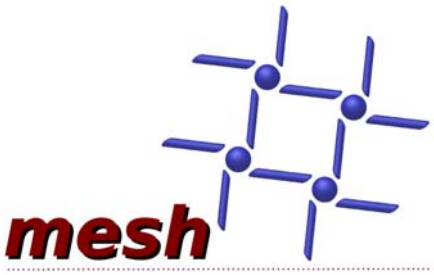

FP6- 027685 MESH

D6.3
User and System Requirements

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Abstract

This document describes the gathering and analysis of user and system requirements which will lead the implementation of the MESH platform.

History

Version	Date	Reason	Revised by
01	2006-10-27	Initial draft with User requirements analysis	Katerina Diamantakou
02	2006-11-01	Updated with use cases and partner analysis provided by DW and DIAS	Nikos Sarris, Dimitris Koutlis
03	2006-11-12	Updated with system requirements provided by TID	Nikos Sarris
04	2006-11-14	Edited and provided final draft	Nikos Sarris
05	2006-11-15	Edited after partners comments	Nikos Sarris

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	The whole consortium contributed with providing completed questionnaires from personal or professional potential users.

Executive Summary

The purpose of this document is to detail the methods used and the result of the process for gathering and analysing the user and system requirements for the MESH project.

The process was based on the scenarios identified in the beginning of the project and detailed in Deliverable D6.1. The scenarios guided an extended user survey which was carried out through interviews and questionnaires which were analysed and used to determine the MESH use cases, the user and the system requirements.

Table of Contents

1. Introduction

This document details the process the consortium followed to capture and define the user requirements. Section 2 describes the methods selected to be used for capturing the user requirements within the MESH project. Section 3 briefly discusses the MESH scenarios, which are described in detail in D6.1, as these formed the basis for all further actions in the requirements analysis process. As explained in that section the scenarios were composed by the partners having experience with the targeted user groups and were subsequently decomposed to identify system functionalities that are represented therein. These functionalities were used to compose questions which guided the discussions in a Focus Group, organised as detailed in section 4. The experience gained form this group discussion guided the composition of questionnaires which are described along with the analysis of their results in section 5, while Annex I presents the questionnaires as they were sent out to individuals for completion. Section 6 details the analysis performed by the user partners on their internal structure, existing applications and workflows. Finally, in section 7 all the analysis results are taken into consideration and the user needs are defined in terms of detailed use cases, functional and non-functional requirements.

2. Purpose of User Requirement Analysis

2.1. Expectations

Developing products and services that meet the expectations of users and customers is critical to success, especially nowadays that technology-oriented enterprises face strong competition on the basis of quality. Requirement analysis is the foundation of a user -centred approach, creating products that appeal and meet user needs at the closest level.

User requirements analysis provides precise descriptions of the content, functionality and quality demanded by prospective users. For the identification of user needs the user perspective must be assumed and result in:

- ✓ **Functional requirements**

The goals that users want to reach and the tasks they intend to perform with the new software must be determined. By recognising the Functional Requirements, we understand the tasks that involve the abstraction of why the user performs certain activities, what his constraints and preferences are, and how the user would make trade-offs between different products-software applications.

- ✓ **Non-functional requirements**

Specification of non-functional requirements includes the categorization of the users (professionals and personal users), the description of user characteristics such as prior knowledge and experiences, the special needs of professional (journalists, editors, etc) and personal users (news audience), subjective preferences, and the description of the users' environment, in which the product or service will be used. Legal issues, intellectual property rights, security and privacy requirements are also an issue.

2.2. Methods for user requirements analysis

Methods such as observation, interview, document analysis, focus group and analysis, checklists or questionnaires can be used for the elicitation of user requirements. Scenarios and Use Cases have become a popular technique for task analysis.

Different requirements analysis methods can be applied in parallel to complement each other in order to yield more effective results.

For carrying out the process of requirements identification and analysis a variety of tools were used in a complementary way. These tools are listed together with their benefits and drawbacks in the following table, while the details of their implementation are described in the following sections:

Table 1: User requirements analysis tools employed

METHOD/ TECHNIQUE	DESCRIPTION	BENEFIT	DRAWBACK
Scenarios /Use cases /Personas	Detailed realistic examples of how users may carry out their tasks in a specified context with the future platform	Personas can bring user needs to life	Scenarios may rise expectations too mush. Personas may over simplify the population
User Surveys	A set of written questions to a sample population of users. Surveys can help determine needs, current work practices and attitudes to the new system ideas	Relatively quick method of determining preferences of large user groups/allows statistical analysis	does not capture in depth comments and may not permit follow-up
Focus Groups	This technique brings together a cross-section of users/stakeholders in discussion group format. A useful method for requirements elicitation	Allows rapid abstinence of a wide variety of user views	Recruitment effort to assemble groups. Dominant participants may influence group disproportionately
Interviewing	A series of fixed questions(about needs or requirements) with scope for the end user to expand on his response	Interviews allow quick elicitation of ideas & concepts	Negotiate access?/possible different opinions from different users
Existing Systems /Competitor Analysis	Comparison of expected product with existing systems	Effective in identifying current problems, possible new features and acceptance criteria	may lead to including too many new functions or make system too similar to a competitor's

2.3. Effectiveness of user requirements analysis

The effectiveness of user requirements analysis in the beginning of a development project depends to a large extent on the type of project.

Collecting user requirements for consumer products requires much effort, and the risk to fail is still very high. As long as consumers have no idea of the innovative product or service, it will be very difficult for them to state their needs. Creativity of designers is required for the transfer of user requirements into innovative consumer products.

For the development of professional applications precise user requirements analysis and specification is essential. Professionals often are available who perform the tasks under investigation.

Task analysis is obligatory for the development of safety critical applications. A characteristic of safety critical work domains is that tasks and procedures are precisely defined before new support tools are built. This is a good precondition for the specification of functional and non-functional requirements.

