

# STANDARDISATION IN E-ARCHIVING

DIGITAL TRUST AND E-ARCHIVING

Alain Wahl

The logo for ILNAS, featuring the letters 'I', 'L', 'N', 'A', and 'S' in a stylized font. The 'I' is yellow, and the other letters are blue. The logo is enclosed in a white oval with a drop shadow.

ILNAS

# STANDARDISATION IN E-ARCHIVING

Digital trust and e-archiving



## OBJECTIVES OF THIS PRESENTATION

### Understand the concept of digital trust

- Definition
- Digital trust department of ILNAS
- European eIDAS regulation on e-id and trust services

### Understand the national context of electronic archiving

### Understand the objectives of the law on e-archiving

### Understand the supervision scheme for digitisation and e-archiving service providers



# STANDARDISATION IN E-ARCHIVING

## Digital trust and e-archiving



### SUMMARY

#### Digital trust

- Definition and concept
- Digital trust department of ILNAS
- European eIDAS regulation on electronic identification and trust services

#### Electronic archiving

- National law of 25 July 2015 on electronic archiving
- Supervision scheme for qualified PSDCs
- Grand-ducal regulation of 25 July 2015 on execution of article 4 paragraph 1
- Grand-ducal regulation of 25 July 2015 on digitization and preservation of documents

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# STANDARDISATION IN E-ARCHIVING

Digital trust and e-archiving



## DEFINITION OF TRUST

**Li, F., Pieńkowski, D., Van Moorsel, A., Smith, C. (2012)**  
**A holistic framework for trust in online transactions**

Li et al. show that trust can be classified into three categories:

- Interpersonal trust, which is the trust that one agent has in another agent. It is based on specific characteristics of the agents involved
- System trust, or Impersonal trust, which is based on the perceived reliability of a system or institution
- Dispositional trust, also referred to as 'basic trust', which describes the general trusting attitude of the trustor



# STANDARDISATION IN E-ARCHIVING

## Digital trust and e-archiving



### THE CONCEPT OF TRUST

**Yan, Z., Holtmanns, S. (2007), “Trust Modeling and Management: from Social Trust to Digital Trust”**

- Related to trustor’s objective properties:
  - Assessment
  - Set of standards
- Related to trustor’s subjective properties:
  - Confidence
  - Expectations
- Related to trustee’s objective properties:
  - Competence, ability, security, dependability, integrity, predictability, reliability
  - Timeliness, observed behavior, strength
- Related to trustee’s subjective properties:
  - Honesty, benevolence, goodness, probability, willingness, belief, disposition
  - Attitude, feeling, intention, faith, hope, trustor’s dependence and reliance
- Related to the context:
  - Situations entailing risk, structural, risk
  - Domain of action

# STANDARDISATION IN E-ARCHIVING

## Digital trust and e-archiving



### THE CONCEPT OF DIGITAL TRUST

**Wang, Y. D., Emurian, H. H. (2005). An overview of online trust: Concepts, elements, and implications.**

- Similar characteristics of digital and “traditional” trust
- Trustor and trustee
  - Trustor e.g. consumer who is browsing a web site on the Internet
  - Trustee e.g. governance organization or merchant that the website represents
  - Establishing and maintaining a trust relationship
- Anonymity of doing business using the Internet
- Trustees: may behave in an unpredictable manner
- Consumers
  - Uncertain about the risks and its consequences when passing information or executing online transactions
  - More vulnerable to specific trust violations such as privacy violations or loss of money



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# STANDARDISATION IN E-ARCHIVING

## Digital trust and e-archiving



### DIGITAL TRUST DEPARTMENT

- National supervisory body for
  - Qualified trust service providers
  - Qualified digitization or e-archiving service providers
- Management and publication of Luxembourg's trusted list
- Promotion of good practices for trust service providers and digitization or e-archiving service providers
- Member of the European Multi-Stakeholder Platform (MSP) on ICT Standardization
- [www.portail-qualite.lu/fr/confiance-numerique/index.html](http://www.portail-qualite.lu/fr/confiance-numerique/index.html)



