nm2

new media for a new millennium

Information Society Technologies

www.ist-nm2.org

In brief

nm2 **is a collaborative research project which unites leading creative and technology experts from across Europe to address a great opportunity for businesses and consumers: how to develop compelling new media forms which take advantage of the unique characteristics of broadband networks.**

nm2 **is about creating a new media genre using all of the facilities of modern broadband communication and interactive terminals. The project will create new production tools for the media industry that will allow the easy production of non-linear broadband media that can be personalised to suit the preferences of the individual user.**

Viewers will be able to interact directly with the medium and influence what they see and hear according to their personal tastes and wishes.

The *nm2* vision

Media distribution is changing. Across and beyond Europe, analogue broadcast networks are being replaced with digital broadcast networks bringing more and more television channels to our homes. At the same time narrowband access to the Internet is being rapidly superseded by broadband providing people with much faster and better connections. But is the media future simply one with more conventional TV channels and the same old Internet content, only quicker?

As economist and Nobel Prize winner Herbert A. Simon observed in a different context, faster and better information access is not a solution, but a problem. With so much content available, how can any of it win our attention?

Effective communication is frequently framed in narratives. And throughout history each new form of media distribution has brought with it a new tradition of storytelling. Books do not tell stories in the same way as storytellers from the oral tradition. Good radio is more than the broadcasting of a stage play. Television is much more than radio with pictures.

The partners in *nm2* expect new forms of storytelling to develop that are uniquely suited to the characteristics of digital distribution via broadband. By utilising the unique characteristics of digital broadband networks, the new media will engage our attention in original and compelling ways.

"What information consumes is rather obvious: it is the attention of its recipients. Hence a wealth of information creates a poverty of attention."

Herbert A. Simon

"The three-year project has an ambitious aim: to identify new mass market media genres. The new media genres will allow stories to be adapted, on the fly, for an individual viewer."

Doug Williams, *nm2* Project Manager

Objectives and results

The overall objective of *nm2* is to enable the creation of a new media genre and the tools necessary for its cost-efficient production. The tools developed within *nm2* will facilitate the building of compelling, potentially profitable, nonlinear, interactive and narrative-based content. Seven individual *nm2* productions for broadband delivery, ranging across news, documentary and fiction, will demonstrate the impact of these developments.

We believe that the individual productions will be truly compelling. They will share the high production values and aesthetic pleasures of television and cinema, and will demonstrate how users can be engaged by configurable and interactive media for extended periods of time. Importantly, the productions will also have sustainable business models.

New media forms need new technologies as well as new creative ideas. It would have been impossible for Charles Dickens' stories to have become popular without Gutenberg's invention of moveable type. Similarly, the pioneering work of the Lumière brothers made it possible for Steven Spielberg to create his movies. Without Marconi, 'The Archers', a BBC Radio 4 episodic drama, would not have captivated a loyal audience for more than 40 years.

New media forms also demand compelling pilots. Had Pixar not created a string of short but appealing computer-generated movies, Walt Disney Corporation would never have formed the business partnership that led to the world's first full length computer generated animation 'Toy Story', the highest grossing film of 1995.

The *nm2* project will create both technologies and pilots for the new media. Specifically, *nm2* will create:

- Robust and easy-to-use production tools that can be integrated in today's production environments.
- Delivery systems targeted towards widely available consumer entertainment platforms, including set-top boxes, PCs and game consoles.
- Seven productions covering a wide scale of forms and formats, which will provide tested models.
- A software language for expressing and generating meaningful interactive narratives.

These outputs cannot be realised without a wide diversity of skills including market insight, software design, scriptwriting and narratology.

The tools developed within *nm2* will facilitate the building of nonlinear, interactive and narrative-based content.

The *nm2* project will create both technologies and pilots for the new media genres.