User requirements analysis is an error prone part of the development process and errors not detected at this stage may lead to expensive system failures later. For this reason, user requirements should be verified as soon as design solutions and prototypes are available.

3. The MESH 'scenarios'

As explained, requirement analysis is a process that may last throughout the life-cycle of the MESH project. But in order to deduce the system most crucial requirements, a number of application scenarios, which envision the future uses of the MESH platform, were authored in the format of storylines.

Six persons were identified in this process to represent the needs of larger groups of users, in terms of their goals and personal characteristics. They act as 'stand-ins' for real users and help guide decisions about functionality and design. Through these persons, the motivations, expectations and goals are becoming more familiar so the consortium can reach a common understanding of the targeted product and the potential users interviewed can comprehend the context in which they are questioned.

These persons were brought to life by giving them names and personalities. Even though fictitious, they are based on knowledge of real users. Some form of user research was conducted within the consortium user partners before they were authored, in order to ensure that they represent end users rather than the opinion of the person writing the scenarios.

Although the scenarios have many benefits, they alone will not ensure the success of the user requirements recognition process. There is still a need to use other methods (such as conduct surveys, etc.) in order to understand the detailed tasks or services MESH platform will need to accommodate. However, the scenarios formed the basis for the requirements recognition process. Through these stories the relevant system capabilities were identified and utilised to interview users and determine the importance of each feature, so that priorities could be set and the most important use cases could be described.

These scenarios were presented in detail within D6.1. In the remaining part of this section they are listed in a summarized form and associated to relevant images of persons providing a more apparent vision of the MESH users.

ILIAS BONN

Ilias Bohn is a freelance business and economics journalist and consultant. He is travelling frequently all over Europe. He is usually working in three different languages. *He needs MESH in order to:*

- Have access to news content in various formats coming from various sources
- Have similar access capabilities through portable and desktop devices.
- Be provided with content according to his profile
- be advised for acquiring licences for content he requests to use in his own articles
- have strict security mechanisms that forbid misuse of profile and copyrighted content
- Submit his own news content for sale to other interested MESH users.
- Be provided with a personalised summary of Greek news (every 3 hours)
- pay electronically using the MESHros virtual currency accepted among all MESH users
- manually annotate the content he connects to MESH using the MESH desktop or mobile manual annotation tool
- be provided with effective video search modules which return results by analysing visual, spoken and textual information
- be provided with the most suitable to him content in the ways he has shown to prefer to receive it

MARTHA JONG

Martha Jong is a retired doctor interested in news content surveys from current and past archives. She needs *MESH in order to*:

- a central point of access to various sources of information, including personal weblogs
- summarised delivery of news found in various formats
- a way of assessing the credibility of sources she receives news from
- to be able to follow links between content concerning similar topics
- usage of her content to be controlled by access rights
- to be able to query in one language but receive results in many languages

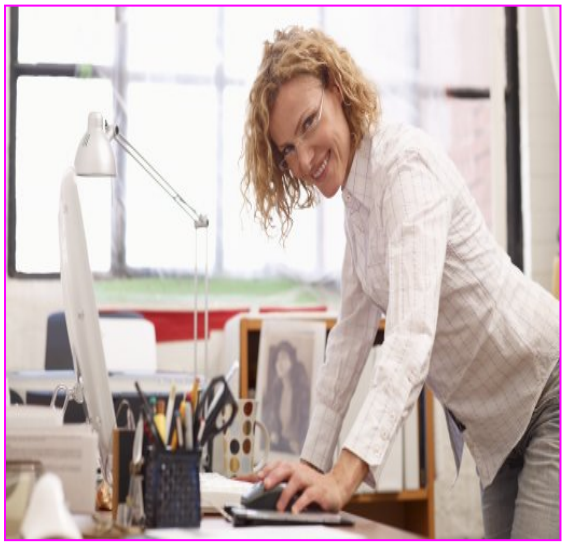
JOHN CLARK

John Clark is a journalist working as a news correspondent. He needs MESH to:

- Have a central point of access to various libraries of news content (as large archives of established news organisations)
- To be able to submit natural language queries in his native language and discover content in other languages as well
- To receive similar material in a cross linked manner, having their similarities identified
- To be able to follow links between content concerning similar topics
- To have a way of assessing the credibility of sources he receives news from
- To have usage of his content controlled by access rights
- To be able to market his content based on various business and pricing models
- To be able to compose articles on his mobile device
- To be able to use his mobile device for capturing and annotating pictures and video
- To be able to search for material relevant to the work he is preparing

CLAUDIA

Claudia is a business woman constantly on the move. She needs to:

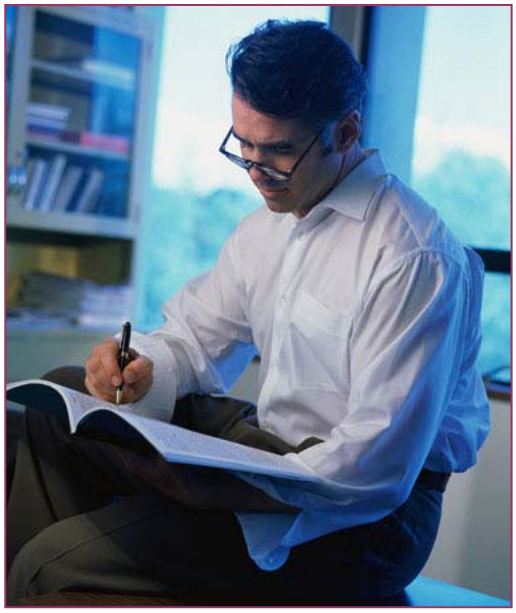


- receive news according to her reading preferences
- have her preferences understood by the articles she selects to read
- be able to manually define her preferences from time to time
- be instantly informed of news that matter to her in a summarised manner on her mobile device
- To be able to read material in a quick and easy way on her mobile device

