



SALERO

Third Report on Commercialisation, Marketing and Demonstration Activities

SALERO Deliverable 12.1.3



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Table of Contents

1	Executive Summary	1
2	Introduction.....	3
2.1	Purpose of this Document	3
2.2	Scope of this Document.....	3
2.3	Status of this Document.....	3
2.4	Related Documents	3
3	Commercialisation and Marketing.....	4
3.1	Commercialisation Overview	4
3.2	Activa Multimedia (AM).....	4
3.2.1	Product Innovation.....	4
3.2.2	Current Marketing and Commercialisation	6
3.2.3	Planned Future Commercialisation	9
3.3	Blitz Games Studios (BLITZ)	10
3.3.1	Product Innovation.....	10
3.3.2	Current Marketing and Commercialisation	10
3.3.3	Planned Future commercialisation	11
3.4	Dublin Institute of Technology (DIT)	11
3.4.1	Product Innovation.....	11
3.4.2	Current marketing and Commercialisation	12
3.4.3	Planned Future Commercialisation	12
3.5	Digital Film Technology (DFT)	12
3.5.1	Product Innovation.....	12
3.5.2	Current Marketing and Commercialisation	13
3.5.3	Planned Future Commercialisation	13
3.6	DTS Licensing Ltd (DLLNI).....	13
3.6.1	Product Innovation.....	13
3.6.2	Current Marketing and Commercialisation	14
3.6.3	Planned Future Commercialisation	14
3.7	Fundació Barcelona Media – Unversitat Pompeu Fabra (FBM-UPF).....	15
3.7.1	Product Innovation.....	15
3.7.2	Current marketing and Commercialisation	15
3.7.3	Planned Future Commercialisation	15
3.8	JOANNEUM RESEARCH Forschungsgesellschaft mbH (JRS).....	16
3.8.1	Product Innovation.....	16
3.8.2	Current Marketing and Commercialisation	16

3.8.3	Planned Future Commercialisation	16
3.9	STI Innsbruck (LFUI)	17
3.9.1	Product Innovation	17
3.9.2	Planned Future Commercialisation	17
3.10	Music Technology Group – Universitat Pompeu Fabra (MTG-UPF).....	17
3.10.1	Product Innovation	17
3.10.2	Current Marketing and Commercialisation.....	18
3.10.3	Planned Future Commercialisation	18
3.11	Pepper’s Ghost Productions (PGP).....	18
3.11.1	Product Innovation	18
3.11.2	Current Commercialisation and Marketing.....	19
3.11.3	Planned Future commercialisation.....	20
3.12	University of Art and Design Helsinki (TAIK).....	20
3.12.1	Product Innovation	20
3.12.2	Current Marketing and Commercialisation.....	20
3.12.3	Planned Future Commercialisation	21
3.13	University of Glasgow (UG).....	21
3.13.1	Product Innovation	21
3.13.2	Current marketing and Commercialisation.....	22
3.13.3	Planned Future Commercialisation	22
3.14	Universitat Ramon Llull (URL).....	22
3.14.1	Product Innovation	22
3.14.2	Current Marketing and Commercialisation.....	23
3.14.3	Planned Future Commercialisation	24
4	Conclusion.....	25
5	References.....	26
6	Annexes	27
6.1	Annex I	27
6.2	Annex II	27
6.3	Annex III	28
6.4	Annex IV.....	29
7	Glossary.....	30

1 Executive Summary

The project aims to define and develop 'intelligent content' objects with context-aware behaviours for self-adaptive use and delivery across different platforms, building on and extending research in media technologies, web semantics, and context based image retrieval, to reverse the trend toward ever-increasing cost of creating media.

The project is developing a series of software tools for manipulating the appearance, sound, movement and behaviour of semantically-aware characters and other objects, for delivery on different platforms in a range of contexts, for media ontology creation, manipulation and versioning and for language processing and speech synthesis.

Automatic and semi-automatic metadata annotation should enable re-use and repurposing of digital content, which is seen as central to the economic creation of new content and services. There is a clear need to explore how automatic generation of content and tools to support reuse of existing content can reduce the cost of generating new multimedia content, potentially for different delivery platforms than those for which it was originally created.

This document reviews the partners' achievements in developing toolsets to meet or begin to answer these objectives. It looks in detail at each partners' current work to commercialise or disseminate their work and also records their future strategies and aspirations for continued commercialisation or, for some academic partners, further research.

SALERO has enabled the industrial partners to expand their portfolio of services and target new market sectors, some of which are still emerging.

AM is continuing to work in the TV field and is expanding its offer into web delivery of its virtual characters.

Blitz continues to focus on console and PC entertainment games but in the last year has begun to license its technology, part supported by SALERO, to other game developers; new markets, such as architectural visualisation and training applications are emerging. Blitz is also exploring game delivery via web browser as well as downloadable formats.

DFT has increased the speed of the film grading process and is continuing to move from hardware to software based solutions. The company is expanding its target market from film production companies to those already working in or planning to adopt digital media creation.

DTS has successfully commercialised its sound virtualisation technology and is actively exploring the mobile and mobile laptop market for its audio codec. The company has also participated in discussions on standardisation and this is a continuing focus.

PGP is exploring the market in web browser based games and communities and is currently building business models around virtual goods. Efficient production pipelines and automated content creation will reduce the initial investment needed before a return is recouped.

JRS, a not for profit technology centre, has worked in partnership with LFUI and DFT to address data annotation and retrieval of images based on semantic ontologies. Robust business models are being developed to exploit the tools across all media platforms.

Academic partners are also exploring exploitation and future developments for the outcome of their research.

DIT is in discussion with Enterprise Ireland about setting up a spin out company to exploit its Vowel Builder application. It has also applied for a patent for the vowel stress tagging technology.

FBM-UPF is in discussion with several commercial organisations about the exploitation of automated animated characters. It plans to continue its partnership with AM after the end of the SALERO project.

URL's speech synthesis technologies continued to be developed and the partnerships with AM, PGP and TAIK are expected to continue. URL continues to be interested in standardisation and to work with international research groups to progress thinking in this area.

MTG-UPF's voice and music transformation tools are patent pending and are already being licensed to commercial third parties through a spin out company. Currently, uptake is mainly in the museums and exhibition sectors; in 2010 the wider audiovisual sector will be targeted.

TAIK's Alan01 and Turing Machine interactive productions have been well received with positive press and media coverage. TAIK plans to extend its work on Alan01 installation and aims to enter it for the Prix Ars Electronica 2010, one of the most prestigious interactive and digital art exhibition and conferences in the world.

UG is concentrating on further research opportunities for development of the Aspect Browser system.

The report demonstrates that important strides have been made towards the project's central objectives and that several tools are already in commercial use, a patent is pending and a patent has been applied for.

The partners' plans for continued work to market and research SALERO supported tools are a robust indicator that there is real value in SALERO's central premise and that this is an area that merits continued investigation and investment. Several partners are developing business models for the exploitation of SALERO tools.

The commercial interest in, and uptake of, SALERO tools shows that automated creation techniques and context aware behaviour of media objects is of real interest to the European digital media sector.

2 Introduction

2.1 Purpose of this Document

This document sets out progress in the last phase of the project towards product innovation and commercialisation for SALERO tools and research. It summarises where innovation has taken place, partly supported by SALERO and what has been achieved since the last report (D12.2.2 delivered in September 2008). It highlights commercial activity already underway and sets out the partners' aspirations and planned activities for continuing commercialisation to the end of the project and beyond. Academic partners, whose focus is on community engagement or further research have also set out their aspirations.

2.2 Scope of this Document

This document reviews activity by all partners; it sets out current and future commercialisation and marketing strategies for industrial partners as well as the intentions of academic partners for future exploitation of their research. This may be to support further research, community engagement or commercial.

2.3 Status of this Document

This is the final version of D12.1.3

2.4 Related Documents

Before reading this document it is recommended to be familiar with the following documents:

- Description of Work
- D12.1.1 Initial Report on Commercialization and Marketing Activities
- D12.2.1 Detailed Demonstration Plan for the Second 18-Month Period
- D12.2.2 Second Report on Commercialisation and Marketing Activities and detailed demonstration plan for months 36 – 48

3 Commercialisation and Marketing

3.1 Commercialisation Overview

Partner	SALERO part supported tools in commercial use	Patents secured	Patents Applied for / Pending
AM	iVAC engine and plug in		
Blitz	Procedural character generator, Visual game editing tools, Distributed asset processing tools		
DIT	Vowel Stress Tagging Framework		Patent applied for
DFT	Bones Dailies		
DLNNI	Multi Channel Virtualisation		
UPF-MTG	Audio Transformation Technology		US 11/900,902: Audio Signal Transforming Method

3.2 Activa Multimedia (AM)

3.2.1 Product Innovation

SALERO has made it possible for Activa Multimedia (AM) over the course of 2009 to continue developing the possible use of its virtual characters for users. Its impact has been particularly noted in the improved performance of the package of tools implemented in the preceding months within the SALERO project: Simple Character Editor, Program Editor, Template Editor, Program Generator, RT Program Generator, Program Renderer.

