWS in one weekend

- ➢ Scale application up and down in minutes to satisfy customers during peak periods instead of weeks.
- ➢ Being on the cloud has offered to them a culture of innovation for a better experience to the customers
- ➢ Cost was maximized with the Amazon simple Storage Service (Amazon S3), with provision for scalability, data availability, security, and performance.

(Delivery Hero, 2020).

Case Study Two: WOLT COMPANY

Wolt is a food delivery technology based private company in Helsinki, Finland. Wolt is known to in-creasingly enable people get the same Wolt delivery experience, from grocery stores, retail shop and or boutique within the Helsinki city. Wolt was launched in summer 2015 in Helsinki, Finland, where over the years of existence, Wolt has expanded to 23 countries and more than 100 cities, serving over 7 million customers with 48000 countries partners and 27000 restaurant and retail partners. (Wolt 2021).

Wolt is labeled with at 4.6 employees (530 employees) rating and is ranked 2nd in the 2020 edition of the FT: 1000 Europe's Fastest growing companies (Financial Times, 2020). Looking at the technology impact, payment technology is key factor that facilitate food delivery in Wolt. However, one of the key building blocks of Wolt' success remains in the backend payment system that allows everything to happen. Wolt, facilitate customers pay for food via their mobile phone and facilitates the payment to restaurants and couriers. Having an easy and secured means of operation is the best where Wolt em-ploys Transfer Wise to make its financial operation stress free and efficient (Wolt 2021). Wolt is rated 86 on a cyber-security score an indication of a strong and secured operating system.

FIGURE 1. Cyber security Score of Wolt Company (Craft.co 2020)

Case Study Three: AIRBNB COMPANY

Airbnb is a San Francisco-based company that commenced operation in 2008, recording hundreds of employees across the globe supporting rentals in about 25000 cities across 192 countries. Airbnb is a community marketplace that allows property owners and travelers to connect with each other for the purpose of renting unique vacation spaces around the world. The Airbnb community users' activities are conducted on the company's Website and through its iPhone and Android applications.

In a San Francisco home, two hosts welcomed three guests which became the birth of a dream. This dream has grown to 4million of hosts who have with time welcomed 800 million plus guest arrival in almost every country across the globe. This happens every day as hosts offer one-of-a-kind stay and a uniquely authentic experience. With the name Airbed & Breakfast in 2007, by the founders Brian Chesky, Nathan Blecharczyk and Joe Gebbia, and an 80 number of bookings in 2008. In 2009, Airbed & Breakfast changed its name to Airbnb and switch from only offering rooms to offering of apart-ments, and whole homes plus vacation rentals. With the launch of an App & instant payment features in 2010, they went international the following year with an office in Germany. More so, in March 2019, they launch the Chinese brand Aibiying and finally in 2020 amongst others, they housed front line working in the United States during the COVID 19 pandemics. (news.airbnb.com/about-us/).

According to Nathan Blecharczyk, Co-founder & CTO of Airbnb, due to service administration challenges experience with Airbnb original provider, Airbnb migrated to cloud computing functions of AWS (Amazon Web Services) after a year of its creation to gain the ease of managing and customizing its stack. From this, the company has continued to grow upon the reliance on AWS cloud. Thus, AWS is the easy answer for any internet business that wants to scale to the next level.

Challenges experienced by Airbnb before migrating to AWS cloud.

- ❖ Small 5-person operations team
- ❖ Infrastructure scalability problem
- ❖ Huge traffic load during peak period like; festivals, public holidays etc.

However, Airbnb has grown over the previous years and to support demand Airbnb uses over 200 Amazon Elastic Compute Cloud (Amazon EC2) for its application, Memcached and search servers. For instance, Airbnb employs and utilizes Amazon RDS because it simplifies much of the time-consuming administrative tasks typically associated with databases. Amazon RDS allows difficult procedures, such as replication and scaling, to be completed with a basic API call or through the AWS Management Console. Airbnb currently uses Multi-Availability Zone (Multi-AZ) deployment to further automate its database replication and augment data durability.

However, Airbnb was able to complete its entire database migration to Amazon RDS with only 15 minutes of downtime. This quick transition was very important to the fast-growing Airbnb because it did not want its community of users to be shut out of its marketplace for an extended period of time. Tobi Knaup, an engineer at Airbnb says, "Because of AWS, there has always been an easy answer (in terms of time required and cost) to scale our site." (Knaup 2010.)

Benefits of AWS to AIRBNB

From findings and great assessment, Airbnb has recorded benefits on cloud utilizing AWS. How-ever, AWS has saved expenses of at least one operation position. The company has greatly experience flexibility and responses of AWS are greatly building and preparing Airbnb for more growth. AWS listens to customers need (Knaup remark) and above all Airbnb has greatly experienced low cost and simplicity of its services made it a no-brainer to switch to the AWS cloud

Airbnb benefits experienced by on employing AWS cloud.

- ❖ Reduction in operation expense
- ❖ Automation of scaling
- ❖ Faster responsiveness
- ❖ Flexibility
- ❖ Running MySQL in the Cloud
- ❖ Focus on safety

(Amazon Web Services 2020)

Case Study Four: ZALANDO COMPANY

Failing Forward

Zalando SE company is today one of the biggest and fastest online fashion retailers in Europe (Wauters, R. 2014). Zalando as many others have come to digitalize the fashion industry with their multi partnership, plus they operate in a variety of business areas. With an advert that even won the most irritating award in two years in a row, our "Scream with joy" tv campaign, which made hit in Germany was not at all well received by the Dutch audiences during the first ever conquered international markets. It should be noted that, they had enjoyed a successful launch in Austria and Switzerland. But the set-back taught them that, I quote "some markets boarders each other geographically, but they can be smiles apart in areas of taste, desires and expectations". Presently, they are now present in 17 countries with more than 20 payment options, hence collaborating with different regional logistics and speak 13 languages, have 7 offices across these markets, 14 different outlets and 13 different logistic networks.

As a "start-up at Heart", shopping in Zalando' online shop is fun thanks not just to her convenient delivery options and services but also in innovation. She has pulled together more than 2000 tech experts over the years despite her enormous size. As of the present, Zalando s no longer a Berlin start-up but a European company. Zalando SE. She now employs more than 14,000 people from more than 130 countries and is headed by a management Board members Robert Gentz, David Schneider, Rubin Ritter, David Schröder, Astrid Arndt and Jim Freeman. (Zalando 2021.)

Benefits of AWS to ZALANDO

Our research of this case study helped us to understanding that Zalando had already gone international, but CC facilitated it. Zalando used BIG data centers in Germany before to locate her infrastructures and it became increasingly hard over time to scale up or down that resources. On the cloud came with cultural changes. It helped their teams to become dynamic and more focus than before. AWS came to serve our customers facing workloads in other departments of their lives. The use of resources provided by AWS such as: EC2 (Elastic Compute Cloud), S3, Lambda, RDS (Relational Database Services), and Dynamo) gave Zalando the opportunity of providing services from a limited distribution point. (Amazon Web Services Inc 2021.)

5.2 Research Methodology

The research methodology plays a significant role in streamlining the research initiation by employing some significant methods. However, the general research methodology focuses on the following discussions: study population, sampling, data collection and data analysis techniques. Two basic research approaches are available to design a study which includes a quantitative and qualitative approach.
In qualitative research technique, observations and perspectives are discussed based on participant's experience on some specific social setting. This gives understanding on individuals social behaviors towards specific situations, thus employing a small sample size in qualitative research design is preferable. Two methods are utilized in a qualitative research: focused groups and interviews. In quantitative research, the numerical structure of obtained data is vital. Certain research characterized this method where specific hypothesis utilized, that are further accepted/rejected based on the findings made. There exist two techniques of data collection; observation and use of structured questionnaires in the survey. (Goddard & Melville 2007, 9)

5.2.1 Rational for Choosing the Case Companies

The choices of the case companies basically were based on closeness to their users. This was basically on how effective and practical their user interface was from the consumer perspective, taking in consideration friendliness, flexibility and adaptability to CC services with respect to the various needs of the companies.

The research sample was designated using the convenience sampling method. Convenience sampling technique is suitable in data collected from a sample group or large sample groups. This method provides the researcher the ability to access data conveniently. A primary research technique was implemented as data collection method individually on the four case studies (Zalando, Wolt, Airbnb and Foodora), where a single set of research questions was designed and administered separately as research instrumentation to facilitate the collection of the required data for the research on each case studies website, since reaching these companies directly was a challenge. Set of questions were designed (as indicated on the Appendix 2) based on the study objectives of CC and SME's going global to address underlying research focus. The data collected for each case study is compiled and compared to the others as can be seen in the data presentation below.