BILL JONES

Bill Jones is a media professional setting up a business using the MESH system. He needs to:

- Be provided by secure access to file space where he can store news content
- To be able to purchase news items by individual journalists
- To deliver content in a personalised way to different subscribers according to their profile
- To be able to define different news delivery services for subscribers
- To be able to produce thematic reviews using the MESH modules
- To be able to rate delivered material according to the content and audience



THEODORA

Theodora is a media professional building a part-time business by syndicating news in an intelligent way. She needs MESH in order to:

- Build a portal to aggregate external news sources (as RSS feeds, blogs, etc.) and syndicate that content to her subscribers
- Search for news matching her interests which are automatically understood by MESH
- Be able to also manually define or amend her automatically created profile
- Consult the communities she is subscribed to, for the latest developments in their common fields of interest
- Search for material for the news programme she is preparing on a daily basis
- Receive personalised summaries of news content on her mobile device
- Automatically receive content in the most effective way, as depth of information is automatically optimised against required response time.

4. The MESH 'Focus Group'

4.1. The 'Focus Group' process

The 'Focus Group' tool [1][2] was selected in order to uncover the goals and needs of potential users so that we can design in the most effective way the necessary tools and technologies within the MESH project.

Focus Groups are not polls, but in-depth qualitative interviews with a small number of carefully selected people.

Qualitative data derived from focus groups are extremely valuable when vivid and rich descriptions are needed. In fact, Focus Groups are an increasingly popular way to learn about opinions and attitudes.

According to the late political consultant Lee Atwater, the conversation in Focus Groups "***gives you a sense of what makes people tick and a sense of what's going on with people's minds and lives that you simply can't get with survey data***".

Unlike the one-way flow of information in a 1-on-1 interview, FGs generate data through the "give and take" of group discussion. Listening as people share and compare their different points of view provides a wealth of information – not just about what they think, but also why they think the way they do.

Among the advantages of Focus Groups are the following:

- A wide range of information can be gathered in a relatively short time span
- The moderator can explore related unanticipated topics, as they arise during the discussion

Generally, a Focus Group is conducted by "moderators" who are skilled in maintaining good group dynamics. The moderator's basic job is to keep the group "focused". He /she has the goal of helping the group generate a lively and productive discussion of the topic at hand.

Much of the data quality in Focus Groups depends on how effectively the moderator asks the questions and how well this person keeps the discussion targeted on the research objectives.

In our case, the moderator role was shared among ATC, Deutsche Welle and DIAS.

The MESH Focus Group was conducted in Cyprus, on 7 June, 2006. Throughout the discussions between the actual users (professional users) and the domain experts, we tried to identify our target audience, their typical tasks and priorities and finally their specific constraints.

After the session we had become familiar with the importance of our users' interface objectives. Therefore the results provided us not only with the different potential features /requirements of the system but also with the key outcome of the Project.

4.2. Composition of the MESH Focus Group

"The key to Focus Groups is participants' chemistry…"

The composition of a successful Focus Group is usually based on the homogeneity or similarity of the group members. Bringing people with common interests and experiences together makes it easier for them to carry on a productive discussion.

On this basis, we decided to have in the discussion table a representative of each potential MESH Professional user category. The targeted categories are listed in the following table:

Table 2: MESH Professional User Groups

Professionals Users Categories			
News Agencies			
Publishers	News Paper	Magazine	
Broadcasters	TV station	Radio station	Internet
Freelance Journalists/ Photographers			

From the ***Newspaper & Magazine*** sub-category, there was at least one representative from the following professions:

1. Chief Editor / Editor
2. Annotator
3. Archive Manager
4. Journalist / Reporter Correspondent
5. Photographer

From the ***TV and Radio Broadcaster*** sub-category, there was a representative of the following professions:

6. Producer
7. Journalist / Reporter

From the ***Internet*** sub-category, there was a representative of the following professions:

8. Editor of e-Publication
9. Journalist / Reporter

Participants of the focus group composition were also representatives of the MESH Consortium, as they have extensive domain expertise and a deep knowledge of the "MESH Project", their contribution around the technical issues during the discussion was proven to be fruitful.

4.3. Discussion Topics

Questions were open-ended, so that there would be many possible replies. Short-answer questions, such as those that can be answered by "Yes" or "No", were be avoided. Questions were more or less:

- Clearly formulated and easily understood by all participants, from any background
- Neutral, so that the formulation will not influence any answer
- Carefully sequenced with easier, general questions proceeding more difficult ones
- Ordered, so that less intimate topics precede the more personal questions

The moderator begun the session with an introduction that included the following:

- Explanation of the purposes of the MESH Focus Group
- Laying down some basic ground rules to encourage everyone to participate in the discussion
- Reassuring the participants about the voluntary and the confidential nature of their participation, so as everyone would feel free to speak spontaneously and,
- Introducing of all the participants and explaining the reason they were invited (what they have in common)

Once introductions were complete, the moderator guided the discussion to explore various aspects of the research topic. The moderator handed out a Questionnaire for the participants to fill in and placed the question (issue or topic). The group then had enough time to fill in the Questionnaire and to discuss among them – talking to each other, asking questions and generally interact.

The questions were mainly based on the Questionnaire, which consisted of topics that were identified by the consortium of direct relevance to the MESH envisaged platform functionalities. An indicative set is given below:

Table 3: Sample questions discussed in the focus group

TOPIC	DESCRIPTION	EXAMPLE QUESTIONS
Online **access to MM news** from various sources	A system that provides the recipient with an overview of the multimedia breaking news	Was there a moment that you wished someone could inform you about the news of the week in a brief summary on your mobile phone?
Measuring the credibility of the sources	A trusted system that classifies the credibility of the sources	How much do you trust the way news is presented to you?
Location–based services and features	A virtual travel agent always with you offering live location information	Haven't you ever wished to have a travel agent providing you with details about the events or the history of the foreign town during your vacation?
Cross-linking of different material	A deep linking with blogs and sources to make sure that provided material is credible	Have you ever examined whether the material provided to you is not genuine? Have you ever thought that the material has been manipulated?
Availability of Content-anytime, anywhere	All required content in any type available from any location	How would you like it if you received all background information (in video, text or sound) about the architecture of a building that you just saw, while driving in a foreign road?