The structure of *nm2*

nm2 is a collaborative research project that is principle-led and objective-driven. The principles include:

- The outcomes should appeal to a mainstream public.
- The approach should be multidisciplinary, embracing wisdom from the arts, technology and business.
- The methodology should be practice-based, i.e. ideas should be developed through rapid implementation, testing and refinement.
- Objective evaluation should be conducted on dimensions including socio-economic impacts, business positioning, professional assessments, and audience assessments.

The way *nm2* is structured to meet these objectives can be illustrated by regarding the project as a pyramid of building blocks, some existing and some to be created within the project, that lead to the ultimate vision (figure 1).

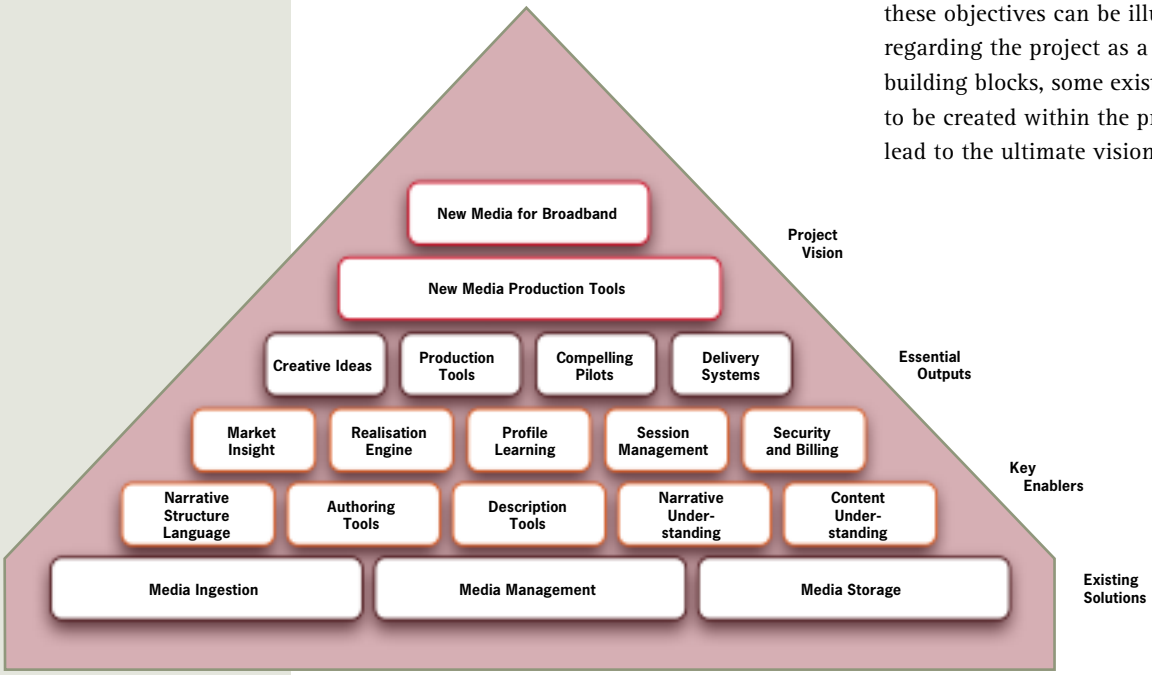

Figure 1: *nm2* project structure

The *nm2* architecture

Research and development within *nm2* is centred around the top-level system architecture described below. The project will develop specific components in this architecture using prototypes from leading-edge research combined with best-of-breed solutions from existing suppliers.

During the course of *nm2*, production ideas from innovative producers will be refined through workshops with technologists and specialists in user behaviour. The purpose is to create well-defined production ideas together with clear requirements for the set of production tools and delivery systems needed to achieve the production idea.

