

DIGITAL SIGNATURES AND SEALS – An introduction

9/16/2020 ACEC/MA IT Forum

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These slides are presented as a courtesy to
ACEC/MA Members

- ▶ Why Digital Signatures?
- ▶ What is the difference between Electronic and Digital?
- ▶ MA Regulations
- ▶ How to choose digital signature solutions

PRESENTATION OUTLINE

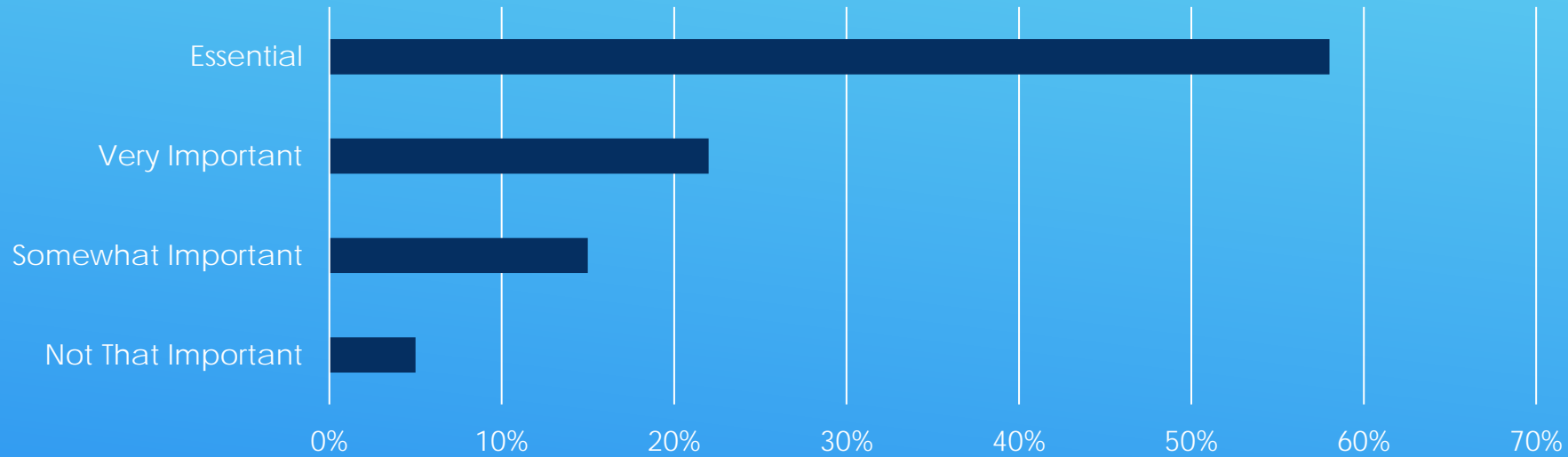


Digital Signature
James Smith
Signed by: James Smith
Date: Jan 17 2013
Time: 14:35pm
Reason: To approve this document

Signed Document
Utamur insolens ea sit, feugiat abhorrant
duo. An cum venar legendos posidonium,
sed ad eripuit oportere accuamus, id
eum adipiscing repudiandae.
Vim vocibus appetere ta. Sit possit
repudiandae an, mea quas concul et per
in blandi ornareque, aliquam qualisque
id pra, vim dolore nemore id.
Ne sententiae vituperatoribus quo, soluta
inciderit sadpsing no duo, nec aeterno
James Smith

WHY DIGITAL SIGNATURES?

