

TIMBUS



TIMELESS BUSINESS

Introduction to the Digital Preservation of Business Processes

Angela Dappert

Digital Preservation Coalition

From	To	Topic	Presenter
8:30	9:00	Registration	
9:00	9:10	Welcome and logistics	William Kilbride, DPC
9:10	9:55	Introduction to Digital Preservation of Business Processes	Angela Dappert, DPC
9:55	10:05	Investigate participants' areas of interest and questions, identify use cases	William Kilbride, DPC
10:05	10:35	Risk Management in Digital Preservation	Wasif Gilani, SAP
10:35	10:45	Investigate participants' contexts	William Kilbride, DPC
10:45	10:55	Q&A	William Kilbride, DPC
10:55	11:10	Coffee break	
11:10	12:10	Business Continuity Management	Wasif Gilani, SAP
12:10	12:40	Interactive Demo on BCM	Wasif Gilani, SAP
12:40	12:50	Q&A	William Kilbride, DPC
12:50	14:00	Lunch	
14:00	14:30	Infrastructure, Architecture and Storage	Mike Nolan, Intel
14:30	15:30	Legal issues of Digital Preservation	Martin Hecheltjen, ITM
15:30	16:00	In-depth study on legal issues	Martin Hecheltjen, ITM
16:00	16:15	Coffee break	
16:15	16:45	Panel	William Kilbride, DPC



Digital preservation for timeless business processes and services

- timbusproject.net/
- info@timbusproject.net
- https://twitter.com/timbus_project
- April 2011 - March 2014
- co-funded by the European Union
FP7/2007-2013
under grant agreement no. 269940



The TIMBUS Consortium

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- SAP - Lead partner (NI, CH)
- Intel (Ireland)
- Software Quality Systems (Germany)

Industry



- Digital Preservation Coalition (UK)
- INESC - ID (Portugal)
- Karlsruhe Institute for Technology (Germany)
- Laboratório de Instrumentação e Física Experimental de Partículas (Portugal)
- Laboratório Nacional de Engenharia Civil (Portugal)
- Münster University (Germany)

Research

- Caixa Magica Software (Portugal)
- Secure Business Austria (Austria)

SMEs

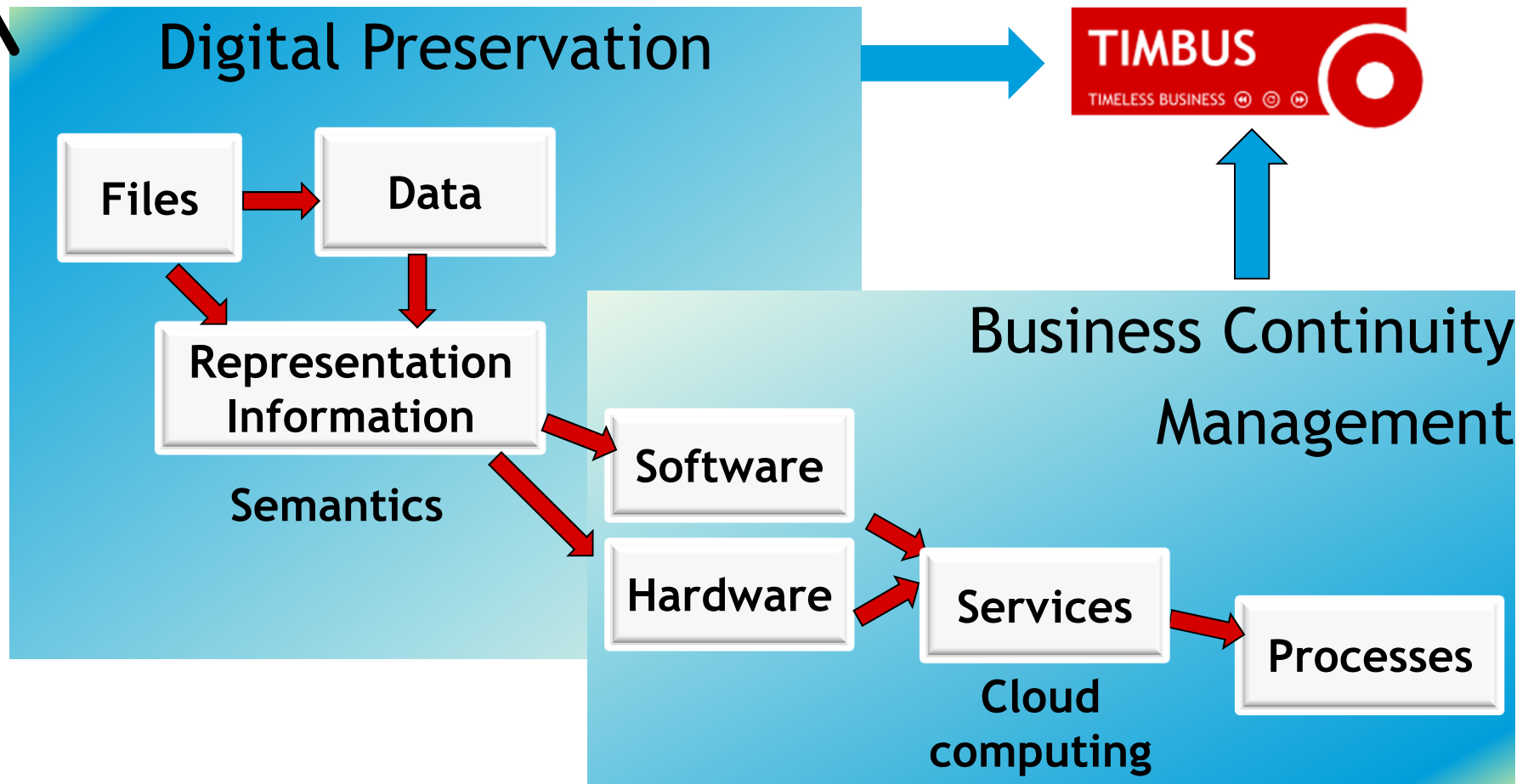


A Preservation Continuum

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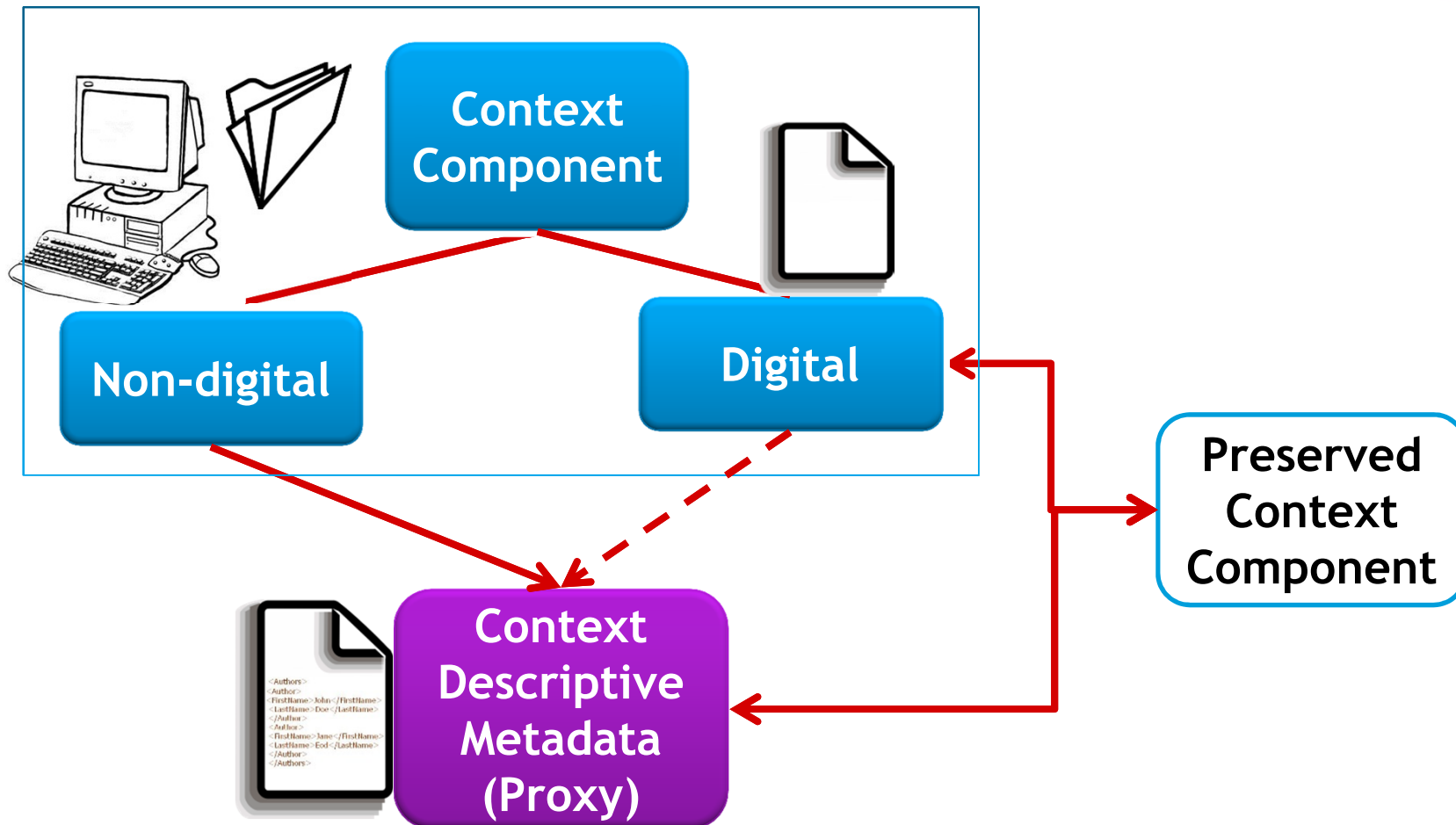


Longevity



Context Components and Proxys

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TIMBUS Approach

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- Methods, processes, architecture and tools
 - ensure continued access to
 - business processes and
 - supporting services and infrastructure.



