

# Examination of Electronic Service Definitions

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**Abstract**— The electronic service concept stands for one prominent application of using the information and communication technologies in dissimilar areas. However, providing an exact definition of e-service is hard to come by as researchers have been using different definitions to describe e-service. This paper presents and examines the e-service definitions from various perspectives by reviewing the recent research in this field.

**Index Terms**— Electronic Services, Traditional Services, Information and Communication Technology, Delivery Channel, Costumer Interaction, Media, Technology Infrastructure

## I. INTRODUCTION

During the last ten years a large amount of services have been launched to electronic markets and the same kind of development will certainly continue. In many cases traditional services have simply moved to electronic environment and human work is partly substituted by computers and software. This was predicted to revolutionize the way of doing marketing in a short period of time. However, the development has been slow, but the trend towards e-services is clear. As Lovelock et al. [1] point out Internet Revolution is still in its early stages.

E-service initiatives have been proven to deliver significant benefits, both for suppliers of electronic services (public authorities and organizations) and for the public, to whom services are addressed [2, 3].

Electronic method is believed to lead to better delivery of services, improved interaction with business and industry, citizen empowerment through access to information, or more efficient government management [4]. The resulting benefits include increased accountability and transparency, less corruption, greater convenience, increased citizen involvement, greater efficiency, and cost reductions [5-9].

There are various definitions of electronic services, and there is a lack of research containing the examination of them. This paper is going to present the definition of e-service from different perspective.

## II. TRADITIONAL SERVICES VERSUS ELECTRONIC SERVICE

The main distinguish between electronic service and traditional services are the channels they use to deliver their services, further they interact with their users with different methods [10]. In real world, customers need to go to the companies or store physically to receive the firms services, while they are able to get e-services via the electronic channels (Internet, PDA, Mobile phone ...). Previous studies, define the services based on the basic characteristics of service namely, simultaneousness of marketing, production and consumption, abstract nature, process nature, interactive nature [11], ownership, perishability and heterogeneity [12]. As e-service characteristics are described in the coming section, it can be seen that the characteristics of e-services and services are not entirely similar. On the other hand, although Parasuraman and Berry [13] have identified reliability, empathy, responsiveness, tangibility and assurance as service quality dimensions, several researches only supported the applicability of responsiveness and reliability as e-service quality dimensions [9, 14].

## III. E-SERVICE DEFINITIONS

Since, e-services are services which are delivered with the mediation of information technology [15], at the starting point of this section, some definition of services is discussed to give a better view for further comprehension of electronic service definitions.

In fact, the term “service” has a variety of meaning depend on the angel that is viewed and on the field of expertise [16]. Yang et al. [7] defined services as "a benefit providing object of transaction that is a more or less abstract activity or process of activities essentially produced, marketed and consumed in a simultaneous interaction” Lehtinen [11] and Hoffman and Bateson [15] defined services as efforts, deeds or performance.

On the other hand, customers and service providers’ interaction and process nature of services has been stressed by [17]. Furthermore, Liljander and Strandvik [18] divided “services to episodic and relational ones, where the latter comprises the interactive nature of services”. More recently Lovelock [19] defined services as “an act or performance offered by one party to another...an economic activity that creates value and provides benefits for customers...by bringing about a desired change in, or on behalf of, the recipient” which is more focused on the interaction elements. Moreover, in the business field, service is defined as “any essentially intangible act or performance that someone (i.e. a company) does for someone else (a customer) as a solution to the customer’s problem” [16].

In terms of electronic services, there is no unique definition and scholars have been viewed it from various perspectives, thus they define e-service in a variety of ways. Thus, it is vital to clarify what does e-service mean before continuing any research in this field. Table 1 shows e-service definitions that extracted from the e-service literatures.

TABLE 1. E-SERVICE DEFINITIONS

| Authors | Description  |
|---------|--|
| [20]    | “E-service is defined as web-based service“  |
| [21]    | “E-service is defined as an interactive, content-centred and Internet-based customer service, driven by the customer and integrated with related organizational customer support processes and technologies with the goal of strengthening the customer-service provider relationship” |
| [22]    | “The term e-services is typically used to describe a variety of electronic interactions, ranging from basic services, such as the delivery of news and stock quotes, to smart services, such as the delivery of context-aware emergency services”                                      |
| [23]    | “E-service is providing consumers with a superior experience with respect to the interactive flow of information”  |
| [24]    | “E-service is defined as including the processes, policies, procedures, people, tools, and technologies that enable enterprises to provide assisted and unassisted customer service using the Internet as its platform”  |
| [25]    | “E-service can be defined as the provision of service over electronic networks such as the Internet”   |
| [26]    | “E-service is defined as an interactive services that are delivered on the Internet using advanced telecommunications, information, and multimedia technologies”   |

