



## Welcome to the First Newsletter

*Dr. Wasif Gilani, SAP  
Project Coordinator*

The TIMBUS project, started in April 2011, is now nearing the end of Year 2. In the first year we laid the foundations for our scientific work and developed initial models, methodologies, and architectures. The second year saw more work on tool development. So far we have mostly focused on the first phase of the TIMBUS approach, Planning. The third year will see us turning towards the Preservation and Redeployment phases. The definition of two industrial use cases, from the domains of civil engineering infrastructures and eScience, have been completed. The general requirements gathering process for digital preservation based on them is reaching conclusion, but the requirements are ex-

pected to evolve as the project progresses and the remaining use cases become available.

The risk analysis process of these use cases provides input for Intelligent Enterprise Risk Management (iERM). It involves understanding the risks associated with the use case processes, identifies the critical parts, estimates the costs associated with risks, and considers whether digital preservation is the appropriate risk mitigation option for the identified risks.

Our work on “Processes and Methods”

- establishes efficient and effective processes and methods for the digital preservation of business processes;
- ensures that processes and

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### Bringing EU Projects Together

The TIMBUS Project organised an APA EURO PROJECTS FAIR, at the annual APA conference on 6 November 2012.



methods are intelligent and do not rely solely on human guidance;

- ensures that processes and methods address technical, socio-technical and legal issues.

The definition of the processes and methods is nearing completion. The design of an intelligent risk management process has been completed that incorporates digital preservation as a risk mitigation action. The identification and assessment of legal aspects and risks for digital preservation is also completed. A holistic Context Model aimed at depicting process components and sequence flows, as well as technical, legal and other dependencies was developed during Year 1 of the project. With the availability of the concrete definition of the use cases, it is currently being further refined to align it better with the use cases and to optimally re-use existing standards. We are furthermore assessing the application of processes that support the digital preservation of business processes from different industrial domains for each TIMBUS phase - Plan, Preserve, and Redeploy.

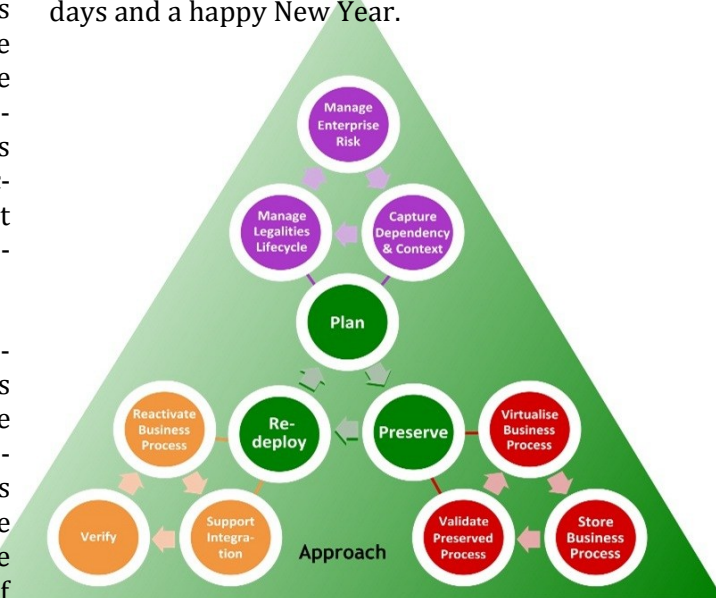
The initial architectures for intelligent enterprise risk management and process preservation, submitted in Year 1, have been refined based on the concrete use case definitions and hence concrete requirements. The updated iERM and process preservation architecture specification documents provide revised development guidelines, further aiding software developers.

There have also been major accomplishments in the actual development of tools and technology. An initial iteration of the iERM tool is available that performs process-centric risk analyses. The tool takes the Context Model as an input data source and provides systematic analyses of the risks along with the facility to run what-if simulations to check alternate risk mitigation strategies. Another important progress

is the availability of the first iteration of the Dependencies Monitoring and Reasoning System, which is a set of tools to classify and reason over service dependencies. A first iteration of the Legalities Life Cycle Management (LLM) tool is also available to provide coherent, comprehensible decision support for legalities management. LLM is a tool that covers legal issues in long-term IT projects including IP-management, preservation-specific IT-contracting, data protection and obligations to preserve. Another important on-going work is the instantiation of the Context Model for use cases in the project. This will lead to populating the Context Model instances with all the relevant and needed information for each use case's business process. It is then used to inform risk management as well as digital preservation planning. Important next goals are the definition of the remaining use cases, development of tools to support the virtualisation and redeployment of digitally preserved business processes, alignment of tools with the use cases, and the integration of the developed tools.