- Align
 - digital preservation (DP) with
 - enterprise risk management (ERM) and
 - business continuity management (BCM).
- Explore Digital Preservation from a BCM perspective.



Motivations 1

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Motivations



- **Provenance information:**
- **Regulated industries:** fully document processes
- **Academia:**
software and processes that produce data
- **Analysis of processes:**

Motivations 1

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Motivations



- **Provenance information:**

- Evidence for litigation
- Prove authenticity
- Prove quality of process products

Motivations 1

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Motivations



- **Regulated industries:** fully document processes
 - Compliance
 - Audit, reproduce, or diagnose

Motivations 1

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Motivations



- **Academia:**
software and processes that produce data
 - Assess validity of data & derived scientific claims
 - Credit assignment

Motivations 1

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Motivations

Provide
Provenance
Information

Enable
Diagnosis

Provide
Evidence
under
Litigation

Provide
Business
Continuity

Protect
Business
Process
Knowledge

Achieve
Legal or
Regulatory
Compliance

- Analysis of processes:
 - Continuous improvement

Motivations 2

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- **Service and licensing models:**

- **Changes in technical environments:**

- **Staff changes:**

Motivations 2

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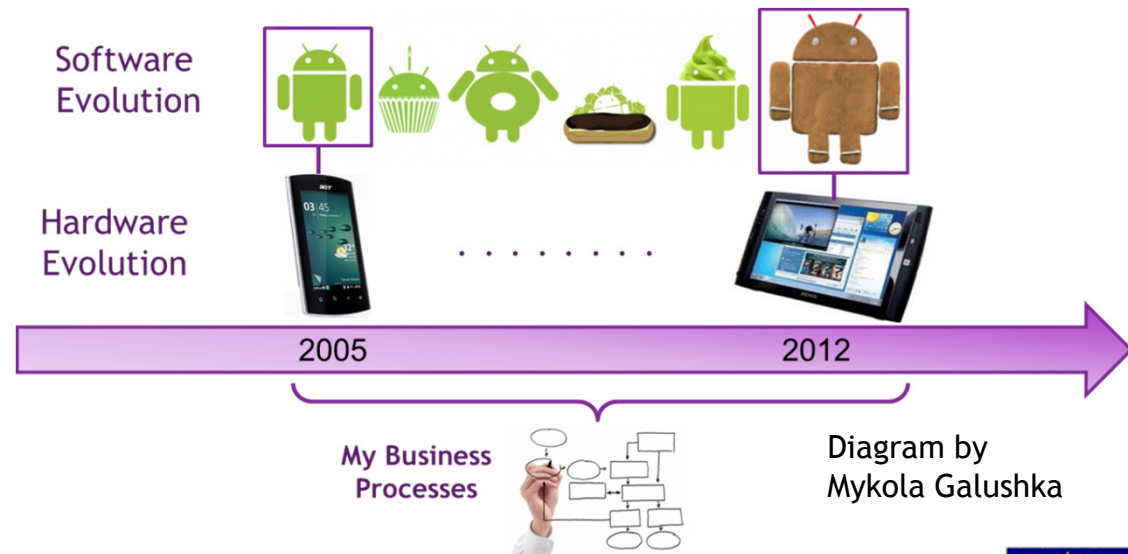
- **Service and licensing models:**
Declining popularity of centralized in-house businesses.
Increasing popularity of SaaS, PaaS, (*aaS), and IoS.
 - Protect data and functionality - escrow service

Motivations 2

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- **Changes in technical environments:**
 - Manage services across platforms



Motivations 2

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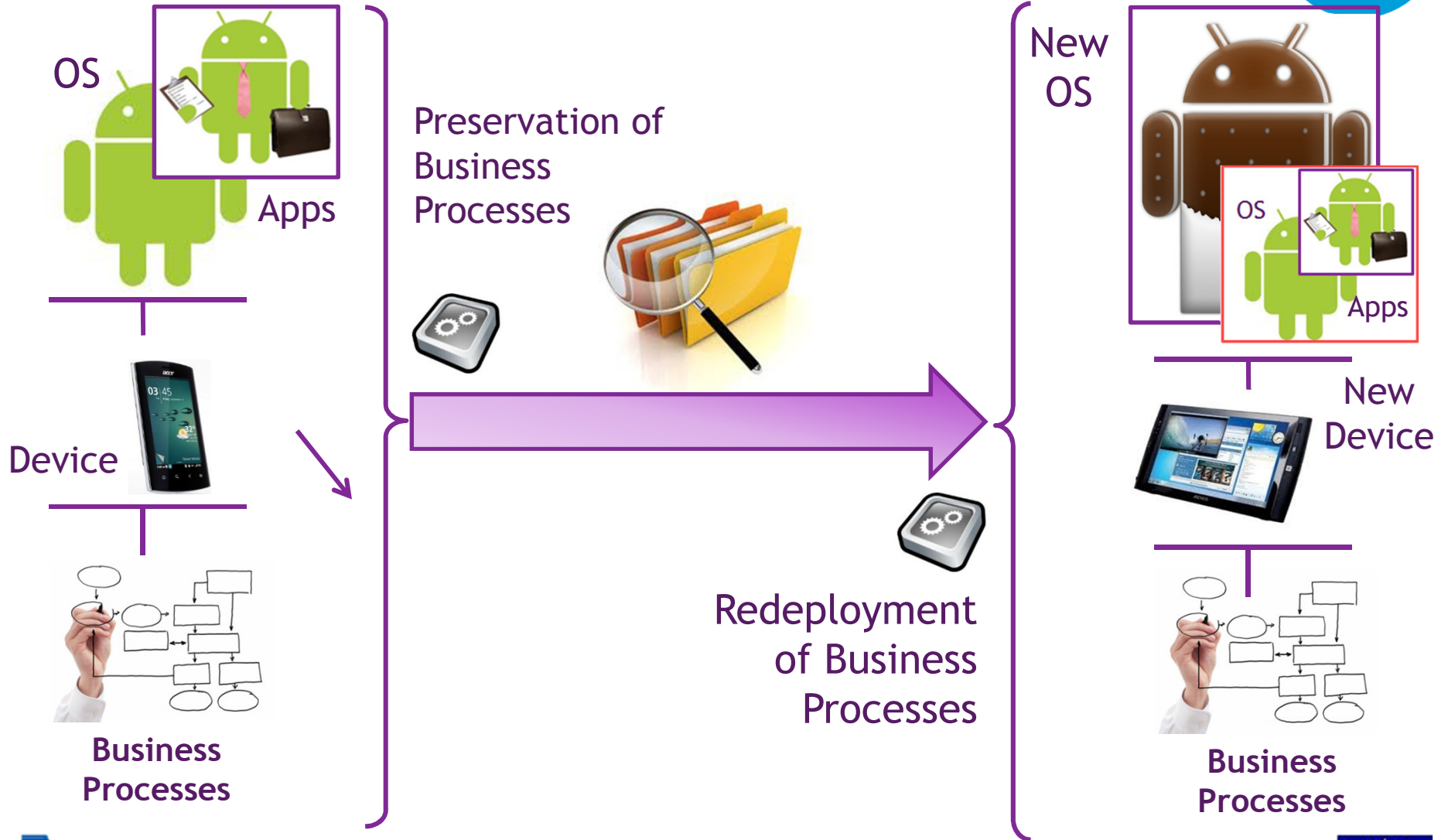


- **Staff changes:**
 - Knowledge retention

Vision

Slide by Mykola Galushka

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Approach

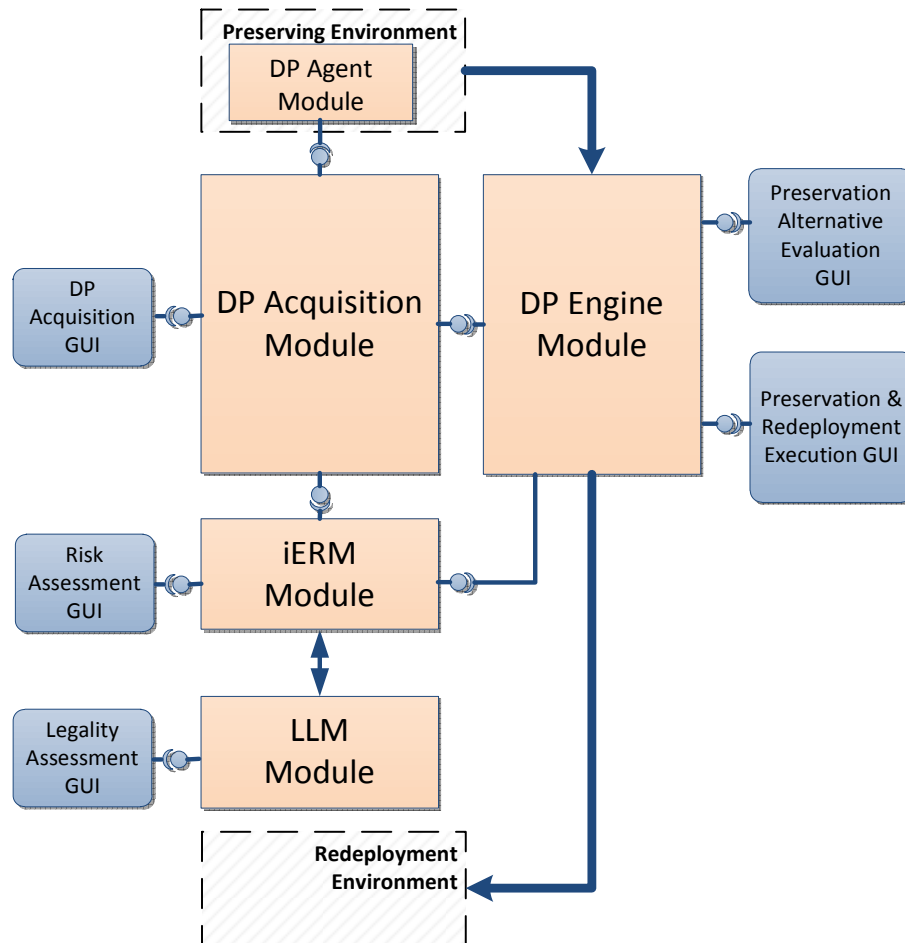
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DP Architecture

