Information management in a nuclear industry project

THTH seminar: Data quality and security in nuclear industry
20120516

Agenda

- Fortum in a nutshell
- What is Information management?
  - Perspective
  - Terminology
- Life cycle management of the information
  - Introduction to Information Management Plan
  - Basic lifecycle model
  - Formats
- Supplier documentation management
  - From paper to native format real-time cooperation
- Cloud services
  - Challenges and benefits
- Information security
  - Perspective of Information management

Fortum in a nutshell

Power Division consists of Fortum's power generation, physical operation and trading as well as expert services for power producers.

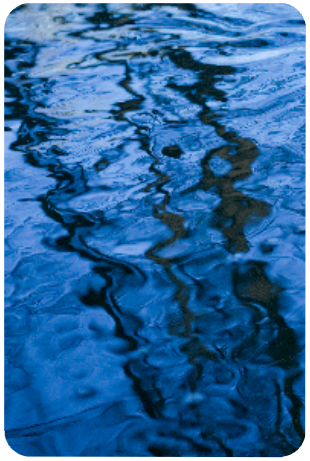
Heat Division consists of combined heat and power generation (CHP), district heating and cooling activities and business-to-business heating solutions.

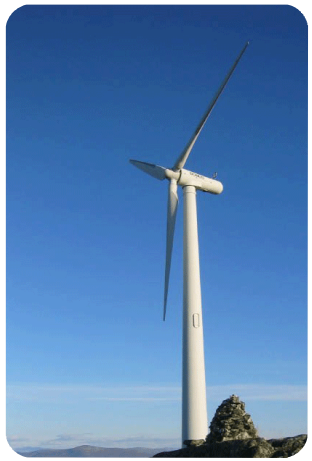
Russia Division consists of power and heat generation and sales in Russia. It includes OAO Fortum and Fortum's slightly over 25% holding in TGC-1.

Electricity Solutions and Distribution Division is responsible for Fortum's electricity sales and distribution activities. It consists of two business areas: Distribution and Electricity Sales.

Power Division

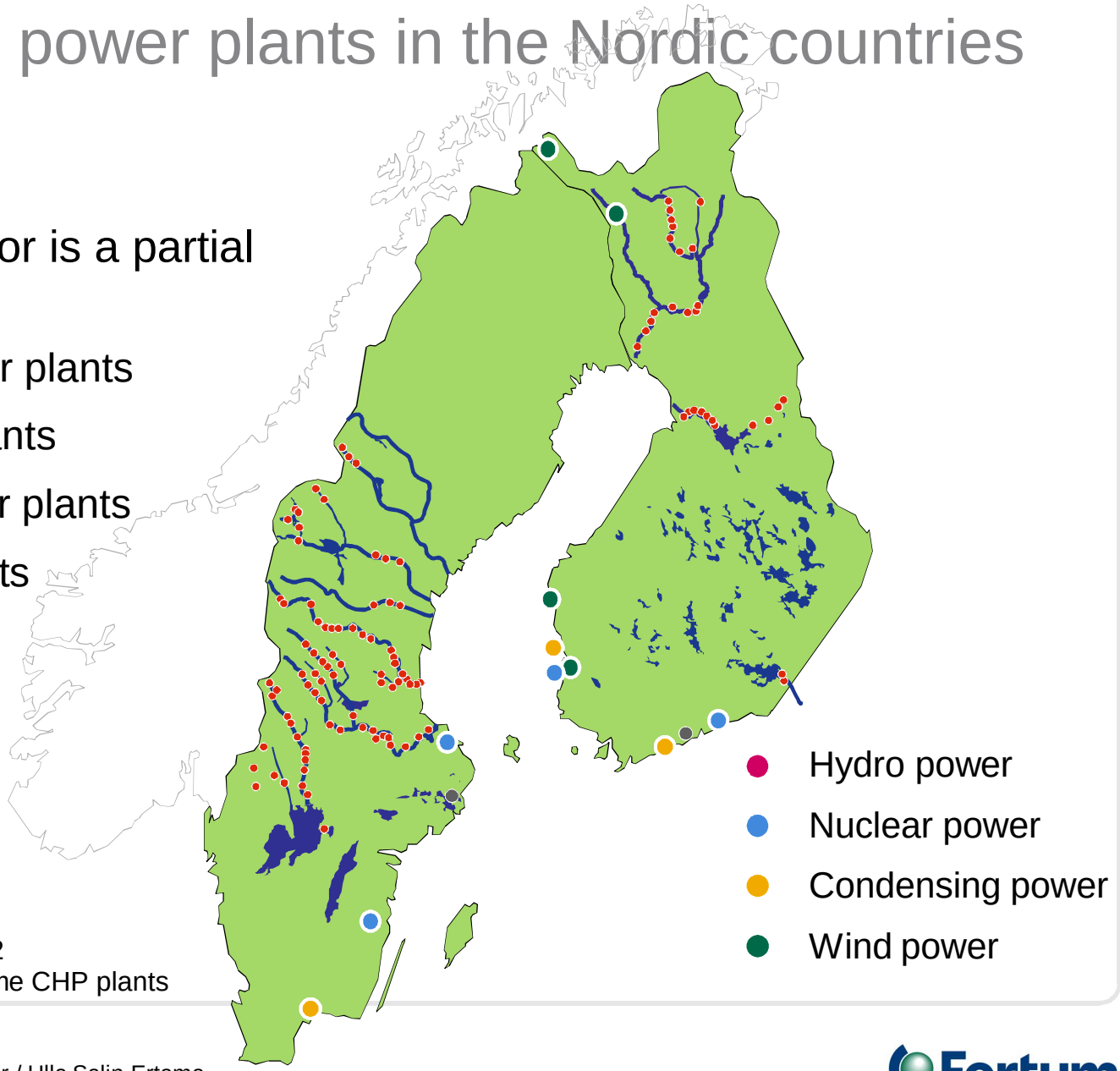
- Power generation
  - Hydro
  - Nuclear
  - Thermal
  - Wind
- Physical operations and trading
- Expert services for power producers