Let me finish by wishing all friends and followers of the TIMBUS project happy holidays and a happy New Year.

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**The 3-phased TIMBUS approach**  
 (<http://bit.ly/VODhS8>)

## The TIMBUS Approach to Business Process Preservation

*Dr. Wasif Gilani, SAP*

TIMBUS focuses on time-resilient business processes and services. The major objective of the TIMBUS project is to enable digital preservation for business processes and services. TIMBUS aims to enable an organisation to take a snapshot of and preserve its complete business process or a critical part of it and to restore and replay the complete environment at a later point - 1, 5 or 100 years from now.

One motivation for this is found in Internet of Services (IoS). The service sector is growing at a tremendous pace, fuelled by advances in information and computer technologies. The era of centralised in-house business processes maintained and owned by single entities is almost coming to an end. In the current Internet of Services, business processes are more and more supported by service oriented systems based on the Future Internet, where a plethora of services provided by different providers, located in different geographical locations is linked up and composed to form value-added service compositions and business processes which continue to change and evolve. Third-party services can become unavailable due to many reasons, for example, through bankruptcy. A fundamental requirement posed by the IoS setup is, therefore, to preserve functional and non-functional specifications of services along with their dependencies. This is far more challenging than the plain preservation of data, as elements including the versioning, licensing, cryptographic schemes, known data formats, host-system environments, architectures and hardware

requirements continue to change over time. In the TIMBUS project, digital preservation is taken as a means to mitigate risks threatening the long-term availability of digital information. This enlarged understanding embeds Digital Preservation within the Business Continuity Management domain and therefore exposes it to the mainstream business world.

The TIMBUS approach establishes activities, processes and tools

- to ensure continued access to business processes and the supporting services and infrastructure;
- to align preservation with enterprise risk management and business continuity management.

TIMBUS breaks business process preservation down into the three phases of Plan, Preserve and Redeploy. In the planning phase business process context capture and service dependency analyses are carried out; risk analyses are performed to identify the risks, and the critical parts of the business process. The preservation phase executes an effective digital preservation process. This includes establishing contractual agreement with all stakeholders, establishing the runtime digital preservation process, determining the type of storage landscape required, and performing the digital preservation of interdependent services. The last phase of redeployment includes all actions that are needed so that the business process can be rerun at a time in the future. It determines the parts of the preserved process and its context that have become obsolete relative to the current business environment. It integrates the preserved businesses process with the current business process, and verifies the correctness of the rerun business processes. Please see the diagram on the preceding page for an illustration.

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## Use Case: Civil Engineering Infrastructures

*Dr. José Barateiro,  
Laboratório Nacional de Engenharia  
Civil (LNEC)*

The analysis and validation of methodologies and tools developed in TIMBUS is driven by three industrial use cases:

- Engineering Services and Systems for Digital Preservation, focusing on the preservation of services and open-source systems;
- Civil Engineering Infrastructures, focusing on the preservation of sensor acquisition, processing and analysis and on CAD/CAM business processes;
- an eHealth business process for a drug interaction awareness system.

The Portuguese National Laboratory for Civil Engineering is involved in the Civil Engineering Infrastructures project. Large civil engineering structures, such as dams, are critical infrastructures, where structural failures can produce extensive property damage, environmental crises and loss of life. To reduce the risk of such failures, these structures are continuously monitored by a set of sensors strategically located. The interpretation of the correlation of several physical parameters measured in different physical locations of the structure can be used to validate the current state of the structure and predict

the future behaviour under specific and controlled conditions. The business processes involved in structural monitoring include:

- acquisition processes by manual or automatic means;
- transformation/processing, validating and converting raw sensor data into physical values;
- analysis processes, through reporting, statistical analysis and mathematical simulations.