Slide by Mykola Galushka

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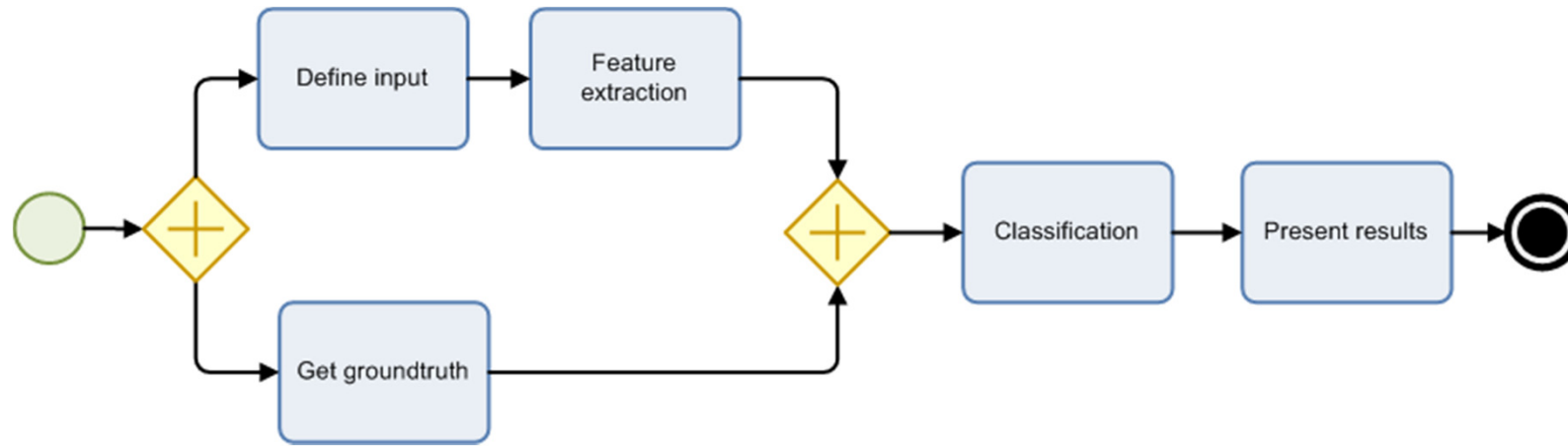


- **DP Agent Module** is running within the source environment and capturing data required for performing DP.
- **DP Acquisition Module** is used for collecting and combining data from different agents and generating the unified model, which combines dependencies, contexts and BPs.
- **iERM Module** is used for assessing risks associated with BPs and dependent resources.
- **LLM Module** is used for assessing impacts of legalities issues on different preserving scenarios for the specified subset of BPs.
- **DP Engine Module** is used for generating preservation & redeployment plans by utilising the risk report and performing its execution.

Example: Music Classification Workflow

Slide by Rudolf Mayer

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- Workflow: classification of music into predefined set of genres
- Learns a machine-learning model from given training data (i.e. data with manually assigned class/genre)
- Predicts genre for previously unseen data

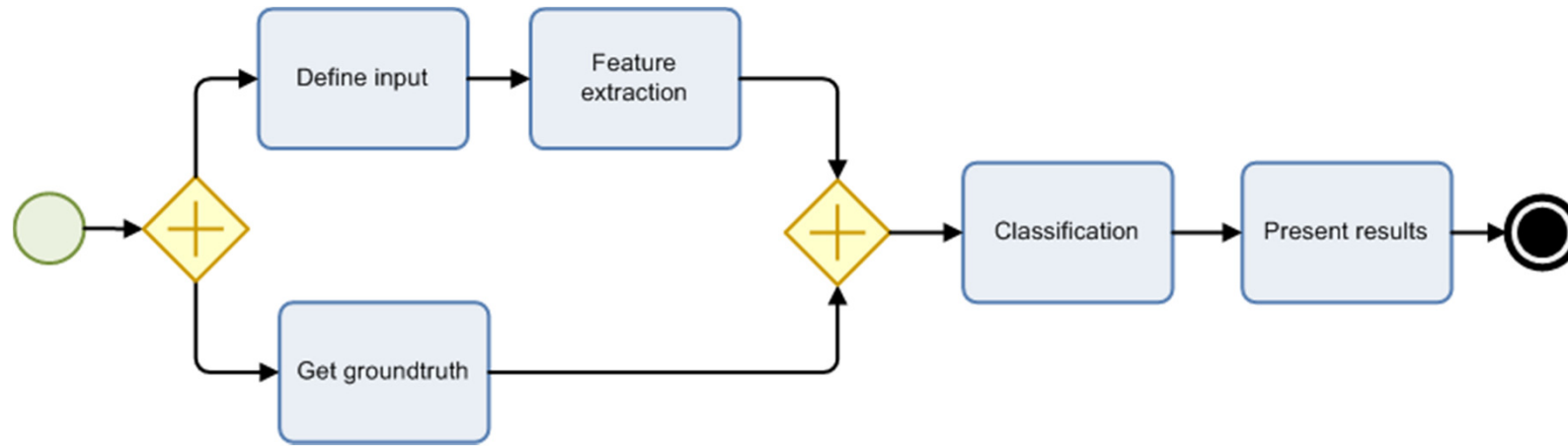
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Example: Music Classification Workflow

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- BPMN
- Petri Nets
- Workflow Engines - for purely digital workflows

