

Tessellations

News And Technical Updates From Tessella

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SDB Archive – maintaining your key information forever

Tessella has been working on advanced Digital Archiving solutions for many years, alongside some of the world's most farsighted archiving organizations. We are now able to offer a complete suite of consultancy, software, and integration services, to allow many more organizations to benefit from this path-finding work. Launched as Tessella's **Safety Deposit Box (SDB)**, the suite of offerings is already in use at three key organizations with many more expected to follow.

Tessella's digital archiving experience has been built up over time. The current software suite is the result of several years of work with the UK National Archives⁽¹⁾. Their innovative ideas, and Tessella's ability to deliver complex software systems, resulted in the delivery of the prize winning 'Digital Archive'. Recently, Tessella has considerably extended this work as part of the UK National Archives' Seamless Flow programme, in particular, to add Active Preservation features.

The proven track record of the 'Digital Archive', plus further new ideas, allowed Tessella to win the contract to develop the e-journal ingest and metadata management modules for the 'Digital Object Management' programme of the British Library (one of the world's greatest research libraries).

Most recently – following a licensing agreement with the UK National Archives – the SDB suite has been adopted by Arkib Malaysia (the Malaysian National Archives) as their digital archiving solution. In this case, Tessella is working with local partner Versapac to deliver a fully integrated system.

The building blocks from these projects are now available as SDB, a complete solution allowing any organization to benefit from these recent key innovations.

For many organizations, the first step towards a living archive will be **Consultancy**. Tessella can support the process of understanding why an organization needs to archive information; is it regulatory compliance, legal protection, or effective knowledge management? Next we can help to investigate what information an organization needs, where it is held now, and in what form it will need to be retained. We can also help establish clear definitions of the access rules relating to this data (which may vary with time) and how long the data needs to be retained. The outcome of this step is a fully defined long-term information business plan and a system specification that allows the organization to select the best solution.

Our core software offering comprises an Active Preservation Engine, an Ingest Automation Module, and a Storage and Access System. These can be used in part, or as a whole, to deliver the archiving solution appropriate for each organization.

The most revolutionary part of SDB is the **Active Preservation Engine**. This is a set of file transformation functions, powered by a flexible policy database, which constantly migrates files to a readable format. The system is modular so you can add your own transformations or share these with others. File migration can be conducted during ingest or when triggered by a risk assessment in the policy engine. The Active Preservation Engine can be used with the rest of SDB or plugged into your organization's existing information store.

SDB's **Ingest Automation Module** is vital in bringing data into the system in an organized way. It contains tools to

identify file formats, check for viruses, extract technical file information, and verify files. It also links to the Active Preservation Engine to see if file migration needs to be performed immediately. This automation of the ingest process is again extendable so organizations can add their own tools to extract relevant metadata or identify their own files. (If required, this component of SDB can be used in isolation to perform the processing before feeding the information into third party data management systems.)

SDB's **Storage and Access System** is available to hold raw data, migrated files and metadata, and to provide tools to browse and

search the contents. The data structure and metadata schemas are fully flexible and will be tuned to suit each organization. (Third party suppliers, such as the organization's preferred bulk storage solution supplier, provide the actual bulk storage.) The Storage and Access System also contains tools to confirm digital integrity, and advanced non-repudiation, replication and bit-error-healing options are available.

The last part of SDB is **System Integration**. To provide a seamless solution, SDB needs to be linked into the feeder system that performs the physical transfer and the pre-archive business processes. SDB is fully flexible and Tessella is able to offer custom-built solutions to each organization's needs. It is no surprise that each of the current SDB users has a different way of integrating SDB into their other systems.

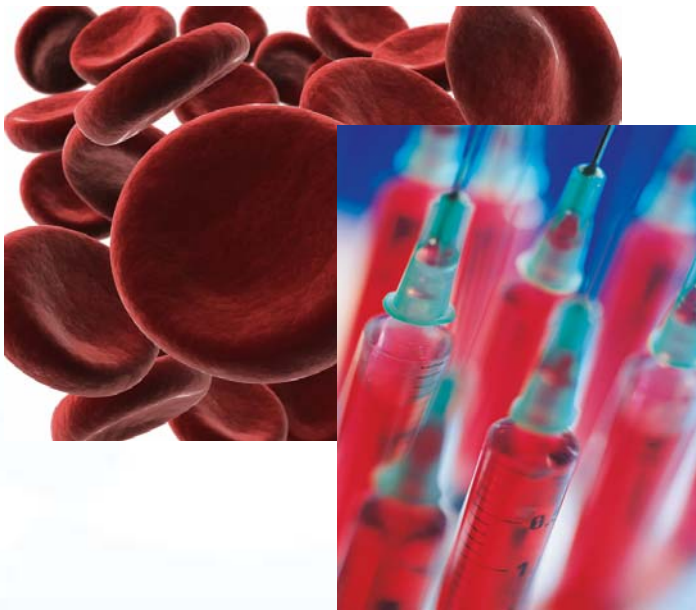
Building on the deliverables of many years' innovation by organizations where archiving is their core reason to exist, SDB is now available for further exploitation both by archiving institutions and by organizations for whom archiving is necessary but not their core activity. SDB exists, is in use, and is ready to provide your archiving solution. For more information please email info@tessella.com