Determining the value of processes and data is a difficult and error-prone task. In the particular case of the monitoring of large civil engineering structures using sensor devices, processes or data that cannot be used today may be useful in the future. New mathematical models along with powerful simulation technologies can use the data acquired in the past and produce relevant results which were not possible to achieve before. This may require a full re-execution of business processes, either to generate new or updated physical actions from raw data, or to ensure the authenticity of previous executions. Digital preservation is thus critical to ensure the safety of large civil engineering structures. The main motivations are:

- compliance with contracts and service level agreements established with the owners of the structures or, in the case of dams, compliance with legal requirements established by dam safety regulation;
- replay of processes using the same data and context. This requires the redeployment and re-enactment of the original processes according to the original information generated during monitoring;

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### Did you know that

You can get the most up-to-date information  
on Digital Preservation events, reports,  
people, organisations, ...  
in the DPC's "What's New"?

<http://www.dpconline.org/newsroom/whats-new>



### Did you know that

“Control Objectives for DP: Digital Preservation as an Integrated Part of IT Governance” was the most accessed publication on our website?

[http://publik.tuwien.ac.at/files/PubDat\\_203334.pdf](http://publik.tuwien.ac.at/files/PubDat_203334.pdf)

- re-use of processes (e.g., for new research), which can include the re-execution of the original process with modified data or context parameters, as well as the re-execution of a modified version of the preserved process using the original data (e.g., development of new calibration models that improve a specific step of the executed process);
- assessment of the costs of retention of generated data against the costs of preserving the process that generates this data. For instance, in large scale mathematical simulations, we must consider whether to preserve large datasets of generated data (e.g., by mathematical simulations) or to preserve the process that led to its generation.

Therefore, the preservation of processes and data in the scope of civil engineering monitoring activities is a challenge that must be addressed. This particular scenario raises several research and engineering issues that need to be addressed in TIMBUS, including:

- heterogeneity of processes and of the underlying data;
- heterogeneity of hardware and software technology;
- multiple components involved in monitoring processes, ranging from sensors, applications, humans, etc.;

- high frequency of process executions;
- reliability of the storage systems;
- authenticity of processes and data, which is related to the accurate identification of its provenance;
- integrity of processes and data, ensuring that both the process behaviour and informational content were not modified without authorisation;
- obsolescence of infrastructure components, applications, storage media and data formats specific to each process activity.

The heterogeneity of the civil engineering scenario, involving multiple stakeholders, technologies and processes, along with the fact that current research and science is moving to the eScience paradigm where complex and huge amounts of data are continuously captured from multiple sources (e.g., sensors), makes this case a representative scenario for the need of business process preservation, especially in organisations whose main mission is



*An inverted plumb line is fixed in the rock foundation. Their measurements are translated into absolute horizontal displacements. Information about the sensors that were used and how the measurements were obtained and translated is important for process preservation.*

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## TIMBUS at iPres 2012

*Stefan Pröll,  
Secure Business Austria*

The 9th International Conference on Preservation of Digital Objects (iPres) took place in Toronto, Canada. Between the 1st and the 5th of October 2012, leading experts in the area of digital preservation met in order to exchange the latest findings from a broad spectrum of research areas. The rich bandwidth of topics ranged from community approaches, preservation models and concepts, via digital objects and environments, to business process preservation. Special attention was given to the area of preservation assessment, training and best practices.

The TIMBUS-Project was particularly well represented at the conference, covering various and versatile areas in different streams, reflecting the wide-ranging nature of the project that provides a framework for preserving complex business processes that can be re-deployed in a completely different environment in the future.

The paper “Digital Preservation of Business Processes with TIMBUS Architecture” describes the architecture and its components. The service oriented architecture (SOA) of TIMBUS combines a unique set of solutions, providing the tools needed to successfully preserve information systems and their processes. TIMBUS consists of several modules which integrate tasks from capturing and acquisition of original processes, via intelligent enterprise risk management (iERM) and legality life-cycle management, to preservation and re-deployment of the business process.

Business processes consist of many heterogeneous components that need to be captured in order to have all the information

necessary to re-deploy them authentically in a new environment. The TIMBUS project reuses existing standards in order to capture this information. The PREMIS data dictionary is the de-facto standard for digital preservation metadata. The PREMIS Editorial Committee is currently investigating how to improve the metadata description of computing environments and their relationships to preservation objects, software agents, event and rights information. TIMBUS took the opportunity to test the proposed PREMIS model against the representation needs for business process preservation. The proposed PREMIS changes and some of the use case are described in the paper “Describing Digital Object Environments in PREMIS”.