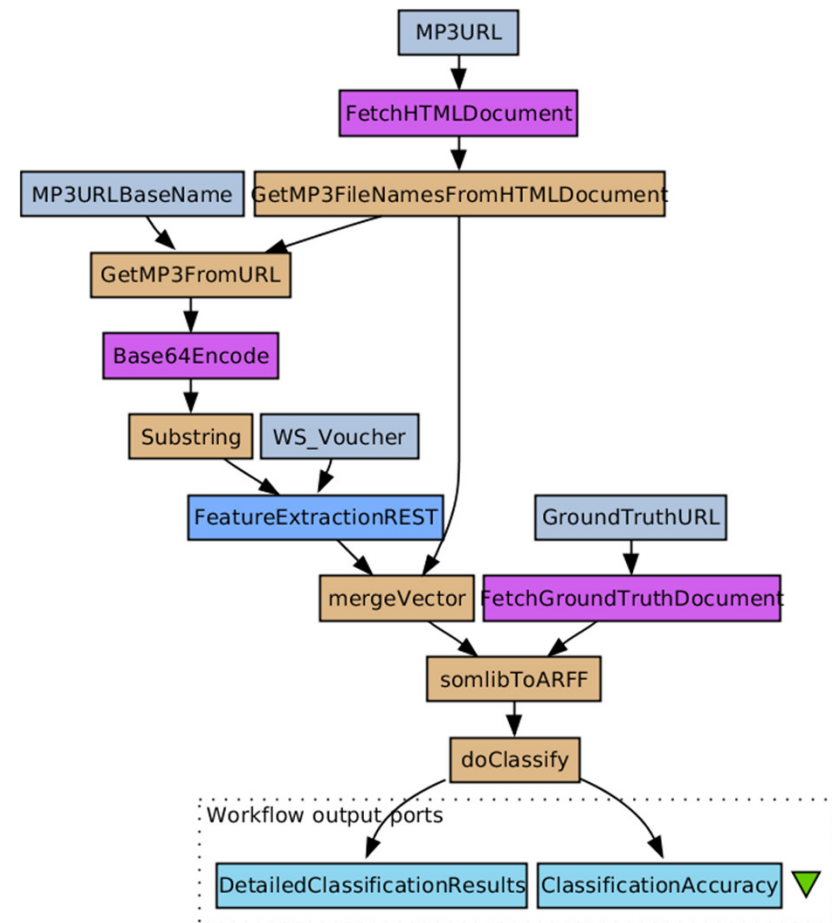
Example: Music Classification Workflow

Slide by Rudolf Mayer

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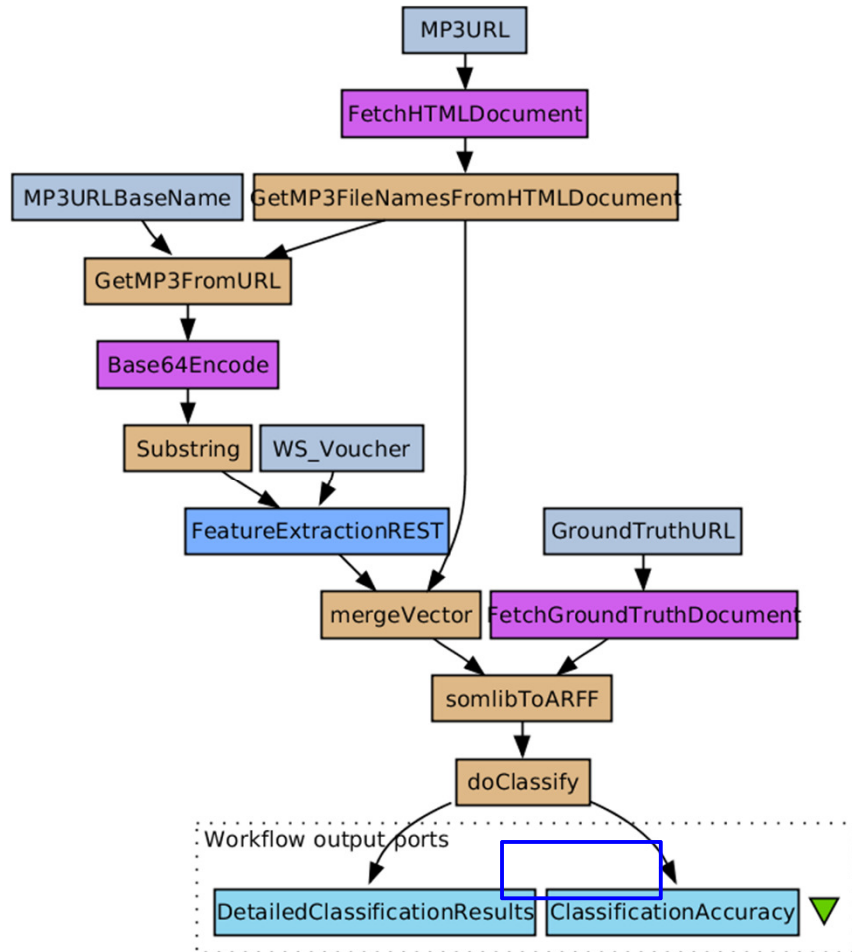
- Input 1:
Music (e.g. MP3 format)
- Input 2:
Training data,
i.e. music for which
the genre is known a-priori
- Output:
Classification of music into
genres
- Technical infrastructure
 - Workflow Engine
 - External and internal services
- Full access to components



Business Process Context Capture

Slide based on Alex Neumann's slide

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- Process Specification
 - Inputs and Outputs
 - Dependencies
- Data
 - URLs, Files, Documents, Streams, Constants, Classifier, Classifications
- Services (internal, external)
- Software
 - Version, run-time environment
 - Platform (Taverna)
 - Libraries (WEKA, SOMLib), Scripts, DLLs
- Specifications
 - ARFF, REST, HTTP, HTML, MP3, Algorithms

Business Process Context Capture

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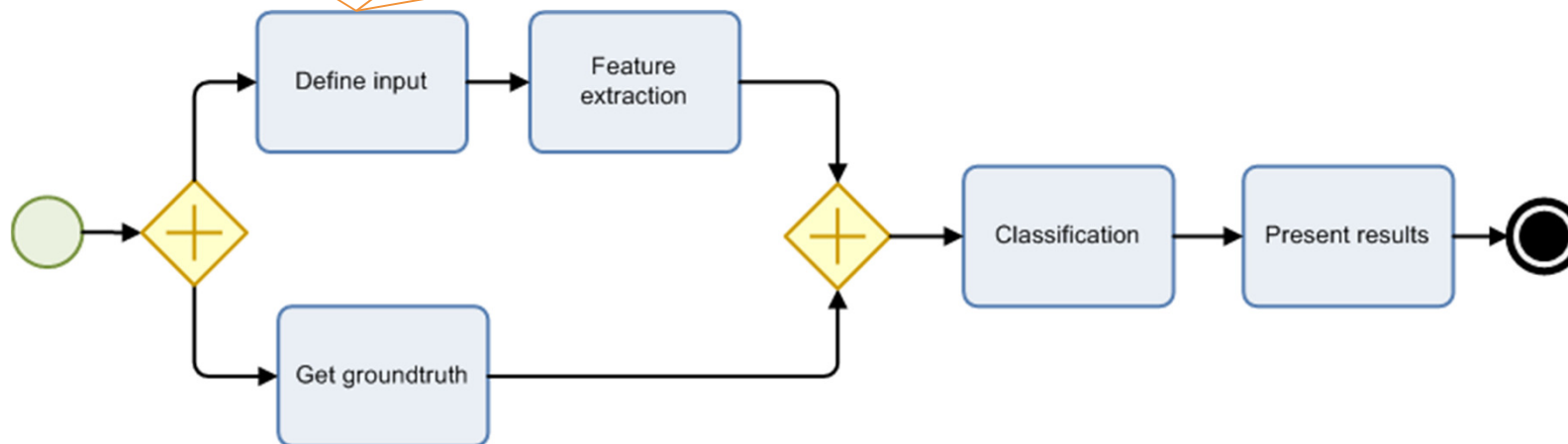
Sampling methods
Test sets used
Test methods
Exception treatment
Processes and logs
Quality criteria