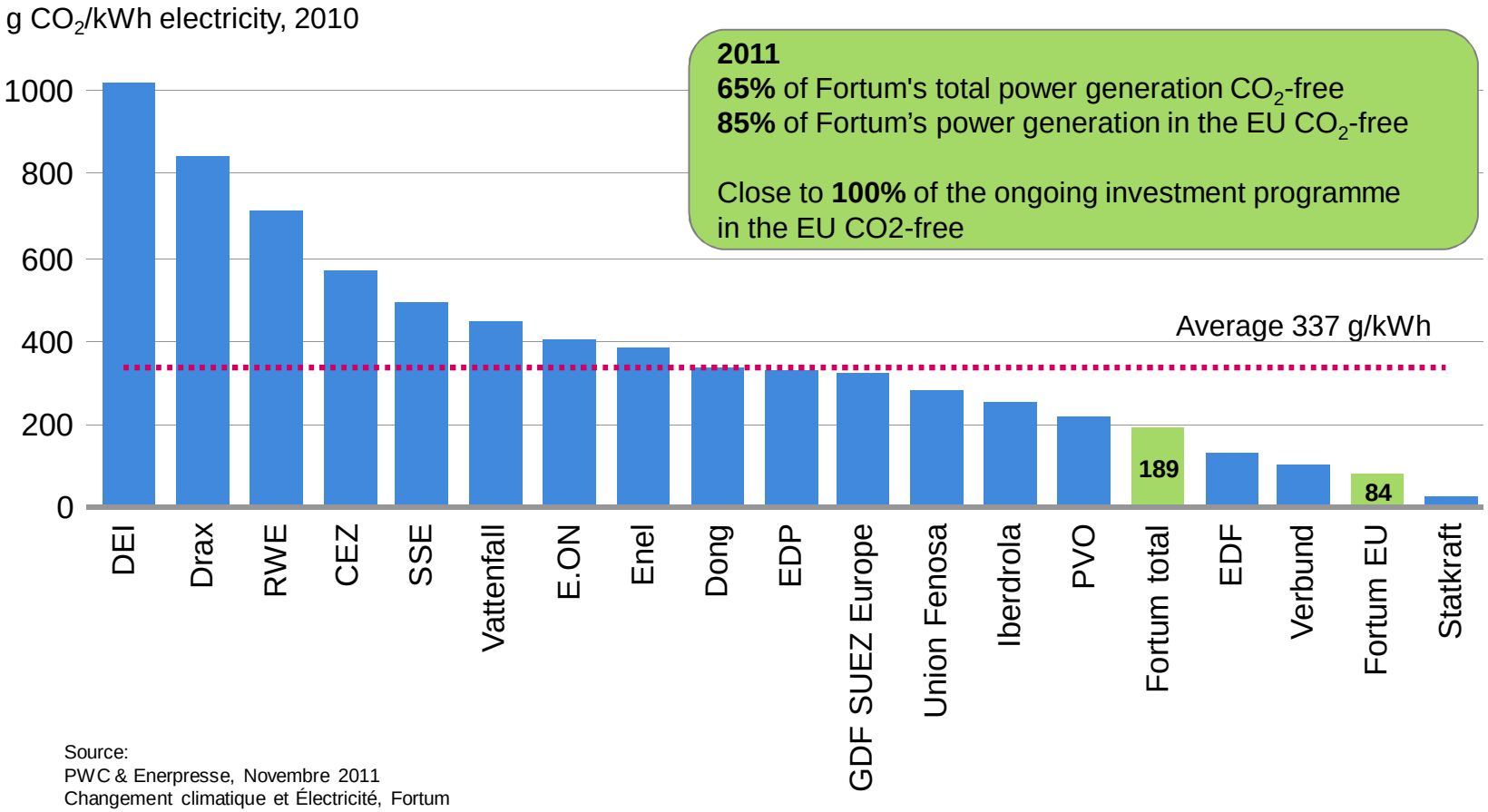
Power Division's power plants in the Nordic countries