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# STANDARDISATION IN E-ARCHIVING

## Digital trust and e-archiving



### ELECTRONIC IDENTIFICATION AND TRUST SERVICES INCLUDING E-SIGNATURES

- European legislation: Regulation (EU) No 910/2014 of the European Parliament and of the Council on electronic identification and trust services for electronic transactions in the internal market (eIDAS regulation)
- Related ongoing standardisation and research activities
  - ETSI EN 319 401, ETSI EN 319 411 – Requirements for Trust Service Providers
  - ETSI EN 319 421 – Policy and Security Requirements for Trust Service Providers issuing Time-Stamps
  - ETSI SR 019 050 – Rationalized framework of Standards for Electronic Registered Delivery Services Applying Electronic Signatures
  - ETSI TS 119 612 – Trusted Lists
  - Signature formats (CAAdES, XAdES, PAdES, CAAdES profile, ASiC, and ASiC profile)



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Digital trust and e-archiving



## EIDAS REGULATION (EU) NO 910/2014

### Objective

- Strengthen EU Single Market by boosting **TRUST** and **CONVENIENCE** in **secure** and **seamless cross-border** electronic transactions



# STANDARDISATION IN E-ARCHIVING

## Digital trust and e-archiving



### EIDAS REGULATION (EU) NO 910/2014

- Mutual recognition of e-identification means
- Electronic trust services
  - Electronic signatures
  - Electronic seals
  - Time stamping
  - Electronic registered delivery service
  - Website authentication.
- Electronic documents