The paper “Towards a Decision Support Architecture for Digital Preservation of Business Processes” demonstrates how TIMBUS helps to determine the key components which need to be preserved, and to resolve the software and hardware dependencies they impose. As processes are of a dynamic nature they can evolve over time. A crucial feature of TIMBUS lies in its ability to support making the decision when a process needs to be preserved, before its obsolescence becomes a real threat.

The TIMBUS process is structured into three phases: Plan, Preserve and Re-deploy. Decision support is maintained throughout all of the three phases.

The success of each phase needs to be measured based on evidence. Evaluation is essential during the whole process, not only retrospectively. A process is preserved correctly if and only if the re-deployed process preserves all significant characteristics of the input process. The

paper “On the Applicability of Workflow Management Systems for the Preservation of Business Processes” illustrates this. It shows how existing workflow management solutions can be used in order to validate and verify process executions. Workflow management systems (WMS), stemming from the scientific as well as the business domain, can be used for describing workflows formally. Such systems generate provenance data automatically, which can serve as a basis for examining the correctness of a process execution. The more a process is structured, the easier it is to achieve correct results.

Each phase requires proper quality assurance, where significant properties are validated against their original requirements. This topic was covered in the paper presentation “Evaluating an Emulation Environment: Automation and Significant Key Characteristics”. After redeployment, the correctness of these properties has to be verified. The framework defines tools that allow re-iteration of quality monitoring in each phase in order to increase the overall outcome with every cycle.

The paper “Assessing Digital Preservation Capabilities Using a Checklist Assessment Method” introduced a check-list based method for evaluating the digital preservation capabilities of an organisation. TIMBUS uses this method to identify gaps between the current and the required status of preserved information.

In addition to the full papers, the project presented some short papers and posters and introduced the proposed data model changes for PREMIS at the PREMIS user group meeting.

Topic	Authors
<p><b>Digital Preservation of Business Processes with TIMBUS Architecture</b></p> <p><a href="#">paper</a> (400kB) <a href="http://bit.ly/UEuOSH">http://bit.ly/UEuOSH</a></p> <p><a href="#">presentation</a> (5.22 MB) <a href="http://bit.ly/UEuOSH">http://bit.ly/UEuOSH</a></p>	<p>Mykola Galushka, Philip Taylor, Wasif Gilani, SAP; John Thomson, CMS; Stephan Strodl, SBA; Martin Alexander Neumann; KIT</p>
<p><b>Describing Digital Object Environments in PREMIS</b></p> <p><a href="#">paper</a> (1 MB) <a href="http://bit.ly/Ten7TB">http://bit.ly/Ten7TB</a></p> <p><a href="#">presentation</a> (1.2 MB) <a href="http://bit.ly/XiBWUK">http://bit.ly/XiBWUK</a></p>	<p>Angela Dappert, DPC Sébastien Peyrard, BNF; Janet Delve, UoP; Carol Chou, FLVC</p>
<p><b>Towards a Decision Support Architecture for Digital Preservation of Business Processes</b></p> <p><a href="#">paper</a> (200 kB) <a href="http://bit.ly/SXCW2j">http://bit.ly/SXCW2j</a></p> <p><a href="#">presentation</a> (1MB) <a href="http://bit.ly/SXCW2j">http://bit.ly/SXCW2j</a></p>	<p>Martin Alexander Neumann, Hossein Miri, KIT; John Thomson, CMS; Gonçalo Antunes, INESC-ID; Rudolf Mayer, Michael Beigl, SBA</p>
<p><b>On the Applicability of Workflow Management Systems for the Preservation of Business Processes</b></p> <p><a href="#">paper</a> (340 kB) <a href="http://bit.ly/VDDvLX">http://bit.ly/VDDvLX</a></p>	<p>Stefan Pröll, Rudolf Mayer, Andreas Rauber, SBA</p>
<p><b>Evaluating an Emulation Environment: Automation and Significant Key Characteristics</b></p> <p><a href="#">paper</a> (510 kB) <a href="http://bit.ly/XiE8f6">http://bit.ly/XiE8f6</a></p> <p><a href="#">presentation</a> (555 kB) <a href="http://bit.ly/RrWNIA">http://bit.ly/RrWNIA</a></p>	<p>Mark Guttenbrunner, Andreas Rauber, SBA</p>