- Power Division owns or is a partial owner in
  - Ca 240 hydro power plants
  - 4 nuclear power plants
  - 3 condensing power plants
  - 10 wind power plants



Power Division power plants 30 March 2012
Not including Fortum Heat and Fortum Värme CHP plants

Fortum's carbon exposure among the lowest in Europe



Source:
PWC & Enerpresse, Novembre 2011
Changement climatique et Électricité, Fortum

Note:
Fortum's specific emission of the power generation in 2011 in the EU were 88 g/kWh and in total 192 g/kWh.
Figures for all other companies include only EU based generation.

What is Information management?

- Perspective
- Terminology

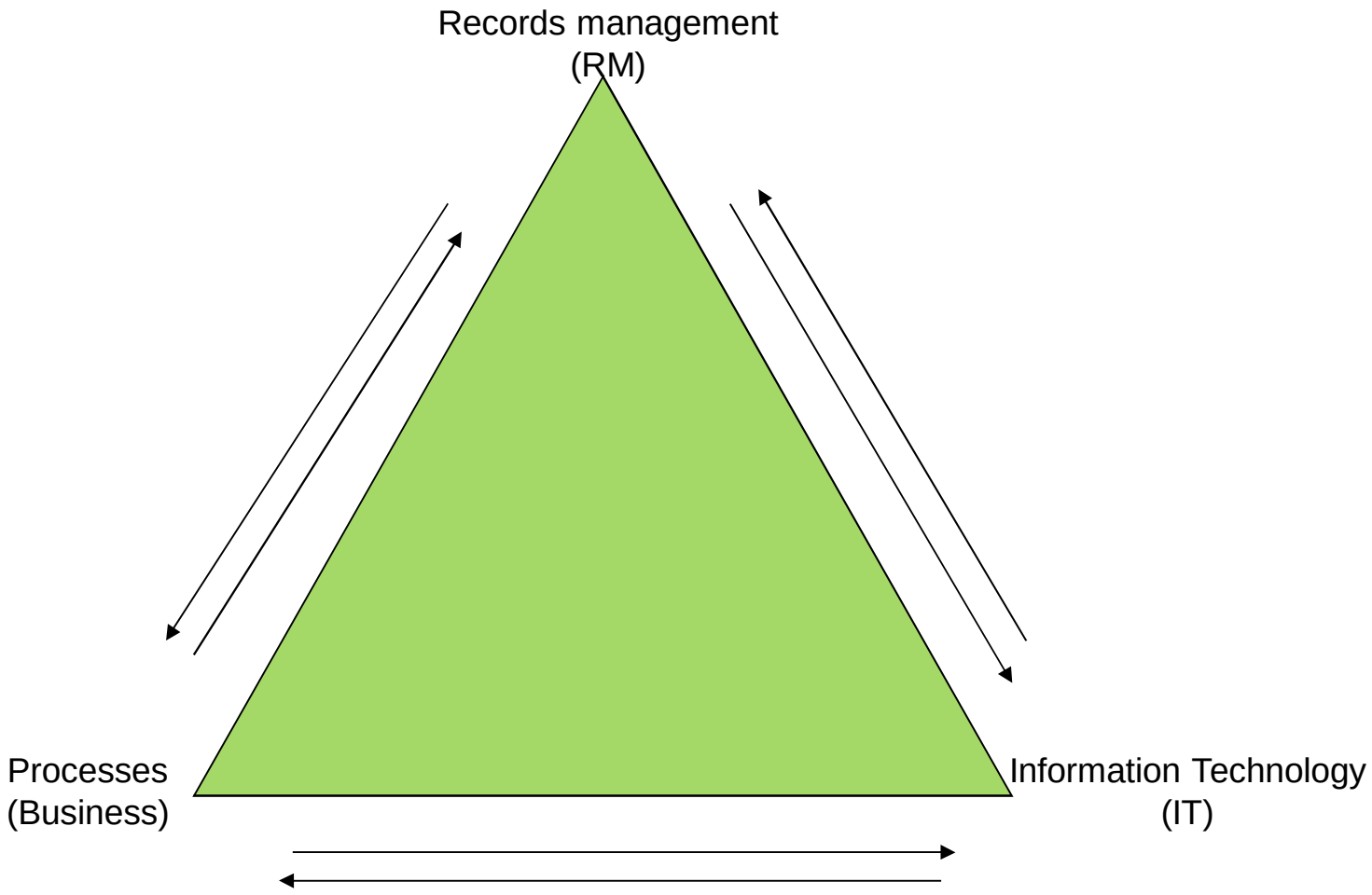
Perspective: Information management

- Information content management in different environments (databases, applications, hybrid)
  - Systems e.g. QA, HR, Management systems, DM, GIS, eArchive etc.
    -> content management systems
- Supports business activities and processes
- Notice! Not in meaning of communication (www. content), but information connected to business which moves within databases or outside of them
  - Vital business information

Perspective: Information management

- Official documentary information or tacit, unofficial information
- Saved or “saveable” information
- Information is evidence confer to record is evidence of action
- Umbrella term includes Records management

Information management



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Terminology: Records Management

- Field of management responsible for the efficient and systematic control of the creation, receipt, maintenance, use and disposition of (documents) records, including processes for capturing and maintaining evidence of and information about business activities and transactions in the form of records (ISO 15489)

- Used to describe tasks and actions, includes document management and record keeping (archiving)

Terminology: Record

- Information created, received and maintained as evidence and information by an organisation, in pursuance of legal obligations or in the transaction of business (ISO 15489)
  - Record is written or technical description;
    - Contract, minutes of meeting etc. is written form of documentation
    - Technical drawing, photograph etc. is technical form of documentation

Terminology: Document

- A document is a record that has not been yet approved
- In the initial phase of records life cycle, a document is created, commented, reviewed and approved. The result is approved, official record

Terminology: ECM, Enterprise Content Management

- Comprehensive perspective to the information
- Information is usable to all users according their user rights regardless of system or which system they are using as a parent at the moment
- Search functions
- Linking

Terminology: Cloud, cloud services

- Term cloud or cloud services describes information technology services provided by external vendor or created within organization
- Idea is to have same applications and services to all end users heedless of operating system
- Information is saved permanently in servers located in Internet and it is only temporarily saved to terminal equipments
  - Operation model which makes possible to get rid of own physical data centers