Requirements

Policy

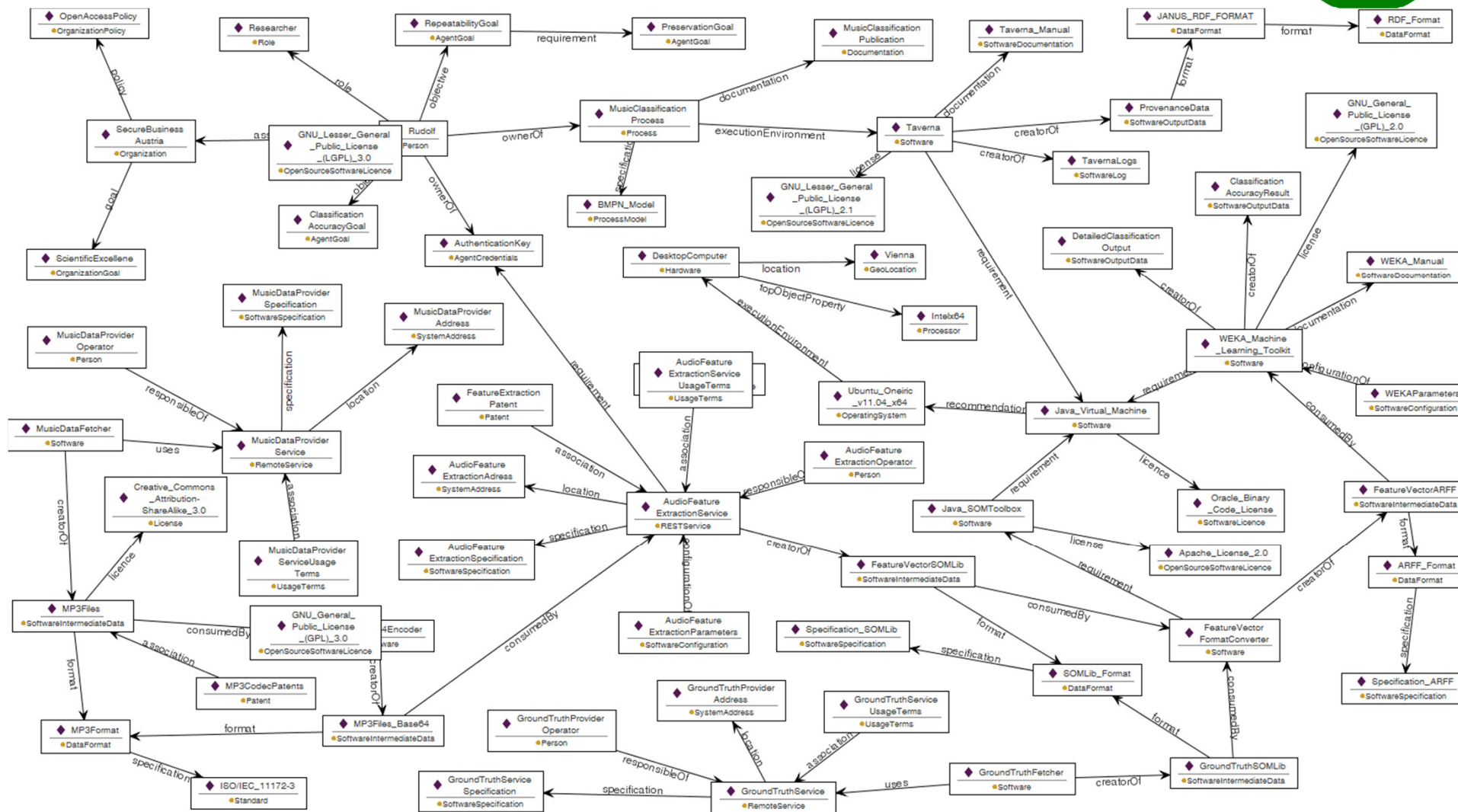
Goal: Process Diagnosis

R3:
Trainings sets were poorly chosen



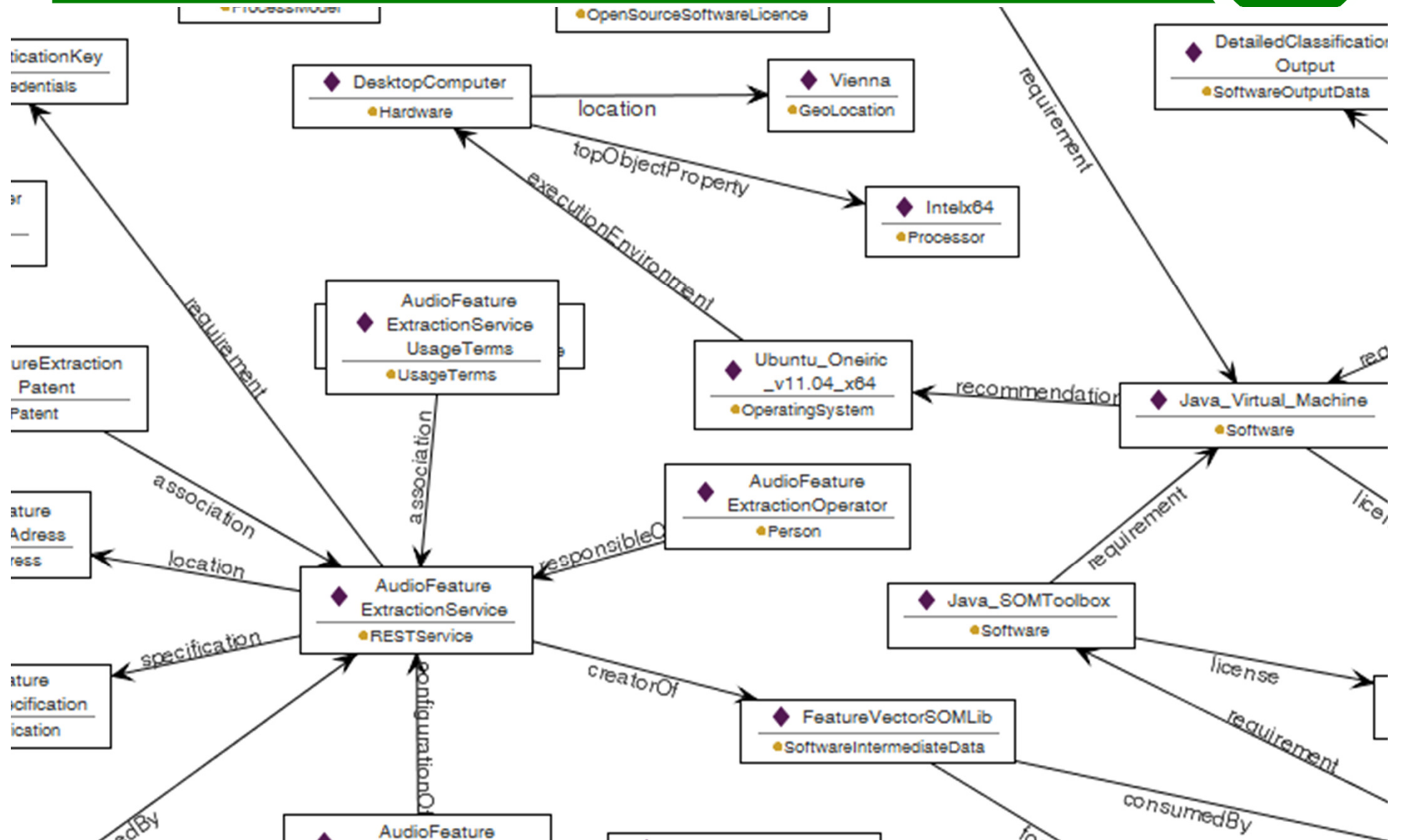
Dependencies

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Dependencies

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- Business Process Context is based on a Business Process Context Model
 - A formal meta-model
 - Can be instantiated
 - Enables business process redeployment
 - Captures the relevant aspects of a business process and supporting software/technology
 - Relevance is established through risk, impact, value assessment -> significant characteristics
 - Sufficiency relative to significant characteristics

Zachman Framework

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Data Function Systems People Time Motivation

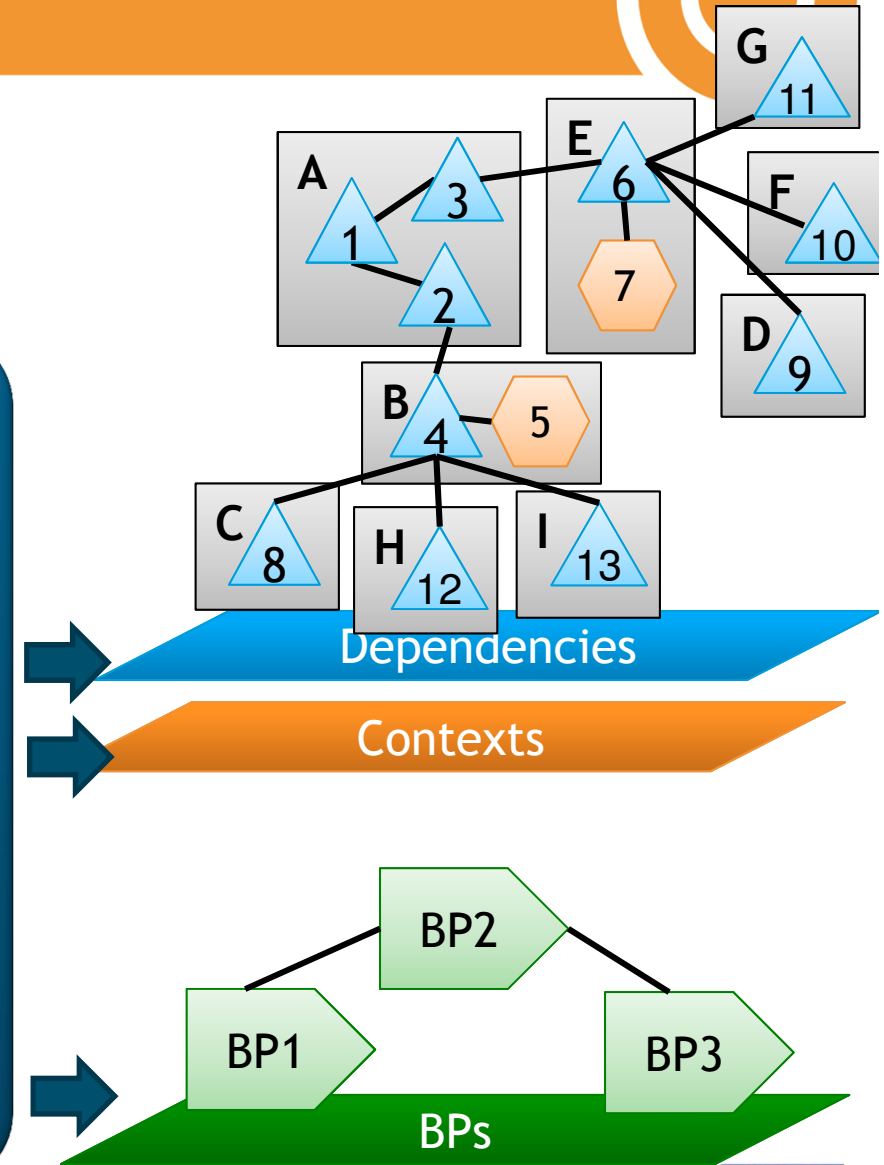
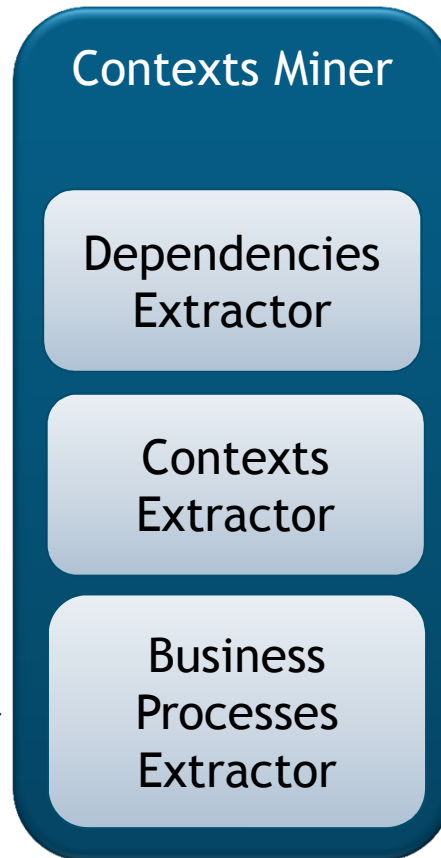
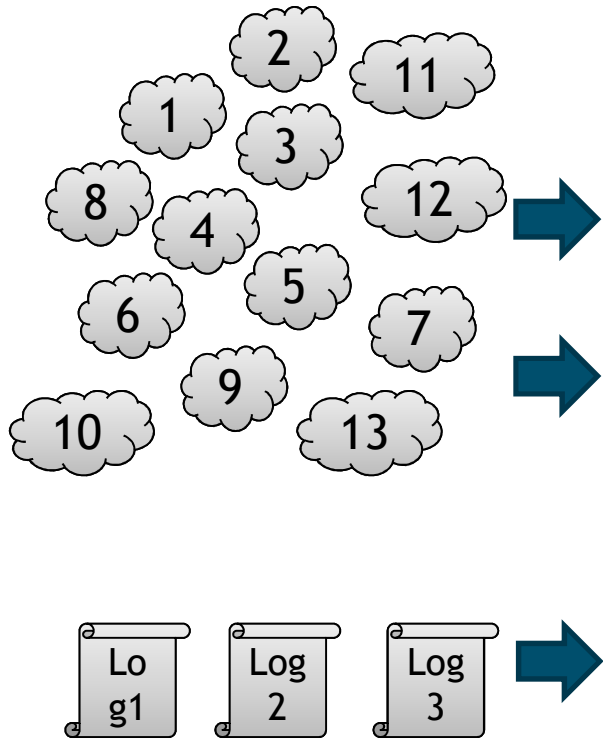
ENTERPRISE ARCHITECTURE : ZACHMAN FRAMEWORK						
Focus	What	How	Where	Who	When	Why
Perspective						
Scope of Business						
Business Model						
System Model						
Technology Model						
Out of Context						
Executable System						

DP Acquisition: Mining

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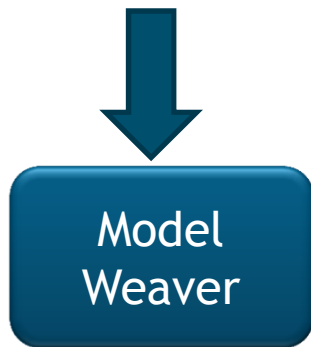