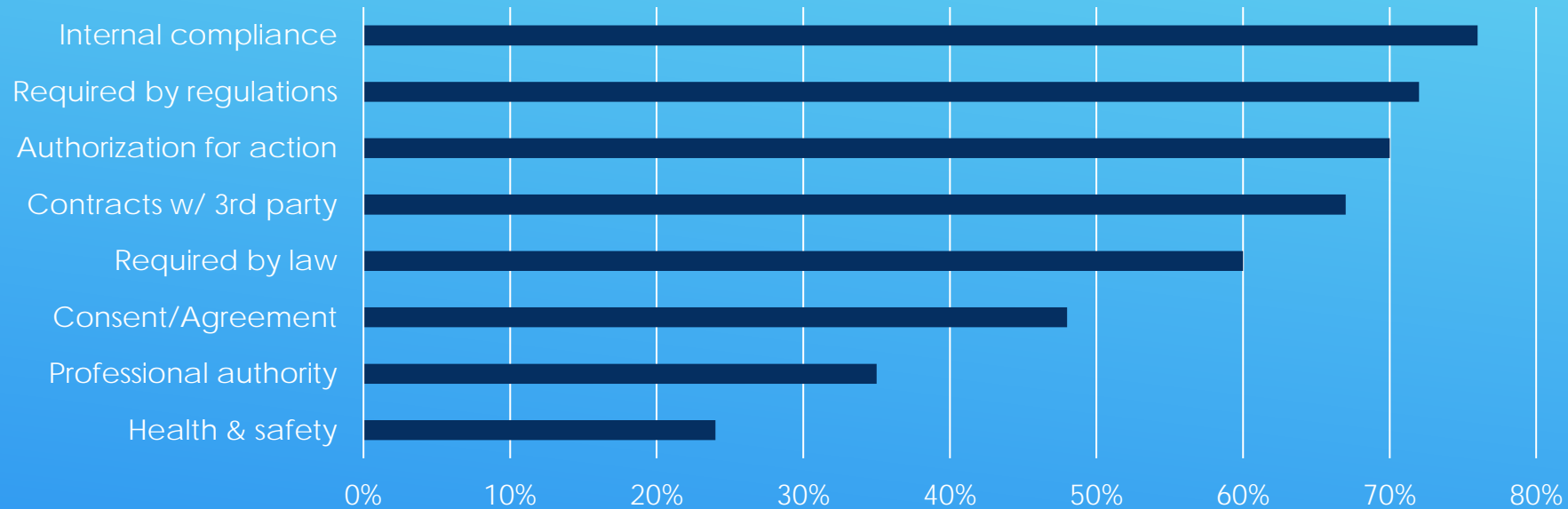
With regard to the regulatory environment or standard business practices in your industry, how important are authorization signatures within your organization?



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BUSINESS DRIVERS

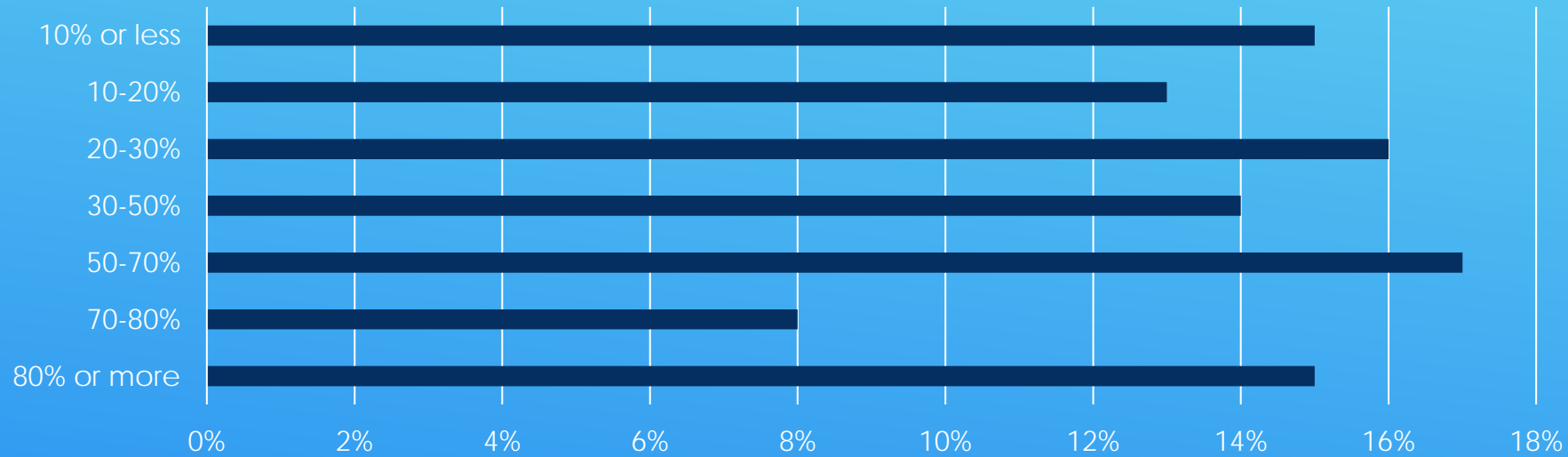
For which of the following needs are authorization signatures considered essential in your organization?