SPACE EXPLORATION: Analyticon is participating in the flagship ExoMars mission, part of the European Space Agency's solar system exploration programme, Aurora. Due for launch in 2011, the mission will deliver a rover to the surface of Mars to look for chemical signatures of life and to take geological measurements. It will extend knowledge of the Martian atmosphere and surface conditions, paving the way for subsequent Mars exploration.

⁽¹⁾ Won in open competition

Haemophilia treatment – a new era of home help



Quality of life

For patients with chronic conditions, such as haemophilia, delivery of drug products to home, and the self-administration of treatments at home, is far preferable to countless visits to medical centres or hospitals, with the restrictions and inconveniences such visits bring to patients' lives.

However, self-administration by its very nature means the absence of routine contact between patient and clinicians, and this may result in the inappropriate management of the disease or failure to identify other problems. But the good news is that such issues can be resolved by effective communications between the patient and their clinicians, and between hospital and home-delivery firm, via 'home help technology'.

Improving haemophilia services

Guy's and St Thomas' NHS Foundation Trust is one of the largest NHS Trusts in the UK, and its haemophilia centre provides assistance and support to over 1,000 patients with varying bleeding disorders.

Haemophilia is a blood condition in which an essential clotting factor is either partly or completely missing. This causes a person with haemophilia to bleed for longer than normal, with potential life threatening consequences in the case of serious injury.

As there is no current cure, patients have to replace the clotting agent on a regular basis, usually by injection. Whilst patients can administer the clotting agent themselves at home, it is important that the condition is monitored to ensure that self-administrations are not being missed, that stocks of clotting agent are being correctly managed, and that any potential problems can be identified before the patient's health deteriorates. Traditionally, this monitoring was carried out retrospectively by filling out forms.

The telemedicine solution

In order to improve the service offered by the haemophilia centre, and to improve the quality of life for its patients, Guy's and St Thomas' has been piloting a Home Delivery and Monitoring System (HDMS) which manages patient-hospital communication, and improves stock control and care management for the hospital. The system also enables improved monitoring of bleeds and improved recall of stock.

The system is the result of a close collaboration between Guy's and St Thomas', the home delivery companies responsible for distributing the medication, Tessella and O2. The system is designed to improve the quality of care given to the patient.

Patients have been supplied with O2 handheld GPRS-enabled Xda Ili. These provide a flexible and easy-to-use point of access for the internet-based system that can be used virtually anywhere yet still ensure patients are connected to the haemophilia centre and the home delivery companies. For the first time, self-administration data is effectively monitored in real time, without restricting the patients' lifestyles.

The system's capabilities to handle email and SMS allow fast communication between patient and hospital in the event of any treatment query or urgent product recall. The home delivery companies can also track delivery and receipt of products together with collections of any recalled products.

In addition, by simplifying the administration aspects of treatment, the centre hopes to reduce the numbers of serious incidents, which are both distressing to the patient and put a strain on resources.

Constant contact

The HDMS ensures that patient contact is maintained almost continuously. Using GPRS technology, HDMS gives doctors and patients a two-way system for communicating critical data, enabling a patient's condition and progress to be continually reported and analyzed. Patients can log medication usage and report abnormal symptoms and bleeds, as well as confirming home deliveries and recalled stock collection. Any patterns or trends can be identified and the haemophilia centre alerted immediately to any unforeseen complications or hidden problems.

It also means that when patients do make a visit to the centre, in person, the medical team has instant access to the latest, up-to-date information on that patient's bleeding history and status.

A better life

Home delivery of blood products and self-administration has improved the patients' lifestyles immensely, and the ability to effectively monitor this via the Home Delivery and Monitoring System has improved quality of care.

The HDMS has met and exceeded the Trust's initial expectations, and the initiative is being rolled out to 110 of the haemophilia centre's patients. The new approach has proved to be a flexible and efficient solution and as such can be used for applications beyond the domain of haemophilia. To find out more please email info@tessella.com

"I can't praise the HDMS system enough. It is very reliable and easy to use. Even my son, who is only six, is learning to use it.

It was worth everything recently when, due to a postal delay, we had run out of bone sheets but could still log his treatments. Thank you."

R.B.