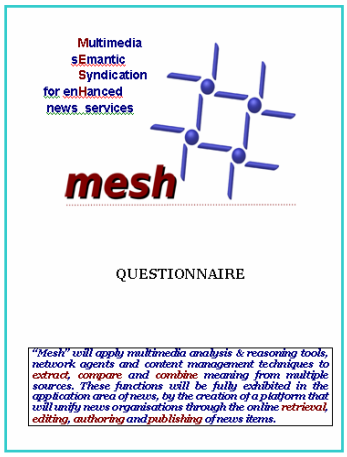
		Or how would you like it if you received all background information (in video, text or sound) about a politician you had never heard of?
Portable End Devices	Devices that can be used from any location to access various content and formats world-wide	Imagine a pocket pc always with you! How would you like it if you could watch your children's live soccer playing on your mobile phone, while flying?
Availability & Access to all **personal data archives** (from portable devices)	Having access to functionalities and reference to source data material	How would you like it if you could have access to your work documents from your mobile phone during the weekend?
Speech to text /Text to Speech (Hands-free/ eyes-free solution)	Vocalized text (any text transformed into natural speech) and the opposite (any speech transformed into text)	Imagine "someone" reading your mail while you are driving though traffic, without anyone else being there except you and your mobile phone! And then the same "someone" types your speech while you read it for him…
Automatic Translation	Online content translator	Wouldn't it be fruitful to have an automatic translator always in your mobile phone, providing you with a translated summary of a text written in a foreign for you language?
Video/Images Searchers	A search machine for all kind of video /images content	How suitable would it be for you if you typed the word "Frog" and have images and details of all kind of frogs world-wide on your mobile phone?

4.4. Results

Both quantitative but mostly qualitative results were gathered from this process. All participants completed questionnaires after having finished the discussion, so that they had a good overview of what MESH is targeting and what the questions were really about. The results from these questionnaires were integrated in the analysis provided in the next section. However, the real benefit was that the consortium participants from ATC, DW and DIAS who were driving the user requirements analysis process formulated an informative opinion of how professionals from the field of journalism see the proposed services and what is seen with greater interest. The whole session was also audio taped and reviewed at a later stage to aid in the formulation and prioritisation of use cases described in the later sections.