Topic	Authors
<b>Assessing Digital Preservation Capabilities Using a Checklist Assessment Method</b>  <a href="#">paper</a> (500 kB) <a href="http://bit.ly/W9GopX">http://bit.ly/W9GopX</a>	Gonçalo Antunes, Diogo Proença, INESC-ID; José Barateiro, LNEC; Ricardo Vieira, Jose Borbinha, INESC-ID; Christoph Becker, TU Wien
<b>Business Process Preservation, How to capture, document &amp; evaluate</b>  <a href="#">short paper</a> (415 kB) <a href="http://bit.ly/W9HnXd">http://bit.ly/W9HnXd</a>  <a href="#">poster</a> (5 MB) <a href="http://bit.ly/W9HnXd">http://bit.ly/W9HnXd</a>	Stefan Strodl, SBA; Daniel Draws, SQS; Goncalo Antunes, INESC-ID; Andreas Rauber, SBA;  Angela Dappert, DPC (diagrams)
<b>On the Complexity of Process Preservation: A Case Study on an E-Science Experiment</b>  <a href="#">short paper</a> (310.09 kB) <a href="http://bit.ly/XiHvmk">http://bit.ly/XiHvmk</a>	Rudolf Mayer, Stefan Strodl, Andreas Rauber, SBA;
<b>Proposed Data Model Changes for PREMIS 3.0</b> (PREMIS Implementation Fair)  <a href="#">presentation</a> (753 kB) <a href="http://bit.ly/TXnxyY">http://bit.ly/TXnxyY</a>	Angela Dappert, DPC



## Introducing TIMBUS Partners: SQS

*Dr. Frank Simon,  
Software Quality Systems*

SQS joined the TIMBUS project as one of the industrial consortium partners. SQS has about 2.200 employees and is the biggest independent software quality management and testing provider worldwide. Why is SQS interested in digital preservation when this seems to be tangential to quality management and testing?

The answer to this is twofold with mid-term and short-term benefits.

### Mid-term

In the mid-term (>2 years) SQS firmly believe that the business around digital preservation will strongly grow from a revenue perspective. Many companies will realise how distributed their data is and how difficult it is to redeploy a consistent release of historical data. In general, we see two major areas where quality management and testing are affected by this growing trend:

### Digital preservation *per se*:

In many cases digital preservation services will be delivered by third-party providers. SQS as world-leading independent quality and testing company will leverage its independence for this purpose. Independence safe-guards against interests in specific preservation formats or any other collateral interests. TIMBUS will provide the necessary insights for establishing an independent digital preservation service.



### Escrow:

Clients that purchase software or services may request the deposit of the licensed software and other ancillary information with a third-party escrow agent. This is done to ensure that the software or its functionality can be released to the licensee and be maintained directly if the software provider has to file for bankruptcy or fails to maintain the software as promised in the license agreement. The more companies use third-party providers for their application development, the more dependencies have to be managed to prevent business risks from materialising. Escrow services are a preferred mitigation action for these scenarios. But, in contrast to today's methods, escrow services must firstly have an holistic view on the items that have to be archived, and they should secondly have an extended view of timelines. TIMBUS will develop guidelines to be able to offer holistic long-term escrow services.

### Short-term

However, even for innovative companies like SQS, it is very difficult to focus only on mid-term benefits; and indeed SQS is leveraging many topics touched on by TIMBUS already. SQS's three most important benefits lie in

### Business transition:

The core challenge of digital preservation can be understood as maintaining the significant characteristics of the preservation object while its context changes. In digital preservation this context change is mainly driven by different timelines, e.g., archiving a system today in order to restore it 20 years later.

However, many best practices of this area can be re-used for different context switches as well. A typical context switch in SQS's

daily business is offshoring an IT-operation department into the cloud. For SQS one of its strategic goals is to focus on managed testing services. The goal is to "archive" a given testing process and to "restore" it in another company, i.e. in an SQS test factory. SQS has already put to use many TIMBUS results for this specific task.

### Architectural modelling:

The topic of business process modelling is core to TIMBUS in order to prepare for digital preservation. This process modelling considers, for example, business value, risks, impacts and external suppliers. It is exactly this area that SQS already uses for a better definition of a holistic quality manager: For him the overall quality is defined by the quality of the involved subsystems. For this modelling and architectural work TIMBUS has already generated added value.

### Enterprise risk management integration:

TIMBUS has understood early that a strong coupling between digital preservation and risk management is essential. Using or not using digital preservation is primarily decision based, driven by enterprise risk management, and as such resembles testing activities. Testing can similarly be understood as risk mitigation action to give the project lead a better understanding about satisfied and unsatisfied requirements. To this end, SQS is leveraging knowledge from TIMBUS for integration of testing into risk management, as TIMBUS is doing for digital preservation.