5.2.2 Research challenges and limitations

The challenges I have so far encountered in the structuring and materializing of this thesis was not in view, seen or even anticipated from the little beginnings of its conception in my thesis preparatory class. It has on one hand been a self-schooling on its own and for the other, very challenging in terms of the reliability in data collection, loss of motivation as the work sometimes was very demanding and mainly contacting my first chosen case study to answer the originally planned questionnaire. Writing from the standpoint of a business student, aiming at a career as a cloud technician, my desire has been to create the awareness of the presence of IT (cloud computing) in our world of business and to add to the already existing voices in, for example, to bring out how information technology (IT) has been the key behind the many success stories of business start-ups.

With the advent of cloud computer, it is as of the now, very limited books or materials to this effect and one most often than not dwell more on articles and journals to stay up to dates on the growth and development in relation to other field of studies or business ideas. The empirical part of my thesis has been a major challenge when comparing as to where I originally came from with the idea of a single case study (Zalando SE), to, employing the existence of three more case studies. In the end, the practical implementation of the empirical part was no longer restricted to the analysis of a single firm but number of cases (Zalando Se, Airbnb, Wolt and Foodora) facilitated by existence of on secondary data and information.

My original research aim was centred on a single case study (Zalando SE) and the flexibility and satisfaction her customers continually experience shopping on her online platform. On one hand, a questionnaire (APPENDIX 1) was built to sample a number of respondents and another questionnaire (APPENDIX 2) directed to the firm with the aim of collecting useful data for analysis and conclusion to be drawn from the findings of the level of growth that the company have experience being on the cloud. In a bid to overturn the setbacks encountered trying to get the primary case study response to my questionnaire, during the months of September to November 2020, I resulted in using the same set of questions in (APPENDIX 2) to dwell more on the growth that firms have encountered being on the cloud and I also expanded the list of my case study as was mentioned afore. I then went further by answering each of these questions based on secondary data that these firms had made available. Then it was easy to build up an analysis as to their growth and development as cloud computing users.

5.2.3 Analytical techniques

This research employs mainly a quantitative research techniques/approach method using the various case-studies individually, in order to investigate and analyze the research objectives base on the company's experiences on cloud and to qualify/quantify their customers perception to their services offered individually.

Data Analysis

The raw data obtain was processed and/or organized for analysis to develop and obtain the best information and results based on the research work. Quantitative and qualitative analysis data tools were employed, where graphical presentation and descriptive analysis (charts, tables and graphs) were used through the aid of Microsoft Excel and SPSS as software programs to support the data analysis process.

Rationale for using the analytical technique

The rationale for the software programmes choices was due to user-friendliness, excellence for registering, me being dynamic/diversifying, to show that my degree studies covered courses on these software areas and storing analysis data capacity of these software.

5.3 Data Presentation, Result and Analysis

This chapter presents data, results, analysis and discussion of findings of the research study under the following research questions.

- ❖ Shopping means of company
- ❖ Platform Flexibility and Adaptability to Cloud
- ❖ Company Size (Number of employees)
- ❖ Company IT user experience
- ❖ Knowledge about cloud
- ❖ Experience in cloud computing usage in years
- ❖ Types of cloud computing services are most useful to business operations
- ❖ Cloud form best suitable and feasible to business operation
- ❖ Cloud computing Solution used in the enterprise
- ❖ Application services that support the company outsourced by CC service provider
- ❖ Rationale for going on or adopting cloud
- ❖ Viewpoints on cloud computing

Shopping Means of Company

TABLE 2 indicates the shopping means of clients or consumers on the four different companies. From analysis the research looked at two (2) significant means of CC means of shopping; the App system (A) and Web Browse (W) means of shopping.
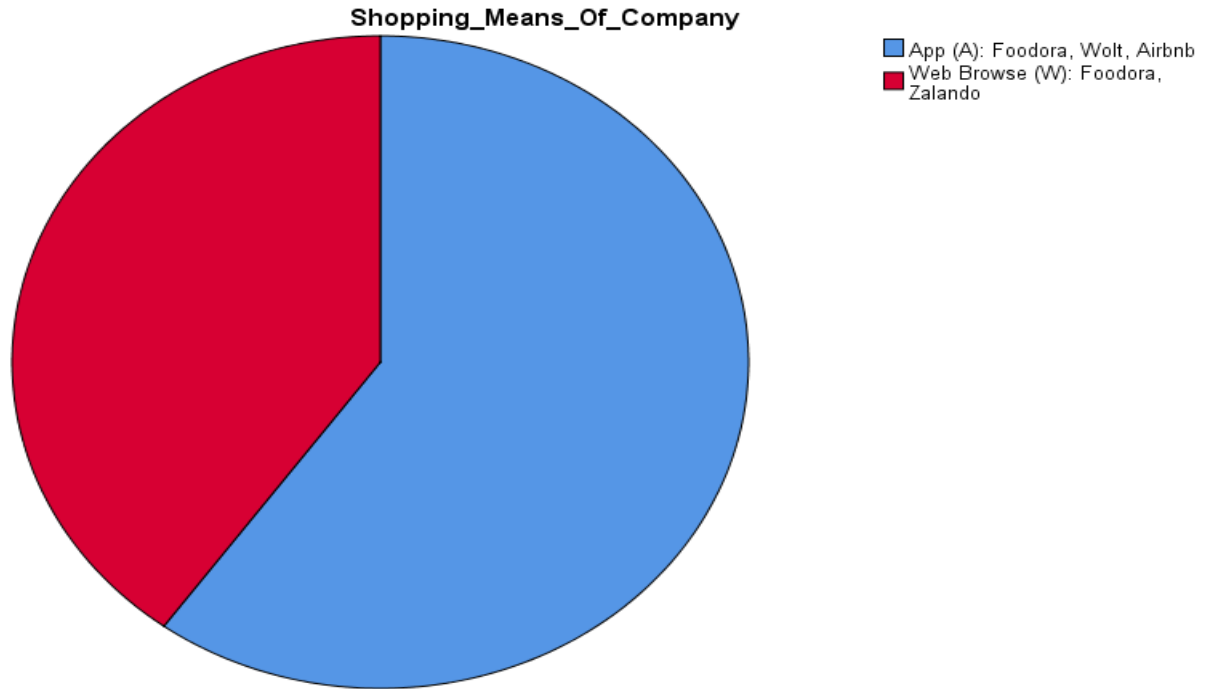
TABLE 2. Shopping means of company

Company	App	Web Browse
Foodora	A	W
Wolt	A	
Airbnb	A	
Zalando		W

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	App (A): Foodora, Wolt, Airbnb	3	60.0	60.0	60.0
	Web Browse (W): Foodora, Zalando	2	40.0	40.0	100.0
	Total	5	100.0	100.0	

The pie chart of Figure 2 portrays a combine results of all the case companies with respect to the customer base in the research. The colors red and blue were used to show the proportion of customers who either use the web base application or Apps to access the services of the case companies. Conclusively, the chosen case studies are more AaaS (Application as a Services) oriented companies with respect to the cloud.

Shopping_Means_Of_Company

FIGURE 2. Shopping Means of Companies

Table 3 portrays each case company's flexibility and adaptability to cloud. My observation above was rather influence by the services they provide.

**TABLE 3. Platform Flexibility and Adaptability to Cloud**

S/N	Company	1-5	6 -10
1	Foodora		F
2	Wolt		W
3	Airbnb		
4	Zalando		

Looking at the data in Table 4 and Figure 3 analytically, it indicates that company's expansion and growth is greatly supported by cloud computing services. Foodora, Wolt, Airbnb and Zalando can all be considered as former SME's that have outgrown into bigger sizes from analysis according to Figure

3, Foodora carries a company size of 600 employees, Wolt indicating 530 employees, Airbnb representing an employee size of 6300 while Zalando company registers a company size of 14000 employees.