5. The MESH 'Questionnaires'

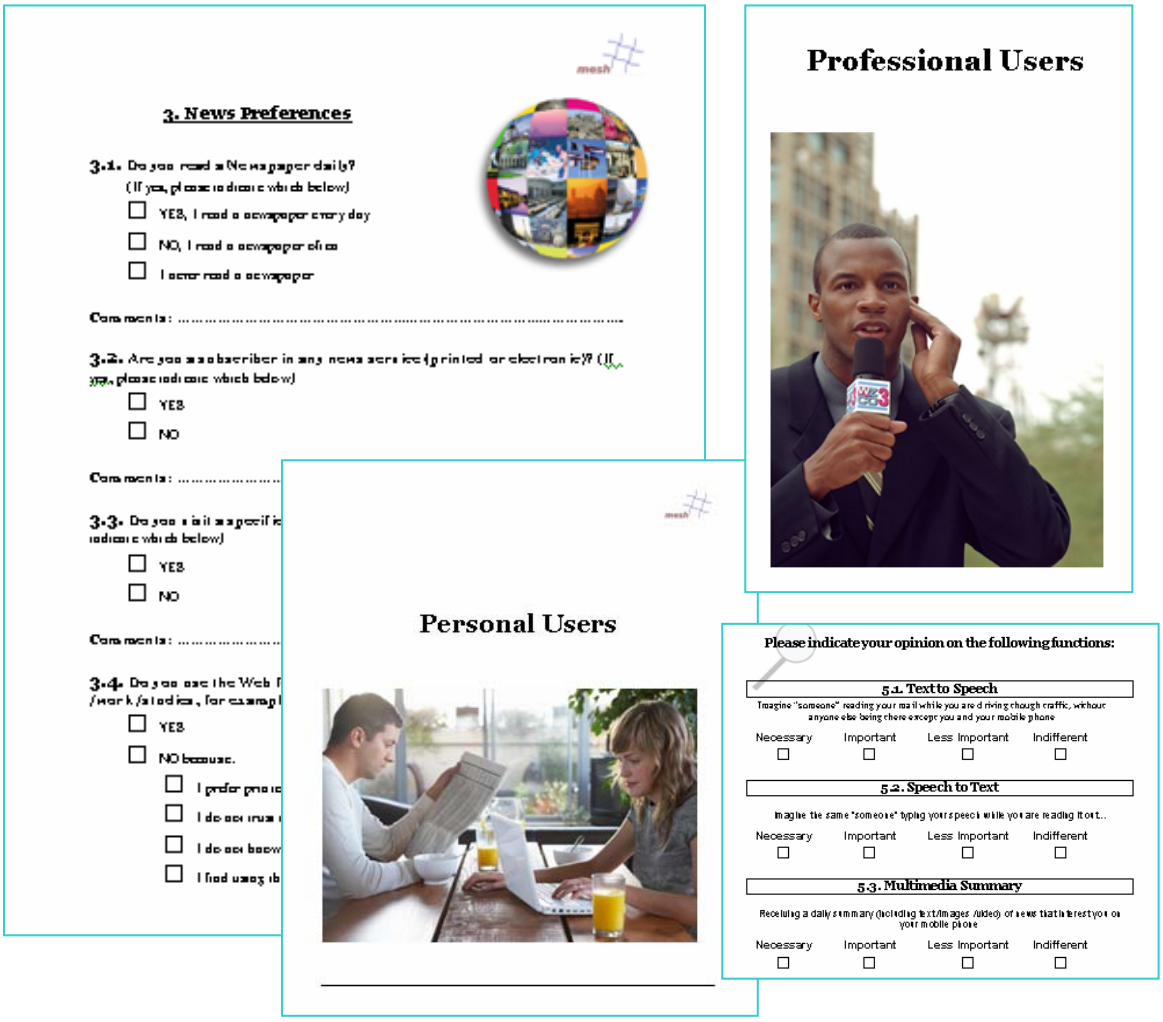
5.1. Introduction



A survey involves administering a set of written questions to a large sample population of users. Surveys can help determine information or users, work practices and attitudes.

The MESH questionnaire was purposed to identify User Needs for potential Services and Methods, which may in the future be available through the MESH platform. The questionnaire was produced in two different versions (attached in Annex I) for the respective user groups and was sent to potential users electronically (by e-mail) through the contacts of partners from the whole consortium. Results were collected both in electronic and hard copy format.

Through this User Survey we tried to collect information, which we analysed to guide the consortium in building a MESH platform in the way that it will be most useful to "Professional Users" as well as to the "Public News Audience". The final goal of the consortium was to provide MESH Users with the necessary tools for an easier and personalized navigation in the world of news.



5.2. The Questions

Having gained the experience from the Focus Group, we had an idea of the difficulties the respondents faced while answering the questionnaire, so we used this knowledge in order to improve our questions.

Through the questionnaire we re-designed, we tried to produce variability of responses. When a question produces no variability in responses, we are left with considerable uncertainty about why we asked the question and what we learned from the information.

We tried to keep our questionnaire short, as long questionnaires get in general less responses. Response rate was the single most important indicator of how much confidence we can place in the results. Therefore we did everything possible to minimize the questionnaire length so as to maximize the response rate.

Furthermore, we tried to give our questionnaires' parts a title that is short and meaningful to the respondent. A questionnaire with titles is generally perceived to be more credible than one without. For instance, we split the questionnaire in 3 parts:

- Personal Information
- ICT Skills
- Technical Questions

We also tried to include clear and concise instructions on how to complete the questionnaire. We chose questions very easy to understand, short sentences and basic vocabulary, simple and direct language. Finally, we tried to be creative, use images and humorous quotes in order to hold the respondent's interest.

5.3. Data Analysis

Data analysis and interpretation is critical in such an analysis. We needed to deduce answers to:

- What does this information mean?
- Can we use the data in a constructive way to define the requirements and then establish a plan?

After collecting all questionnaires we created a data base where we gathered all responses and calculated statistics that could be useful to deducing results concerning the user needs. Completed questionnaires were received from individuals resident in the following countries: Greece, Cyprus, Germany, USA, Brazil, Kuwait, South Africa, UK, Spain and France. The results are described in the following sections, differentiating between professional and personal users:

5.3.1. Professional Users Analysis

Sample: 70 Professional Users

- **44%** are graduates and another **43%** postgraduates
- **67%** have a more than 10 years work experience and **70%** work 40 or more hours per day
- **88%** work in an office

Table 4: Results from Professional user questionnaires

SUBJECT	POSSIBLE ANSWERS	PERCENTAGES
Personal & News General Info		
Working hours per week	**Less than 40 hours** 40 hours More than 40 hours	**40%** 33% 27%
How often do you travel for business?	Once a week Several times a month Once a month **1-2 times a year** Not at all	4% 9% 22% **33%** 31%
Are you interested in receiving news during travels?	**Yes** No indifferent	**58%** 16% 27%
Would you be willing to pay for a service providing intelligent access and delivery of news?	Yes **No** indifferent	24% **56%** 20%
How much do you trust the way news is presented to you?	Very **I am concerned** Not at all	22% **73%** 4%
Would you mind if a system kept information about your personal interests in News reading, either provided by you or by tracking the news sites you visit?	I wouldn't mind I am concerned **I would really mind**	22% 38% **40%**
How important is it for you…?		
…to have a CENTRAL POINT of access to news content?	Very important **Important** Indifferent	27% **47%** 27%
…to have an easy way for building a thematic news-portal?	Very important **Important** Indifferent	27% **42%** 31%
…to have an easy way for establishing authorization (copyright) for the use of multimedia content?	Very important Important **Indifferent**	22% 44% **60%**
…to have an easy way for electronic payment for news content (for re-use or plain reading)?	Very important Important **Indifferent**	16% 24% **60%**
…to be able to use a mobile device, for something further to communication, for example for composing a news article?	Very important Important **Indifferent**	22% 27% **51%**

Have you ever wished...?		
...there was an electronic way for communicating with colleagues of the same professional Community worldwide?	**Yes** No Indifferent	**67%** 11% 22%
...there was an electronic way for syndicating your news content (content auctioning)?	**Yes** No Indifferent	**44%** 20% 36%
Would you be interested in...?		
...a way that allows you to find relevant articles /images /videos to the one you are viewing?	**Yes** No Indifferent	**82%** 9% 9%
...a method that allows you to annotate images and videos on a mobile device?	**Yes** No Indifferent	**40%** 29% 31%
Please indicate your opinion on:		
Text to Speech	Necessary **Important** Less Important Indifferent	2% **42%** 36% 20%
Speech to Text	Necessary **Important** Less Important Indifferent	9% **64%** 16% 11%
Multimedia Summary	Necessary **Important** Less Important Indifferent	9% **44%** 31% 16%
Credibility of sources	Necessary **Important** Less Important Indifferent	36% **44%** 13% 7%
Face Recognition	Necessary Important **Less Important** Indifferent	18% 24% **31%** 24%
Scene Recognition	Necessary **Important** Less Important Indifferent	9% **40%** 31% 20%