Life cycle management of the information

- Introduction to Information Management Plan
- Basic lifecycle model
- Formats

Introduction to Information Management Plan (IMP)

- IMP indicates what tasks an organization has and what records are related to them
  - Records are used for solving issues related to rights, benefits and responsibilities. An organization needs records to prove the propriety of its activities
- The plan shows a cross-section of the structures and processes of the organization and the related information material
- The purpose of IMP is to ease and rationalize the processing, preservation and appraisal of information

Introduction to Information Management Plan

- IMP tells the user exactly how a document/record should be managed in each phase of its lifecycle
- Each employee observes IMP as regards their duties
- IMP classifies information
- The purpose of IMP is to rationalize and standardize organizations whole records management process (electronic/paper)

Introduction to Information Management Plan

- IMP governs the company's accumulation; the management, archiving, screening and destruction of records and connects them with data systems

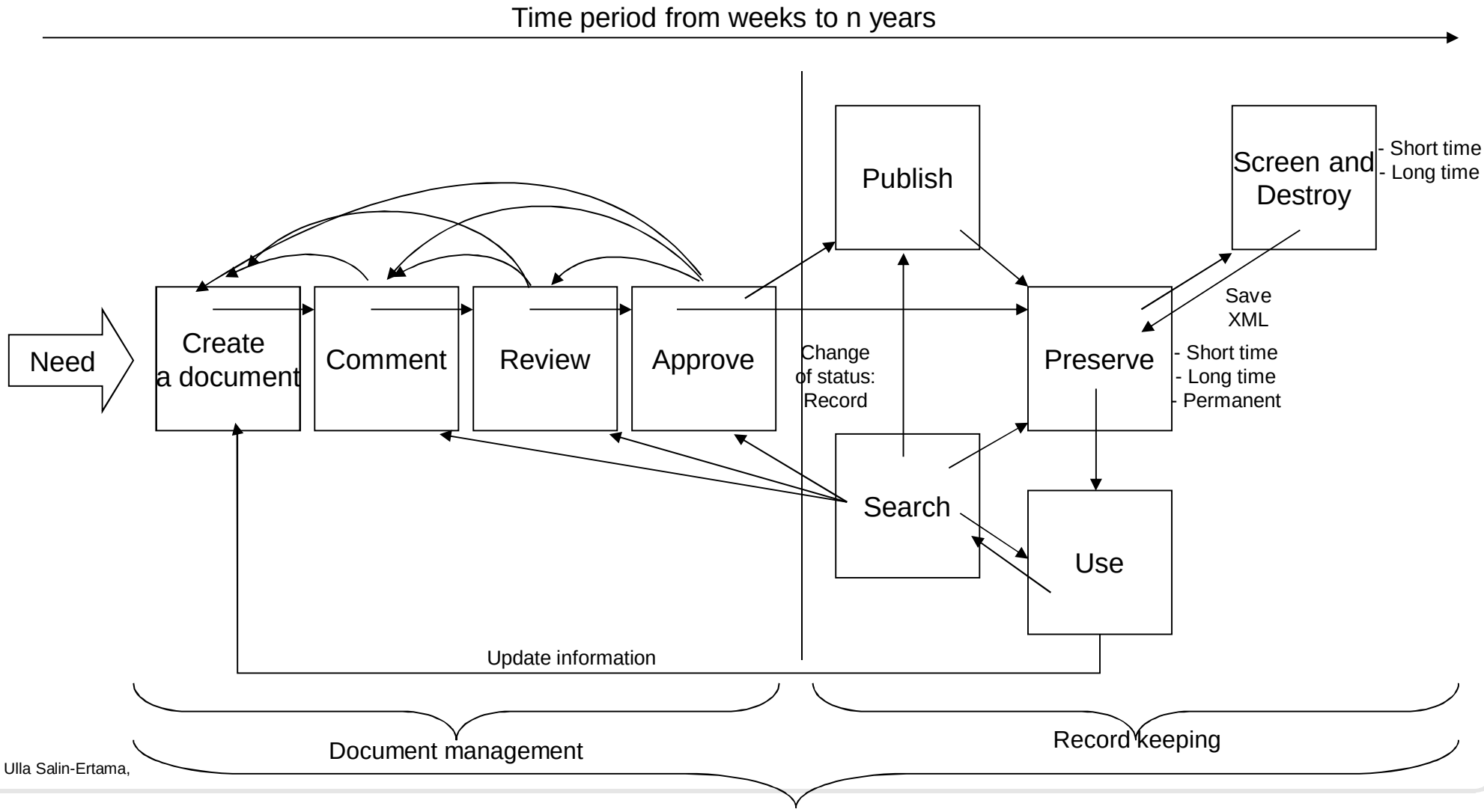
- In other words, IMP is a roadmap from the creation of the information through intermediate phases (life cycle) to destruction or permanent preservation