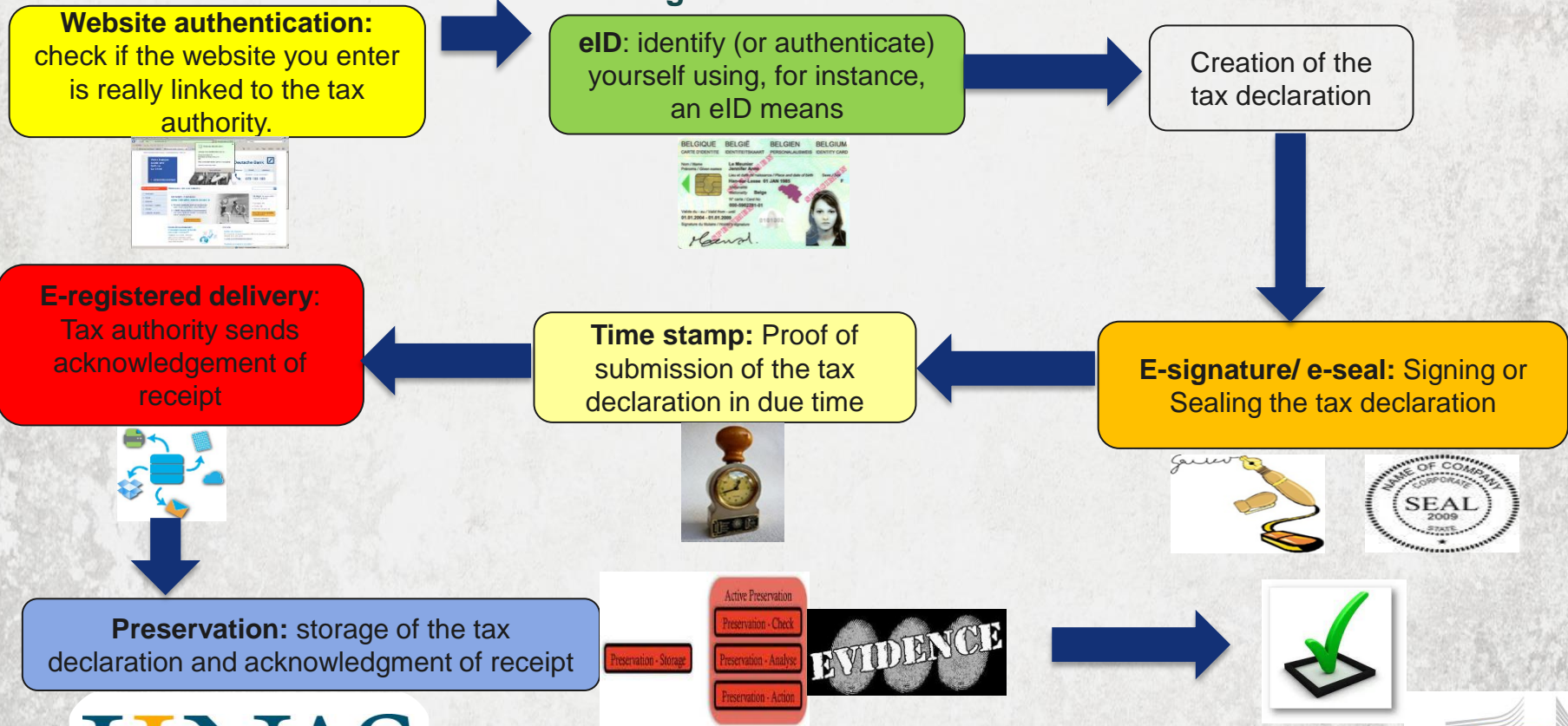
# STANDARDISATION IN E-ARCHIVING

Digital trust and e-archiving



## EIDAS REGULATION (EU) NO 910/2014

### E-Transactions workflow – Submitting a tax declaration



# STANDARDISATION IN E-ARCHIVING

## Digital trust and e-archiving



### EIDAS REGULATION (EU) NO 910/2014

- Provides legal certainty and fosters the usage of eID means for on-line access (not regulated at EU level before)
- Addresses all the stages of a generic e-transaction, from the authentication of a web site to preservation
- Provides the legal framework for a comprehensive “toolbox” of mechanisms and services to boost trust and confidence in electronic transactions
- Takes a risk management perspective, not based on normative rules but on principles:
  - Transparency and accountability: well-defined minimal obligations for TSPs and liability
  - Trustworthiness of the services together with security requirements for TSPs
  - Light-touch reactive monitoring for TSPs vs. full-fledged supervision for QTSPs
  - Technological neutrality: avoiding requirements which could only be met by a specific technology
  - Market rules and building on standardisation
- Provides one set of rules directly applicable across all EU MS (regulation, 1 DA and 28 IA)



# STANDARDISATION IN E-ARCHIVING

Digital trust and e-archiving



EIDAS REGULATION (EU) NO 910/2014

## Mandatory recognition of electronic identification

Voluntary notification  
of eID schemes

"Cooperation and interoperability"  
mechanism

Assurance Levels: "high" and "substantial"  
(and "low")

Interoperability framework

Access to authentication capabilities: free of charge for public sector bodies & according to national rules for private sector relying parties



# STANDARDISATION IN E-ARCHIVING

Digital trust and e-archiving



## EIDAS REGULATION (EU) NO 910/2014

### Trust services

Horizontal principles: Liability; Supervision; International aspects; Security requirements; data protection; Qualified services; Prior authorisation; trusted lists; EU trust mark

Electronic signatures, including validation and preservation services

Electronic seals, including validation and preservation services

Time stamping

Electronic registered delivery service

Website authentication



# STANDARDISATION IN E-ARCHIVING

Digital trust and e-archiving



## EIDAS REGULATION (EU) NO 910/2014

### Timeline of implementation

2014

2015

2016

2017

2018

2019

Entry into force of the Regulation

Voluntary recognition eIDs

Date of application of rules for trust services

Mandatory  
recognition of eIDs

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# STANDARDISATION IN E-ARCHIVING

Digital trust and e-archiving



## NATIONAL LAW OF 25 JULY 2015 ON ELECTRONIC ARCHIVING

### Objectives

- Establish a trust relation between users
  - External verification
  - Promote the quality of products and services
  - Restitution of documents in case a qualified PSDC ceases its activities
- Legal value of the electronic documents
  - Given by the law on electronic archiving
- Promote the activities of e-archiving
  - Marketing effect
  - Good image of qualified PSDCs
- Cost reduction
  - Reduce paper archives
  - Reduce time to find and access an information
  - Reduce security incidents