Video/Image Search	**Necessary** **Important** **Less Important** **Indifferent**	**18%** **44%** **22%** **16%**
Personalized Access to News Content	**Necessary** **Important** **Less Important** **Indifferent**	**18%** **42%** **20%** **20%**
Unstructured Search Queries	**Necessary** **Important** **Less Important** **Indifferent**	**31%** **47%** **9%** **11%**
Archive Library	**Necessary** **Important** **Less Important** **Indifferent**	**40%** **44%** **9%** **7%**

As it can be deduced from the above, the most "desired" requirements to professional users in a ranked list are the following:

1. A way that allows users to find relevant articles /images /videos to the one they are viewing (**82%**)
2. An electronic way for communicating with colleagues of the same professional Community worldwide (**67%**)
3. Archive Library (Necessary: **40%,** Important: **44%**)
4. Credibility of sources (Necessary: **36%,** Important: **44%**)
5. Unstructured Search Queries (Necessary: **31%,** Important: **47%**)
6. Speech to Text (Necessary: **9%,** Important: **64%**)

The users claimed mostly indifferent to the following:

- An easy way for establishing authorization (copyright) for the use of multimedia content (**60%**)
- An easy way for electronic payment for news content, for re-use or plain reading (**60%**)
- To be able to use a mobile device, for something further to communication, for example for composing a news article (**51%**)
- An electronic way for syndicating your news content, content auctioning (**36%**)

The users seem really concerned to the way news is presented to them (**73%**) and are concerned (**38%**) or would really mind (**40%**) in the case a system kept information about their personal interests in News reading, either provided by them or by

tracking the news sites they visit. Finally, most of the users (**56%**) are not willing to pay for a service that provides them with intelligent access and delivery of news.

Some of the most interesting answers are also presented below in the following diagrams:

Figure 1: How important is it for you to have an easy way for electronic payment?

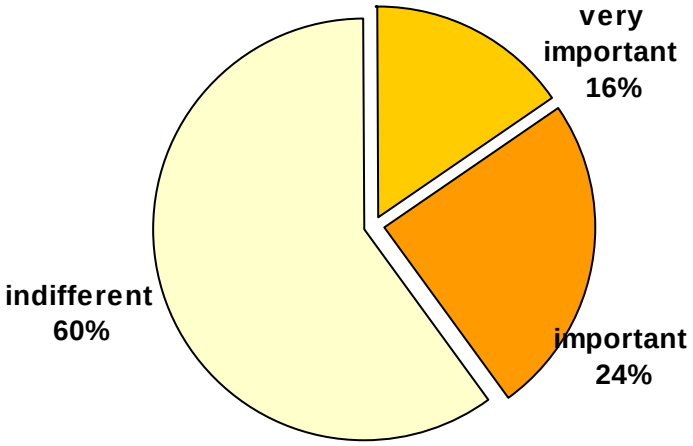


Figure 2: How important is it for you to have an e-way to communicate with your colleagues all around the world?

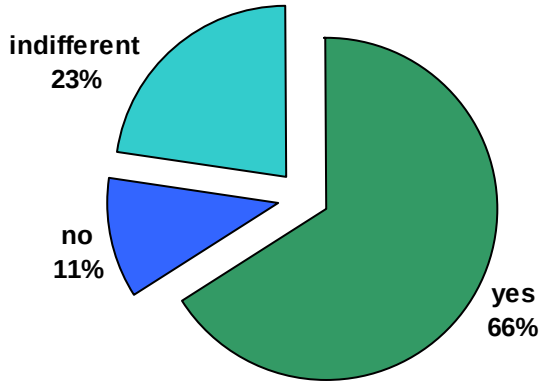


Figure 3: Would you be interested in a platform that finds relevant articles to what you seek?

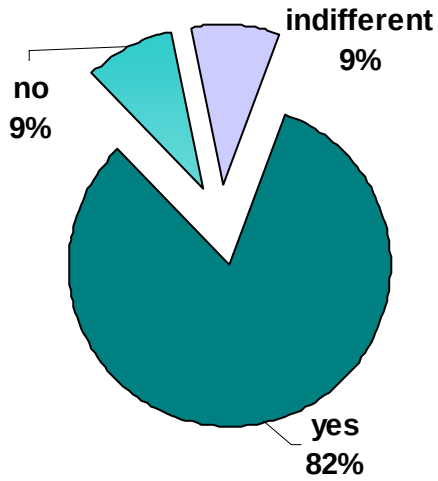


Figure 4: Please indicate your opinion on "Text to Speech"

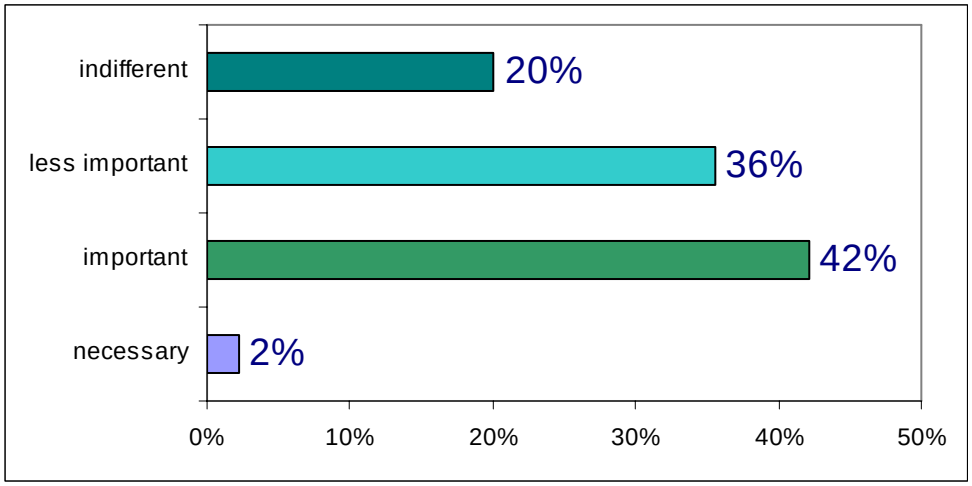


Figure 5: Please indicate your opinion on "Speech to Text "