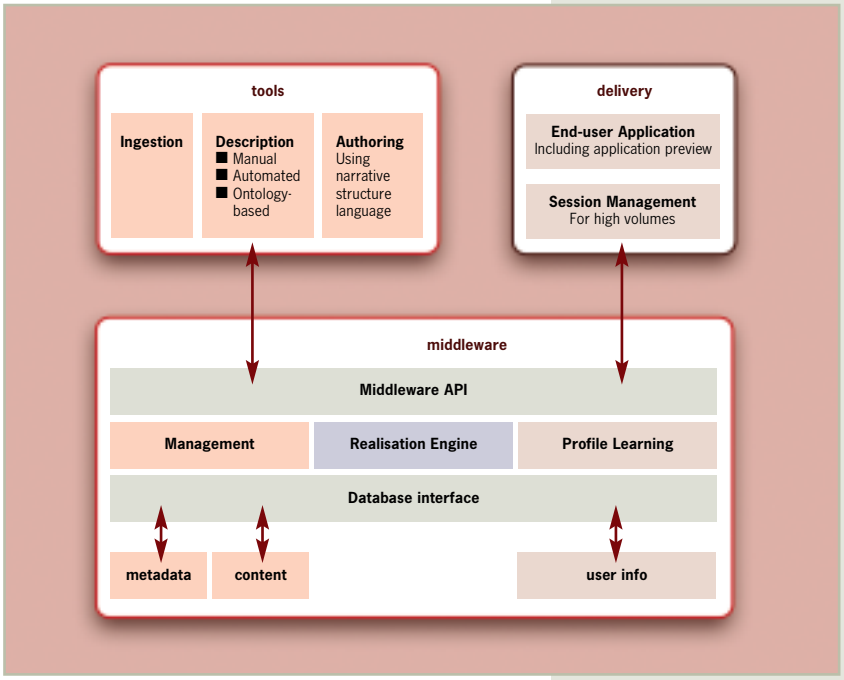

Figure 2: *nm2* top-level system architecture

Editing tools

In order to be successful, the tool designers must have an understanding of the production workflow and of the roles of different users of the tools. To facilitate a level of customisation appropriate to achieve this, a modular approach will be taken in design and development. Every instance of the production tools that is developed will be based upon this framework, which will provide basic functionality and programming APIs (Application Programming Interfaces) for plug-ins.

The production tools will allow:

- Audio-visual material to be ingested into the system.
- Audio-visual objects to be described and associated with appropriate metadata.
- Writers to develop and author effective story frameworks for interactive and configurable media forms.

The project will develop components using prototypes from leading-edge research combined with best-of-breed solutions from existing suppliers.

The software tool that we produce will be extremely sophisticated. It has to know which bits fit together both visually, by observing the time-honoured rules that go into editing, and in terms of the story."

John Wyver, Producer

Middleware

The middleware represents a core layer in which shared functionality will be implemented, including access to and management of databases, automatic assembly of media essence based on narrative plans and context input into customised narratives, as well as interpretation and recording of user profiles. A common API will make all of this accessible to all instances of the production tools and delivery system.

The middleware components:

- Handle all data management tasks, like storage of essence, their metadata and the stories.
- Manage user feedback and user interactions.
- Include the Realisation Engine, which is responsible for dynamically creating a user-specific story, based on a given story world and the interaction of a particular engager.

The most significant area of innovation within the middleware is the Realisation Engine, which will assemble, on the fly, a sequence of media components that together form a compelling audio-visual experience, from short sequences to full programmes and service packages. It will be required to work in real time as part of a service deployment and in conjunction with the production tools to iteratively improve multiple versions of a programme.

Delivery systems

For many of its productions, *nm2* will develop an end-user application which will enable media composition at a user terminal. This will contrast with the traditional broadcast structure of centralised media generation and delivery in a closed format. The delivery system will be configured in the client-server model that is already supported in many popular domestic devices such as PCs, advanced set-top boxes and game consoles. *nm2* will deploy end-user applications to a range of these devices in accordance with the requirements of the productions, several of which have already made agreements with publishers and broadcasters.