TABLE 4. Company Size (Number of employees)

S/N	Company	Number of employees	Company size
1	Foodora	600	>250
2	Wolt	530	>250
3	Airbnb	6300	>250
4	Zalando	14,000	>250
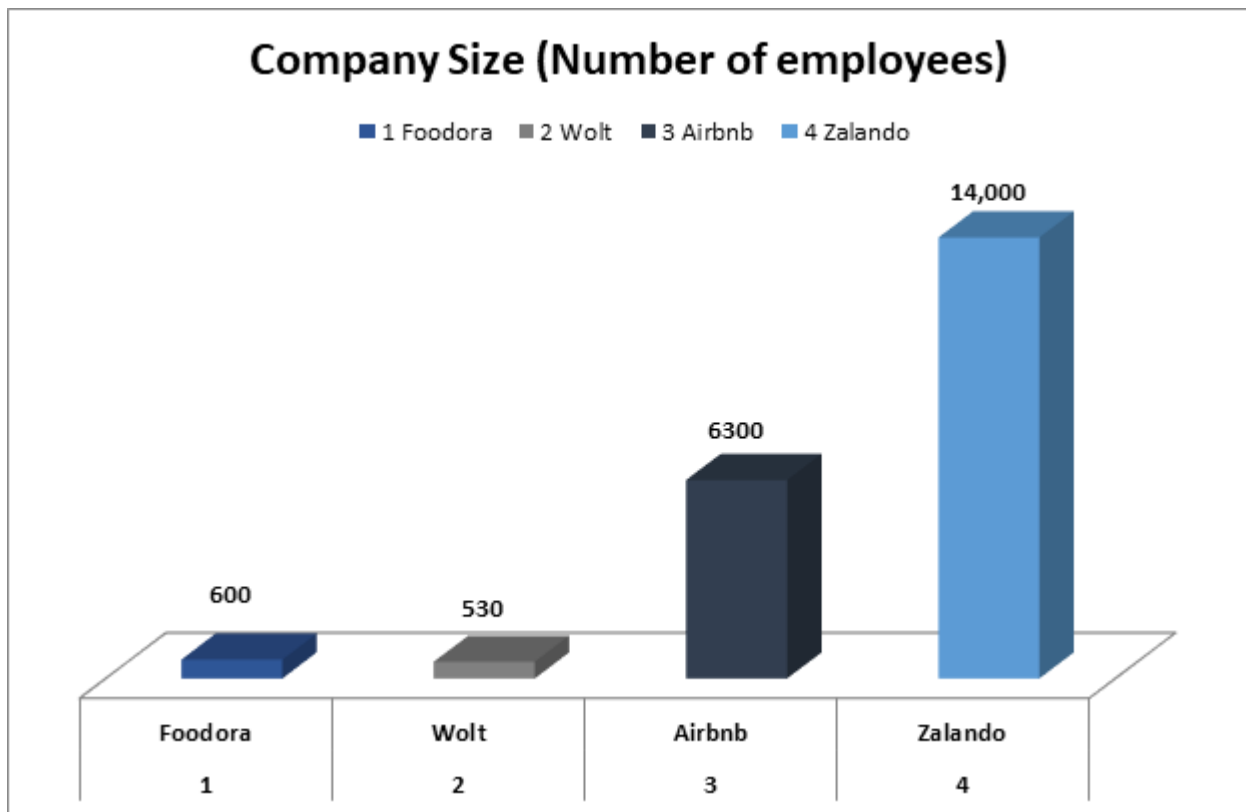
FIGURE 3. Company Size (Number of employees)

Internet site: (owler, 2021), (wolt, 2021), (craft, 2021), (owler, 2021).

Table 5 indicates data findings obtained from the IT user experience each company under case study on the research experiences.

TABLE 5. Company and User Experience

S/N	COMPANY	IT USER EXPERIENCE
1	**Foodora**	Frictionless experience: • An apparent triumph of supper efficient technology • Flexibility of Schedule
2	**Wolt**	Flexibility experience: • Operating faster than ever • Great experience in payment technology system • Faster and reliable operation
3	**Airbnb**	Flexibility and responsiveness: • Company's Rapid growth • creativity and usability ability that enable the team running smoothly • Low cost and simplicity of services (Reduction in Operation expense
4	**Zalando**	Reliability and Scaling

(Miltok, 2016, AWS, 2021. Airbnb Case Study, Crunchbase, 2021)

Foodora Company a recorded frictionless experience in cloud giving it an apparent triumph of supper efficient technology and flexibility of schedule on company's operation and performance. Wolt Company recorded a flexibility experience where the company recorded a faster operating system, great payment technology system and a faster and liable operation on cloud. Airbnb recorded a flexibility and responsiveness in business performance where the company recorded a rapid growth, creativity usability ability and also experienced a low cost and simplicity. Zalando Company experienced reliability and scaling on cloud.

However, flexibility is the most recorded experience recorded by the companies a clear indication that small and medium-sized companies can great experience growth on cloud through flexibility.

At the commencement of business, these companies as indicated from Table 6, where existing using different operation system and only engaged into cloud in later year or years. From finding, result

shows that all companies had knowledge about cloud through their partner organizations. Foodora became informed about through a partner organization, Wolt Company became informed through Software & Tech service, Airbnb became informed via Amazon Web Service while Zalando Company got knowledge of cloud from AWS (Amazon Web Service) and Zalando selected AWS among assessed cloud organizations due to its durability, availability, and scalability (Delivery Hero 2020, Juniper Networks 2021, AWS 2021. Airbnb Case Study, AWS 2021. AWS customer success story: Zalando). Findings reveal that all the companies liked and engaged with this organization body to become operational on cloud.

TABLE 6. Knowledge about cloud

S/N	Company	Knowledge about Cloud
1	Foodora	Partner organization
2	Wolt	Partner organization (Software & Tech service)
3	Airbnb	Partner organization (Amazon Web Services)
4	Zalando	Partner organization (Amazon Web Services)

Table 7 is a summary of the various case studies years experiences on the cloud, from the year each got deployed to the cloud, the numbers of year each case study has been using cloud computing services and also the year in which the analysis were made based on the different case study. The above range of years as users of cloud computing services was obtain from the various websites of the various case studies with no specific year as a base year but instead on the year in which the reports was created. (Delivery Hero 2021, Wolt 2021, Airbnb 2021, Zalando SE 2021).

TABLE 7. Experience in Cloud Computing usage in years

S/N	Company	Engagement Year in CC	Experience of CC usage in years	Range of Years
1	Foodora	2015	6 years	5 – 10 years
2	Wolt	2014	7 years	5 – 10 years
3	Airbnb	2009	12 years	>10years
4	Zalando	2015	6 years	5 – 10 years