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BUSINESS DRIVERS

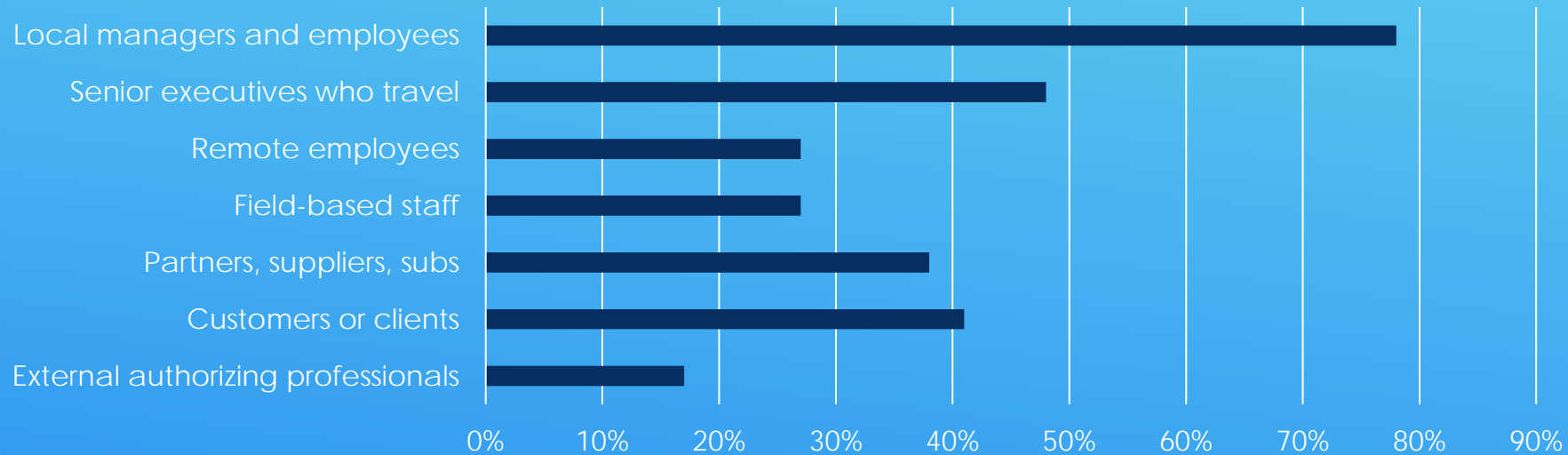
What percentage of the main business processes/documents in your organizational unit would you say require authorization signatures?



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BUSINESS DRIVERS

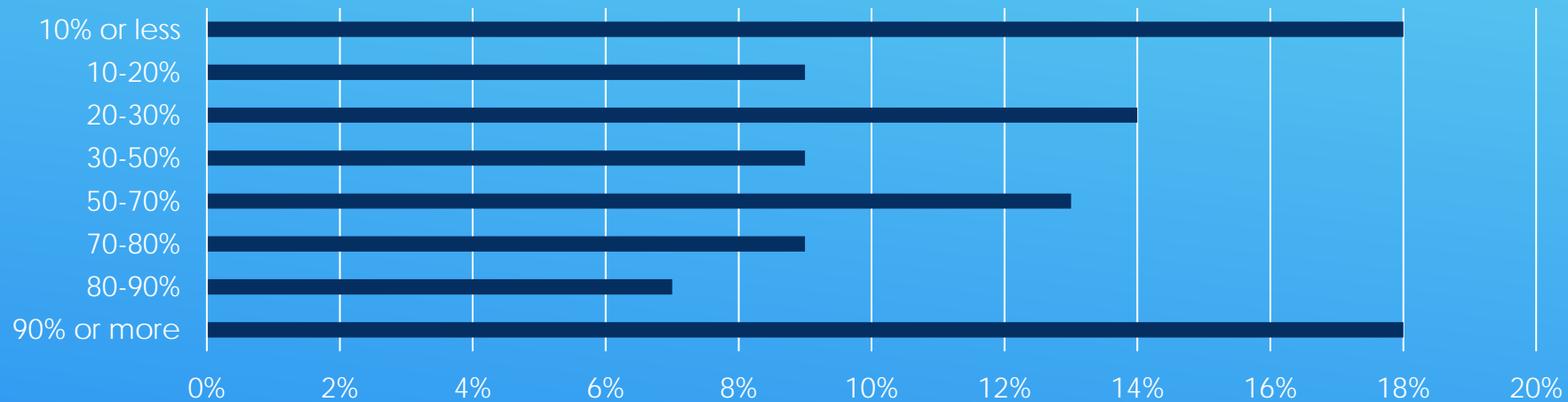
As part of your main business workflows, who of the following are required to sign and return documents or approve your process steps?