# STANDARDISATION IN E-ARCHIVING

Digital trust and e-archiving



## NATIONAL LAW OF 25 JULY 2015 ON ELECTRONIC ARCHIVING

### Definitions

- Accredited Conformity Assessment Body (CAB): independent body of assessors accredited by a National Accreditation Body as having the competence to carry out conformity assessment activities
- Copy with probative value: copy which preserves its integrity (property of accuracy and completeness, ISO/IEC 27000:2014)
- Preservation: archiving of digital files in an electronic medium for long-term use
- Qualified PSDC: *Prestataire de Services de Dématérialisation ou de Conservation* supervised and qualified by the Digital trust department of ILNAS

# STANDARDISATION IN E-ARCHIVING

Digital trust and e-archiving



## NATIONAL LAW OF 25 JULY 2015 ON ELECTRONIC ARCHIVING

### About the legal value of electronic copies

- Presumption of conformity with the original of electronic copies done by a qualified PSDC
  - > Electronic copies have the same legal value as the original document, except when there is a prove of the opposite
- An electronic copy cannot be rejected by a judge, because of its electronic format
- An electronic copy cannot be rejected by a judge, because it has not been realised by a qualified PSDC



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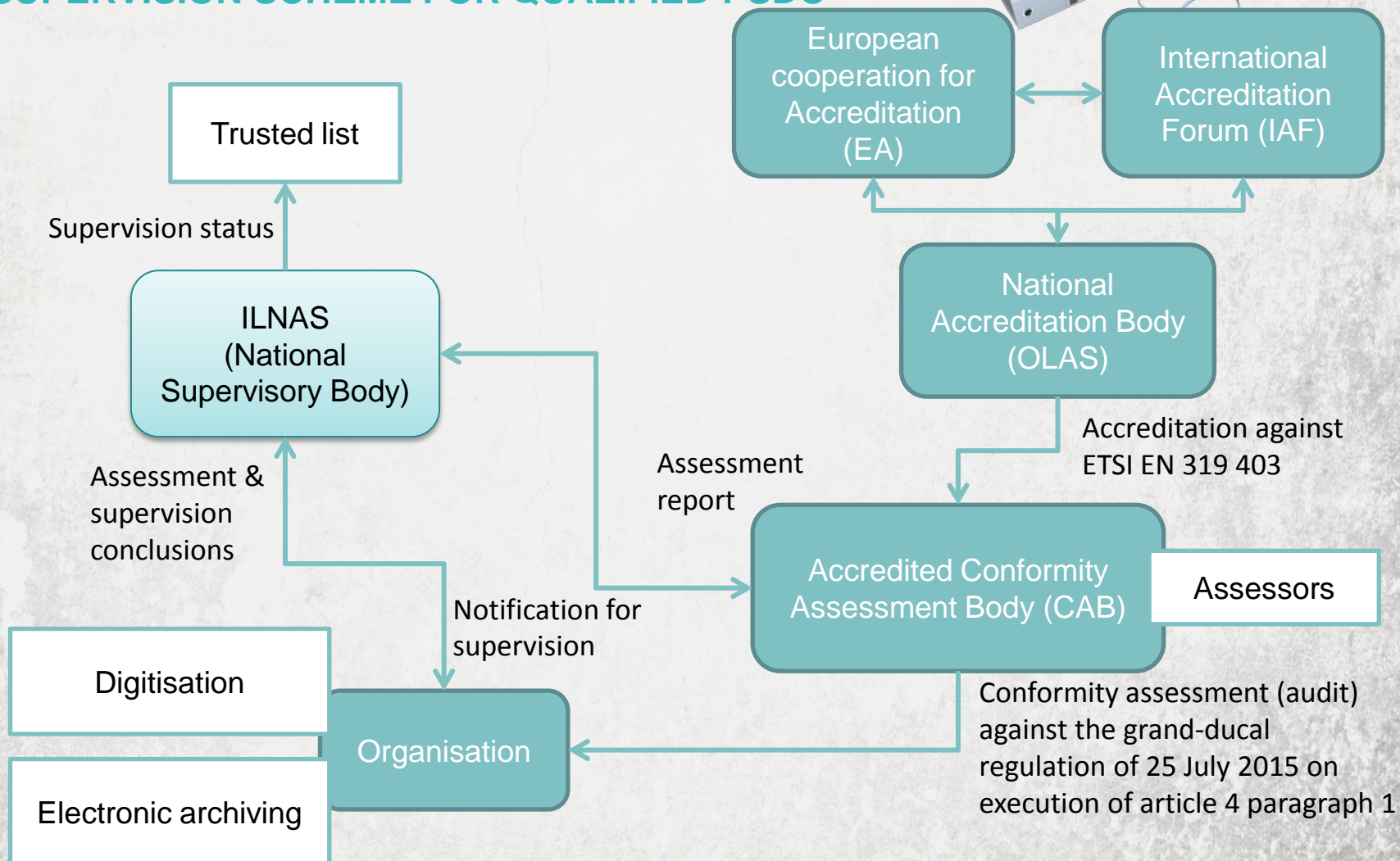
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# STANDARDISATION IN E-ARCHIVING