Figure 4 is a bar chart that was created based on data gotten from the various case studies provided from the websites on their numbers of year since deployment to the cloud and it should be noted that these years duration are accurate as from 2021. The different companies have experience CC usage in years. Foodora Company has used CC for 6 years since 2015, Wolt Company has utilized CC for 7 years since 2014, Airbnb employed CC in 2009 making it an experience of 12 years while Zalando Company has enjoyed CC since 2015 for over 6 years now. Results from finding, shows that over the long years of CC computing usage these companies have registered tremendous growth which remains significant evidence that can encourage other small and medium-sized companies to go on cloud.
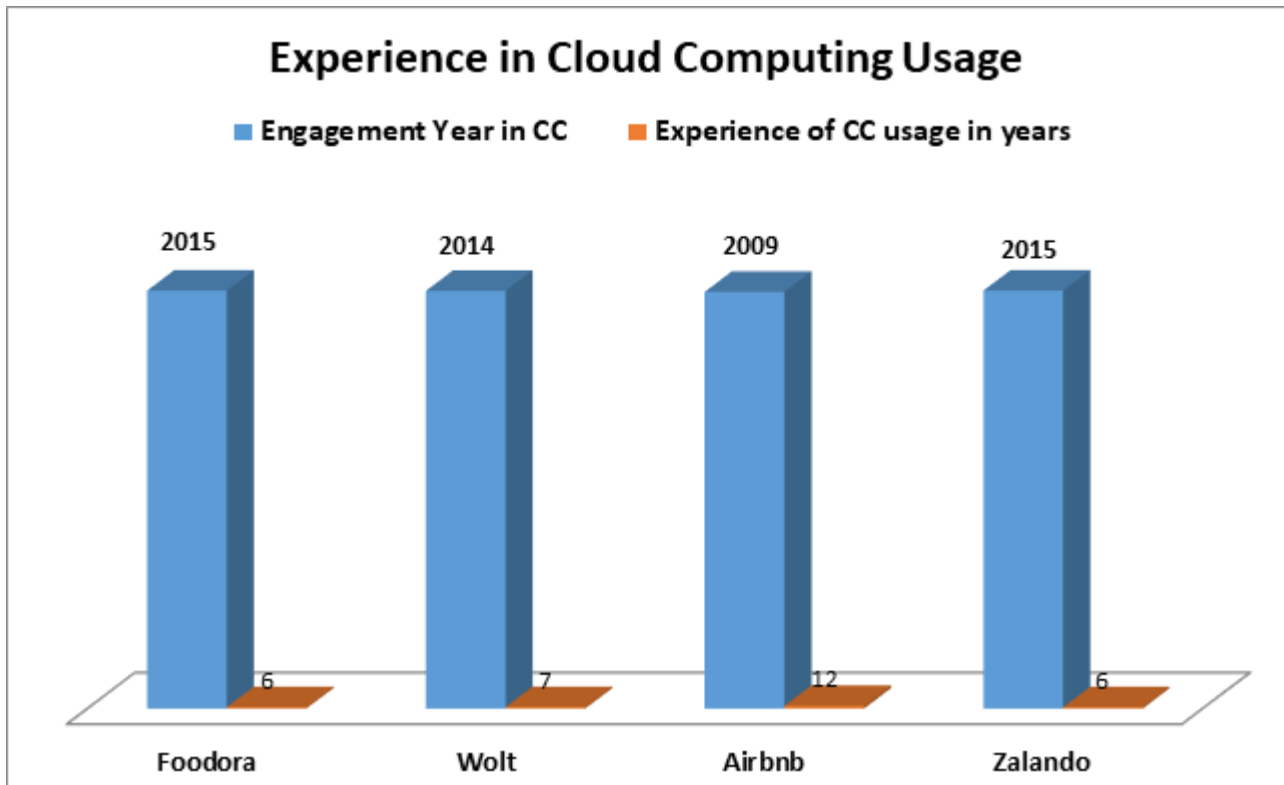
FIGURE 4. Experience in Cloud Computing Usage (Source: Researcher analysis and Interpretation 2021)

We can vividly remember from the previous chapters the three-cloud computing service model which were PaaS (Platform as a Service), SaaS (Software as a Service) and the IaaS (Infrastructure as a Service). Table 8 gives us the understanding and knowledge of which of the service models our chosen cases operate on. Cases: Foodora, Wolt and Airbnb operate on the service model IaaS while case; Foodora operates on service model PaaS.

TABLE 8. Types of Cloud Computing services are mostly useful to business operations

S/N	Company	Types of CC Services
1	Foodora	IaaS (Infrastructure as a Service)
2	Wolt	IaaS (Infrastructure as a Service
3	Airbnb	IaaS (Infrastructure as a Service
4	Zalando	PaaS (Platform as a Service)

There exist different types of Cloud Computing services mostly useful to and employed by companies in their business operations. The research survey gain understanding on the existence of; SaaS (Software as a Service), PaaS (Platform as a Service), IaaS (Infrastructure as a Service), Security services in Cloud and Others CC services that exist for companies to run their business operations. However, the survey findings above indicate that; IaaS (Infrastructure as a Service) is the most utilized CC service where, Foodora, Wolt and Airbnb companies employ IaaS while Zalando employs PaaS (Platform as a Service).

TABLE 9: Cloud Form that is Best Suitable and Feasible to Business Operation

|	Company	CC (Cloud Computing) Form
1	Foodora	Partner Cloud
2	Wolt	Private Cloud
3	Airbnb	Public Cloud
4	Zalando	Association of Clouds provided by the above sources (Zalando uses all types of clouds; Hybrid, Multi, Private, Public)

Forms of CC include Public Cloud (Owned and managed by an unrelated business), Private Cloud (Owned and managed internally), Partner Cloud (Owned and managed by trusted partner, Association of Cloud provided by the above sources and others. Finding made to understand the cloud forms utilize by the case study companies revealed that each company engage in different or multiple of cloud form depending on the choice and or decision, the nature, structure and system of company's business. Graphical presentations indicate that Foodora, Wolt and Airbnb companies utilize a single cloud form in their business operation while Zalando Company utilizes multiple cloud forms in their business operations. According to the results, Foodora Company employs Partner Cloud, Wolt and Zalando employs Public Cloud form, Airbnb and Zalando employs Private Cloud, while Zalando Company uses an association of clouds (Hybrid, Multi, Private, and Public) in the management of its business operations. Therefore, all the above cloud forms of each company are vital and regarded very critical, best suitable and feasible for the company's business operations.

Data presented in Table 10 and Figure 5 indicates that every company adopts and uses different Cloud Computing Solution used in their operations. Foodora Company uses Delivery Hero CC solution, Wolt Company employs Juniper Mist Platform, Airbnb Company utilizes AWS: Amazon Elastic Compute Cloud (Amazon EC2) and Zalando employs AWS: Kubernetes orchestration in business operations.

TABLE 10. Cloud Computing Solution Used

S/N	Company	Cloud Computing Solution
1	Foodora	Delivery Hero Partner Cloud (Owned and managed by trusted partner)
2	Wolt	Juniper Mist Platform
3	Airbnb	AWS: Amazon Elastic Compute Cloud (Amazon EC2)
4	Zalando	AWS: Kubernetes Orchestration

Company_CC_Solution
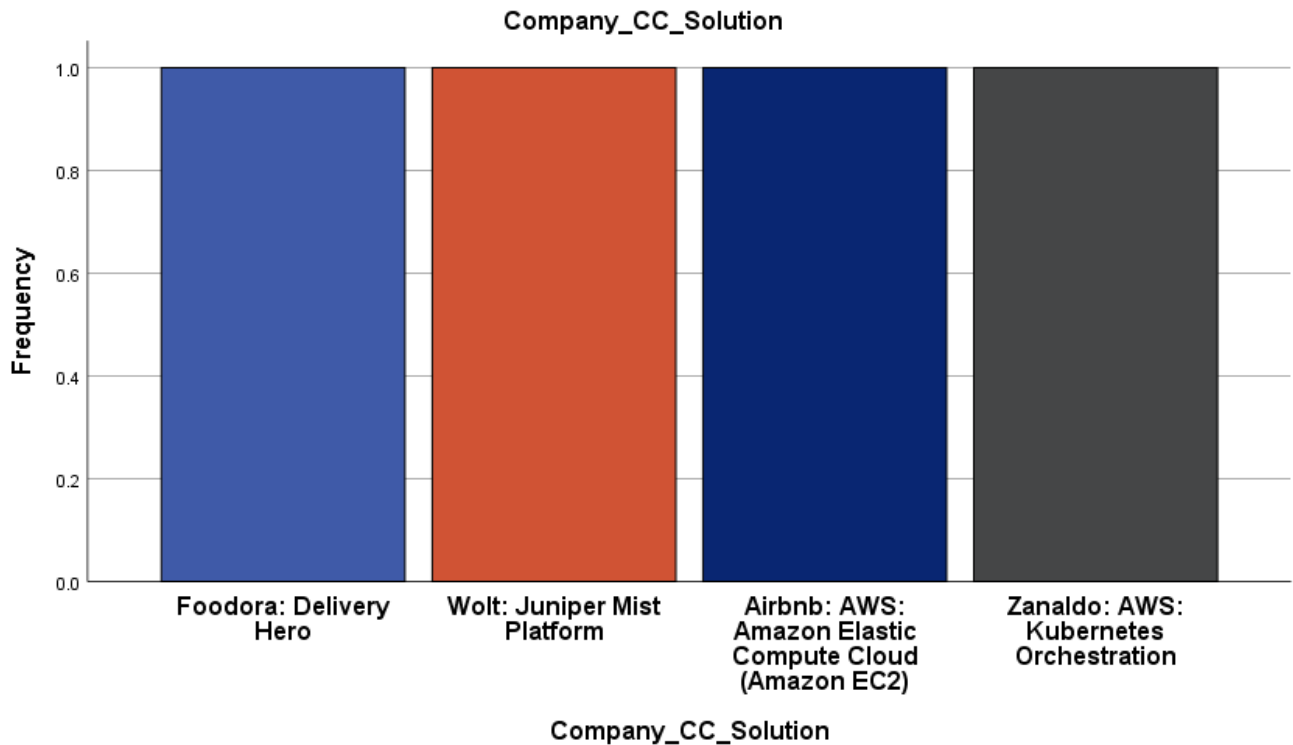
FIGURE 5. Cloud Computing Solution used in the Enterprise
Source: Researcher analysis and Interpretation (2021)

Table 10 shows the various outsourced host for all the used case studies. The similarity in the three companies of the same host can easily be tied to their number of years in existence, places of origin, their first international markets which was seen above in Chapter 5. The similarity also has to do with the successes registered by other companies around the when they first nested the idea of migrating to the cloud. (Delivery Hero 2020, Juniper Networks 2021, AWS 2021. Airbnb Case Study, AWS 2021. AWS customer success story: Zalando.)