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BUSINESS DRIVERS

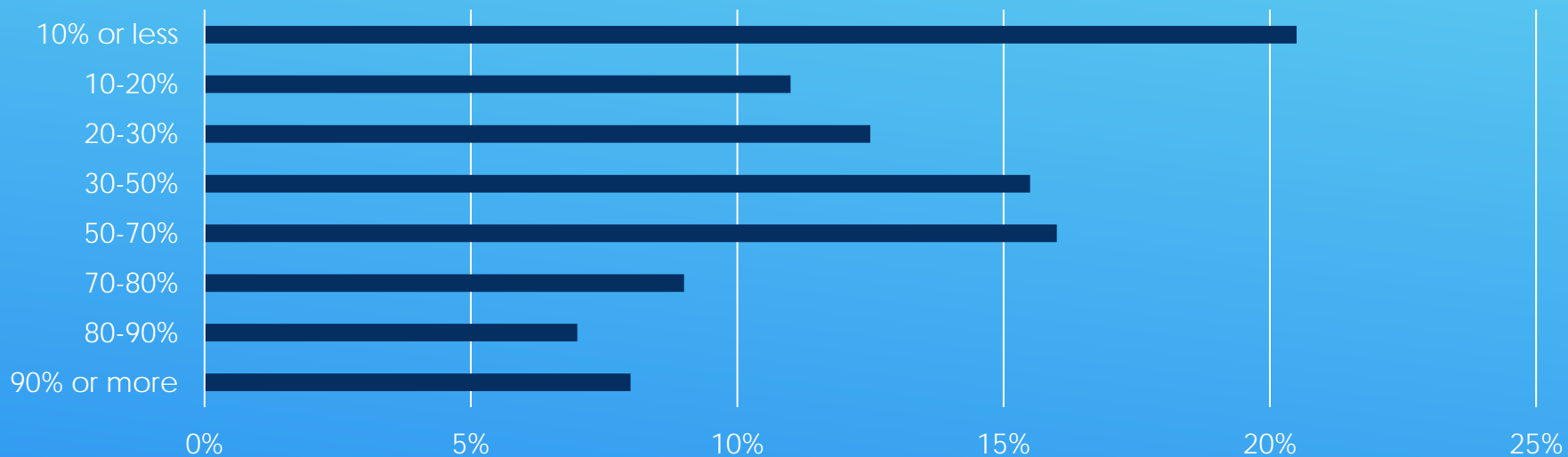
Considering the documents that are printed out as part of your formal approval processes, what proportion would you say are printed for the sole purpose of adding one or more signatures?



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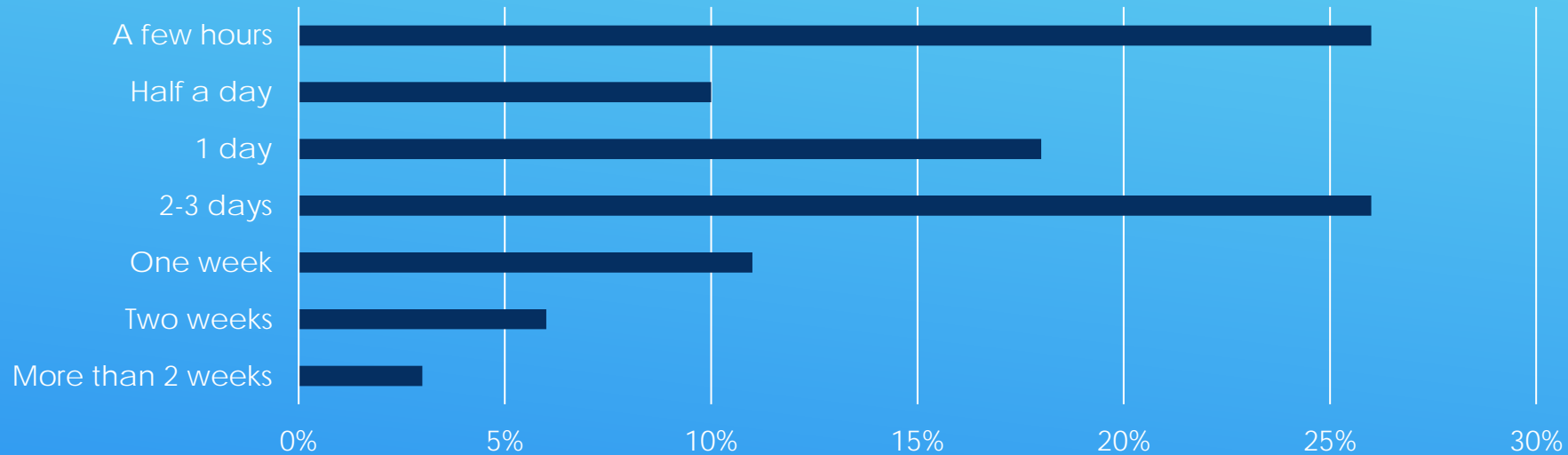
What proportion of your key processes would you say are interrupted, slowed down or prematurely completed by the need to collect physical signatures on paper ?