With a view to creating higher quality videos at an even faster rate than before, AM has developed an iVAC engine of its own. Using a study of the engines available on the market as a reference, thorough research was conducted on the functionality offered by OGRE, Nebula Device 2, Horde3D, Irrlicht. Ultimately, the LGPL 3D engine OGRE was selected as the basis for building a more advanced engine that can interact with OGRE to achieve the desired videos.

The experimental application of the developed engine has been the creation of a new virtual weather reporter named Alan, and a complete, automatically generated meteorological newsletter. This has allowed for experimentation with solutions involving shaders, transparent objects, static and dynamic reflections of the scenery, lip-syncing, etc. Consideration has also been given to the cross-platform possibilities of this type of weather reporting.



Figure 1: New meteorological newsletter

The primary advancement in terms of the use of artificial intelligence and semantic objects, and being able to respond in real time to user interaction without video rendering, has been the development of a plug-in. This consists of an object for viewing iVAC programs on a website. The objective was to use a plug-in to adapt the virtual iVAC technology developed for automatically creating television programs for embedding into websites. For that process, it was important to research the technical solutions needed for downloading data and objects as well as interactive communication with Virtual Character technology, which supports the communication between the Web browser and the system.

The use of this requires a local download of the folders that the program files may execute. From the website itself, the plug-in accepts what we will refer to as "Delta Programs," which are small program files with commands for folders to be downloaded and changes to be made in the timeline.



Figure 2: Plug-in with the Sara character

3.2.2 Current Marketing and Commercialisation

The marketed products using the application of the technological advancements obtained through the research conducted within the context of the SALERO project were as follows:

PAU-e: Prepara't per a la TDT

“Prepara't per a DTT” [Get Ready for DTT] is a series of fifteen 5-minute programs that were broadcast daily by TV3 in mid June. These short episodes provide information in an entertaining, humorous way to teach viewers everything they need to know before DTT replaces analogue television.

This new space was designed for the infotainment genre, presenting the information through a fictional script to attract viewers.

Pau, a real television host played by a well-known actor, and Pau-e, a virtual character created by AM, were given the daily task of leading spectators into what ought to be the immediate future: digital terrestrial TV.

Pau-e is also the centerpiece that ties the TV program into the corporate website, which will not only include the episodes but also specific material recorded and designed for the site.



Figure 3: Making of a scene of Pau-e



Figure 4: Image of Pau

LAIA 2.0: The virtual assistant at the Catalan government's Citizen Information Service (Generalitat de Catalunya)

Addition of a virtual assistant named Laia, within the online services section of the Generalitat website, where the character will provide a response to the users' searches, in order to bring a human element to the section and enhance the service.

Users can perform basic searches, and receive responses in the form of automatically generated videos in the following cases:

1. Listing of online services related to a specific question.
2. Identifying and responding to a question about a sensitive issue (e.g., domestic violence).
3. Identifying and responding to an inappropriate question.
4. Identifying and responding to a question that has been asked in a language that is not supported by the site.
5. Providing generic response for cases when the question is not detected

It is also possible to perform a more personalized search whereby the virtual assistant gives a more detailed response. To offer this option, the user must download a plug-in.

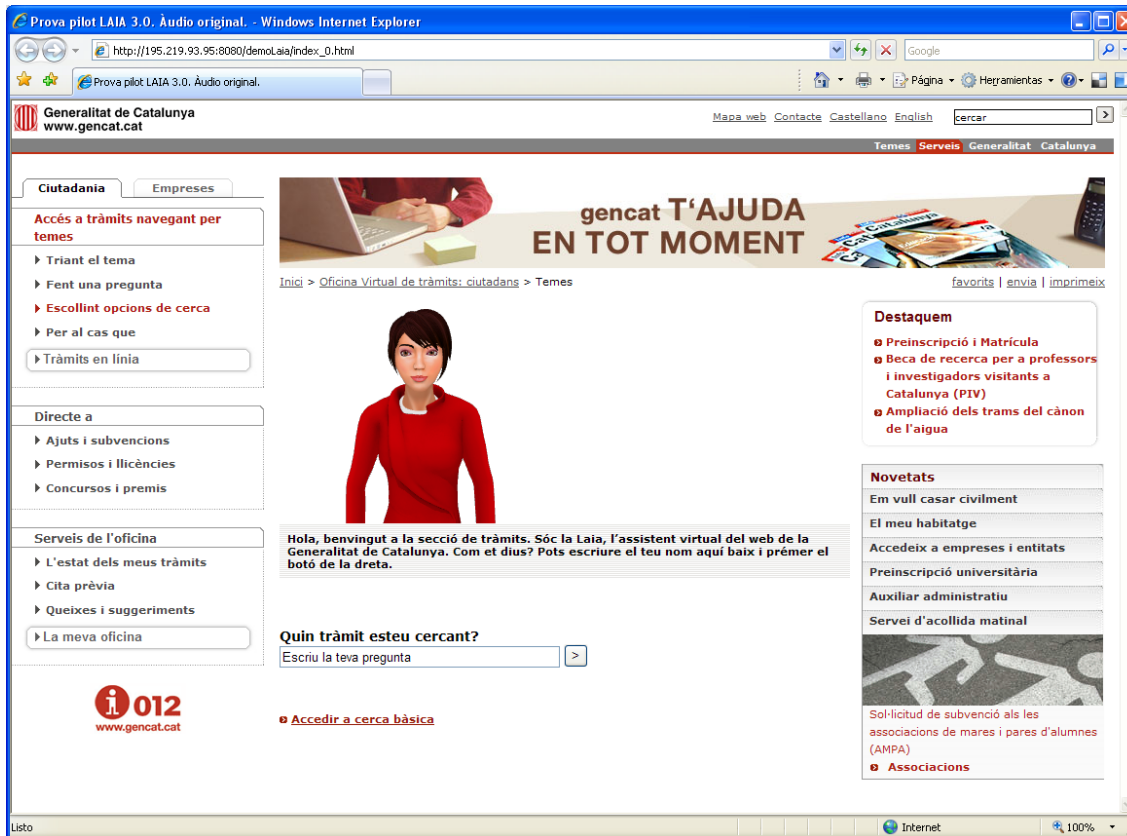


Figure 5: frame capture of the web page of Generalitat de Catalunya

TAVI: La volta al món

Creation of an iVAC virtual character for the game show “La volta al món” [“Around the World”] broadcast on the channel TVC Internacional, part of Televisió de Catalunya, S.A. With Tavi at the helm, as the first virtual television host, this program challenges viewers to visit, in less than one year, the 34 countries of the world that have Catalan communities.

This animated character joins in on each episode to rile and irritate the spectators, as well as ask the game shows’ questions, which is all done through a series of videos that get generated.

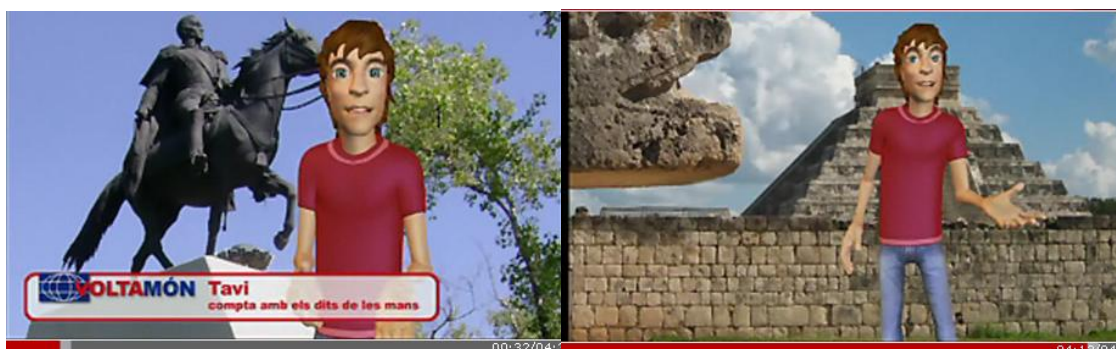


Figure 6: frame captures of Tavi on TV3CAT travel program “La volta al món”.

The program is also complemented by Web version, in which TAVI also interacts with the Web audience.



Figure 7: Screenshot of TVC-i travel program “La volta al món” website

3.2.3 Planned Future Commercialisation

The marketing done by AM for the results obtained through the SALERO project are currently in the planning stage. From the product marketing standpoint, solutions are being defined and packaged that could be easily absorbed by the market, while aiming to avoid investments in integration and adaptation to each case. From the commercial marketing standpoint, an orientation by target sectors is being contributed in which the proposed solutions fit into the customer's return on the product. There are plans to enter the TV sector (broadcast and IPTV) with video automation solutions, in which the format, production and quality of the videos are highly sensitive aspects. For the Internet sector, work is underway on solutions developed through the plug-in and those involving logic based on artificial intelligence and synthetic language. The wireless sector requires a combination of mass production, immediate response and user interactivity, and thus calls for the development of specific demand-response applications. AM is making adaptations to the plug-in so that it can provide a response in these media platforms and offering access to the package of tools and editors so that the operators can be autonomous and effective in implementing products that have a short, highly volatile life cycle.

In 2010, AM will add these products to its sales plans, setting objectives that are not so much quantitative but rather focused on strategic penetration in the prominent businesses of each sector that serve as a point of reference. That will allow for these products to gradually become widespread in each sector.