Digital trust and e-archiving



## SUPERVISION SCHEME FOR QUALIFIED PSDC





# STANDARDISATION IN E-ARCHIVING

## Digital trust and e-archiving



### SUPERVISION SCHEME FOR QUALIFIED PSDC

#### Preparation of the PSDC

- Conform to the grand-ducal regulation of 25 July 2015 on execution of article 4 paragraph 1
  - Specify a *policy*
  - Risk evaluation
  - Specify the practices of digitization and e-archiving
  - Implement an ISMS
  - Document & implement the procedures
  - Realize internal audits
  - Implement corrective actions
  - Realize management review
- Apply for certification at an accredited Conformity Assessment Body

# STANDARDISATION IN E-ARCHIVING

## Digital trust and e-archiving



### SUPERVISION SCHEME FOR QUALIFIED PSDC

#### Conformity assessment

- According to the grand-ducal regulation of 25 July 2015 on execution of article 4 paragraph 1
- Technical and documentary assessment
- Intermediary report
- Corrective actions and their assessment, final assessment report
- The CAB does not decide on the qualified PSDC status
- Conformity assessment cycle
  - Initial audit
  - Surveillance audit at least every 12 months  
If more than 12 months between 2 audits, the certification is lost
  - Every 3 years: re-assessment



# STANDARDISATION IN E-ARCHIVING

## Digital trust and e-archiving



### SUPERVISION SCHEME FOR QUALIFIED PSDC

#### Accreditation of Conformity Assessment Bodies (CABs)

- CAB has to be accredited by OLAS or by any other accreditation body recognized by OLAS in the context of European or international mutual recognition
- According to ETSI EN 319 403 V2.2.2
  - Requirements for conformity assessment bodies assessing Trust Service Providers
  - ISO/IEC 17065 specifies general requirements for CABs performing certification of products, processes, or services  
Not focused on any specific application domain where CABs work
  - General requirements are supplemented to provide additional dedicated requirements for CABs performing certification of Trust Service Providers (TSPs)
  - Does not repeat requirements from ISO/IEC 17065:2012 but follows its document structure
  - Incorporates many requirements relating to the audit of a TSP's management system, as defined in ISO/IEC 17021 and in ISO/IEC 27006