Mid-term vision, as well as short-term results, make TIMBUS a driver for SQS to allow further business growth today and in the future.

## TIMBUS at the International Legal Informatics Symposium (IRIS)



*Konstantin Hobel,  
 Secure Business Austria*

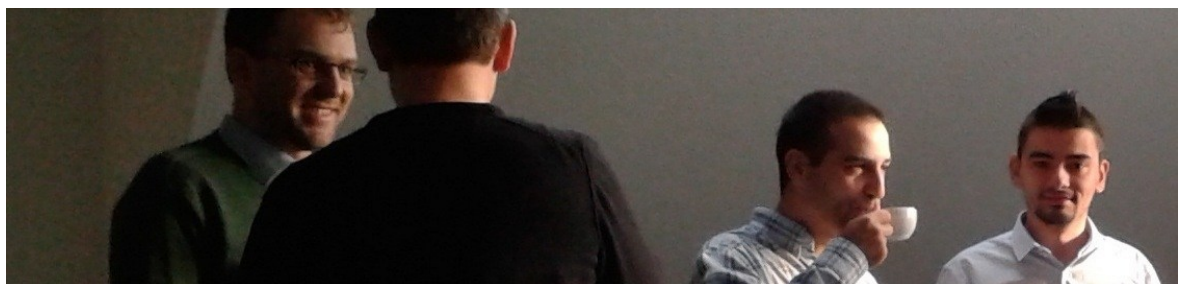
The International Legal Informatics Symposium (IRIS) takes place annually at the Law Faculty of the University of Salzburg, Austria. Due to its ability to attract new ideas, and nationally as well as internationally renowned scholars, IRIS has managed to establish itself as the largest and most important academic conference on computers and law in Austria and Central Europe. This year's symposium, from 23 to 25 February 2012, was the 15th in the series. The main topics were visualisation of the law, e-government, e-identities, IT-compliance and e-discovery, data protection, e-commerce, copyright and software law.

We introduced the topic "Software Escrow Agreements" to the IRIS audience. Software Escrow agreements regularly involve three parties: a software developer, a customer, and an escrow agent. The developer deposits the source code and other objects with the escrow agent, who is under an obligation to technically verify those objects and to hand them over to the customer when certain trigger events, such as insolvency of the developer, occur. Our presentation included a description of the legal structure of source code escrow agreements, with a

special focus on the case of the software developer's insolvency. It also discussed the technical measures necessary to ensure the reusability of the deposited objects and provided an introduction to the role of escrows in the long-term preservation of proprietary software. It is of note that in the lively discussion following the presentation, the audience, having a background in IT- and legal services, expressed a special interest in the economic viability of the deposit of source code. In their practical experience, some parties have been unwilling to engage in source code escrow contracts as they doubted the practicability of receiving usable source code in the case of insolvency. Being aware of limitations of contemporary software escrow, the TIMBUS project partners are working at the interface of law and technology to develop next generation holistic escrow agreement solutions providing businesses with legal as well as technical certainty.

Topic	Authors
<b>Software Escrow Agreements</b> International Legal Informatics Symposium, February 2012;	Konstantin Hobel, SBA; Stephan Strodl, SBA

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## TIMBUS Training Day: Resilient Business Processes

*Angela Dappert,  
Digital Preservation Coalition*

A free Training Day on Digital Preservation of Business Processes took place on 16 October 2012 at the Gresham Hotel in Dublin, Ireland in conjunction with the Preservation and Archiving Special Interest Group (PASIG ) conference. It was addressed to an audience with problems of the following sort:

- wanting to integrate digital preservation activities with business continuity and enterprise risk management approaches;
- needing to preserve more than data;
- holding preserved information about computing environments, dependencies, policies, even process descriptions that are needed to understand repository contents.

The audience of 30, mostly from the financial and public services industries, had a broad set of roles including Digital Preservation Consultant, IT Architect, IT Manager, Media Producer, IT Consultant, and Intelligent Data Analyst, Librarians and Archivists. They came from across North America, Europe and Israel. The evaluation showed a high approval rate with 93% of

the attendants choosing 4 or 5 (out of 5, with 5 being very satisfied) for overall satisfaction.