AM's planned marketing activities include participating as an exhibitor at the following trade shows:

EVENT 1:



BROADCAST

November 3-6 2009

IFEMA - Madrid (Spain)

<http://www.ifema.es/web/ferias/broadcast/default.html>

EVENT 2:



MWC – Mobile World Congress

February 15-18 2010

Fira Barcelona - Barcelona (Spain)

<http://www.mobileworldcongress.com/>

EVENT 3:



MAC 2010

May 26-27 2010

Roca Umbert Fàbrica de les Arts - Granollers (Spain)

<http://audiovisualmac.com/>

EVENT 4:



IBC 2010

Conference: September 9-13 2010 / Exhibition: September
10-14 2010

RAI Exhibition and Congress Centre - Amsterdam (Holland)

<http://www.ibc.org/>

3.3 Blitz Games Studios (BLITZ)

3.3.1 Product Innovation

Improved character animation techniques have supported the development of procedural or automatic generation of highly believable virtual characters, which can immediately 'morph' between old and young, different weights and ethnicities. The underpinning technology outputs to all today's major games consoles, XBOX 360, PlayStation 3 and Wii as well as PC and is unique in today's games creation tools.

The character creator toolset is supported by improvements in the production pipeline, which are being applied across all areas of game development. The visual game editing tools enable artists and designers to work directly in the engine without programming support. Artists and designers are able to realise and control their creative vision, leading to improved production quality. The technology includes reporting tools, which aids rapid debugging.

The distributed asset processing system cuts processing time from approximately 90 minutes per asset to less than 10 minutes. This is supporting designers to iterate level design far more than was previously possible, so improving the quality of game play.

3.3.2 Current Marketing and Commercialisation

Blitz's business strands are: commissioned games, generation of own IP games and licensing of the BlitzTech game engine and tools.

SALERO tools are in use throughout the Studio for commissioned and own IP commercial games production; the Character Creator, Distributed asset processing system and most of the visual editing tools have been integrated into the SDK, although they are undergoing constant refinement as the SDK is in constant development. The visual animation editing tool is currently being trialed in the development of an own IP game prototype.

The tools are showcased as part of business development to secure new commissions and to sell new licences for BlitzTech. Each video trailer for new games and credit screen for commissioned games includes an animated logo 'Powered by BlitzTech. Use of the animated logo is stipulated in contracts to ensure high visibility. BlitzTech was launched as a licensable product in 2009; in August 09 the UK's leading industry magazine placed BlitzTech among the top 5 games engines in the world.

One to one meetings with games publishers, other developers, film studios and TV companies are complemented by attendance at trade shows and events such as GDC, E3 or CES. The company also actively seeks speaking opportunities at high profile conferences such as Develop, GDC or Siggraph.

Blitz Games Studios' PR department secures interview opportunities and press coverage from TV and press, industry websites like IGN and magazines such as Edge, Develop and XBOX 360.

The studio's website www.blitzgamesstudios.com gives an overview of the studio and offers links to each division, including BlitzTech.

3.3.3 *Planned Future commercialisation*

All the SALERO tools, apart from the Character Creator, will be embedded within licensable versions of BlitzTech. The Studio will retain the Character Creator for its own use for the foreseeable future, both as a business development tool for commissioned games and for the development of own IP games. The rapid creation of a believable and diverse virtual population is already attracting attention from the health sector, which is interested in virtual patients and the resilience sector, which is interested in modelling realistic populations for rehearsing emergency scenarios. There is also emerging interest from architectural designers in real time visualisation.

Blitz Games Studios has established a leading position in the digital download market; efficient production pipelines and the reuse of assets and production techniques is increasingly important as these platforms are fragmented and the return on investment is currently slow to recoup.

3.4 *Dublin Institute of Technology (DIT)*

3.4.1 *Product Innovation*

The vowel stress tagging framework underpins several applications developed during the SALERO project:

- LinguaTag- an application to perform speech analysis
- CorpVis- an online visualisation tool for speech corpora
- Vowel Builder- an application using the tagging framework for character animation
- Vowel Player- an application for rendering interactive multilingual character animation online

In each case, no existing solution provides similar functionality and thus definite innovation is observed. The underlying vowel stress tagging framework is currently under patent application, with a view to leveraging the IP exploited by the applications mentioned above. In all cases, the DIT Technology Transfer Office is fully involved in discussions with future development partners and clients to maximise the potential of solutions developed within the SALERO project. At time of writing, the main focus of commercialisation activities are the Vowel Builder and Vowel Player tools:

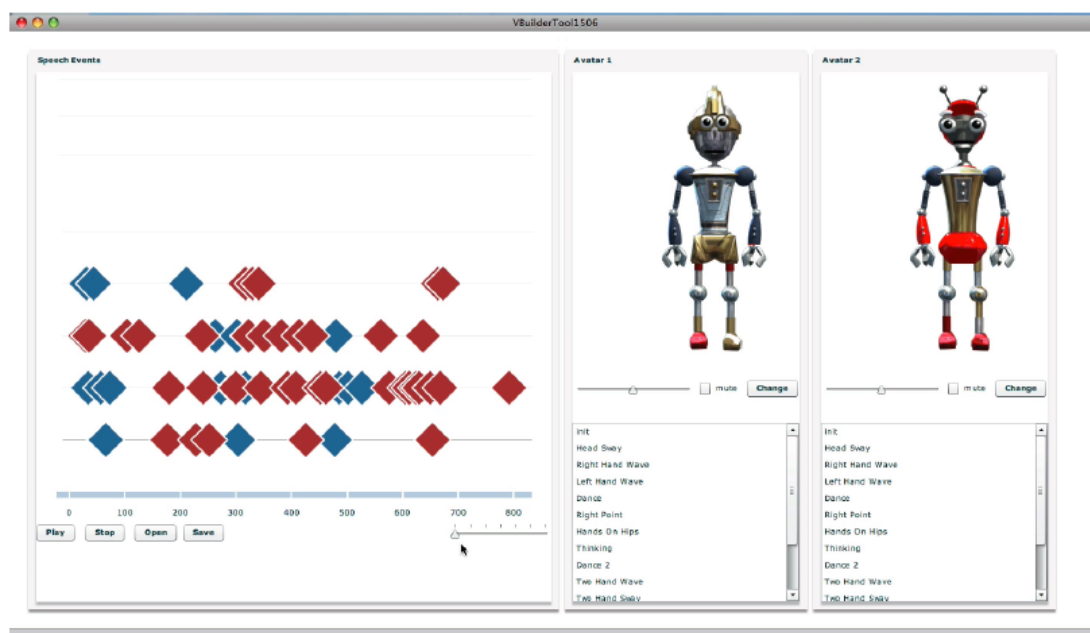


Figure 8: Screenshot of the Vowel Builder animation authoring tool.

3.4.2 Current marketing and Commercialisation

The Vowel Builder and Vowel Player applications are currently in beta trial with several companies at both national and international level. Within SALERO, PGP are currently looking at the potential of the applications for use in their “Tiny Planets’ website. Discussions are ongoing with several Irish animation houses, and demonstrations have been given of the technology on a regular basis.

3.4.3 Planned Future Commercialisation

The Vowel Builder application is currently being developed as a plugin for Autodesk 3DSMax and Maya, to implement the vowel stress tagging framework in industry standard commercial 3D rendering engines. This plug-in will then be available for beta testing by SALERO partners, and subsequently showcased to other potential partners within the animation space. Commercialisation activities are also considering the possibility of a spin-out company focussing on reusable animation tools, in conjunction with Enterprise Ireland.

3.5 Digital Film Technology (DFT)

3.5.1 Product Innovation

Bones Dailies is a software product that manages the entire Dailies process for film and digital productions, enabling faster Dailies turnaround times. Bones Dailies provides a template driven process for image and audio ingest, as well as payout.

Bones Dailies is able to record logarithmic HD or 2K RGB 10-bit 4:4:4 images directly to standard file systems, local storage or storage area networks (SANs). In addition the systems supports ingest of compressed image formats such as the RED ONE format which has been finalized in 2008. For file based production environments formats like MPEG1, MPEG2, MPEG4, QuickTime, AVI, Chaptered DVDs and others can be generated.

Once on the SAN the images can be graded in a non-linear fashion, saving time and providing more creative freedom. Batch processing allows multiple shots to receive the same grade much faster than real time. Because all Bones software applications can operate on the same platform, different processes — such as image ingest, audio ingest, synchronization, grading, dust busting and scratch removal - can take place in parallel, again saving time and ensuring the best creative result. This allows

companies who have invested in digital intermediate technologies to maximize their return on investment by getting projects completed faster, more accurately, and much more efficiently.

Automatic audio and image slate detection and other helpful tools speed up the sync process significantly. A powerful GPU-based real-time colour grading function supporting the colour decision lists defined by the 'American Society of Cinematographers' ensures that the time spend in grading the dailies is not lost afterwards but can be reused on any other colour corrector supporting this format.

Integrated peak meter, waveform monitor, and vector scope offer full signal monitoring throughout the process.

3.5.2 Current Marketing and Commercialisation

DFT Digital Film Technology is a provider of different high-end film and digital post production solutions that preserve, manage, and deliver images. DFT will commercialize the Bones Dailies system through its sales channels.