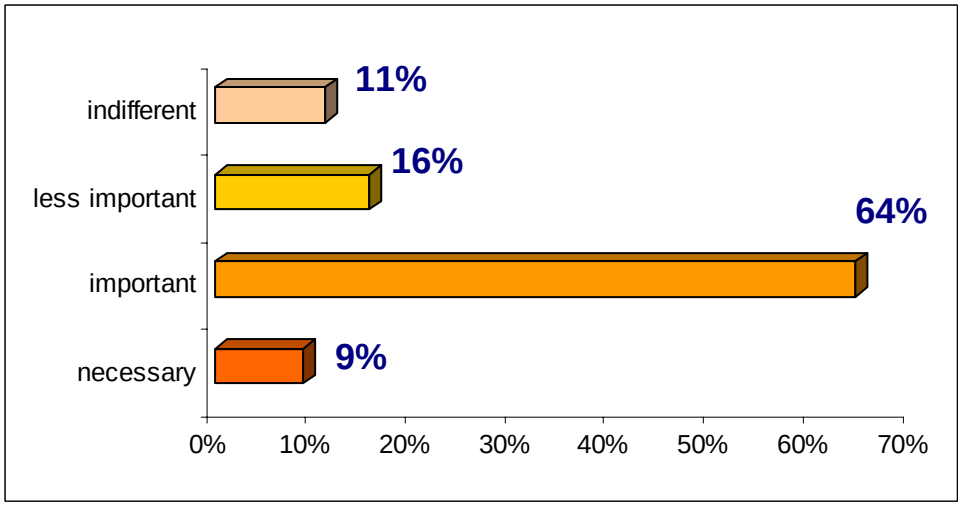
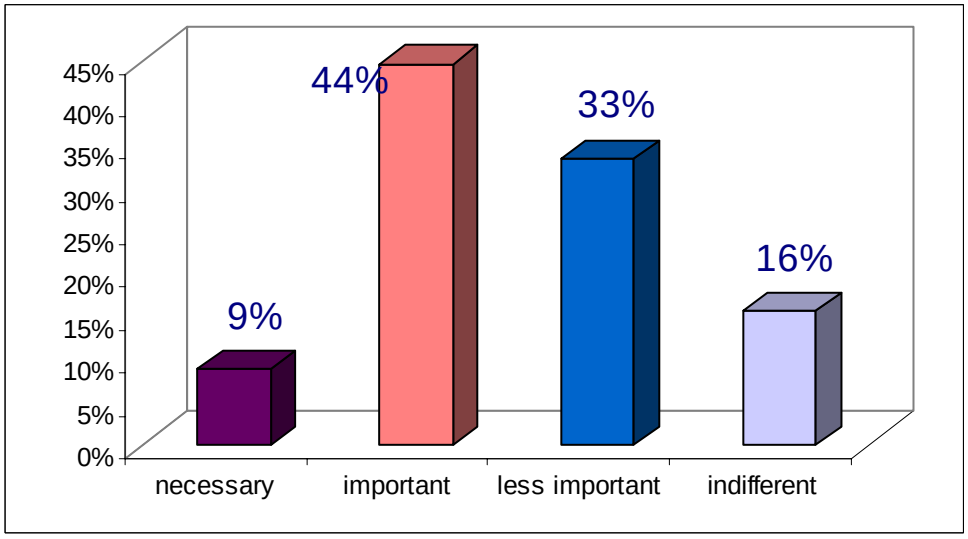


Figure 6: Please indicate your opinion on "Multimedia Summary "



5.3.2. Personal Users Analysis

Sample: 115 Personal Users

- **20%** are graduates and another **73%** postgraduates
- **47%** have a 2 to 4 years work experience and **47%** also work 40 or more hours per day
- **97%** work in an office

Out of the 115 users:

- **66%** travel several times a month and only **13%** do not travel at all.
- **40%** are interested in receiving news during travels and **33%** are indifferent
- **73%** are not willing to pay for the service

Table 5: Results from personal user questionnaires

Subject	Possible Answers	Percentage
News Preferences		
Do you read a newspaper daily?	YES, I read a newspaper every day **NO, I read a newspaper often** I never read a newspaper	20% **80%** 0%
Are you a subscriber in any news service?	YES **NO**	40% **60%**
Do you visit a specific site?	**YES** NO	**73%** 27%
Do you use the web as a search engine?	**YES** NO	**93%** 7%
Do you use a news portal?	**YES** NO	**60%** 40%
Do you use RSS?	YES **NO**	33% **67%**
Do you use Blogs?	**YES** NO What's a blog?	**60%** 27% 13%
Do you wish to receive news on your mobile phone?	YES **NO**	33% **67%**

Platform Selection for News:

INTERNET	**48%**
TV	19%
NEWSPAPER	14%
RADIO	11%
MOBILE	1%

Form for receiving the news:

TEXT	**43%**
IMAGE	17%
VIDEO	13%
ALL THE ABOVE	27%

How much do you trust the way news is presented to you?

VERY	20%
I AM CONCERNED	**80%**
NOT AT ALL	0%

Would you mind if a system kept information about your personal interests in News reading, either provided by you or b y tracking the news sites you visit?

I WOULD NOT MIND	33%
I AM CONCERNED	27%
I WOULD REALLY MIND	**40%**

In the future, who do you think will benefit the most from the use of the internet in news delivery?

