Chapter 5
Analysis of Speedy Uptake of Electronic and Digital Signatures in Digital Economy with Special Reference to India

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ABSTRACT

This chapter focuses on the issues evolved out of the Indian Information Technology Act of 2000; the key subject related to authentication of digital signatures with special reference to India based on case studies; the benefits of strong information technology infrastructure in India for advancement of future technologies and expansion of domestic market worldwide as well as the vital suggestions on advantages of electronic and digital signatures in enriching and ensuring swiftness in business desires and security.

INTRODUCTION

Information technology (IT) sector added diverse advantages to the contemporary face of India. Digital signatures and electronic signatures are one of the sophisticated means for authentication of electronic records in advancement of electronic commerce in digital world. Information communication technology (ICT) constitutes a threshold requirement for e-commerce adoption. International e-commerce transactions are based on the sophisticated catalog from end to end which is used for companies to advertise their products that result in import and export of their goods and services.

This chapter discusses recent and emerging legal complexities regarding the use of digital signature and electronic signatures in India. It also discusses basic evidentiary questions related to digital and electronic signatures testimony and authenticity issues related to civil and commercial disputes. Moreover, it explores benefits of digital Signature in uplifting the best use -in-class technologies and shares best practices within the digital economy.

BACKGROUND

Digital Signature is defined as means of authentication of any electronic record by a subscriber by means of an electronic method or procedure. In other words, it is as an electronic identifier, created by computer, intended by the party using it to have the same force and effect as the use of a manual signature.

Electronic signature means authentication of any electronic record by a subscriber by means of electronic technique and it also includes digital signature. Also it can be understood as electronic sound, symbol or process attached to or logically associated with a record and executed or adopted by a person with the intent to sign the record.

Digital and Electronic signatures attracts various technical issues; the major concern lies in legal validity and authentication issues, in determining the security concern over business profitability. The utility of digital or electronic signatures facilitate trade and secures transactions over the Internets which enhance rapid growth of electronic commerce.

The prospect of electronically concluding contracts and other legally significant transactions raises a number of technical and legal questions about how to establish the genuineness of electronic documents. The term electronic document is understood as "electronic message," or "electronic record" which is often used interchangeably. In general, "electronic" should not be taken to mean exclusively electrical, but may also include other forms of document preparation, transmission, and storage, including fiber optic transmission lines.

As used in this paper, "electronic document" refers to a *digital* representation of information, where the human-readable characters and images have been reduced to a unique set of binary digits or bits–ones and zeros–which represent those characters.

The difference between a digital, electronic document and an analog image of the same document is that the digital document has effectively captured the raw keystrokes used, to create it, whereas, in case of a written document it is the *image* of the document that has been captured. In a sense, digital electronic documents are normally stored and transmitted in computer-readable form only. The term "written document" will be used when it is necessary to differentiate between a traditional written document, whether recorded on paper or carved in stone, versus an electronic document in digital form, even if such a document were recorded on some semi-permanent medium such as a writeable CD-ROM. Digital documents consist solely of streams of binary digits or "bits" a seemingly endless series of ones and zeroes-they lack the distinctive, semi-permanent physical attributes of a written document.

Difference between Electronic Signature and Digital Signature

There is no universally accepted meaning of e-signatures (Sneddon, 1998). When trying to explore the definition of e-signatures, another term 'digital signatures' will have to be mentioned and differentiated as well. Actually, these two terms have created considerable confusion and sometimes they refer to the same meaning (Finocchiaro, 2002). However, digital signatures are developed to specially refer to one kind of e-signature technologies, that is, the e-signature employing asymmetric encryption. Digital signature is a specific term of art within the technical community that has been used consistently since the landmark publication describing public key cryptography (Diffie & Hellman, 1976).

The digital signature algorithm is based on the use of "public key cryptography" and involves the use of two codes known as "keys" that are used by the signer to authenticate the source and content of his electronic documents, and by the recipient to validate their correctness. One of a pair of keys which are generated at the same time, the private key, is kept solely in the possession of the signer of an electronic document and is used

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