In some *nm2* productions, the end-user will be able to interact with the media and also with other consumers within the production in order, for example, to exchange comments about the narrative. A vital component of the delivery system, therefore, is a robust session management system, which is also capable of synchronising real-time communications with media delivery. The project will also develop an 'intelligent' user-information store, based around the interactions taking place in the delivery system, and the instructions generated by the Realisation Engine. The system will make inferences about user preferences based on interaction history, and the activities of similar users (as recorded by the session management layer).

***nm2* will develop an end-user application which will enable media composition at a user terminal.**

The *nm2* productions

nm2 contains seven realistic productions to assess, verify and test the tools. The productions will also be used to perform accompanying market and user research, and to directly feedback the user views and requirements into the tool development process.

City Symphonies	A new production in a traditional documentary genre. City Symphonies makes use of an old but recently revitalised screen language – montage – which has proved critical to the history of cinema, and is essential to any understanding of the relationship between cinema and the architecture of the city.
Gods In The Sky	An interactive version of an imaginative and thought-provoking set of programmes exploring ancient myths in colourful and imaginative drama, dance and puppet theatre form, with a new astronomical interpretation.
Gormenghast	A fantastical, allegorical version of Mervyn Peake's great novel, originally produced by BBC Television. The content from the production will be developed to allow the story to be explored through new narrative paths, enabling flexible narrative structures in drama to be explored.
Runecast	Runecast is inspired by the time-honoured oral-storytelling, performance-based structures, which contemporary interactive digital media re-enable in new forms, such as the rule-based interactive aleatoric hypermovie. It uses the *nm2* system to enable engagers to compose their own coherent story constellations of songs, tales, music and images from mixed audio-visual media.
MyNews & SportMyWay	A digital, interactive archive that, using the *nm2* system and a graphical interface, makes it possible for engagers via broadband to discover, select and recombine news & sports items and stories according to their individual tastes.
Accidental Lovers	Accidental Lovers is a participatory black comedy about love for television, mobile phone and Internet. The engager can affect in real-time the unfolding drama of the unlikely romantic couple, Juulia in her sixties and Roope in his thirties.
A Golden Age	An ambitious configurable documentary exploring the arts of the Renaissance in England, concentrating on the final two decades of Elizabeth I's rule. The engager determines the aspects of this subject which are of most interest, and the system produces in real-time a version which responds to these preferences.

The *nm2* productions

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About *nm2*

nm2 is an Integrated Project of the European Union's 6th Framework Programme, Thematic Priority 2 (Information Society Technologies).
It was submitted to the second call of the programme and addresses the strategic objective "Cross-media content for leisure and entertainment". The project is partly funded by the European Commission.

nm2 is running from September 2004 to August 2007 and has an overall budget of about 7.5 million euro.

***nm2* –**
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Integrated Project, FP6, IST Priority
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Start date of project: 1 September 2004
Duration: 36 months
Website: **www.ist-*nm2*.org**

About EU Framework Programme 6

The EU Framework Programme 6 (FP6) has two main strategic objectives: strengthening the scientific and technological bases of industry and encouraging its international competitiveness while promoting research activities in support of other EU policies. FP6 is focused on a number of thematic priorities, including Information Society Technologies.
EU FP6 website:
http://fp6.cordis.lu/fp6/home.cfm

Consortium partners

Technical
BT, UK (technical project manager)
Joanneum Research, Austria
Goldsmiths College, UK
Telefónica I+D, Spain
Sony Netservices, Austria
Aristotle University of Thessaloniki, Greece

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Illuminations Television Limited, UK
University of Art & Design Helsinki, Finland
University of Ulster, School of Art & Design, UK
Malmö University, Arts and Communication, Sweden

Consumer behaviour & business analysis
Netherlands Organisation For Applied Scientific Research – TNO, The Netherlands

Management
Eurescom, Germany (administrative and financial co-ordinator)

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