Preliminary versions of the system have already been installed in some major post production facilities through the world. Among the early adopters of the system are well known names such as Technicolor in USA, Cutting Edge in Australia and Waterfront in South Africa.

In order to get attention by the relative small potential customer base workshops have been organized enabling operators to get an overview of the functionality in 'hands on' sessions. These workshops have been held in Europe (Paris, Amsterdam in June 2009) as well as in the United States.

DFT participates in all major tradeshows dealing with media production and post production such as:

- NAB (Las Vegas)
- IBC (Amsterdam)
- IBEE (Tokyo)
- Broadcast Asia (Singapore)

New features of the Bones Dailies are updated regularly on the DFT web pages: <http://www.dft-film.com/>

3.5.3 Planned Future Commercialisation

DFT released a new version of Bones Dailies at IBC in September 2009. For this version an upgrade path with an enhanced feature has been defined. This feature set will target in addition to the 'dailies' application the more general so called 'digital intermediate' applications.

It is assumed that electronic capturing using proprietary file formats will increase also in the high end market. In order to make Bones Dailies a commercial success these file formats will be implemented as soon as they become available to allow early adoptors to use the Bones Dailies platform for new technologies.

DFT is also producing and selling hardware based image processing solutions. DFT will reuse software algorithms invented in the SALERO project and will replace hardware based image processing solutions with software solutions. This will enable DFT to offer more cost effective solutions to customers in the high end post production industry

DFT will market the Bones Dailies system through its own sales offices in Germany, USA, Thailand, UK, France and Australia and worldwide acting retailers.

3.6 DTS Licensing Ltd (DLLNI)

3.6.1 Product Innovation

The scalable audio codec partly developed within SALERO represents a step forward to offer new services and better user experiences in a world of increasing mobility and connectivity. Often, the network and connectivity is based on wireless technologies. Currently, user experience of media access, for example server-based audio listening through wireless, frequently is not a continuous and glitch-free one, and be that in a home wireless network environment or in a travelling automobile. Interruptions occur and services become unavailable due to fluctuations in data bandwidth. With the new codec, the

designed scalability embedded in the generated data streams helps to greatly alleviate or even eliminate such problems so that continuous services can be offered. Other innovative features include enhanced channel error tolerance, bandwidth flexibility that enables Fit-To-Stream and Fit-To-Media services, and also improved audio quality at low bit rate range.

To further enhance user experience on 2-channel play-back systems (e.g. headphones, and stereo speaker system), a multi-channel sound virtualisation is also developed. It employs the latest research results to bring a new level of 3D realism, voice clarity and improved bass effects, not only for media entertainment experiences but also possibly for communication when used with the low bit rate scalable audio codec.

3.6.2 Current Marketing and Commercialisation

Related to DTS work within SALERO, commercialization activities include those in the following two main areas: design and implementation of application prototypes or products, and demonstration and support to our licensees in their product designs. It has been the case for both the scalable codec and the virtualization work.

After the successful launch and roll-out of “DTS Surround Sensation”™ technology and products in 2008, the main marketing activities relating to virtual surround technology include demonstrations at major international trade shows and to individual key clients worldwide. In February, Intel and DTS signed an agreement to include DTS’s Premium Suite in Intel’s processors for laptop and notebook applications. The Premium Suite was later showed-case in April 2009 at the Intel Developer Forum (IDF) in Beijing, China.

http://www.dts.com/Corporate/Press_Room/Press_Releases/2009/04/DTS_PREMIUM_SUIT_DEBUT_S_AT_Intel_Developer_Forum_IDF_2009_Beijing.aspx

In addition to on-going standardization work to get DTS technologies into audio standards, huge effort was spent on proposing the Scalable Audio Codec related technology into the ATSC mobile and hand-held audio standard, but was unsuccessful in this instance.

DTS regularly participates in major shows to raise market awareness of its products/technologies. The following is a non exhaustive list in which DTS exhibited/will exhibit in 2009:

- CES 2009 (Las Vegas, 01/2009)
- NAB 2009 (Las Vegas, 04/2009)
- IDF (Beijing, 04/2009)
- AES-126 (Munich, 05/2009)
- IBC 2009 (Amsterdam, 09/2009)
- IDF (San Francisco, 09/2009)
- CEATEC 2009 (Makuhari, 10/2009)
- KES 2009 (Seoul, 10/2009)

3.6.3 Planned Future Commercialisation

In 2010, DTS will continue its marketing activities in maintaining consistent presence, exhibiting and organizing seminars at major international shows, as well as demonstrating existing/new audio technologies to key clients worldwide. Involvement with standards organizations such as ATSC, Open IPTV Forum, Blu-ray and other optical standards will continue to seek out new business opportunities.

Technology enhancements are being made to the surround virtualization suite to expand its portfolio for the PC/laptop market and beyond. Test applications will be created for the Scalable Codec, targeting mobile devices in particular, to evaluate market potential and demand for the scalable aspect of this technology.

3.7 Fundació Barcelona Media – Universitat Pompeu Fabra (FBM-UPF)

3.7.1 Product Innovation

FBM-UPF has developed two main research line within the SALERO project that are suitable for commercialisation. The first line concerns virtual character animation, and the second concerns automatic programme generation.

For virtual character animation, FBM-UPF has developed several tools that facilitate the animation of simple virtual characters. The main focus of these tools has been facial animation (see D7.3.2) , with the Activation/Evaluation wheel and Maskle plugin used both directly and indirectly by several of the production partners.

For automatic programme generation FBM-UPF has developed a suite of tools that allow the complete automation of simple animated programmes using external data. The innovation of the product is such that, in a paper to be presented at the ACM Advances in Computer Entertainment and Technology conference in Athens, October 2009, one of the paper reviewers commented that they had “seen nothing like it anywhere in the world”.

3.7.2 Current marketing and Commercialisation

As a mainly academic partner, the majority of FBM-UPFs commercialisation is usually expressed through partnerships with commercial companies, who then make use of the technology either as a product or as a promotional tool. An historical aspect of this is FBM-UPFs partnership with Activa Multimedia, which resulted in the latter using a very early version of the Programme Generation tools to create ‘Meteo Sam’¹, the “worlds first online weather presenter”. This collaboration has extended within the SALERO project (with the development of AM 3rd experimental production, iVJ) and also as contracts developed as a direct result of SALERO research, on work relating to character animation and locomotion.

FBM-UPF has attended the majority of the SALERO User Group meetings that have provided several contacts within the industry. In particular, at the most recent meeting in Annecy, much interest was shown in the facial animation by companies such as Inition, London², and Edda Design, Barcelona³.

FBM-UPF also attended almost every day of the IBC trade show in Amsterdam, 2009, where the programme generation technology in particular was the subject of much interest from visitors to the SALERO stand.

FBM-UPF is (and has been) also actively publishing material in scientific conferences and journals, a list of which can be found in the SALERO publications page.

3.7.3 Planned Future Commercialisation

FBM-UPF is already negotiating a contract with a private institute within the sporting sector, based in Barcelona, to develop an automated news-reader for an upcoming sporting event. It is hoped that it will be possible to report the details of this contract before the end of the project.

FBM-UPF is also investigating the possibility of working with a large television company in Barcelona with the goal of developing an automated presented for football highlights.

Finally FBM-UPF hopes to continue its partnership with Activa Multimedia beyond the end of the SALERO project, working together to create better and improve tools for character animation and programme generation.

¹ <http://www.meteosam.com>

² <http://www.inition.co.uk>

³ <http://www.eddadesign.com>

3.8 JOANNEUM RESEARCH Forschungsgesellschaft mbH (JRS)

3.8.1 Product Innovation

In the SALERO project JRS has developed two innovative tools:

- the Semantic Annotation Tool in collaboration with LFUI
- the Visual Detection of Clapperboards in image sequences

The Semantic Annotation Tool builds upon software developed by LFUI and supports the annotation of multimedia object with semantic statements based on ontologies, an improvement compared to usually used free-text annotations or tagging. Statements describe image content by defining relations between objects, expressions, locations etc. (e.g. “Bing is related to Book and reading”, “or Bong is related to smiling”). Also workflow relationships between assets can be modelled (one asset is a new version of another). The asset repository can be searched and combined with UG’s content based search.

Detection of Clapperboards in video and audio is necessary to synchronise image and sound recordings in film production. DFT’s Bones Dailies system already supports detection of clapperboards in audio. Detection in images is currently done manually. Using JRS’s tool will be an improvement to post-production workflow automation.

3.8.2 Current Marketing and Commercialisation

JOANNEUM RESEARCH (JRS) is a non-profit technology centre, located in Graz, Austria, concentrating on applied R&D with a highly qualified staff of more than 360 people. The centre implements its know-how in all sectors of technology transfer and innovation. Its services include specifically-g geared development tasks for small- and medium-sized companies, complex interdisciplinary national and international research assignments as well as tailored techno-economic consulting. The Institute of Information Systems and Information Management is the central part of the information technology division. It concentrates on the combination of classical information systems with visualisation, digital media and communication technologies, thus developing leading-edge applications at an international level within its two research areas of Web information systems and digital media.

