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Legal Aspects of Business

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Recapitulate

Information Technology Act, 2000

- Electronic Governance
- Types of interaction
- Benefits of E-governance
- Challenges in E-governance

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Digital Signature

Digital Signature is a process that **guarantees that the contents of a message have not been altered in transit**. When you, the server, digitally sign a document, you add a one-way hash (encryption) of the message content using your public and private key pair.

A **digital signature** is a **mathematical scheme** for verifying the authenticity of digital messages or documents. A valid digital signature, where the prerequisites are satisfied, gives a recipient very strong reason to believe that the message was created by a known sender **(authentication)**, and that the message was not altered in transit **(integrity).**

Digital signatures are a standard element of most cryptographic protocol suites, and are commonly used for **software distribution, financial transactions, contract management software, and in other cases** where it is important to detect **forgery or tampering.**

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Importance of Digital Signature

1. Fast turnaround

Employees at companies using traditional signatures have to do many steps to sign and return a document received via email. Using this technique any type of documents and contracts can get **signed with a click of a button**. As a result, you save time because these codes allow you to replace the approval process on paper with a fully digital system which is faster and cheaper. Thanks to **digital signatures**, documents can get signed off almost instantly, from **anywhere using a tablet, phone or computer.**

2. Cost savings

The implementation of **digitalization has a cost,** but, in the long run, you will end up **saving money.** With a **digital signature,** sending paper documents is unnecessary. Therefore, **printing and delivery/shipping costs** will go down. There will be also savings in other **indirect costs such as filing, rekeying data, archiving, or tracking and in the expenses** related to the processing of confidential files. The use of **digital signatures** will also help to cut down on **environmental waste** as a consequence of the drastic reduction of the paper your organization will use.

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Importance of Digital Signature

3. Workflow efficiency

With lesser delays, these signatures ensure better efficiency in workflow. **Managing and tracking** documents is easier and faster. Processes that use to take months from the time a document is requested until it is received can be done in considerable less time. Another benefit is that you will be better **able to track documents faster** than searching through paper documents stored in **file cabinets or boxes.** Some software even sends **signers a reminder email** if a document has not been signed yet.

4. Strengthen security

Digital signatures reduce the **risk of duplication or alteration of the document** itself and ensure that signatures are verified and legitimate because each of them is protected with a tamper-evident seal, which alerts you if any part of the document has been changed after signing. **Signers are also provided with PINs, password and codes** that can authenticate and verify their identity and approve their signatures and **protecting your organization against fraud and keeping your information safe.**

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Importance of Digital Signature

5. Increase storage space

Due to the fact that digital files are stored in virtual servers **connected to the IT network or in the cloud**, you don’t need to keep your **office storage cabinets filled with paper files** and your office can have more available space for other things. **Physical documents** occupy a **lot of space and increases** the usage of paper, which is **not recommended due to its environmental impact.**

The benefits of **digital signatures** have more offices and companies choosing them to make their workplace more **efficient and secure.** Digital document management systems can help your organization **save time, money and space providing better security** while improving productivity and cutting down on paperwork.

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Advantages of Digital Signature

In today's hyper-connected world, traditional methods of signing and authenticating documents are increasingly being replaced by technological innovations such as electronic signatures in general and digital signatures in particular. For more than a decade, federal law has recognized the legality of electronic signatures.

Digital signatures as provided by DocuSign and other leading companies in the industry offer several advantages namely:

1. Added security

A digital signature offers more security than an electronic signature. The **unique identifying "fingerprint"** data in a digital signature remains permanently embedded within a document. Signs that someone has **tampered with or altered a document** after signing it can be **easily detected.**

Through the use of **encryption verification technology**, known as **Public Key Infrastructure (PKI),** a digital signature offers the highest and most verifiable standard for identifying an individual by an electronic signature.

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Advantages of Digital Signature

2. A high standard

The PKI standard is common to DocuSign and its peer companies in the digital signature industry. PKI offers an algorithmically based protocol in which a vendor generates two “keys,” the lengthy numbers that define the signature. **One of the keys is private and the other is public.**

The PKI standard mandates that vendors **make and save keys in a safe and secure fashion**. The standard generally also states that the services of a **trustworthy Certificate Authority** be used to ensure such security. The long-term security of the data, the document, and the signature are supported by the fact that **any alterations to the original document will invalidate** it. In addition, each signature includes a date stamp to verify the time of signing.

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Advantages of Digital Signature

3. Global acceptance and legal compliance

More countries are starting to accept digital signatures on legally binding documents because they understand that the security protocols offered by vendors such as DocuSign are in compliance with international standards in the field. Today, a great majority of the world's governments recognize digital signatures provided by DocuSign and other similar companies.

4. Long-term retention and access

The signatories to a digital signature document do not need to rely on a vendor's continued presence in the marketplace in order to continue to verify its authenticity. If a customer later switches to another vendor, he or she could lose access to signatures stored with the original company.

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Advantages of Digital Signature

5. Independent verification

Digital signatures from companies such as DocuSign can **withstand stringent independent verification** and **cannot be altered by unauthorized parties.**

The advantages greatly overshadow the disadvantages. Practically the only disadvantages of using digital signature are the **weak laws** regarding cyber security which might cause any **unnecessary hassles in case of a court case** and that both parties have to purchase the certificates for the digital signature in order to use it.

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Distinguish between Digital Signature and Electronic Signature

Comparison Chart

BASIS FOR COMPARISON	DIGITAL SIGNATURE	ELECTRONIC SIGNATURE
Basic	Digital signature can be visualised as an electronic "fingerprint", that is encrypted and identifies the person's identity who actually signed it.	Electronic signature could be any symbol, image, process attached to the message or document signifies the signer's identity and act an consent on it.
Authentication mechanism	Certificate-based digital ID	Verifies signers identity through email, phone PIN, etc.
Used for	Securing a document	Verifying a document
Validation	Performed by trusted certificate authorities or trust service providers	No specific validation process
Security	Highly secure	Vulnerable to tampering

Review Questions

1. Digital Signature is a process that guarantees that the contents of a message have been altered in transit. **True or False**

2. The unique identifying _____ data in a digital signature remains permanently.
    a. Private key
    b. Public Key
    c. Finger prints
    d. All of the above

3. PKI stands for _____
    a. Public Key Information
    b. Private Key Infrastructure
    c. Personal Key Infrastructure
    d. Public Key Infrastructure

Answer

1. Digital Signature is a process that guarantees that the contents of a message have been altered in transit.

Answer: False

2. The unique identifying _____ data in a digital signature remains permanently.

Answer: c. Fingerprints

3. PKI stands for _____

Answer: d. Public Key Infrastructure

Thank You