# STANDARDISATION IN E-ARCHIVING

Digital trust and e-archiving



## SUPERVISION SCHEME FOR QUALIFIED PSDC

### Accreditation of CABs according to ETSI EN 319 403 V2.2.2

- Conformity assessment: process demonstrating whether specified requirements relating to a product, process, service, system, person or body have been fulfilled
- Conformity assessment body: body that performs conformity assessment services which is accredited as competent to carry out conformity assessment of a qualified trust service provider and the qualified trust services it provides
- National accreditation body: sole body in a State that performs accreditation with authority derived from the State
- Trust service: electronic service which enhances trust and confidence in electronic transactions  
NOTE: Such trust services are typically but not necessarily using cryptographic techniques or involving confidential material
- Trust Service Provider (TSP): entity which provides one or more electronic trust services



# STANDARDISATION IN E-ARCHIVING

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## SUPERVISION SCHEME FOR QUALIFIED PSDC

### Accreditation of CABs according to ETSI EN 319 403 V2.2.2

- General requirements
  - Legal and contractual matters
  - Management of impartiality
    - Activities not conflicting with impartiality
  - Liability and financing
  - Non-discriminatory conditions
  - Confidentiality
  - Publicly available information
- Structural requirements
  - Organizational structure and top management
  - Mechanism for safeguarding impartiality

# STANDARDISATION IN E-ARCHIVING

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## SUPERVISION SCHEME FOR QUALIFIED PSDC

### Accreditation of CABs according to ETSI EN 319 403 V2.2.2

- Resource requirements
  - Conformity Assessment Body personnel
    - Management of competence
    - Training of audit teams
  - Resources for evaluation
    - Competence of Conformity Assessment Body personnel
    - Competences for all functions
    - Competences for application review
    - Competences and prerequisites for auditing
    - Competences for review
    - Competences for certification decision
    - Competences for Technical Experts
    - Audit team
    - Audit team leader



# STANDARDISATION IN E-ARCHIVING

Digital trust and e-archiving



## SUPERVISION SCHEME FOR QUALIFIED PSDC

### Accreditation of CABs according to ETSI EN 319 403 V2.2.2

- Process requirements
  - Application
  - Application Review
  - Audit
  - Review
  - Certification decision
  - Certification documentation
  - Directory of certified products
  - Surveillance
  - Changes affecting certification
  - Termination, reduction, suspension or withdrawal of certification
  - Records
  - Complaints and appeals

# STANDARDISATION IN E-ARCHIVING

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## SUPERVISION SCHEME FOR QUALIFIED PSDC

### Accreditation of CABs according to ETSI EN 319 403 V2.2.2

- Management system requirements
  - Options
  - General management system documentation
  - Control of documents
  - Control of records
  - Management review
  - Internal audits
  - Corrective actions
  - Preventive actions



# STANDARDISATION IN E-ARCHIVING

## Digital trust and e-archiving



### SUPERVISION SCHEME FOR QUALIFIED PSDC

#### Validation of notification by ILNAS

- Analyse of the audit report
- Validity of accreditation of the CAB and its scope
- Validity of certification of the PSDC and its scope
- Competence of assessors in regard to the law on electronic archiving and the grand-ducal regulations
- Compliance of the assessment to the grand-ducal regulation of 25 July 2015 on execution of article 4 paragraph 1
- Assessment report written in one of the administration languages according to the law on legal languages of 24 February 1984 or in English
- All major non-conformities reported during assessment are corrected

# STANDARDISATION IN E-ARCHIVING

Digital trust and e-archiving



## SUPERVISION SCHEME FOR QUALIFIED PSDC

### Supervision by ILNAS

- PSDCs shall notify all changes in their infrastructure and organization to ILNAS
- At least biannual meetings between ILNAS and the PSDC
- Voluntary cessation of supervision on demand of the PSDC
- Revocation of PSDC status in case of major non-conformity



# STANDARDISATION IN E-ARCHIVING

Digital trust and e-archiving



## SUPERVISION SCHEME FOR QUALIFIED PSDC

### Trusted List

- Registration of the supervision status in the national trusted list
- Publication of the trusted list on [www.portail-qualite.lu](http://www.portail-qualite.lu)
- Service type identifier – ETSI TS 119 612 V2.1.1
  - URI: <http://uri.etsi.org/TrstSvc/Svctype/Archiv>  
Description: an Archival service.
  - URI: <http://uri.etsi.org/TrstSvc/Svctype/Archiv/nohavingPKlid>  
Description: an Archival service that cannot be identified by a specific PKI-based public key
- Service information extensions – ETSI TS 119 612 V2.1.1
  - Additional Service Information Extension specifies additional information on a service.
  - PSDC-D, PSDC-C, PSDC-DC (National Law of 25 July 2015 on electronic archiving)