TABLE 11. Application services that support the company outsourced by CC service provider

S/N	Companies	Outsourced Host
1	Foodora (Delivery Hero)	Amazon Web Services (AWS)
2	Wolt	Juniper Networks
3	Airbnb	Amazon Web Services (AWS)
4	Zalando	Amazon Web Services (AWS)

Table 11 is to help in explaining the degree of importance to a series of objectives/wants that these case companies had to consider before venturing unto the cloud. As seen in the same row to case studies, we could easily see their motives as to why and what they expected before migrating to the cloud. It should be noted that their expectations varied as per their line of activity and vision. The F (Foodora) and W (Wolt) stands for the initials of the case studies use above in examining their rationales about migrating onto the cloud. The "0" basically depicts that they were not near being averagely high as per their expectations but were very positive (high) about it.
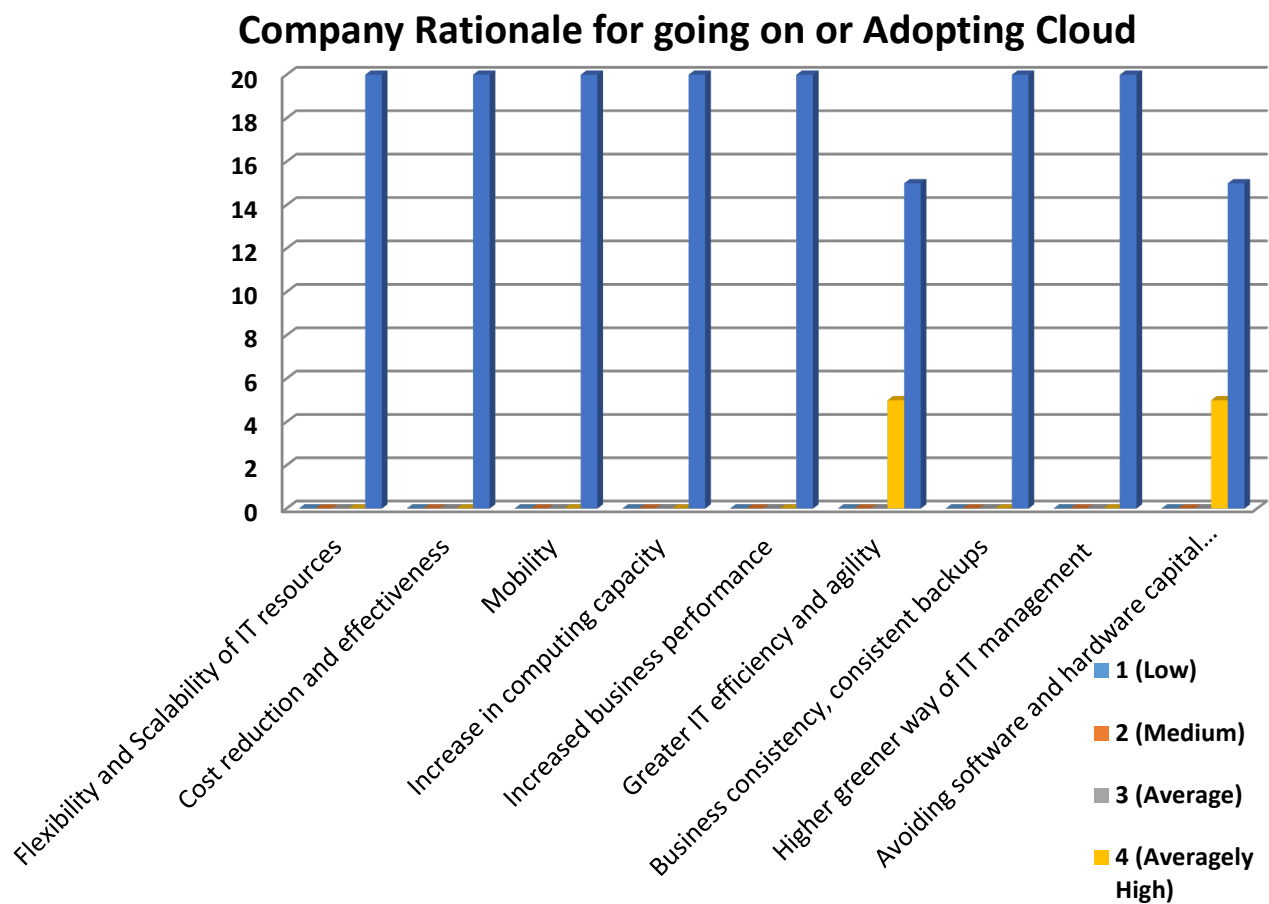
TABLE 12. Rationale for going on or adopting cloud (Raw Data)

Motives	1 (Low)	2 (Medium)	3 (Average)	4 (Averagely High)	5 (High)
▪ Flexibility and Scalability of IT resources	0	0	0	0	F. W. A. Z.
▪ Cost reduction and effectiveness	0	0	0	0	F. Z. W. A.
▪ Mobility	0	0	0	0	F. W. A. Z.
▪ Increase in computing capacity	0	0	0	0	F. W. A. Z.
▪ Increased business performance	0	0	0	0	F. W. A. Z.
▪ Greater IT efficiency and agility	0	0	0	F	W. A. Z.
▪ Business consistency, consistent backups	0	0	0	0	F. A. Z. W.
▪ Higher greener way of IT management	0	0	0	0	F. W. A. Z.
▪ Avoiding software and hardware capital expenditure	0	0	0	0	F. W. A.

Method on how this data was gotten: the various variables were drawn and guided the collection of data from the various case-study companies labeled as; Foodora (F), Wolt (W) on the respective websites. However, this was rated as 1(low), 2 (Medium), 3 (Average), 4 (Averagely High), 5 (High) with respect to the rationales for going on or adopting cloud. From this Foodora (W) and Wolt Companies registered the following results as indicated in Table 12 above. These results were tallied and entered into the SPSS Software application giving the results below on Table 13 and Figure 6. (Wolt 2014-2021.)

TABLE 13: Company Rationale for going on or Adopting Cloud (Analyzed Data)

Variables	1 (Low)	2 (Medium)	3 (Average)	4 (Averagely High)	5 (High)
Flexibility and Scalability of IT resources	0	0	0	0	20
Cost reduction and effectiveness	0	0	0	0	20
Mobility	0	0	0	0	20
Increase in computing capacity	0	0	0	0	20
Increased business performance	0	0	0	0	20
Greater IT efficiency and agility	0	0	0	5	15
Business consistency, consistent backups	0	0	0	0	20
Higher greener way of IT management	0	0	0	0	20
Avoiding software and hardware capital expenditure	0	0	0	5	15

Company Rationale for going on or Adopting Cloud

FIGURE 6. Company Rational for going on or Adopting Cloud

Cloud computing is an enabling technology that empowers businesses most significantly the growth of SME's as per the findings drawn from our case studies little beginnings, as to now. However, the adoption of cloud computing services by SME's come with different rationales. The research looked at several variables and came out with diverse rationale with respect to the four (4) case studies. From the tabular (Table 12 & Table 13) and graphical presentation (Figure 6), 13.3% of the companies adopting CC due to its flexibility and scalability, mobility, increase in computing capacity, increased business performance, higher greener way of IT management and avoiding software and hardware capital expenditure. While 6.7% adopted CC due to its cost reduction and effectiveness, greater IT efficiency and agility, business consistency, consistent backup as a rationale of going cloud. These findings illustrate the significance and impact of CC to the growth and expansion SME's.