Topic	Authors
<b>Introduction to Digital Preservation of Business Processes</b> <a href="#">presentation</a> (5.8 MB) <a href="http://bit.ly/SUGAbY">http://bit.ly/SUGAbY</a>	Angela Dappert, DPC
<b>Risk Management in Digital Preservation</b> <a href="#">presentation</a> (615 kB) <a href="http://bit.ly/VEYXzO">http://bit.ly/VEYXzO</a>	Wasif Gilani, SAP
<b>Business Continuity Management</b> <a href="#">presentation</a> (5.8 MB) <a href="http://bit.ly/VEYWvW">http://bit.ly/VEYWvW</a>	Wasif Gilani, SAP
<b>Interactive Demo on BCM</b> <a href="#">demo Part1</a> <a href="http://www.youtube.com/watch?v=KgG745TlzUY&amp;list=UL">http://www.youtube.com/watch?v=KgG745TlzUY&amp;list=UL</a> <a href="#">demo Part2</a> <a href="http://www.youtube.com/watch?v=DSnB71_c5QU">http://www.youtube.com/watch?v=DSnB71_c5QU</a>	Wasif Gilani, SAP
<b>Infrastructure, Architecture and Storage</b> <a href="#">presentation</a> (5.9 MB) <a href="http://bit.ly/Z3SjLz">http://bit.ly/Z3SjLz</a>	Mike Nolan, Intel
<b>Legal issues of Digital Preservation</b> <a href="#">presentation</a> (2 MB) <a href="http://bit.ly/XiKfjp">http://bit.ly/XiKfjp</a>	Martin Hecheltjen, ITM
<b>In-depth study on legal issues</b> <a href="#">work sheet</a> (35 kB) <a href="http://bit.ly/VEYLkg">http://bit.ly/VEYLkg</a>	Martin Hecheltjen, ITM

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## TIMBUS Topics at DPC Briefing Days

*Angela Dappert and  
Dr. William Kilbride,  
Digital Preservation Coalition*

The Digital Preservation Coalition (DPC) is a consortium partner in the TIMBUS project. As part of its remit the DPC runs briefing days on cutting-edge issues in digital preservation. Prompted by its involvement in TIMBUS, the DPC held 2 Briefing Days on

- Intellectual Property Rights and Digital Preservation on 21 November 2011 at the Wills Hall, Bristol University, Bristol;
- Digital Resilience and Preservation on 21 May 2012 at the Wellcome Collection Conference Centre in London.

In keeping with the traditional format, participant numbers were kept below 40 participants and presentations were interspersed with lively audience participation, discussion, Q&A and networking. Both days brought together experts from around the world to discuss these topics including TIMBUS participants as well as guest speakers.

### Intellectual Property Rights and Digital Preservation

Digital preservation helps to deliver lasting impact from highly prized and valuable digital resources. This is often understood as a technical challenge but experience shows that a poor fit between technology, processes and regulations constrains preservation actions and significantly inhibit the benefits which long-term access ought to deliver. "Intellectual Property Rights and Digital Preservation" addressed the issue that operating within a complicated and evolving legal and regulatory landscape, the digital preservation community needs a clear understanding of what it is permitted to do and what

risks might inhere within technical processes like format shifting, migration, bit replication and emulation. Foremost among these challenges is the management, protection and evolution of intellectual property rights. It has long been recognised that digital rights management and encryption present a barrier to preserving content. But intellectual property rights do not just impact on the contents of archives but apply also to the containers, wrappers and formats which make the contents accessible.

Topic	Authors
<b>The Nature of the Problem</b> <a href="#">presentation</a> <a href="http://bit.ly/TevAG5">http://bit.ly/TevAG5</a>	Andrew Charlesworth, Bristol University
<b>Case Study 1: Issues of Ownership: Case Studies in Depositing and Licensing from the Wellcome Library</b> <a href="#">presentation</a> <a href="http://bit.ly/XiKLOB">http://bit.ly/XiKLOB</a>	Chris Hilton, The Wellcome Library
<b>Case Study 2: Legalities, Migration and Emulation</b> <a href="#">presentation</a> <a href="http://bit.ly/VDGMej">http://bit.ly/VDGMej</a>	David Anderson, KEEP Project, University of Portsmouth
<b>Case Study 3: Group Discussion and Practical Exercise</b>	JISC Media
<b>Escrow Services for Long Term Access: Emerging Trends and Issues</b> <a href="#">presentation</a> <a href="http://bit.ly/LHXxFY">http://bit.ly/LHXxFY</a>	Barbara Kolany, ITM, Münster University (TIMBUS)
<b>Emerging Trends: Let's All Meet Up in 2015 - What will IPR for digital preservation look like then</b> <a href="#">presentation</a> <a href="http://bit.ly/SUGHUX">http://bit.ly/SUGHUX</a>	Jason Miles Campbell, JISC Legal