Connections to business process development

- Business process always includes information
- Information processes are behind of business activities
- Business and information processes needs to matched and understood as an whole “package”
  - Life cycle thinking
- IMP is part of business process development in point of view of information management

Life cycle model of documentary information

(Records management process)



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Formats to use in different phases of life cycle

- In phase of document management
  - Native formats
- In phase of preservation
  - PDF/A for text format records (ISO)
  - PDF/E for technical drawings (ISO)
  - PDF/3D for 3D models
  - TIFF for photographs (ISO)

Supplier documentation management
- from paper to native format real-time cooperation

Supplier documentation management

- Common reflected database provided by Owner
  - Commenting, reviewing, approving (esignature)
  - Owner, Supplier, Authorities
- Reflected database “opens” predefined view to Supplier and Authorities
- Same functionalities than within project environment
- “One way” to deliver information to Owner
- Information security issue to secure Owner’s information systems
  - No Suppliers in actual project environment

Supplier documentation management

- To control and communicate work
- Change management in early phase
  - Information chains “frozen”
  - Notifications generated by system to needed end-users
  - Symbols generated by system to related information
  - Predefined triggers connected to certain metadata values
- Original is native digital born information when information process is described and created so that all legal and business demands are fulfilled within system in question

Supplier documentation management

- Authentication, Digital Rights Management (DRM)
  - Several methods to authenticate
- Internal cloud

Cloud services
- challenges and benefits

Documentary information within cloud services - Who owns information?

- Information is always owned by the organization
- Information Accountable is always person

- Ownership of the information within internal cloud like in organizations own systems

  -> Unit -> Business Area -> Division -> Concern

Documentary information within cloud services - Who owns information?

- Ownership of the information within external clouds
  - Supplier isn't responsible of information ("normal" contract)
  - Supplier doesn't provide interfaces or integrations
  - Supplier doesn't own information, information is still owned by the organization purchased service
    - Understanding usage and ownership of the information
    - Business information is capital of the organization, not only physical assets
    - Definition of the risks
    - Value of lost information?
    - Usability, accessibility and returnability matters of contract
      - Metadata, history of the processes -> returnability of the integrity?

Documentary information within cloud services

- In perspective of Information management cloud services don’t differ from IT services created by the organization
  - Laws, regulations, standards and organization principles and instructions should followed
    - If not, juridical problem; is information managed within weak cloud stand in court?
    - Can integrity, authenticity and reliability of the information be completed?
- Cloud service is not digital preservation system (archive)!

Documentary information within cloud services

- Easy access to all parties
- Own cloud
  - Cost efficiency
  - No local installations
  - Future solutions will be based on cloud services
  - Organization controls information

Information security
- perspective of Information management

Information security within cloud services

- Internal clouds are managed in secured way
  - Same rules, demands and instructions are followed
  - Cloud is owned by organization
- External clouds
  - Technical part should be secured with different data communication and client-server architecture
    - Firewall
    - Instruction Detection and Prevention system (IDPS or IDS)
    - Encrypted content
    - Encrypted data communication
  - Demands of information content
    - Continuity planning, publicity levels, protection classes, metadata etc.

Confidential and secret information

- Separate physical location within databases (servers)
  - Trigger publicity level for transactions
  - Secret or confidential can be also changed to be internal or public
- Database is more secure place to preserve information than safety box
- Access rights and Audit Trail functionalities

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