# STANDARDISATION IN E-ARCHIVING

## Digital trust and e-archiving



### SUPERVISION SCHEME FOR QUALIFIED PSDC

#### PSDC statuses – ETSI TS 119 612 V2.1.1

- <http://uri.etsi.org/TrstSvc/TrustedList/Svcstatus/recognisedatnationallevel>
  - Recognized at national level
  - In compliance with the provisions laid down in the applicable national legislation
  - Indicates that the Supervisory Body has granted an "approved" status
- <http://uri.etsi.org/TrstSvc/TrustedList/Svcstatus/deprecatedatnationallevel>
  - Deprecated at national level
  - In compliance with the provisions laid down in the applicable national legislation
  - Indicates that the previously "approved" status has been withdrawn by the Supervisory Body



# STANDARDISATION IN E-ARCHIVING

Digital trust and e-archiving



## SUPERVISION SCHEME FOR QUALIFIED PSDC

### Conformity Assessment Guidance

- Practical advice for any participant of the assessment
- Based on return of experience
- Promote understanding of the requirements and controls established in the grand-ducal regulation of 25 July 2015 on execution of article 4 paragraph 1
- Promote the evaluation and implementation of the controls
- Assure that requirements and controls comply to their objectives
- Published on [www.portail-qualite.lu](http://www.portail-qualite.lu)

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Digital trust and e-archiving



## GRAND-DUCAL REGULATION OF 25 JULY 2015 ON EXECUTION OF ARTICLE 4 PARAGRAPH 1

**Requirements and controls for certifying digitisation or e-archiving service providers**

**Unique reference containing all the conditions for obtaining the qualified PSDC status**

**Based on international standards**

- ISO/IEC 27001:2013
- ISO/IEC 27002:2013
- ISO 30301:2011

**Published in the *Mémorial A* – N° 150 of 4 August 2015**

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# STANDARDISATION IN E-ARCHIVING

Digital trust and e-archiving



## GRAND-DUCAL REGULATION OF 25 JULY 2015 ON DIGITIZATION AND PRESERVATION OF DOCUMENTS

### Copy with probative value

- Copy which preserves its integrity (property of accuracy and completeness ISO/IEC 27000:2014)
- Identical image of the original
- Systematically executed without gaps
- Executed according to procedures, which are archived as long as the copies
- Preserved with care
  - In a systematic order
  - Integrity assured

# STANDARDISATION IN E-ARCHIVING

Digital trust and e-archiving



## GRAND-DUCAL REGULATION OF 25 JULY 2015 ON DIGITIZATION AND PRESERVATION OF DOCUMENTS

### Digitization

Authenticity of the copy with probative value has to be assured

- Digitization process has to preserve the integrity of the content and appearance of the original
- Every copy with probative value has to contain a timestamp of its creation
- An updated log file containing the history of the copy with probative value is instantly available



# STANDARDISATION IN E-ARCHIVING

## Digital trust and e-archiving



## GRAND-DUCAL REGULATION OF 25 JULY 2015 ON DIGITIZATION AND PRESERVATION OF DOCUMENTS

### Digital preservation

- Electronic copies with probative value and digital original files have to be permanent
  - Preservation of the integrity of the file or
  - Archived as an secured electronic document or signed with a qualified signature
- If e-documents with probative value are transferred from one support to another or if the format is changed, the owner has to prove the concordance
- Preservation systems for e-documents with probative value have to
  - Contain the security to preserve integrity of the e-documents
  - Allow instantly access to the e-documents and assuring authenticity and integrity with the original document

# THANK YOU

For Your Attention

For more information:

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