Captured Resources

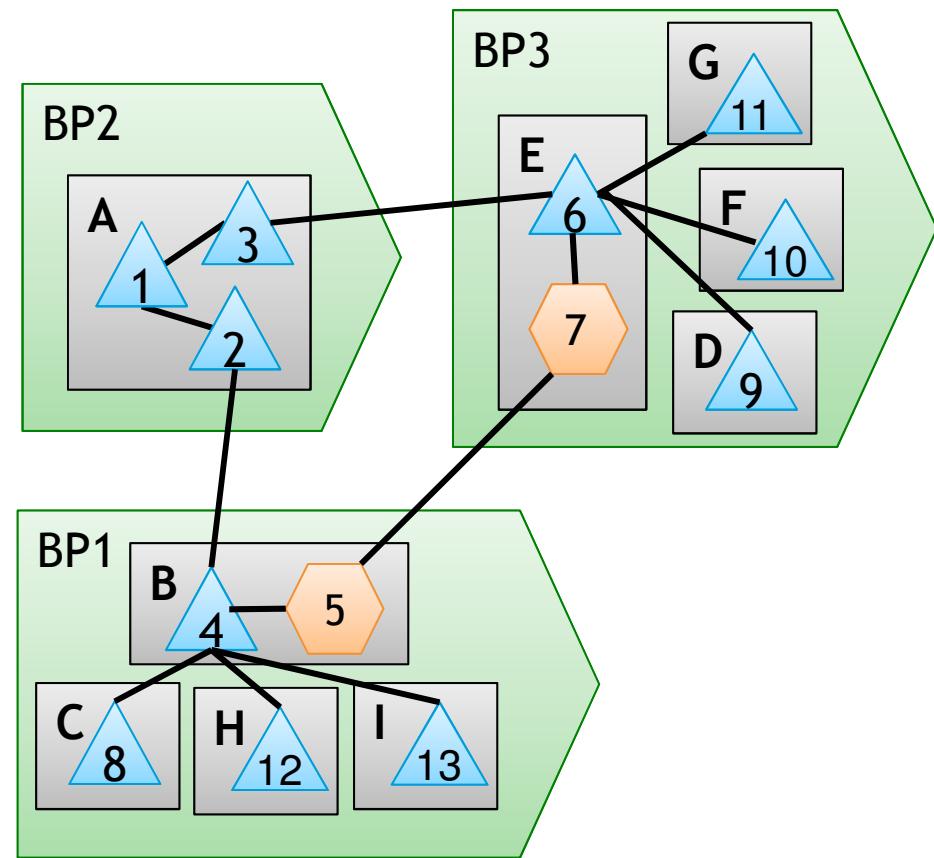


DP Acquisition: Weaver

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Three layers combined into the Contexts Model Instance



Contexts Model Instance

Approach

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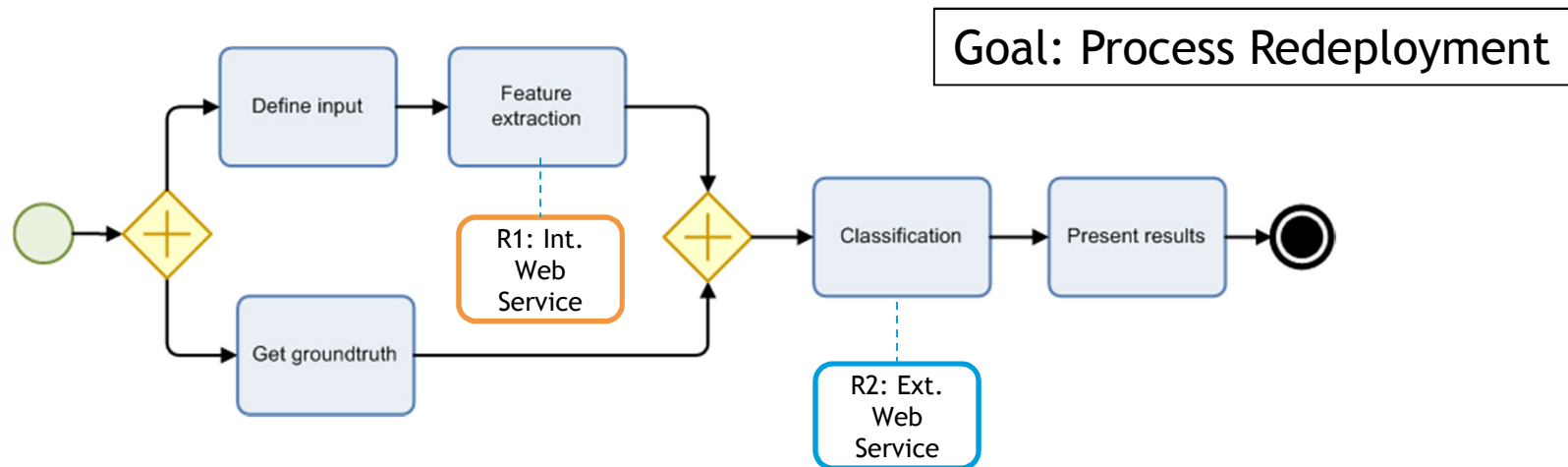
Enterprise Risk Management

Slide by Rudolf Mayer

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- Identification of risk that might affect the IT applications of the “Music Classification Process”:
 - **R1**: Obsolescence of application providing internal web service
 - **R2**: Bankruptcy of external web service provider

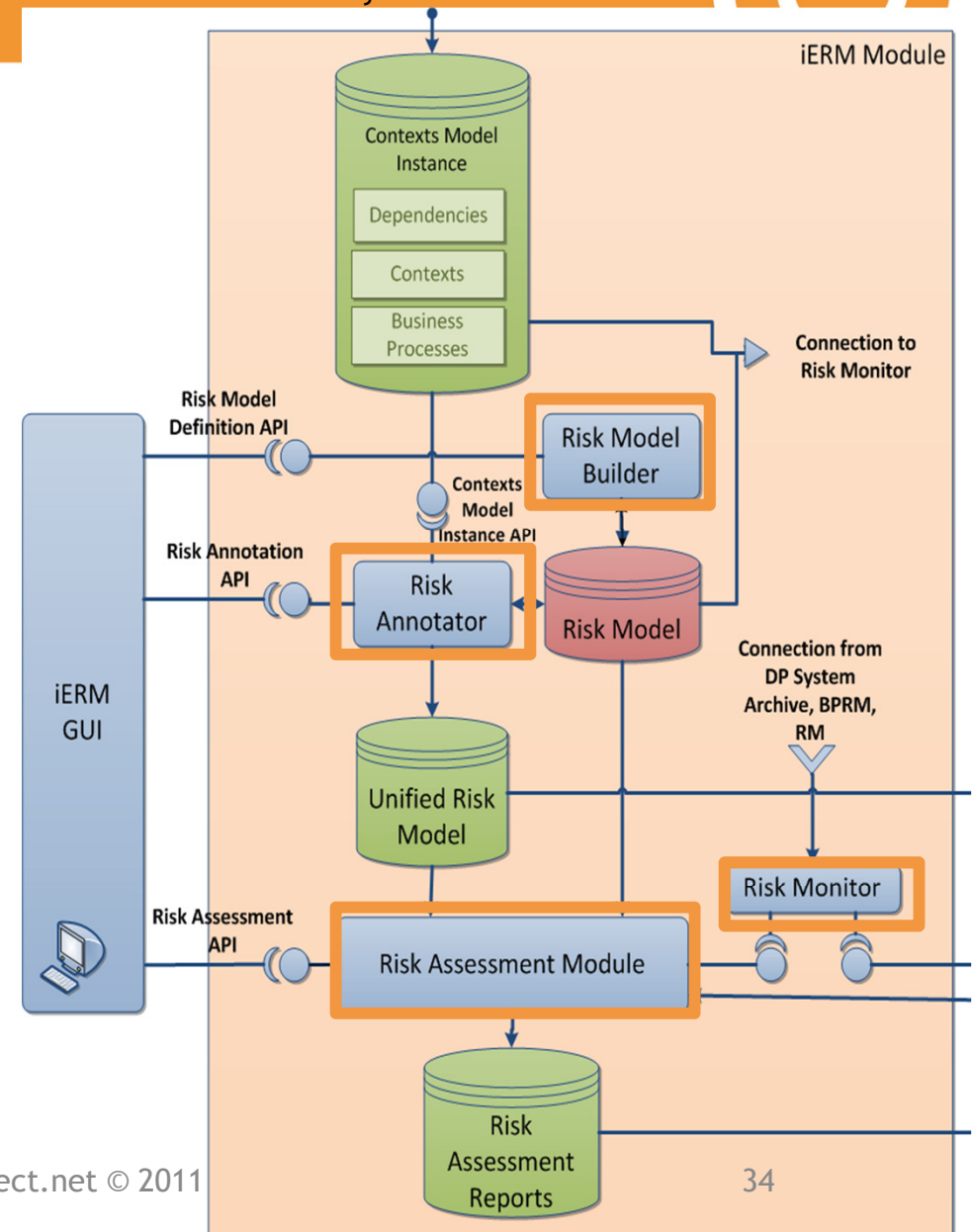


iERM Architecture

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- **Risk Model Builder:**
 - defines risk management context
- **Risk Annotator (Risk Model):**
 - annotates the Risk Model with risk information;
- **Risk Impact Assessment Module:**
 - generates Unified Risk Model;
 - assesses the impact of different risk factors on business
- **Risk Monitor:**
 - monitors the Digital Preservation System Archive and the Risk Model
 - detects risk events
 - triggers Legality Impact Assessment and Risk Impact Assessment modules