TABLE 14: Company Viewpoint on Cloud Computing (Raw Data)

Variables	1 (Low)	2 (Medium)	3 (Average)	4 (Averagely High)	5 (High)
Services/data availability					F W A Z
Loss of control of service/data	A Z	F W			
Cost and difficulty of cloud migration	W A Z	F			
Confidentiality					F W A Z
Inconsistency	F W, A Z				
Integrity of services/data					F W A Z
Lack liability of providers in security incidence	W A Z			F	

Data collection methodology indicated on Table 14 on the Viewpoints on Cloud computing: the various variables as indicated on the table were drawn and guided the collection of data from the various case-study companies labeled as; Foodora (F), Wolt (W) on the respective websites. However, this was rated as 1(low), 2 (Medium), 3 (Average), 4 (Averagely High), 5 (High). From this, indication shows that, Foodora (W) and Wolt Companies registered the results as indicated in Table 14. These results were tallied and entered into the SPSS Software application (Wolt 2014-2021).

TABLE 15: Company Viewpoint on Cloud Computing (Analyzed Data)

Variables	1 (Low)	2 (Medium)	3 (Average)	4 (Averagely High)	5 (High)
Services/data availability	0	0	0	0	20
Loss of control of service/data	10	10	0	0	0
Cost and difficulty of cloud migration	15	5	0	0	0
Confidentiality	0	0	0	0	20
Inconsistency	20	0	0	0	0
Integrity of services/data	0	0	0	0	20
Lack liability of providers in security incidence	15	0	0	5	0

Looking at CC as an advancing technology that aid business expansion and flexibility to gain an increasing performance, many companies see CC in different perspectives. From research findings, result indicated from table 15 shows different knowledge about CC; 16.7% have knowledge of CC as; services/data availability, cost and difficulty of cloud migration, confidentiality, inconsistency, integrity of services/data while 8.3% of the companies indicated CC to be loss of control of service/data, lack liability of providers in security incidence.

5.6. Zalando customer satisfaction survey

Zalando SE, a Swedish e-commerce company base in Berlin, Germany offering fashion and lifestyle products through its website and its application to customers in 17 European markets with a 34M active customers, 1BN visits per quarter, 110M App install, 600K products choices and 2,500 brands of different assortments, was chosen as the study area where the scope of the study looks (Zalando Marketing service GmBH 2020). Zalando was chosen from the list of the afore studied case companies because it was my primary case company and a company I have done extensive research about. I have also used their services before and still use their services in the course of these thesis preparation, a

company I could easily count out a number of friends around me and on the social media platform (Facebook).

Aim

The aim of this survey was to analyze, in the case of Zalando, how their customers think about the services they offer and the tools provided by Zalando to make these services available to all in her geographical location of operation. A customer satisfaction survey was carried out on the level of friendliness, flexibility and adaptability of the fashion retailing company to non-European union nationals based in the European union, who are customers or would be customers of the fashion retailer guru users. This method of survey was chosen based on our survey population and also based on the effectiveness of the web-based application that customers use in purchasing. A questionnaire in APPENDIX 1 was constructed to suit a sample population of my friends on Facebook. The set target group was centered at friends who are in the European union and have access to Zalando online retail stores. The target group too was also centered at the respondents within the age group of 20 and above. A survey was used as the method of conducting the research because it is fast to execute, convenient for the researcher, her participants always stay anonymous, it covers the "why" and give a voice to the voiceless.

A survey sample was created with the use of the SPSS software and the link forwarded to every member of my target group. A number of 20 respondents were recorded successfully and the data collected was used to develop the chart below.

Results

The following tables describe the results of the conducted survey.

TABLE 16: Platform Flexibility and Adaptability

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<5	2	10,0	10,0	10,0
	>5<10	18	90,0	90,0	100,0
	Total	20	100,0	100,0	

Table 16 above portrays the analyses of the survey in terms of flexibility and adaptability. Here, we can see that 90% was gotten from the respondents who thing the Zalando interface is highly flexible and adaptable, whereas, 2% of the respondents had a different thought. This result can be backed by the fact that the advent of CC in enterprising has been a positive move as CC service has been able to provide to their users a service model of AaaS. This can also be confirmed by the fact that CC hosts those applications which can be access even with the use of a mobile device rather than a browser (Blaisdell 2012).

TABLE 17: Means of Shopping

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Application	14	70,0	70,0	70,0
	Web Browser	5	25,0	25,0	95,0
	Other (Fashion Magazines)	1	5,0	5,0	100,0
	Total	20	100,0	100,0	

Table 17 above illustrates per the number of respondents those who prefer using which medium over the other, and after analysing the resulted data, a resulted 70% of the respondents prefer using the Zalando App over logging on to their website or going through their weekly or monthly promotional magazines. Subsequently, 25% of the respondents went for the browser option while 5% opted to be entice by the feeling fashion magazines bring forth. From the view point of a customer, Zalando application interface is customer oriented as it uses the customer geographical location to better serve everyone like in terms of language, they get to view promotions base on their geographical location and the application better serve the customers as they can personalise their searches, hence giving the opportunity to view related options in the search results. Technically speaking, CC is relative to high data storage and more so, mobile app requires multi tenancy capabilities; this is the ability to support multiple clients or users at a given time. Each smart phone, tablet and or other users are considered clients and the central server provides data simultaneously to them while scaling up and down its resources for better satisfaction. (Kalluru 2021.)

6 CONCLUSIONS

Conclusively, it should be noted that there are some school of thoughts who still think SME's should remain traditional as possible (not to migrate to the cloud). But the greater of such schools holds or encourages more companies to move to the cloud because it is by moving that all the measure concerned can better be handled. It can be seen that CC is all about delivering the best of services to companies in the 21st century. Thanks to the above write-up, we could understand.

- The definition of an SME which is not universal but directly proportional to each geographical and economic zone, we understood that SMEs are the backbone of many economies as seen here in the European economy and they accounted for up to 99.8% of all enterprises in the EU-28.
- The advent of cloud computing to our world today, its definition and how close it is useful to our lives today, how easily we can experience it, mostly via our mobile phones with the help of our internet network providers, in our schools and also at our enterprises. This service is easily offered based on their various services models, business and technical perspective taken into consideration, the various models, plus some examples of the CC service providers in our present markets.
- It was much more important to know that these two fields have been able to use each other's services to better satisfy their customers and not the less, maximize cost, and a good example could be seen from the data about from these successful examples of former SMEs used as case-studies (FOODORA, WOLT, AIRBNB AND ZALANDO) with the aid of a questionnaire. In this light, the convenience sampling technique was employed for data collection, and from the analysis, it could be seen that the advent of cloud computing had offered these case-studies their platform and tools so they could be closer to their customers mostly through Apps been hosted on the infrastructure provided by their individual CC service providers.

This research has come to bring the understanding that companies do go global even when not on cloud by employing the services of costly local data centers with inability of scaling and opening of offices and distribution hubs in the different countries of operations or regions. The advent of the CC is here to stay and can be seen as the most profitable and cost-effective way for SMEs to maximize cost. change is scaring at the beginning but profitable and friendly as SMEs or companies become prone to it. To be able to migrate a company's infrastructure to the cloud, it will require from the beginning the

service of a cloud technician who will guide you on the desired cloud service provider you choose and the steps to take. It should be noted that CC is completely relying on good internet. Hence portraying as a far fetch dream for SME's in less developed or under develop countries with inadequate internet network facilities at the moment, but this can change since growth is constant.

REFERENCES

Airbnb, 2021. *About Us.* Available:https://news.airbnb.com/about-us/. Accessed December 2020.

Adam, I. & Musah, A. 2015. *Small and Medium Enterprises (SMEs) in the Cloud in Developing Countries: A Synthesis of the Literature and Future Research Directions*. Available: http://dx.doi.org/10.5539/jms.v5n1p115. Accessed January 2020.

Agarwal, S. 2020. Article: *Only digital adoption can. Help firms thrive: SAP's Deb Deep Sengupta.* Available: https://cio.economictimes.indiatimes.com/news/strategy-and-management/only-digital-adoption-can-help-firms-thrive-saps-deb-deep-sengupta/75882066. Accessed June 2020.

Anderson, S., 2021. *Globalization.* Available: https://www.investopedia.com/terms/g/globalization.asp. Accessed June 2021.

AWS, 2020. *Delivery Hero Supports One Million Orders Daily with SAP Environment on AWS.* Available:https://AWS.amazon.com/solutions/case-studies/delivery-hero-case-study/. Accessed January 2021.

AWS, Inc. 2021. *Compare AWS Support Plans.* Available:https://AWS.amazon.com/premiumsupport/plans/

AWS, 2021. *Airbnb Case Study.* Available:https://AWS.amazon.com/solutions/case-studies/airbnb-case-study/. Accessed January 2021.