(The mother of an outpatient of the haemophilia centre)



Simon
Project Manager
Tessella

For further information and free Technical Supplements please complete the enclosed form or email info@tessella.com

Environmental Modelling

Agrochemical manufacturers need to demonstrate that new products are safe to use in a variety of modelling scenarios established by regulators. This includes investigating the products' potential effects on surface water, which may occur via drift during spraying or in run-off in rainwater. If the levels of a product predicted by modelling are too high, then additional mitigation methods could be considered and made part of the approval instructions; eg special application nozzles (to reduce spray drift) or vegetative filter strips (to absorb the product before it reaches water).

However, with existing modelling tools these mitigations have required manual modification of input files, and this was laborious and potentially error-prone. The European Crop Protection Association (ECPA) has moved to improve this situation, supporting environmental modellers and regulators in evaluating ways of minimizing the potential environmental impact of agrochemical products in streams, ditches and ponds.

ECPA is the European voice of the crop protection industry. Its members include both national associations and companies throughout Europe.

In an ECPA-funded project Tessella has implemented a software tool to assist in assessing the environmental impact of new crop protection applications. The 'Surface Water Assessment eNabler' (SWAN) provides a simple, standardized means for the user to make these file modifications. Using an intuitive 'wizard', the user can deal with mitigations on spray drift and run-off from treated areas, and can also include effects of dry deposition after volatilization of the application. The new tool is being made freely available by ECPA for use by the scientific and regulatory community.

For further information please email info@tessella.com

Adaptive Clinical Trials

At the Bio-IT World Conference and Expo in Boston, Massachusetts, Tessella launched its first 'Adaptive Trials Simulation Toolkit' to enable the pharmaceutical community to evaluate the advantages of adaptive clinical trials. The first release includes a Bayesian model for phase 2 trials called 'NDLM dose finder', and a 'Seamless Phase 2/3 Simulator'.

Adaptive clinical trials attempt to increase the efficiency of clinical trials by breaking out of the straightjacket of conventional experimental design.

Nuclear News

Tessella is fully committed to supporting the nuclear sector's innovative developments.

BNG: Tessella has been awarded the contract to implement a new Level 2 Monitoring Data Management system for use at the Waste Monitoring and Compaction facility at BNG, Sellafield. The facility is an integral part of the low-level waste packaging process, and the Tessella solution will be used to ensure BNG Sellafield meet all their responsibilities with respect to monitoring of consignments and storage of consignment data. Tessella won the project following a competition, and the contract award reflects our industry-leading experience in the fields of data capture, management and long term preservation.

Nirex: In anticipation of any UK Government decision on how to implement a programme of work that may ultimately lead to the construction of an underground radioactive waste repository, Tessella has been working with Nirex in developing a data management strategy to assist with the planning phase of a large-scale Geosphere Characterization Programme. Tessella, as part of a multi-disciplinary team including representatives from Nirex and the British Geological Survey, offered consultancy in the data management areas of Governance, Architecture and Semantic and Exchange Interoperability. Significant consideration was given to the digital preservation of the underlying data due to the extensive retention periods of the captured information.

UKAEA: Dr James Spence of Tessella was amongst the team awarded the UKAEA 2006 Innovation Award for Scientific Contribution. The award was presented by Norman Harrison the new CEO of UKAEA. The team developed the JET Application Management System, to support a single user-friendly integrated modelling environment. JET – the Joint European Torus – is the world's largest fusion research facility and allows scientists to study fusion's potential as a safe, clean, and near limitless energy source. Tessella has supported the work of JET for the last 22 years, with a team of nine consultants currently being based on site at Culham.

WIKI: Following the successful 'Nuclear Information Management' workshop held in November 2006, Tessella has launched NuArcWiki to facilitate the exchange of views and information on this important topic. Those working within the nuclear industry are welcome to email info@tessella.com for further details of how to join the WIKI.

Tessella – Providing innovative solutions to scientific, technical and engineering problems

Tessella uses its unique blend of scientific, engineering and IT skills to solve the most complex of technical and business problems in a highly cost-effective way.

We have a proven 27-year history of excellence, adding value to demanding public sector and commercial R&D based customers.

Tessella comprises Tessella Support Services plc, Tessella Inc, and Analyticon (now a branch of Tessella).

The group's services include software design & development, mathematical modelling & simulation, algorithm development, infrastructure support, project management and consultancy.

Our enviable reputation for providing high-quality, low-risk, value for money services is backed up by many successful, high-profile projects, plus a high level of repeat business.

For each client problem we develop a fundamental understanding within the 'big picture' context – so our solutions fit. We focus on the details (however intricate) so our solutions work. Our ultimate aim is that the systems we deliver are used by our clients with great enthusiasm.

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