JRS has so far presented the Semantic Annotation Tool at multiple conferences and the IBC 2009 exhibition in Amsterdam.

3.8.3 Planned Future Commercialisation

JRS is a public non-profit organization. It therefore has a special role in the exploitation of project results. Concretely JRS is responsible for the development of the following components: Semantic Annotation Tool and the Visual Detector of Clapperboards.

Components and modules developed by JRS will be based on open standards in order to facilitate the integration into possible products of project partners. 50% of the SALERO budget is JRS’ own investment. Therefore JRS’ goal for the exploitation of the project results is a certain ROI which JRS wants to recover by using one of or a combination of several of the following business models:

Business Model 1: Development of complete products together with partners

In this model, complete products are being developed together with one or more project partners. JRS expects a license fee from the partner(s) as a return for granting the right to use and exploit the software developed by JRS in products which are being brought to the market by the partner(s). For software components and ontologies developed by JRS that get integrated into common products sold by partners one of two licensing models applies:

- License fee per sold copy
- General license fee per partner

Business Model 2: Development of tools which get integrated into partner’s products

For tools developed by JRS that get integrated into partner’s products the same two licensing models apply as for BM1.

Business Model 3: Responsibility for further development

In this case, JRS does further development on behalf of partner(s) on those software components originally developed by JRS and used by partner(s). Partner(s) can order these development works offered by JRS under favourable conditions which will be fixed together with the respective license model according to BM1 or BM2.

Business Model 4: Maintenance contract

JRS offers software maintenance including bug fixes, improvements, updates and support on software components originally developed by JRS and used by partner(s). Support is usually limited to second-level support (e.g. no direct end-user on-site or phone support). Conditions including payment under which this maintenance work is carried out have to be regulated in a separate maintenance contract.

Further Exploitation

JRS will also exploit the project's results for its future R&D activities. The enhanced know-how will enable JRS to acquire further industrial relevant projects and it is also open to extend its involvement in related projects with all partners in the project. Although not authorized to product development on its own, JRS will encourage project partners as well as other industrial contacts to further develop results of the project from prototype to industrial applications.

Finally, as an applied R&D institution, JRS influences the market by proactively disseminating information, giving support and acting as a consultant in its role as a technology transfer hub.

3.9 STI Innsbruck (LFUI)

3.9.1 Product Innovation

In the course of SALERO, LFUI enlarged its engagement in the field of the combination of Semantic Web and multimedia technologies with the goal to ease management of digital resources.

LFUI plans to extend its engagement in this area into a number of directions. More specifically LFUI started to explore the application of the so-called Linked Data principles which are a means to integrate content on the Web on the data level, in the context of multimedia. For this movement, the term "Interlinking Multimedia" has been coined and LFUI already contributed to early papers exploring this field.

Furthermore LFUI continues its engagement in the World Wide Web consortium (W3C) in which it currently contributes to the Media Annotation working group that defines an ontology for the description of media resources on the Web.

3.9.2 Planned Future Commercialisation

LFUI follows a two-fold strategy to exploit the results of the project. As an academic partner it does not directly plan to commercialize the results of the SALERO project. Thus the software underlying its development in SALERO is released as open source and external libraries are included via Web services in order not to harm any existing licensing conditions.

A second part of the exploitation strategy is to bring existing expertise to the market and into new products via its spin-off strategy.

3.10 Music Technology Group – Universitat Pompeu Fabra (MTG-UPF)

3.10.1 Product Innovation

The Audio Transformation tools developed by the Music Technology Group include a set of tools for voice character manipulation and music transformation including pitch transposition and tempo analysis and transformation.

The Voice Transformation technology provides a flexible singing and speech voice manipulation using spectral techniques for modifying the character of the voice. Available transformations include: transposition, quantization, vibrato, roughness, breathiness, whisper, timbre mapping and other spectral transformations. Based on these low level transformations, high level transformations like gender change, age change or robotizer can be achieved combining the low level parameters. This technology,

implemented either as a VST plug-in or as a library with an API or as a web-service client server application is targeted to recording or post-production studios that require voice processing as well as real-time interactive installations. The technology improves quality over existing commercial products (MorphVox Pro, TC Helicon Voice Pro), giving a more flexible, parameterized and high quality voice transformation possibilities.

The Music transformation technologies include a high quality pitch transposition and time stretching for music that allows changing the tonality of a song and increase or decrease the tempo maintaining the timbre characteristics of the instruments in the song. This allows for instance transposing a song several semitones down in a karaoke application to allow the singer to reach high pitched notes originally sang by a female singer when being sung by a male singer or play the song faster or slower so the user feels more comfortable. Other applications would include matching tonality and tempo between different songs in a dj mixing environment or changing the mood of certain music to better adapt to a film scene or videogame section. The technology improves quality over many existing commercial products that include these features (Adobe audition, Soundbooth) providing resulting audio with fewer artefacts.

3.10.2 Current Marketing and Commercialisation

The Music Technology Group licenses the audio transformation technologies through its spin-off company BMAT (Barcelona Music & Audio Technologies – www.bmat.com) and also develops real-time installations for museums based on the voice transformation technology.

Some products in the market include the MTG's audio transformation technologies:

- Bodibeat (Tempo analysis & transformation) (<http://www.yamaha.com/bodibeat/>)
- Loopmash (Tempo & Pitch analysis & transformation)
- (www.steinberg.net/en/products/musicproduction/cubase5_product/cubase5_newfeatures/cubase5_newfeatures_1.html)

Some interactive installations based on the Voice Transformation technology are present in several museums and exhibitions:

- “The Voice Kaleidoscope” (Cosmocaixa Madrid museum, SPAIN)
- “La Meva Veu Fa Ones” (Cosmocaixa Barcelona museum, SPAIN)
- “The Neanderthal Voice” (Erase una vez, el habla! Exhibition, Gijón, SPAIN)

3.10.3 Planned Future Commercialisation

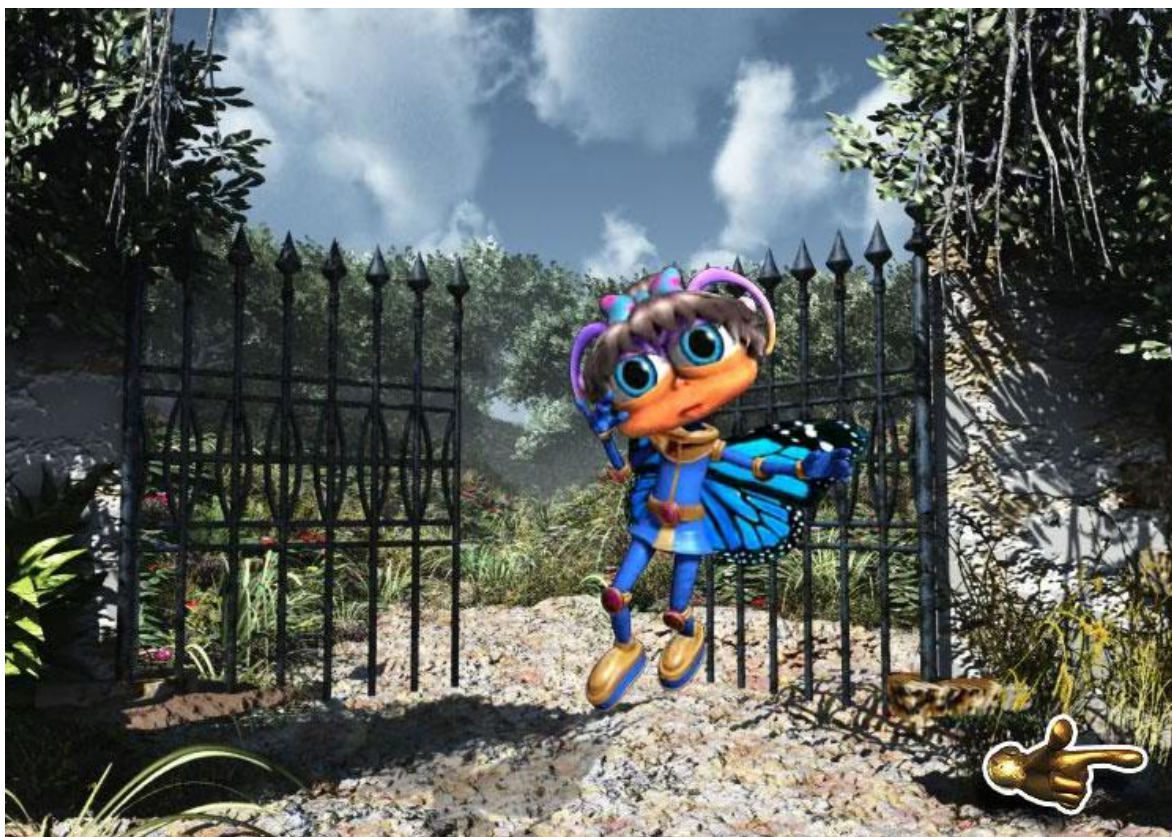
MTG's plans for the future include contacting with interested companies from the audiovisual sector in order to license the audio transformation technologies for being used in several fields like, film post-production, video games, music post-production, and interactive installations. Also the relationship with museums is still alive, so new applications will be expected for the near future.