AWS, Inc. 2021. *Six Advantages of Cloud Computing.* Available:https://docs.aws.amazon.com/whitepapers/latest/aws-overview/six-advantages-of-cloud-computing.html. Accessed June 2021.

AWS, Inc. 2021. *Why Cloud Infrastructure Matter.* Available: https://aws.amazon.com/about-aws/global-infrastructure/#:~:text=AWS%20Global%20Infrastructure%20Map,United%20Arab%20Emirates%20(UAE). Accessed June 2021.

Cady, A. (2016). *Cloud & IaaS the differences Between Four Types of Cloud Environment.* Available: https://www.inap.com/blog/cloud-101-environments/. Accessed 18 June 2020.

Carvalho, L. & Marden, M. 2018. *Fostering Business and Organizational Transformation to Generate Business Value with Amazon Web Services*. Available at: https://d1.AWSstatic.com/enterprise-marketing/cloud-economics/idc-fostering-business-and-organizational-transformation-to-generate-business-value-with-AWS.pdf. Accessed 18 June 2020.

Castillo, F. A. 2020 *Where is the real cost savings in cloud computing.* Available: https://cloudcomputingtechnologies.com/where-is-the-real-cost-savings-in-cloud-computing/. Accessed June 2021.

CFI Education, Inc., 2015-2021.*Small and Medium-sized Enterprises(SMEs).* Available : https://corporatefinanceinstitute.com/resources/knowledge/other/small-and-medium-sized-enterprises-smes/. Accessed February 2020.

Cloudflare, 2020.*What is cloud migration?* Cloud migration strategy. Avalable: https://www.cloud-flare.com/en-gb/learning/cloud/what-is-cloud-migration/. Accessed June 2020.

Coastline, 2018. *DIGITALIZATION.* Available:https://www.coastline.fi/2018/category/digitalisation/. Accessed September 2019.

Craft.co 2021. *Wolt.* Available: https://craft.co/wolt. Accessed January 2020.

Delivery Hero Se, 2021. *Our story.* Available: https://www.deliveryhero.com/about/. Accessed June 2021.

Delivery Hero SE, 2021, *Our Story.* Available:https://www.deliveryhero.com/about/. Accessed December 2020.

European Commission, 2005. *The New SME Defination: User guide and Model Declaration, P:5-6.* European Commission: Office for Official Publications.

El-Gazzar, R. 2014, *A Literature Review on Cloud Computing Adoption Issues in Enterprises.* Høgskolen i Sørøst-Norge, School of Business, Conference Paper in IFIP Advances in Information and Communication Technology. Availabl: https://www.researchgate.net/publication/278698086. Accessed January 2020.

EU Recommendation. 2003, *Internal Market, Industry, Entrepreneurship and SME's, European Commission.* Available at*:* https://ec.europa.eu/info/index_en. Accessed June 2020.

European Commission, 2021. *Internal Market, Industry, Entrepreneurship and SME's.* Available: https://ec.europa.eu/growth/SME's/sme-definition_en. Accessed February 2020.

Gallagher, S. & Dalgleish A 2013. *VMware;Private Cloud Computing with vcloud Director*: Indianapolis, Indiana: John Wiley & Sons, Inc.

Goddard, W. & Melville, S., 2007. *Research Methodology: An Introduction.* Lansdowne: Juta & Co. Ltd.

Gregg, B. 2014. *System Performance. Michigan*: Pearson Education, Inc. http://ec.europa.eu. Accessed January 2020.

Impact Networking, LLc. 2021. *How Cloud Computing with Azure can benefit your Business.* Avaialable: https://www.impactmybiz.com/blog/blog-6-key-advantages-of-microsoft-azure-cloud-services/. Accessed June 2021.

INAP, 2016. *Cloud 101: The Differences Between Four Types of Cloud Environments.* Available: https://www.inap.com/blog/cloud-101-environments/. Accessed December 2020.

Juniper Networks, 1999-2021. *Wolt Disrupting Dining Across Europe, Powered by Mist WI-Fi.* Available:https://www.juniper.net/us/en/company/case-studies-customer-success/wolt/. Accessed January 2021.

Kacharava, B. 2015. *Cloud Computing Adoption by Medium-sizedd enterprise A Case study of a Georgian Logistics and Distribution Company*: FED, Econmia E GESTAO.

Kalluru, V. 2021. *What Are the Benefits of Cloud Hosting for Apps*?. Available at: https://7t.co/blog/what-are-the-benefits-of-cloud-hosting-for-apps/. Accessed June 2021.

Kelly, T. 2013. *SME's must embrace the cloud to achieve global growth.* Available; https://www.theguardian.com/media-network/media-network-blog/2013/apr/26/cloud-services-sme-businesses-growth. Accessed October 2019.

Khan, I. 2015. *Why Businesses (SME's) Should Adopt Cloud Computing.* Business Information Technology Oulu University of Applied Sciences. Available at: https://www.theseus.fi/bitstream/handle/10024/101464/Khan_Khan.pdf?sequence=1. Accessed January 2020.

Khan, N. & Al-Yasari, A. 2016. *Framework for cloud computing adoption: a roadmap for SME's to cloud migration.* Available: https://arxiv.org/abs/1601.01608. Accessed January 2020.

Knaup, T. 2010. *MySQL in the Cloud at Airbnb.* Available:https://medium.com/airbnb-engineering/mysql-in-the-cloud-at-airbnb-336e5666bc94#.llrxogduu. Accessed January 2020.

Kulkarni, V. 2015. *Cloud Computing: A Broader Perspective!* Available: https://www.esds.co.in/blog/cloud-computing-a-broader-perspective/#sthash.p7Zial1n.dpbs. Accessed: January 2021.

Lorette, K., 2019.*Typical Organizational Structure of a Small Business.* Available: https://smallbusiness.chron.com/typical-organizational-structure-small-business-4895.html. Accessed January 2020.

Marinos, A. & Brisco, G., 2009. *Community Cloud Computing.* Available: https://arxiv.org/abs/0907.2485. Accessed March 2020.

Mather, T. et al. 2009. *Cloud Security and Privacy.* O'Reilly Media.

Mell, P & Grance, T. 2009. *The NIST Definition of Cloud Computing.* Available: https://www.nist.gov/system/files/documents/itl/cloud/cloud-def-v15.pdf. Accessed September 2019.

Mikkonen, I & Khan, I. 2016, *Cloud Computing SME Company Point of View*. Available at: https://www.theseus.fi/handle/10024/114309. Accessed December 2019.

Miltok 2016. *Foodora – A digital revolution of the food delivery industry.* Available: https://digital.hbs.edu/platform-rctom/submission/foodora-a-digital-revolution-of-the-food-delivery-industry/. Accessed February 2020.

Mlitz, K. 2021. *Global number of data center 2015-2021*. Available: https://www.statista.com/statistics/500458/worldwide-datacenter-and-it-sites/#:~:text=Global%20number%20of%20data%20centers%202015%2D2021&text=In%202017%2C%20it%20was%20estimated,had%20fallen%20to%208.4%20million. Accessed June 2021.

Nethersole, R., 2001. *Models of Globalization.* Available: https://www.researchgate.net/publication/297933896_Models_of_Globalization. Accessed December 2020.

Peter, M. & Grance, T. Sept 2011. The NIST Definition of Cloud Computing. www.nist.gov/sites/default/files/documents/itl/cloud/cloud-def-v15.pdf. Accessed January 2020.

Priyadarshinee, P. et al. 2014. *Cloud Computing Adoption in SME's: A Literature Review,* National Institute of Industrial Engineering (NITIE).

Sultan, N. 2011. *Reaching for the "Cloud": How SMEs can manage.* Available: https://www.researchgate.net/publication/232390606_Reaching_for_the_cloud_How_SMEs_can_manage. Accessed January 2020

Tariq, S. R. & Hasan W. 2010). *Perspectives of Cloud Computing an Overview.* Avalaible: https://www.researchgate.net/publication/269629475. Accessed January 2020.

Tilastokeskus, 2021. *SME*. Available; https://www.stat.fi/meta/kas/pk_yritys_en.html. Accessed September 2019.

Tuominen. 2018. *Digitalization services go hand hand*. Available: https://www.coast-line.fi/2018/2018/03/07/. Accessed January 2020.