| Authors   | Description  |
|-----------|--|
| [27]      | “E-services are electronic offerings for rent made available via the Net that complete tasks, solve problems, or conduct transactions”   |
| [27]      | “E-service is defined as online functionality provided for rent to consumers, in the marketing sense of services as bits of usefulness that help people solve problems and meet their needs”   |
| [28]      | “A net-based customer service system delivers service to customers either directly or indirectly. Direct delivery of service is through a browser, PDA, or cell phone; indirect delivery of service is via a customer service representative or agent “  |
| [29, 30]. | “E-Service is a highly generic term, usually referring to the provision of services via the Internet (the prefix ‘e’ standing for ‘electronic’, as it does in many other usages), thus e-service may also include e-commerce, although it may also include non-commercial services (online), which is usually provided by the government “ |
| [31]      | “E-service refers to the services that can be delivered electronically”  |
| [32]      | “E-service is a benefit providing object of transaction that can be characterized as an intangible process that is at least partially produced, marketed and consumed in a simultaneous interaction through electronic networks”   |
| [33]      | “E-service is deeds, efforts or performances whose delivery is mediated by information technology (including the Web, information kiosks and mobile devices)”  |
| [16]      | “An e-service is an activity or series of activities that take place during the interaction between a provider and a customer through an electronic channel. Increasingly e-services are being realized using the technology of web services”  |
| [16]      | “E-services are taken to mean web-based versions of traditional services”  |
| [34]      | “E-services are web services that are delivered through the Internet”  |
| [35]      | “E-service is defined as an act or performance that creates value and provides benefits for customers through a process that is stored as an algorithm and typically implemented by net worked software”   |

Rust and Kannan [25] clarified that smart card networks, kiosks, Internet, automatic teller machines and wireless networks are included in their notion of electronic networks. They believed that “e-service is the term used to represent a development which is characterized by the link between the service sector and information technology” [25].

Zeithaml and Bitner [34] simply defined e-service as web services delivered through the Internet. It has been argued that customers rely on the Internet to interact with or contact service providers, such as via the websites of service providers in order to access e-services. They emphasized the significance of the Internet and customers’ dependence on the Internet for electronic services.

However, Järvinen and Lehtinen [32] presented a general definition of e-service based on e-service characteristics with some exceptions such as ways that service providers may interact with customers, Brohman et al. [28] definition embraced PDA, browser and cell phone as tools for delivering the e-service.

Ruyter et al. [21] highlighted the importance of e-service in the self-service environment via the Internet based on the fact that ever more customers increasingly look for company access and customer support via the Internet, and an increasing number of service providers are distributing their core services and customer support to customers using electronic means [36]. According to their [21] conceptualization, e-service is interactive, content-centered, and Internet-based customer service with the support of technologies and systems offered by service providers, and is driven by customers. The customer-provider relationship is the focus in their concept of e-service [37].

The definition that has been presented by Rowley [33] contains three chief parts which are service delivery channel, service receiver and provider, whereas Javalgi et al. [31] and Rust and Kannan [38] have focused on the medium that the service is delivered. Some studies emphasized on instructiveness of e-service in their definition Chidambaram, and Rust and Lemon [22, 23, 26] along with Boyer et al. [26] concentrated on required infrastructures for e-service delivery.

Policies, tools, processes, people, procedures and technologies are included in the Gartner [24]'s description of e-service which seems to be more complete definition compare to others. In addition, Hofacker et al. [35] with special vision comparison to the rest, differentiated between outcome of service and service creation.

As mentioned earlier, some researches come across to the e-service from various perspectives. Some authors categorized the technology based services [39, 40]. Heinonen [41] has even defined a technology based service "as a service with both tangible and intangible elements that is performed totally or partly by the customer via a technology interface". It is obvious that technology based service is not a different concept compare to e-service. Another viewpoint on e-service is to considerate it as information service [23], while the main value exchanged between the two parties is information. Furthermore, however, the majority of authors use e-service but some employ net-based customer service systems [42].

Compared to the aforementioned concepts of e-service, Rowley [33] has made a much broader definition of e-service based on the concept of service defined by Hoffman and Bateson [15]. Rowley [33] extended it to embrace all media and all kinds of interactions. According to Rowley [33], e-service should include all kinds of interactivities and deeds mediated by information technology, such as the Internet, information kiosks and mobile devices, and the interactivities should include e-tailing, customer support and service, and service delivery [36].

In the field of computer science, there are some interpretations of "service" Kardaras and Karakostas [16] and as Rust et al. [43] stated, e-service contains the concepts of

service environment, information technology services, service product, Web services, infrastructure services and service delivery which include any business framework that are belong to a pure service provider or a goods company. Besides, Kardaras and Karakostas [16] stated that "e-services are more complex than web services we can say that web services are the building blocks for creating and delivering e-services".

Aforementioned concepts of e-service lead us to compose the two basic characteristics of e-service: interactive service offered to customers and services delivered via the Internet. Though information is important in e-service as Rust and Lemon [23] suggest, the content of e-service includes not only information service, but also system service, delivery service, transaction service and so on, and interactivity is a key characteristic of e-service.

In brief, according to the literature in the field of e-service, the definition of electronic services has been viewed from several perspectives which are; Delivery Channel, Characteristics of E-services, Customer Interaction Methods, Infrastructure and Technology. Therefore, we define e-service as the provision of interactional, content-centred and electronic-based service over electronic networks.

#### IV. CONCLUSION

In the field of electronic services, although there are a plenty of studies which focuses on the technical part of the web services [44, 45], IS researchers need to initially have the complete view of the e-service definitions to select one based on their scope of study. This research attempted to review and examine the different definition of electronic services to give the researchers inclusive view. According to all definitions, we define e-service as the provision of interactional, content-centred and electronic-based service over electronic networks.

According to above, researchers have used distinguish description for e-service; it can be declared that they all agree about the role of technology in facilitating the delivery of services. In brief, as shown in Table 1, most of the e-service definitions focused on the delivery way (electronic channels like Internet) and refer to services, one defined it with respect to its characteristics, another one describe it based on the production and outcome of the service.

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