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BUSINESS DRIVERS

How much time would you say is generally added to a typical formal approval process as a result of this physical sign-off?



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BUSINESS DRIVERS



DEPARTMENT OF COMMUNITY AFFAIRS



COUNTIES, MUNICIPALITIES, AGENCIES

GOVERNMENT DRIVERS



- ▶ Uniform Electronic Transactions Act (UETA) – 1999
- ▶ Electronic Signatures in Global and National Commerce Act (E-Sign) – 2000
- ▶ EU Directive for Electronic Signatures – 1999

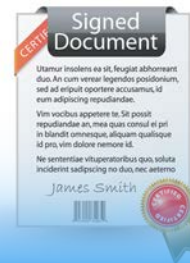


LEGAL AUTHORITY

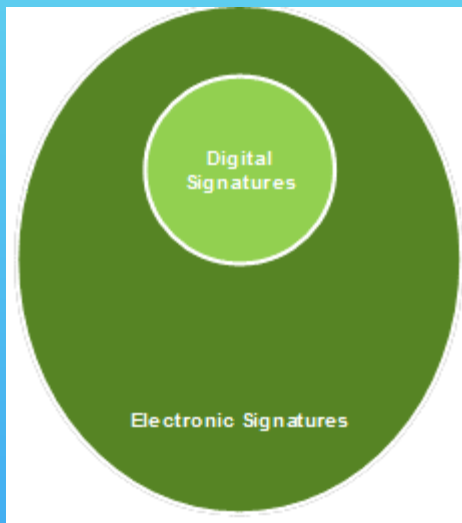
- ▶ Over 80% of Professional Engineering licensing boards allow electronic signatures

LEGAL AUTHORITY





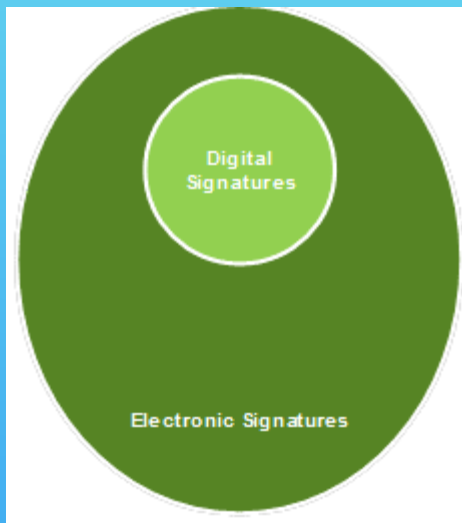
IS ELECTRONIC DIGITAL?



- ▶ An “Electronic signature” is a pictorial representation of a wet signature within an electronic document
- ▶ A Digital Signature is “a digital guarantee that information has not been modified, as if it were protected by a tamper-proof seal that is broken if the contents were altered.”¹



DIGITAL SIGNATURES ARE ELECTRONIC



- ▶ A digital signature includes extra data which identifies and authenticates the sender and message data using public-key encryption
- ▶ A digital signature meets a standard established by NIST and International standards organizations



ELECTRONIC SIGNATURES ARE NOT NECESSARILY DIGITAL

James J. Purcell PE

Professional Engineering Services

Dear Mr. Digital:

This is a letter that represents the most vulnerable of documents – it is being transmitted electronically to you as a Microsoft Word document, which means that you can modify it as you see fit. Since it has only a picture of my signature on it, it can be modified and printed out to look as if it is an original document signed by me. Oh, and it also has a picture of my seal, so feel free to use that, too, on any document you like.