The technologies can still be improved and that's the case in order to attract more possible clients in the future. The marketing group of BMAT (the spin-off company from the MTG), now opening offices in San Francisco, is in charge of licensing the technologies and contacting companies interested in our technologies.

3.11 Pepper's Ghost Productions (PGP)

3.11.1 Product Innovation

My Tiny Planets is a web browser based virtual adventure world currently in its first stage of user testing. Introducing user customisable video content (in the form of user selected branching video sequences) is a planned innovation for late 2010; this will require both engineering and artwork development and result in a fairly substantial number of new assets being generated by scripting processes.



3.11.2 Current Commercialisation and Marketing

PGP has begun commercialisation of My Tiny Planets with first stage user testing and analysis of conversion statistics for the first six months of this stage of operation. In the first instance the number of users reaching the site, creating accounts, returning once having played, creating paying accounts, maintaining paying accounts and inviting friends is measured. These 'funnels' are correlated to the marketing spend via various channels; from on-line advertising media and over time from television as well (recent discussions with other properties in this space, most specifically 'Mochi Monsters' has revealed that at the moment cable advertising represents surprising value for money given the excess of inventory and the specificity of channels; Mochi's experience with a sub-£10,000 campaign of 10 second slots run over a four day period was that they'd recouped their investment by the end of day 2.

The three sets of information needed to actively progress a higher value marketing campaign relate to product, virality and conversion ratios. In the first instance it is necessary to ensure that players are not only entering but staying with the game for useful periods of time. It should be noted that this is not a 'world of warcraft' scenario where it is expected that players will spend hundreds of Euros per year on subscription and virtual goods; the cost of development versus the expected returns represent very attractive ratios, but realistically they cannot compare to the 40-60 million Euro investment to billion Euro turnover ratios of large scale virtual worlds. Nevertheless, browser based virtual worlds are rapidly becoming attractive properties with established business models. Thus, the value of the 'game' becomes as much to do with its virality and the value of the virtual goods which it delivers.

Virality is defined as the ratio of users who invite friends at any point in their virtual world experience, and the ratio of those invites which are converted to paying members. In this case there is something of a legal minefield which is slowly being defused; even during the course of MTP's development advice from (very expensive) lawyers has changed substantially and thus greater flexibility in viral sign-up mechanisms (with the usual protections of personally identifiable information in place) is possible. Virality is obviously important because it brings down the cost-per-acquisition value.

Conversion ratios need to be measured at every step in the process; advertising from three separate providers (a search engine, a social networking site, a games network) might (do) produce very different responses. While the initial click-through rate of a search engine may result in higher page-views per ad-Euro spent, the rate at which users from a social network create accounts will probably be higher and

the number of paying accounts produced by ads on a gaming network or portal might be the highest of all. Thus, although overall page views may be high in the first instance actual value is highest in the last.

3.11.3 *Planned Future commercialisation*

PGP is currently: re-coding sections of the site to take advantage of recent technology developments, employing a games designer to develop the over-arching activities on the site, continually testing conversion ratios and preparing for an extensive marketing campaign commencing Q2 2010. Our test during this year lead us to believe that with some specific changes to content (and including incorporating SALERO-produced content) and carefully targeted marketing My Tiny Planets can be a self-sustaining business with attractive growth potential by end of Q1 2011.

3.12 University of Art and Design Helsinki (TAIK)

3.12.1 *Product Innovation*

As an academic partner focusing on practice-based research, TAIK utilized SALERO product innovations in its Third Phase Experimental Production *Turing Machine*. The *Turing Machine* Cross Media Experimental Production investigates associational storytelling and interaction structures, while making the patterns of human-machine communication more visible. *Turing Machine* is made up of the physical space installation *Alan01*, *Turing Impact* digital High Definition short films and the URL online service *Alan Online*, that combines the productions and reuses their media assets. All three productions can be found at <http://mlab.taik.fi/alanonline/>.

SALERO tools were integrated into the production of *Turing Machine*:

- Animations were created using Facial Animation Toolset
- Aspect Browser is used to retrieve a symbol from a pre-selected set of fifty
- The voice of *Alan Turing* was created using Text-to-Speech synthesis
- The voice was manipulated using Voice Transformation
- Sounds in *Alan Online* were manipulated using Surround Sound Virtualization
- Bones Dailies was used as primary colour correction tool, media server (SAN) and ingest / output platform in the production of *Turing Impact* HD short films.

3.12.2 *Current Marketing and Commercialisation*

The *Alan01* installation of the *Turing Machine* Cross Media Production was open for public June 5-18 & August 17 - September 9, 2009, between 9:00-17:00 at *Media Centre Lume*. The installation has been presented to several Finnish and international media professionals and curators visiting TAIK and Media Centre Lume. A workstation displaying *Alan Online* was exhibited in connection with the installation, allowing the audience to interact with the online version as well as the physical installation. *Alan01* and *Alan Online* were exhibited in LUME concurrently with the IST-co-funded P2P-FUSION project's final main event that in turn brought additional international experts to LUME. Also numerous old and new TAIK students and staff, as well as visiting lecturers and guest, have been able to familiarize themselves with the production.

A brochure for the project was designed and printed for the *Alan01* installation exhibition, and together with a press release, distributed by the TAIK information department to TAIK, LUME and Aalto University networks, and to cultural and media professionals in Finland. The brochure has also been handed to peers at academic conferences, meetings and trade shows, such as *ISEA 2009* in Belfast Ireland and *IBC2009* in Amsterdam, the Netherlands.

Mika Tuomola was keynote speaker at ISEA2009, with the presentation *Dialogue between generations – Accidental Lovers & Alan Turing*. Other presentations that *Turing Machine* was featured in are listed in Annex II.

The *Turing Impact* HD films were screened in a public screening at Media Centre Lume's Sampo Cinema on 8 May 2009. MPEG versions of the films were incorporated onto the Alan Online website <http://mlab.taik.fi/alanonline>. TAIK subsequently produced a *Making-of-Turing Machine* movie (6

minutes), demonstrating the entire TAIK Third Phase Experimental Production *Turing Machine*. This *Making-of-Turing Machine* was presented in HDV quality at the SALERO booth at IBC 2009, 11-15 September 2009. It was also presented in Mika Tuomola's Key Note speech at the ISEA 2009 conference in Belfast, in September 2009. A DVD titled "Turing Machine Cross Media Quintet" has also been produced by TAIK. This includes examples from both TAIK's 2nd and 3rd Experimental Productions.

On 11 May 2009 the live culture talk show *Voimala* was broadcast on YLE 1 (Finnish Broadcasting Company, Channel 1). TAIK Crucible Studio's artistic director Mika Tuomola was interviewed in this show, during which he presented the *Turing Machine Cross Media Production*. Clips of *Turing Impact* movies were also broadcast during the interview.

Among printed media, a major presence was given to TAIK's EP, when the new Finnish art journal *Taide & Design* magazine, Issue no 1, published in Finland on 26 May 2005 featured an Mika Tuomola's article related to *Turing Machine*. Illustrations for the article were created by the Alan01 lead designer Jaakko Pesonen. The upcoming Alan01/ Alan Online exhibition at Lume was promoted in connection with this article. The *Arttu* art magazine May 2009 issue also published a short illustrated article and information on the project and the exhibition.

The Alan01 installation was promoted in the *Helsingin Sanomat* (Helsinki daily newspaper) *Minne Mennä* cultural calendar — in the *Helsingin Sanomat*'s printed weekend Magazine *NYT-liite* and on-line on www.hs.fi — immediately prior to and during the exhibition weeks. *Turing Machine* was also featured on the TAIK Media Lab's website frontpage <http://mlab.taik.fi> and Crucible Studio's website <http://crucible.lume.fi>. Additionally, the *Media Factory of Aalto University* commissioned a short presentation video of the Alan01 installation from one of the TAIK students, which was displayed online on the Media Factory's website www.aaltomediafactory.fi.

TAIK has participated in User Group events organized as part of SALERO. These have allowed for TAIK to create new contacts with academic and industry representatives internationally. Especially the recent IBC 2009 Exhibition at the RAI conference Centre in Amsterdam (11-15.9.2009) proved to be a useful platform for disseminating the results and experiences of the TAIK Third Experimental Production.

3.12.3 Planned Future Commercialisation

A full paper on the *Turing Machine Cross Media Production* and its use of the Context Based Search and Retrieval (Aspect Browser), developed within SALERO by UG, has been accepted to the Interactive Art Category of the ACM International Conference on Multimedia 2009, held in Beijing in October 2009. TAIK's Mika Tuomola and Teemu Korpilahti will be presenting the paper, together with Joemon Josá from UG. The *Making-of-Turing Machine* High Definition Video of the production will also be presented at the ACMM 2009 Conference.

Further future conference/ seminar presentations are listed in the Annex. Further dissemination and marketing will be done in regular TAIK events, such as the next MediaLab Demo Day on 17 December 2009. TAIK will also in the near future be distributing the *Turing Machine Quintet* DVD at conferences and other potential dissemination events, together with the Alan01/ Alan Online brochure, in order to promote the production's possibilities to tour internationally. Additionally, another article on the Turing Machine project will forthcoming in the next issue of *Taide & Design* magazine in autumn 2009.