Diagram by
Mykola Galushka



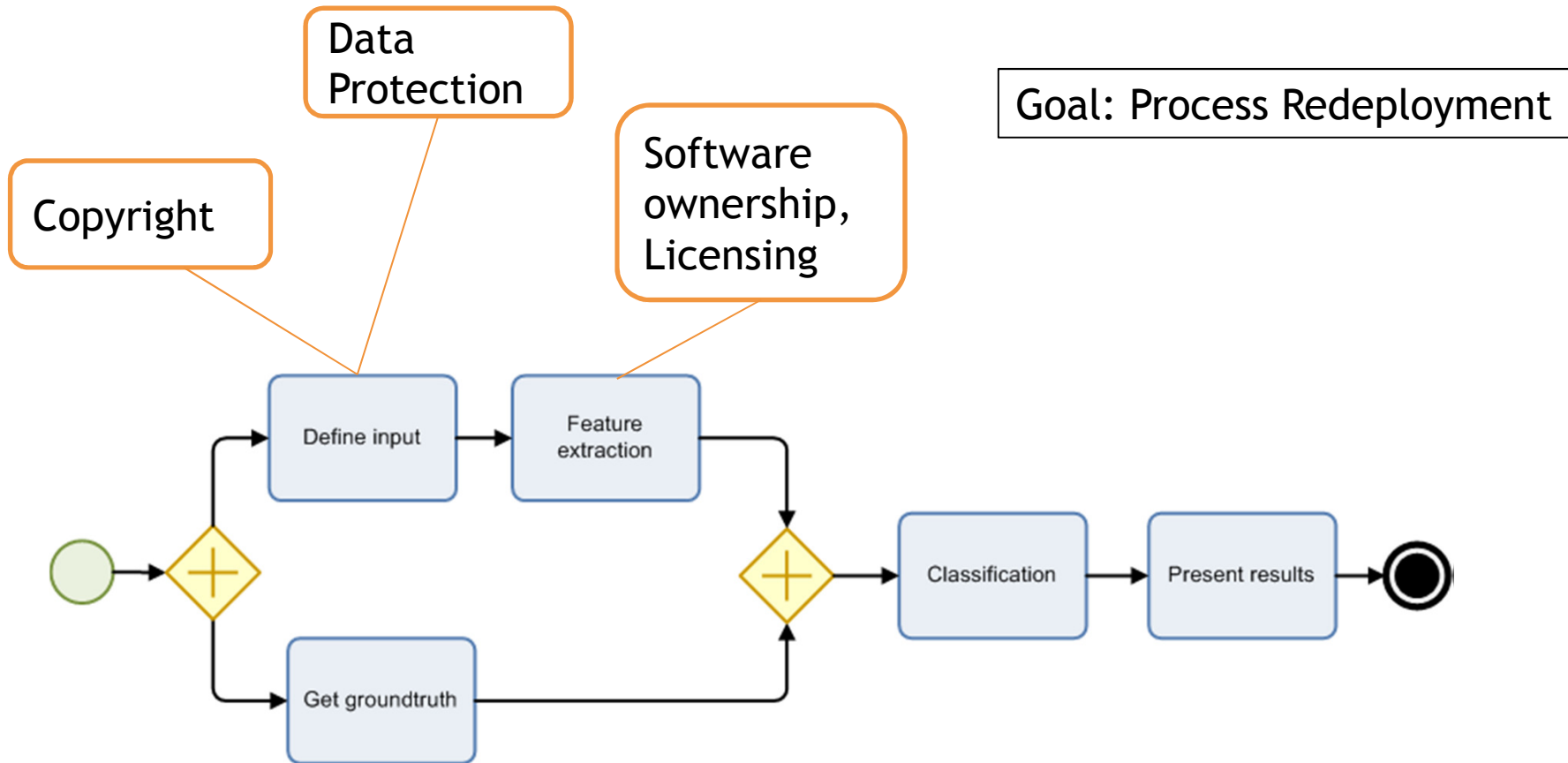
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Legalities Lifecycle Management

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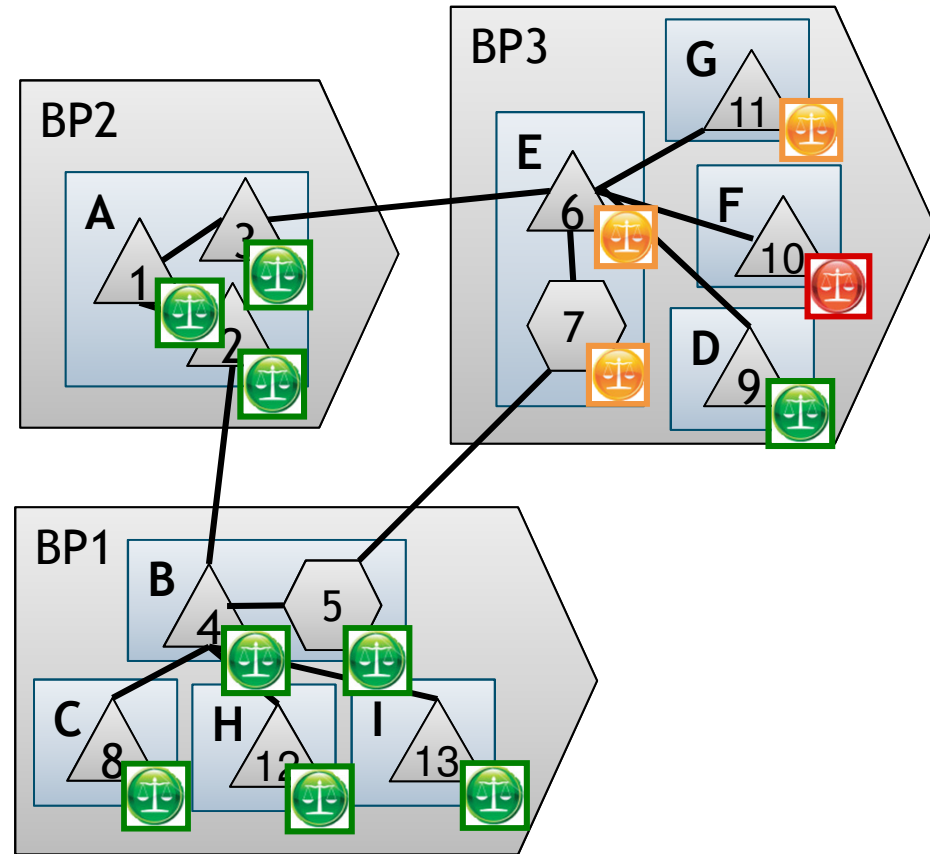
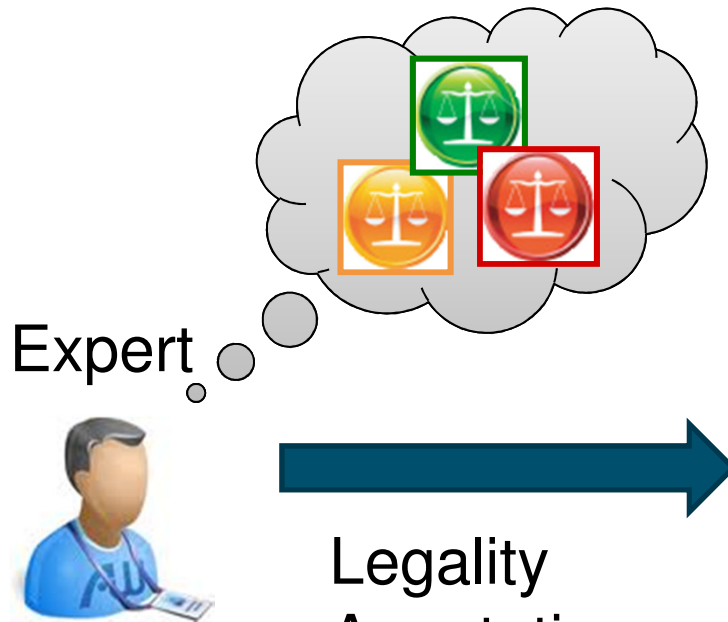