This joint DPC / JISC Digital Media briefing day examined and discussed key concepts of intellectual property rights as they impact on digital preservation. It provided a forum to review and debate the latest developments in the law as it applies to preservation and it initiated a discussion on how simple legal processes can be deployed. Based on commentary and case studies from leaders in the field, participants were presented with emerging tools and technologies and were encouraged to propose and debate the future for these developments.

## Digital Resilience and Preservation

The “Digital Resilience and Preservation” Briefing Day addressed resilience as an increasingly important topic in the provision of digital services. Digital technology offers the prospect of '24/7' services, a model which can only be sustained through constant monitoring and planning to ensure continuity of service. Increasing demands on the networks, increasing concerns about security, and increasing economic and social consequences from their failure, makes resilience a pressing concern. Business continuity planning continually refines and extends these protections to ensure that the right services are supplied to the right people at the right time.

Digital preservation is part of resilience planning and shares a core set of concepts and practices with business continuity

management. Both work towards robust data provision through processes of risk assessment, disaster planning, security-testing and on-going monitoring; both use replication and redundancy to mitigate or prevent data loss; and both require a detailed understanding of what information is where, and who is allowed to access it. But because digital preservation and digital resilience are designed to combat different types of threat, there is a risk that they are not aligned as effectively – or as efficiently – as they could be. How might a digital preservation plan contribute to organisational resilience? How might business continuity management contribute to a long term information strategy? Slides for the presentations can be found here:

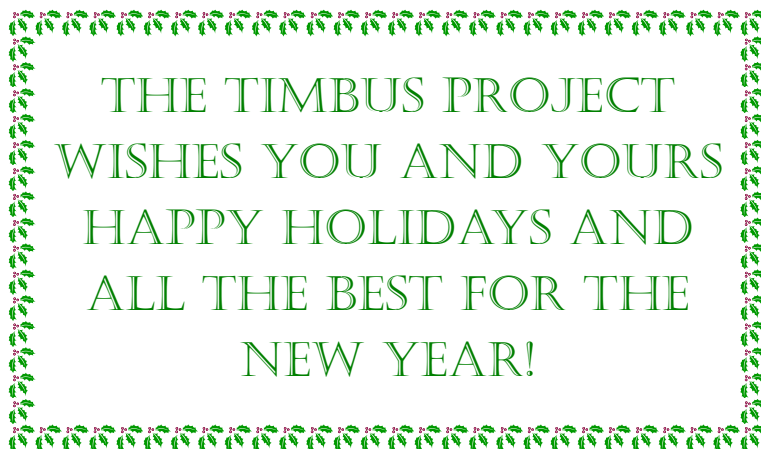
Topic	Authors
<b>Community-Wide Disasters: Community-Wide Response</b> <a href="#">presentation</a> <a href="http://bit.ly/XiKUKZ">http://bit.ly/XiKUKZ</a>	Tom Clareson, Lyrisis
<b>Business Continuity Planning and Digital Preservation</b> <a href="#">presentation</a> <a href="http://bit.ly/12o79u8">http://bit.ly/12o79u8</a>	John Lindstrom, Luleå Technical University
<b>Risk Management and Digital Preservation</b> <a href="#">presentation</a> <a href="http://bit.ly/12bJ0b8">http://bit.ly/12bJ0b8</a>	Angela Dappert, DPC /TIMBUS
<b>Business Processes and Preservation: TIMBUS</b> <a href="#">presentation</a> <a href="http://bit.ly/12o7dds">http://bit.ly/12o7dds</a>	Mykola Galushka, SAP /TIMBUS
<b>Digital Continuity - How Breakfast Cereals are Saving Digital Information</b> <a href="#">presentation</a> <a href="http://bit.ly/VDGZhD">http://bit.ly/VDGZhD</a>	Tim Callister and Rob Johnson, The National Archives



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Karlsruhe Institute of Technology	Germany
Laboratório Nacional de Engenharia Civil (LNEC)	Portugal



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