Encouraged by the evaluation results of *Turing Machine*, TAIK has decided to do research and development on the Alan01 installation. Applications have been made to Finnish national funding bodies, in order to support this research. The aim is to create a second version of the Alan01 installation in spring 2010, and to propose it to Prix Ars Electronica 2010. Ars Electronica is one of the most feasible events for marketing the production.

3.13 University of Glasgow (UG)

3.13.1 Product Innovation

Over the course of the SALERO project, UG has created a novel image and video retrieval system (the AspectBrowser) which is composed of a backend retrieval system, which carries out content-based searches, and an interface for end-user usage. The backend retrieval system is used by a number of researchers at Glasgow University, providing the search functionality for various interfaces designed by members of the group (including [1,2,3,4,5]). One important user of this system is TAIK, as part of the

AlanOnline system [6]. This system is under constant development, and will continue to be developed after the end of the SALERO project.

The Interface component of the AspectBrowser system is based on the work reported at the Annual International ACM SIGIR Conference on Research and Development in Information Retrieval, Boston [1]. A screenshot of the interface is shown in Figure 1. This interface is also the subject of continued development.

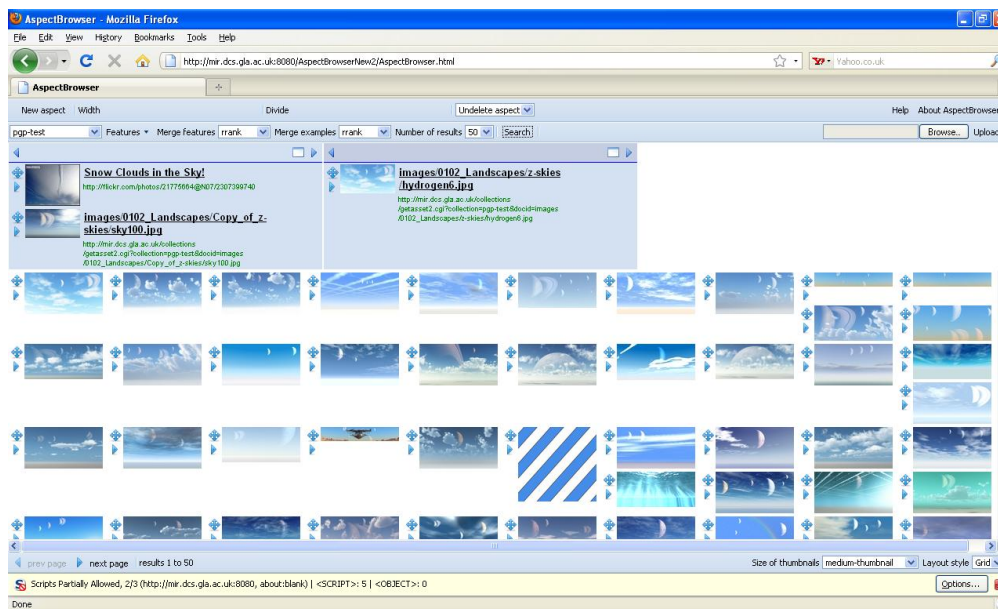


Figure 9: Screenshot of the AspectBrowser interface

3.13.2 Current marketing and Commercialisation

The University of Glasgow is an academic partner in the SALERO project and as such, the marketing and commercialisation activities of UG mainly revolve around the publication and dissemination of articles at international conferences, such as SIGIR, ACM Multimedia, and the International Conference on Multimedia Modeling. Additionally, other venues for the dissemination of the tools have and will be taken up as and when available, one example of which was the presentation of the SALERO search system and interfaces at the “lifting the lid” event, organised by the University of Edinburgh (November 2008), a forum for technology transfer between research and industry.

3.13.3 Planned Future Commercialisation

Currently, two main directions for future commercialisation are being investigated: the creation of a future research project investigating the use of collaboration in search, which is partly an extension of the work reported in [2], and secondly, further development of the AspectBrowser content-based search system. With four years of research and development effort, the AspectBrowser system allows the searching of multiple different image and video collections, and via the interface provides a novel interface tailored to complex and broad search tasks. The continued internal, and potentially external, development of this system is currently being investigated.

3.14 Universitat Ramon Llull (URL)

3.14.1 Product Innovation

LaSalle-URL tools developed within SALERO are mainly based on the reduction of costs on creating a new synthetic voice for any Text-To-Speech synthesis whether is Domain-Specific or General Purpose system. These tools are being developed along the Core System of the URL synthesis engine.

The main value-added feature of LaSalle-URL TTS is the possibility to work with the animated audiovisual productions time line being able to parse tagged information, to synthesize the desired speech with the appropriate constraints and to provide time referenced output regarding

parameterization about event and lip synchronization. The appropriate input constraints for the synthesis may be any prosodic requirement as intonation, speed of delivery or intensity (stress) of the speech. Some examples of the mentioned prosodic and additional information may be: phoneme identification, pauses, spectral information or describing information. It has to be noted that the whole set can be time referenced at any time within the output files.

In order to improve the reusability of the different modules of the system, the voices or the dictionaries, a search of a standard for synthesis was carried out with unsuccessful efforts; only SSML is being considered by the W3C consortium and it is in an earlier stage of development not satisfying corpus tagging (dictionaries and phone sets) requirements.

MPEG-7 was also tackled to represent the corpus information; the problem came out when there was not any way to store the low-level information hierarchically. This set of low-level information is composed of: fundamental frequency, power and duration on the centre and boundaries of the phoneme as well as its Mel-frequency cepstrum values.

However, Festival Speech System (IST-1999-10982, IST-1999-29078, IST-2001-32311) provides a widely common used system and information representation (based on the concept of Utterance) that although has not been standardized, it is a benchmark of reference on the synthesis field of research. Consequently URL-TTS system has been expanded to Festival link-interface. For that reason, if any festival component as *Unit-Selection*, *Letter to sound conversion* or *Clustering* is desired to be used on our system, it may be used without a high-load portability effort.

In order to evaluate TTS system with a large database, we have worked with a synthesis corpus used in different Blizzard Challenges addressed to evaluate TTS systems. We have been able to test the TTS enhancements using it, and open domain English synthesis quality was improved.

Recently La Salle-URL is focusing its efforts on these directions:

- Improve its prosodic feature module (based on Case-Based Reasoning)
- Improve the Unit Selection on Concatenative Synthesis System.
- Improve the prosodic modification of the selected units based on PSOLA (Harmonic Plus Noise model is still on prototyping)
- Standardized and synchronized output for being used on multimedia production.
- Application of voice quality is expressive speech synthesis.

3.14.2 Current Marketing and Commercialisation

URL has updated its web to show different approaches to speech synthesis. When the speech synthesis is restricted to a set of components, it reaches high quality but lacks of flexibility. In the web there is a list of samples to illustrate a variety of domain flexibilities, from most restricted domain to most open domain: <http://multimodal.salle.url.edu/soapweb/index.php?file=tts>

Moreover, http://multimodal.salle.url.edu/tts_prototype/ the synthesiser can be tested in this web introducing any a text. The utterance is synthesised from different English and Spanish voices, some of them created along with other SALERO partners (AM and PGP): <http://multimodal.salle.url.edu/soapweb/index.php?file=demo>

It has to be added that beyond the Web page offering the service, it also admits batch processes scripted on a SSML file being able in this sense to synthesize dialogs, different wav files, emotions, languages and more. As a last point but not the least, the TTS Service is deployed as a Web-Server based application through SOAP-WSDL interface being able to receive queries from other computers at source-code application layers (C++ / Java / PHP / Python...)

URL participated in IBC2009 held in Amsterdam, where the speech synthesis system was presented. In addition, URL participated in INTERSPEECH 2009 Emotion Challenge (<http://emotion-research.net/sigs/speech-sig/emotion-challenge>) to assess the classification algorithms and parameters used in analysis and synthesis of expressive speech: <http://ijth2008.ehu.es/en/albayzin.html> http://www.synsig.org/index.php/Blizzard_Challenge

3.14.3 Planned Future Commercialisation

URL has participated in the past 4th Annecy User Group meeting. Some companies were interested in our speech synthesis system. First contacts have been carried out in order to study possible collaborations.

Inside SALERO, URL is interested in continuing the collaboration with AM, PGP and TaiK to incorporate our speech synthesis in some of their products.

SALERO URL people are members of The Speech Technologies Thematic Network ("Red Temática en Tecnologías del Habla") that looks to obtain investments from enterprises for Speech Technology research, looking for new applications that can bring business opportunities. The developed demonstrators can attract enterprises' interest.

4 Conclusion

Significant progress has been made towards the project's underlying objectives in creating tools to support the automated creation of intelligent media objects and this report demonstrates that these applications are of real commercial interest to the European digital media sector.

With several tools already in commercial use, patents pending and applied for and the discussions around spin out companies to commercialise academic research. SALERO is supporting the economic development of a sector that is increasingly important to the EU.

This commercial take up demonstrates that in some areas of media production, where traditional techniques have been applied to new delivery mechanisms, e.g. TV or film to web, there is good potential for interoperability of tools. In other areas, where commercial models are centred on exploitation of proprietary software, e.g. video games, the issue of technical interoperability is more difficult. However even in this area there is potential for re-use of assets in different formats for new media platforms, such as mobile or web.