LLM Module: Annotation

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Legality Factors



Legalities
Impact Assessment



31 October 2012

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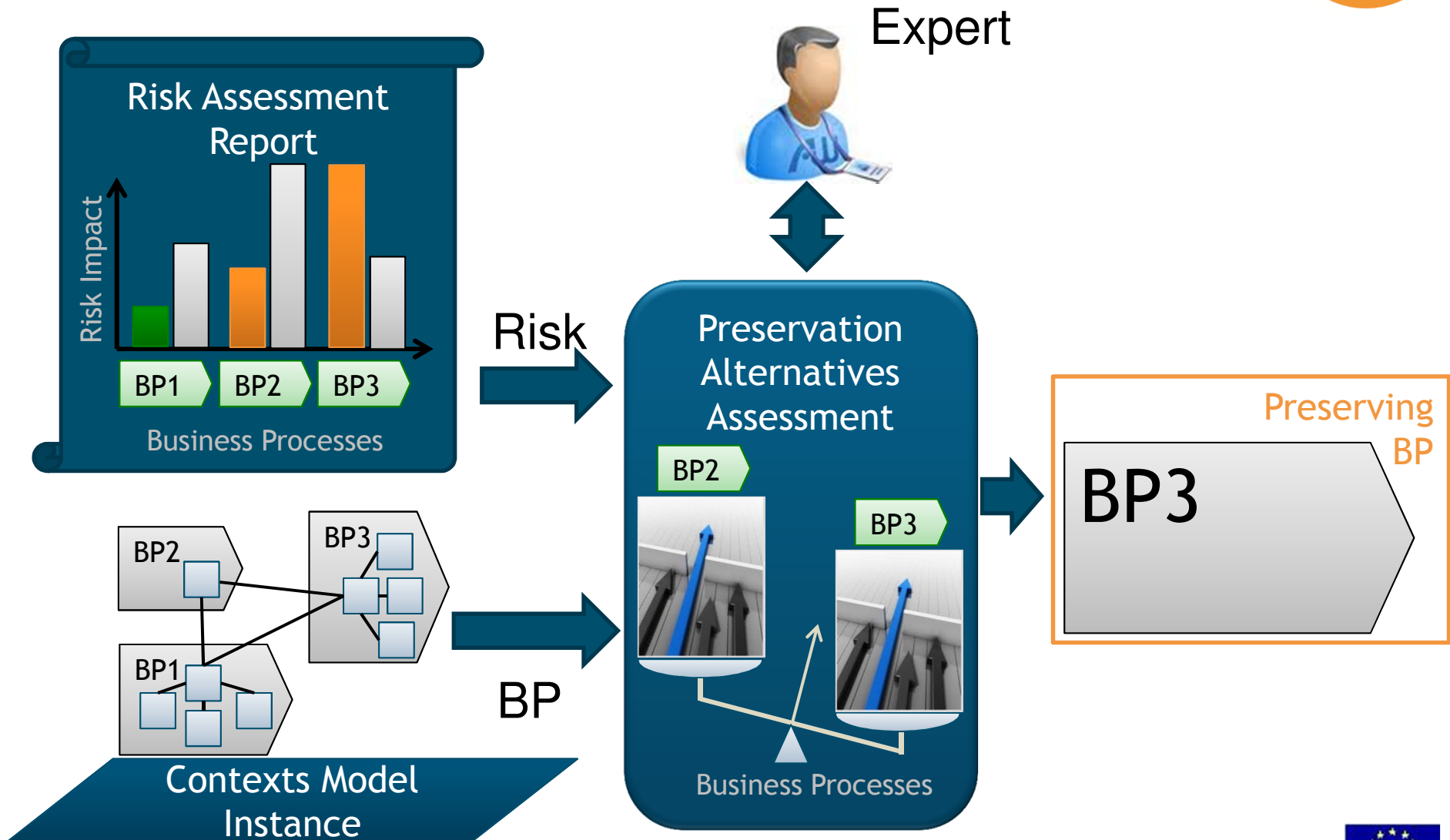
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DP Engine: Alternatives Assessment

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Approach

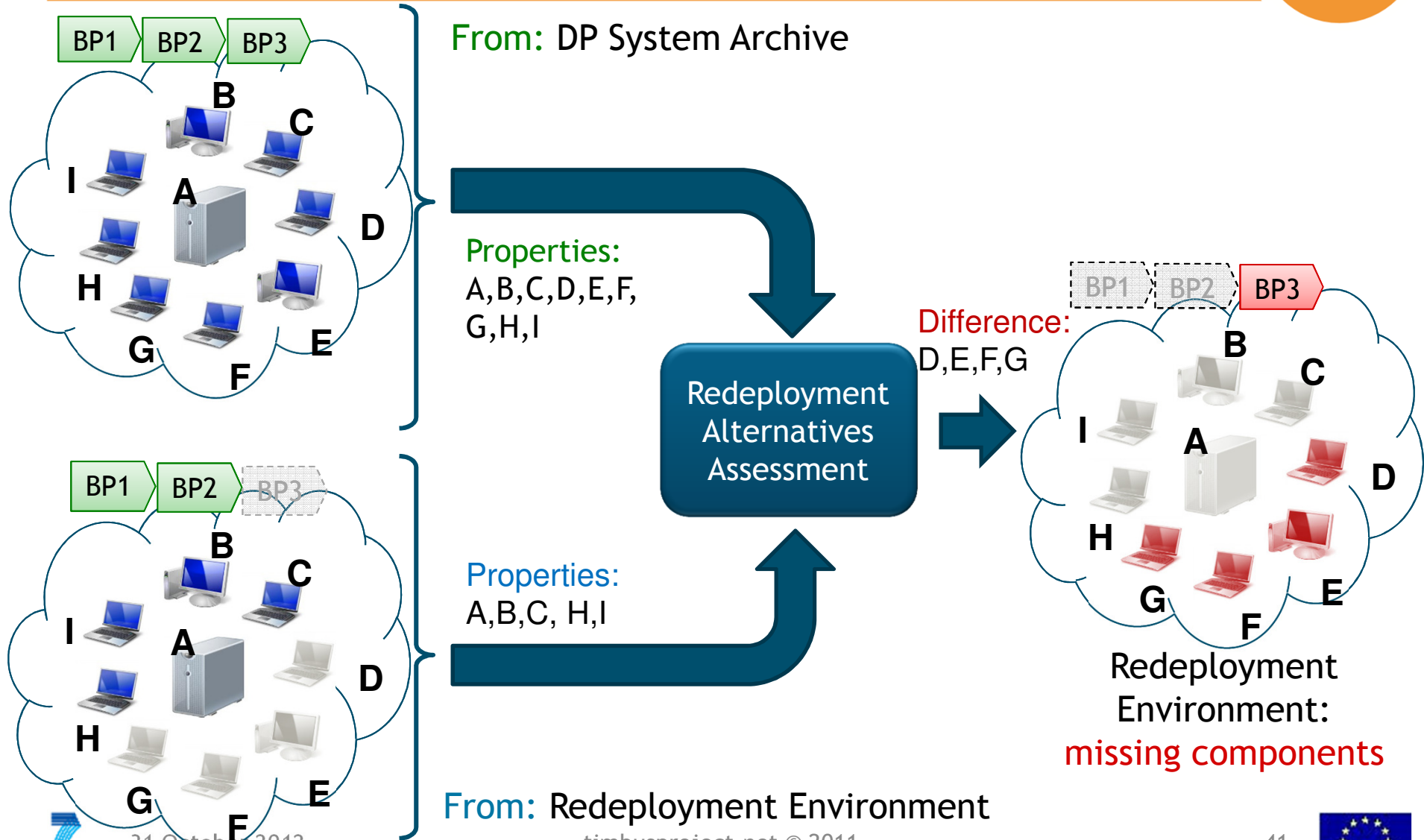
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DP Engine: Alternatives Assessment



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31 October 2012

From: Redeployment Environment

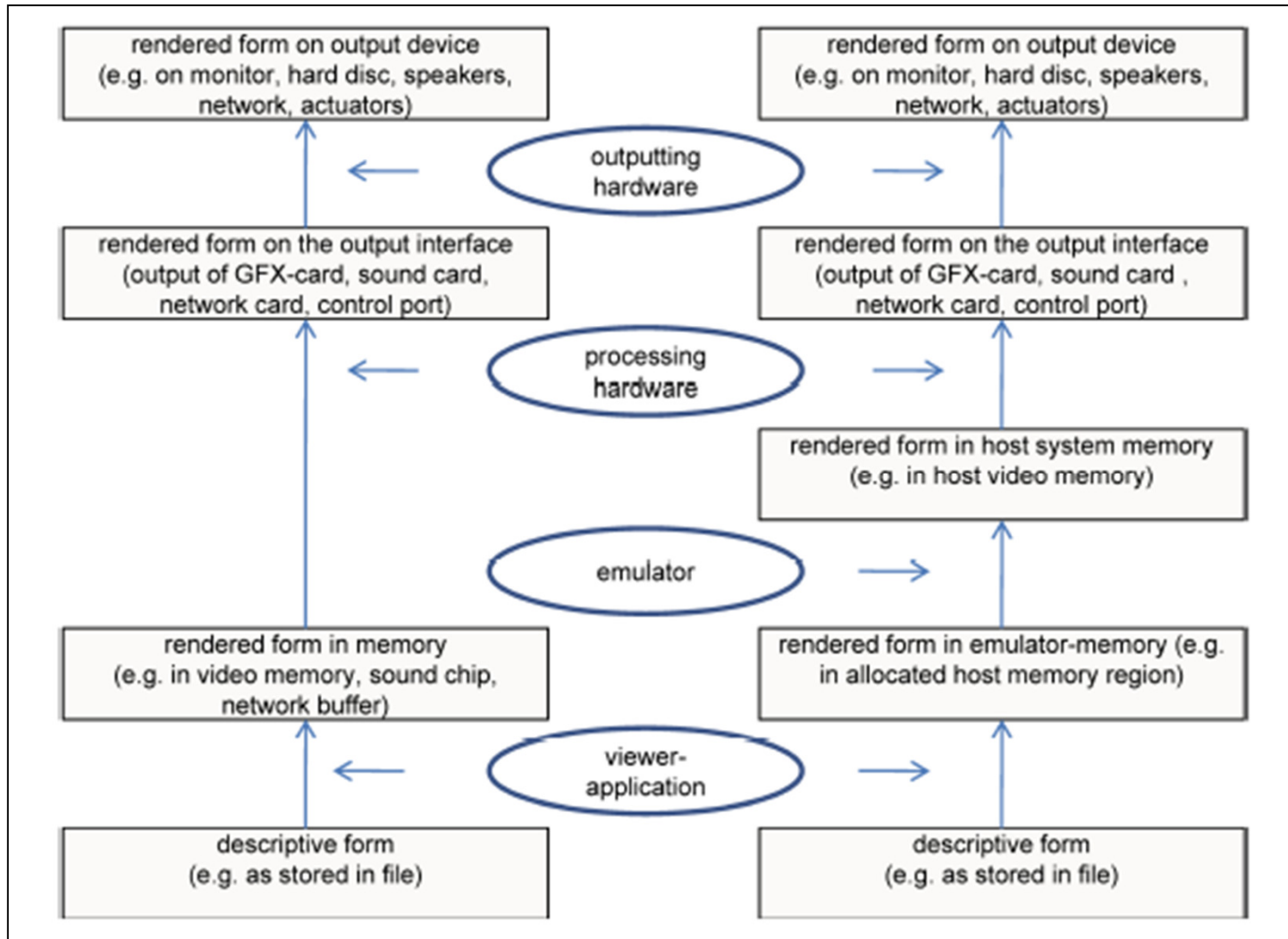
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Validation

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Thank you!

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