Velte, T. et al., 2009. *Cloud Computing, A Practical Approach.* McGraw Hill Professional.

Vouk, A. 2008. *Cloud Computing – Issue's research and implementations.* Available: https://ieeexplore.ieee.org/document/4588381?arnumber=4588381. Accessed December 2020.

Wang, Y. 2016. *What are the biggest obstacles to growth of SMEs in developing countries?- An empircal evidence from an enterprise survey.* Available: https://doi.org/10.1016/j.bir.2016.06.001. Accessed June 2021.

Ward, S. 2020. *What are SME's?* Available at: https://www.thebalancesmb.com/sme-small-to-medium-enterprise-definition-2947962. Accessed June 2020.

Wauters, R. 2014. *Inside Zalando: the little online fashion retail engine that could.* Available: https://tech.eu/features/339/inside-zalando/. Accessed September 2020.

Wideskills.com, 2015.*Introduction to cloud computing.* Available: https://www.wideskills.com/cloud-computing/business-perspectives-cloud-computing. Accessed September 2020.

Wolt, 2021. *About Us.* Available:https://wolt.com/en/about. Accessed December 2020.

Wolt, 2021. *Responsibility at Wolt.* Available:https://wolt.com/en/responsibility. Accessed December 2020.

Zalando SE, 2021. *Our History: From Start-up to Grown up.* Available:https://corporate.zalando.com/en/company/our-history-start-grown. Accessed February 2021.

Zalando SE, 2021. *Our Strategy.* Available:https://corporate.zalando.com/en/company/our-strategy. Accessed January 2020.

APPENDIX 1: SURVEY QUESTIONNAIRE

Fellow customers of Zalando on facebook, please do kindly spend a few seconds of your time and take this survey. Thanks for your understanding.

Date:

Sign:

1. **Gender**: Male ▬▬   Female ▬▬   Other: ▬▬

2. **Age;** 20-30 ▬▬   31- 40 ▬▬

   41-50 ▬▬   51 + ▬▬

3. **Occupation/Source of income**
   Student ▬▬   Worker ▬▬   Retired ▬▬

4. **Means of shopping**:

   App ▬▬   Web Browser ▬▬

5. **Monthly shopping frequency**
   once ▬▬   Twice ▬▬   More ▬▬

6. **Fashion Online Retail shops**
   Zalando ▬▬   Others ▬▬

7. **Monthly Online shopping expenses**
   < 50 ▬▬   > 50 < 100 ▬▬   > 100 + ▬▬

8. **Reliability**
   < 5 ▬▬   >5<10 ▬▬

9. **Platform Flexibility and Adaptability**.

10.

< 5 ▭   > 5 < 10 ▭

11. Ease in paying online

< 5 ▭   > 5 < 10 ▭

12. After sale services

< 5 ▭   > 5 < 10 ▭

13. Rate their Delivery Channel

< 5 ▭   > 5 < 10 ▭

APPENDIX 2: QUESTIONNAIRE AND NOTES (USED IN THE ANALYSIS OF SECONDARY DATA)

1. What is your company size?
   - 1 –9 employees
   - 10 – 50 employees
   - 50 –250 employees
   - > 250 employees

i. Foodora 600 employees ranked 5th among its top 10 competitors

ii. Wolt 530 employees ranked 2nd in the 2020 edition of the FT:1000Europe's Fastest growing companies

iii. Airbnd 6300 (2020) employees 5465 employees (Incorporate an online marketplace for travel information and booking services

iv. Zalando: 14,000 employees in 2019

S/N	Company	Company size
1	Foodora	600 (>250)
2	Airbnb	
3	Wolt	
4	Zalando	

2. As an IT user what is your experience?

i. Frictionless experience an apparent triumph of supper efficient technology. Touts the flexibility of schedule but flexibility also means no stability in shift for workers for week to week.

ii. Wolt: Flexibility, working/operating faster than ever, great experience in the payment technology system, Wolt's success is not in the kitchen, but in the backend payment system that allows everything to happen. Wolt lets customers pay for food via their mobile phone, and then facilitates the payment to restaurant, which needs to be moved faster and reliable, for the business to

keep on operating. With IT usage, the speed of transfer is supper important, Wolt uses Transfer-Wise system for international payment. Wolt uses TransferWise batch payment system to process large volumes of transfer in the shortest possible time.

iii.   Airbnb: Flexibility and responsiveness, Company's Rapid growth, creativity and usability ability that enable the team running smoothly, low cost and simplicity of services.

Benefits:
♦ Reduction in Operation Expense
♦ Automation of Scaling
♦ Faster Responses
♦ Flexibility
♦ Running MySQL in the Cloud
♦ Focus on Safety

Challenges
♦ Small 5-person operation team
♦ Infrastructure Scalability Problems
♦ Huge traffic Load during peak periods (Like festive periods, Public Holidays, Black Fridays, etc.)

iv. Zalando: overall –commerce UX performance is mediocre. Zalando UX performance suffers from usability issues caused by poor Product Lists and Filtering, mediocre Mobile E-Commerce and mediocre Cart and Checkout.

Challenges of Zalando: Reliability and scaling

3. How did you know about cloud?
♦ Advertisement
♦ Partner organization: Foodora, Wolt (software & Tech service); Airbnb (Amzon Web Service)
♦ Competitors
♦ Social media means
♦ Friends
♦ Questionnaire

4. What is your experience in Cloud Computing usage in years (emails, servers, software, platforms etc.)
♦ 0 – 1years
♦ 1 – 5years
♦ 5 – 10years (foodora 2015:6years; Wolt (2014 (7years) founded the software, 10/29/2014); Zalando 2015; 6years)
♦ > 10years (Airbnb 2009: 12years.
♦ §None of above

5. What types of Cloud Computing services are most useful to your business operations?
♦ SaaS (Software as a Service)
♦ PaaS (Platform as a Service) Zalando (e-commence platform)
♦ IaaS (Infrastrcture as a Service) (Foodora; Airbnb; ZAlando)
♦ Security services in Cloud
♦ Others…………………………

6. What Cloud form is best suitable and feasible to your business operation?

- ◆ Public Cloud (Owned and managed by an unrelated business) Airbnd; Zalando;
- ◆ Private Cloud (Owned and managed internally)
- ◆ Partner Cloud (Owned and managed by trusted partner) – Foodora;
- ◆ An association of Cloud provided by the above sources - Zalando (uses all types of cloud: Hybrid, Multi, Private, Public)
- ◆ Others…………………………………………………………...

7. Which cloud computing solution are you using in the enterprise?
   i. Foodora uses Delivery Hero
   ii. Wolt uses Juniper Mist Platform: Mist Cloud Services deliver wired and wireless experiences for end users and LoT devices and simplify operations for IT teams.
   iii. Airbnb uses AWS (Amazon Web Sevice): Amazon Elastic Compute Cloud (Amazon EC2)
   iv. Zalando: AWS (Amazon Web Service) using Kubernetes Orchestration

8. Would you be willing to outsource to multiple cloud providers and why?

9. What application services support your business outsourced by CC service provider?
   - ◆ Project management
   - ◆ Accounting and finance (Wolt; Airbnb; Zalando
   - ◆ Application development on Cloud (Wolt; Airbnb
   - ◆ Procurement
   - ◆ CRM/Sales management
   - ◆ Human resources (Wolt,)
   - ◆ Payroll (Wolt; Airbnb.
   - ◆ Anonymized data analysis

10. What are your rationale for going on or adopting cloud (Rate your responses)

	1 (Low)	2 (Me-dium)	3 (Aver-age)	4 (Averagely High)	5 (High)
§ Flexibility and Scalability of IT resources					F; W; A
• Cost reduction and effectiveness					Foodora A;
• Mobility					F W; A
• Increase in compu-ting capacity					F W; A
• Increased business performance					F W; A
• Greater IT efficiency and agility				F	W; A
• Business con-sistency, consistent backups					F; A
• Higher greener way of IT management					F W; A;

• Avoiding software and hardware capital expenditure				F W; A

11. What is your viewpoint on Cloud computing?

	1 (Low)	2 (Medium)	3 (Average)	4 (Averagely High)	5 (High)
Services/data availability					F W, A
Loss of control of service/data	A	F			
Cost and difficulty of cloud migration	W; A	F			
Confidentiality					F WA
Inconsistency	F WA				
Integrity of services/data					F WA
Lack liability of providers in security incidence	WA			F	