Standardisation is still to be fully explored; even in the audio field, which is perhaps the most advanced in this area, partners are developing new thinking.

This document offers a potential starting point for further development of exploitation plans, for each partner and for many of the partners who wish to continue working together.

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6 Annexes

6.1 Annex I



BONES DAILIES SYSTEM BEING USED ON 'WOLVERINE'

SYDNEY, AUSTRALIA - Cutting Edge (www.cuttingedge.com.au) is providing quality dailies for the upcoming 20th Century Fox feature *Wolverine*. The film is being shot in Australia, and Cutting Edge is using the Thomson Grass Valley Bones Dailies workflow tools to keep studio executives in Los Angeles up to date on the film's progress. (5/15/2008)

Bones Dailies was designed for managing rushes on a movie project, and controls the Spirit DataCine for film scanning at up to 4K resolution. In HD or 2K, the Spirit under Bones Dailies control can ingest material at up to 25 percent faster than realtime. It synchronizes the picture with sound and, in conjunction with other Bones components, allows a color correction pass with the metadata captured using the ASC color decision list (CDL) format to form the basis of the final grade later in the post cycle. Bones Dailies is able to output in standard definition or HD at up to HDCAM SR 10-bit 4:4:4 quality.

Cutting Edge installed two Bones Dailies systems in January of this year as part of a major upgrade to its post facilities in Sydney and Brisbane. Only days after the installation, Bones Dailies was put into action on the feature film *Wolverine*.

"Fox Post was keen to see how Bones Dailies could save time in editorial and improve the quality of the material viewed by both the production and the executives at Fox in LA," notes John Lee, president and founder of Cutting Edge. "At the end of a session, fully logged and synchronized dailies are ready to be played out from Bones within 10 minutes of the final lab roll being captured, with Bones performing logging and sound syncing on one roll at the same time as the colorist is grading the next," Lee notes. "This is a huge savings in time and effort on the part of the editorial team, who are given DNxHD media and full metadata immediately after our first Bones playout pass. With Bones Dailies we have been able to create a set of deliverables that have never been possible before due to time or technical restrictions with the equipment."

Bones Dailies divides the workflow of making dailies into five processes: audio ingest and logging, image ingest and logging, sound synchronization, color grading, and finally playout for multiple deliverables. On *Wolverine*, Cutting Edge was asked to make two different versions of each day's dailies: a "print all" version for editorial and production, and a "circle takes only" version for the studio executives in LA. Without Bones Dailies, creating the second version would have meant loading the "print all" version into a nonlinear editor, cutting the select takes and conforming the edit back out to tape. With Bones Dailies this stage has been eliminated.

"Thanks to Bones Dailies, Cutting Edge was able to create a first generation HDCAM SR circle takes only tape to send to the studio with synchronized audio, specific burn-ins, masking and watermarks" notes Aaron Downing, post executive for Fox.

Bones Dailies can operate as a single seat system on locally attached storage or as a multiple seat system on a shared access SAN.

6.2 Annex II

List of academic/industry events where TAIK 3rd EP has been presented in autumn 2009.

Lecture/poster presented

Person: Tuomola, Mika

Place: Belfast Ireland

Starting date: **27.8.2009**

Presentation: Dialogue between generations – Accidental Lovers & Alan Turing

Keynote Speaker

Seminar/Conference: International Symposium on Electronic Art ISEA 2009

Lecture/poster presented

Person: Tuomola, Mika

Place: Belfast Ireland

Starting date: 27.8.2009 Presentation: Creative Industries Forum Panel Discussion Keynote Speaker Seminar/Conference: International Symposium on Electronic Art ISEA 2009
Lecture/poster presented Person: Tuomola, Mika Place: Belfast Ireland Starting date: 29.8.2009 Presentation: Leonardo Education Forum Speaker in expert workshop Seminar/Conference: International Symposium on Electronic Art ISEA 2009
Lecture/poster presented Person: Stolt, Tea Place: RAI conference Center, Amsterdam, Netherlands Starting date: 11.9.2009 Presentation: Presenting SALERO Third Phase Experimental Productions/ Turing Machine: Alan01, Alan Online & Turing Impact Speaker in IBC Exhibition, New Technology Campus Seminar/Conference: IBC 2009

6.3 Annex III

List of academic/industry events where TAIK 3rd EP will be presented by the end of year 2009.

Lecture/poster presented Person: Tuomola, Mika Place: Tampere Finland Starting date: 30.9.2009 Presentation: Stories Games and Social Media Spaces, Speaker in workshop Seminar/Conference: Creative Space workshop in MindTrek 2009
Lecture/poster presented Person: Tuomola, Mika Place: Hotel Beijing, Beijing China Starting date: 20.10.2009 Presentation: Concept, Content and the Convict Keynote Speaker, Interactive Art Full Papers Category Seminar/Conference: Association for Computing Machinery –ACM International Conference on Multimedia 2009
Lecture/poster presented Person: Tuomola, Mika Place: Helsinki, Finland

Starting date: **10.12.2009**

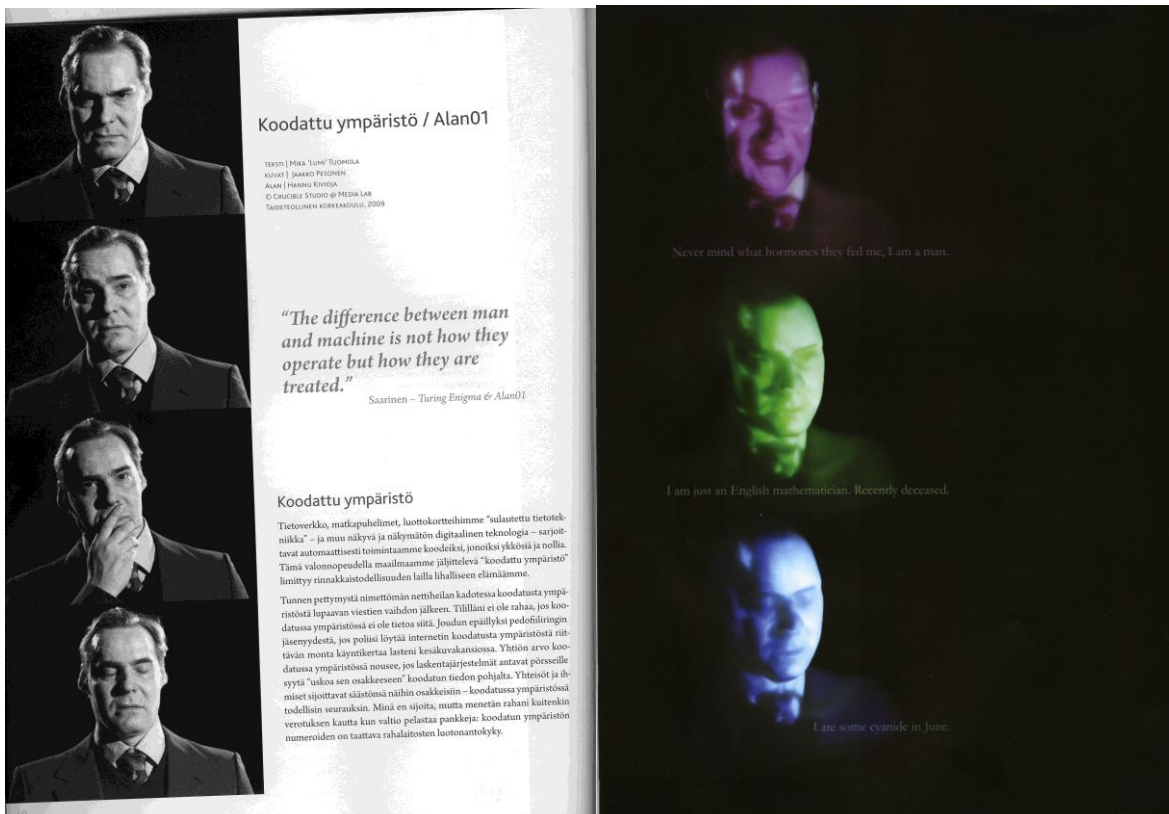
Presentation: Art/Media & Me

Keynote Speaker

Seminar/Conference: Art & Me interview series as Theatre Academy of Finland

6.4 Annex IV

Extracts from scanned copy of Mika Tuomola's article "Koodi ympäristönä" published in *Taide & Design* magazine.



7 Glossary

Terms used within SALERO project sorted alphabetically.

EP Experimental Production

Partner Acronyms

AM Activa Multimedia, ES

BLITZ Blitz Games Studios, UK

DIT Dublin Institute of Technology, IE

DTS Digital Theatre Systems, UK

FBM-UPF Fundació Universitat Pompeu Fabra, ES

GVG Grass Valley Germany, DE

JRS JOANNEUM RESEARCH Forschungsgesellschaft mbH, AT

LFUI Leopold-Franzenz Universtät Innsbruck, AT

PGP Pepper's Ghost Productions Ltd., UK

TAIK Taideteollinen Korkeakoulu, FI

UG University of Glasgow, UK

UPF Universitat Pompeu Fabra, ES

URL Universitat Ramon Llull, ES