Sincerely,



James J. Purcell, PE



James J. Purcell PE

Professional Engineering Services

Dear Mr. Digital:

This is a letter that represents a slightly less vulnerable document – it is being transmitted electronically to you as a PDF document, created by Adobe, which means that you can modify it as you see fit, as long you have a full Adobe Acrobat product and not just the Adobe Reader.

If you are interested in modifying it, you can change what it says and no-one would be able to tell the difference between my original and your copy. You can also save my signature and seal as pictures and use them on any document you like.

Sincerely,



James J. Purcell, PE



ELECTRONIC DOCUMENTS

James J. Purcell PE

Professional Engineering Services

Dear Mr. Digital:

This is a letter that represents a protected document – it is being transmitted electronically to you as a PDF document, created by Adobe, but also signed using Adobe EchoSign, which is fully compliant with both UETA and ESignII. This means that if you attempt to modify it, the document will display a message stating that it has been signed and cannot be edited.

Furthermore, the document includes an electronic representation of my seal as part of my digital signature, which is protected to keep you from copying it.

Sincerely,

James J. Purcell, PE

ELECTRONIC
DOCUMENTS



- ▶ Self-generated certificates
- ▶ 3rd party certificates
- ▶ Encrypted signature (minimum level)
- ▶ Encrypted document
- ▶ Public / Private



DIGITAL ENCRYPTION

▶ Security:

- ▶ Assume a computer can decipher a 56 bit key in one second
- ▶ That same computer would take 150 trillion years to decipher a 128 bit key
- ▶ Digital signature key lengths can be up to 1024 bits



DIGITAL ENCRYPTION



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Signed Document
Utamur insolens ea sit, feugiat abhorrant duis. An cum venar legendos posidonium, sed ad eripuit oportere accuamus, id eum adipiscing repudiandae.
Vim voibus appetere ta, Sit possit repudiandae an, mea quas concul et per in blandi ornareque, aliquam qualisque id pra, vim dolore nemore id.
Ne sententiae vituperatoribus quo, soluta incidereit sadpsing no duis, nec aeterno
James Smith

MA REGULATIONS



HOW TO CHOOSE DIGITAL SIGNATURE SOLUTIONS

- ▶ Software solutions depend on a various factors
 - ▶ Platform (on-site, online, mobile)
 - ▶ Size of business
 - ▶ Number / frequency of need
 - ▶ Level of encryption
 - ▶ Cost



DIGITAL SOFTWARE

DIGITAL SOFTWARE



SoftwareInsider

Home > Digital Signature




Compare Digital Signature Software

Filter

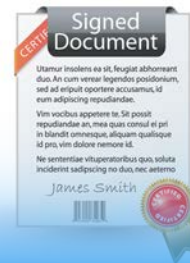
View

Share

36 results filtered by: **ESIGN Act Compliance** - [Clear filter](#)

Product Name	Pricing Details	Business Size
 eSignLive 9.0/10 <input type="text"/> 7 User Reviews <input type="checkbox"/> Add to Compare	Starting From \$20 per user / month Visit Website	Any Size Business
Sponsored ⓘ		
 RightSignature 7.4/10 <input type="text"/> 21 User Reviews <input type="checkbox"/> Add to Compare	Starting From \$11 per month Visit Website	Any Size Business
Sponsored ⓘ		
 DocuSign 9.1/10 <input type="text"/> 30 User Reviews <input type="checkbox"/> Add to Compare	Starting From \$10 per month / user Visit Website	Any Size Business
Sponsored ⓘ		
Adobe EchoSign	Starting From \$14.99	Any Size Business





FINAL THOUGHTS

- ▶ A contract, record, or signature may not be denied legal effect or enforceability solely because it is in electronic form
- ▶ Digital signatures make business sense and many clients require electronic submission of documents
- ▶ Digital signatures are not required, they are optional – wet signatures and impression seals are still acceptable

IN SUMMARY

- ▶ Digital signatures are more secure than other methods
- ▶ There are many software solutions that can meet the needs of the engineering profession regardless of size of firm or frequency of use

IN SUMMARY

A decorative graphic consisting of several parallel white lines of varying lengths, slanted diagonally from the bottom right towards the top right, located in the lower right quadrant of the slide.

- ▶ For software comparison, visit <http://digital-signature.softwareinsider.com/#main>
- ▶ For further information, visit the Association for Information and Image Management at <http://www.aiim.org/>



RESOURCES