BLOGGERS/ CITIZEN JOURNALISTS	14%
MAJOR MEDIA BRANDS	19%
TELECOMMUNICATION PROVIDERS	20%
WEB CORPORATIONS	3%
NEWS AUDIENCE	**50%**

6. MESH Partner Analysis

In parallel to capturing and analyzing the needs of individual personal or professional users it was considered equally important to survey and analyze the current practices of media organisations which are also considered a future 'client' of the MESH 'products'. The obvious candidates for this task were the two media partners in the consortium: Deutsche Welle and DIAS. This analysis gave the consortium a deeper knowledge of how media organisations are structured, what operating procedures they adopt and what relevant applications they use to service their needs. Apart from the obvious benefit of producing more educated use cases and requirements for the MESH platform this analysis is also expected to aid the business planning of the project to be detailed in later deliverables.

This analysis is structured in two similar parts, one for each of the two partners, where the internal structures are first explained by describing the different programmes and publications, followed by a brief description of the currently installed applications in parallel with the procedures and workflows currently in place.

6.1. Programme Structures at Deutsche Welle

DW-RADIO

DW-RADIO broadcasts its programme world-wide in 28 languages – among these German – via distribution technologies such as satellite, analogue short, medium and ultra short wave as well as DRM (Digital Radio Mondiale, digital short wave). The broadcast volume amounts more than 100 hours per day.

The 24/7 German programme of DW-RADIO transmits globally on every clock hour news, an up-to-date broadcast with information on policy, economy, culture and sport as well as background and service programmes. These programmes are broadcast in four-hour blocks.

The 24/7 English programme of DW-RADIO can be received via satellite, short wave and on the Internet. News and live coverage are changing with background reports and magazine shows.

DW-RADIO can be received in following regions and languages:

- World-wide: German, English
- Europe: Albanian, Bosnian, Bulgarian, Greek, Croatian, Macedonian, Polish, Romanian, Russian, Serbian, Turkish, Ukrainian
- Asia: Bengali, Chinese, Dari, Farsi, Hindi, Indonesian, Pashto, Urdu
- Africa/Near-East: Amharic, Arabian, French, Hausa, Kiswahili, Portuguese.

DW-TV

Deutsche Welle broadcasts via satellite an up-to-date TV programme that is produced in Berlin. The news and information programme is transmitted round the clock: twelve hours each in German and English, the language changes every hour. In Europe, North, Central and South America, North Africa and the Near and Middle East also programme windows in Spanish (2 hours per day) and Arabian (3 hours per day) are broadcast.

The structure of the programme is as follows: news on the hour, a magazine show or documentation on the half hour. All broadcasts take thirty minutes. Additionally DW-

TV produces a news show in Dari and Pashto. These shows are transmitted terrestrially by different re-broadcasters in Afghanistan.

Inter alia DW-TV is broadcast via Nilesat to the entire Arabian region. For the prime time in this region, a programme window in Arabian is produced. The news is produced in Arabian and the German magazine shows and documentations are subtitled in Arabian. The middle hour of the three-hour window consists of two feature/documentation elements that are synchronised in Arabian.

DW-WORLD

DW-WORLD is the multi media online offering of Deutsche Welle that is made up of text, images, audio and video on-demand, audio and video live streams. DW-WORLD is provided in thirty languages.

The seven languages German, English, Russian, Chinese, Spanish, Portuguese for Brazil and Arabian, the so-called pilot languages, have their own independent editorial online teams. They write and compile a comprehensive offering that is tailored to the opportunities of the Internet. The online offering can be classified into thematic sections (policy, economy, culture, etc.). Multi media contents (text, images, audios, videos) are offered as well as online specific and interactive features (opinion polls, links to the DW archive, www links, quizzes, etc). Beside the self-made contributions the editors also use the "Central offerings" of Deutsche Welle. The online editors exchange manuscripts with the Radio editorial teams of the same language (German, English, Russian, Chinese, Arabian).

Online assistants evaluate DW's Radio and TV offerings with regard to their Web reusableness as audios and videos on-demand.

The Radio editorial staff of these languages (German, English, Russian, Chinese, Arabian) and respectively the TV editorial staff (German, English, Spanish, Arabian) possess their own rubrics in DW-WORLD's offering. Like in a virtual programme guide information on contributions and broadcasts can be placed in these rubrics.

For the other 23 languages, the so-called base languages, DW-WORLD coordinates the Internet presences. It provides the technical platform and central services such as the offering of images and banners. The contents are produced by the Radio editors of the respective languages using Radio contributions as a starting point. The online offering of the single languages can vary considerably with regard to content and multi medial elaboration.

6.2. Existing Applications and Systems at Deutsche Welle

Hitherto Existing News Distribution System (NDS)

In 1994 the installation of a new NDS (News Distribution System, product „NewsWire2000" from the company NEXUS informatics, today company Dalet) in Cologne started. It aimed at the fast and location-independent communication between all those involved in the production of Radio and TV programmes.

About 900 places of employment were set up in three expansion stages; the functionality was determined by DW-RADIO. In 1998, an emergency system was installed in Cologne. In 2003 DW moved to Bonn; the central systems of the NDS moved to the data processing centre of the new building.

Today 37 international press agencies deliver news in 12 languages (15 agencies deliver via the Internet). 14 internal sources such as news messages, contributions, comments, etc. are also fed in. The data of the news area are stored for at least six months. Chosen German agency messages and manuscripts are stored in archive pools. Via interfaces NDS data are transferred to the archive systems or DW-WORLD.

In 1998, the NDS went on stream in Berlin with about 250 places of employment. Due to the different production flows (Bonn: DW-RADIO/DW-WORLD; Berlin: DW-TV) and due to security reasons, a separate central hardware system was installed in Berlin. This divide into two systems (Bonn and Berlin) entails a significant improvement of availability and software maintenance. The functionalities of the systems are determined by the produced TV programme. Beside the agency reception, the machine control for the teleprompter and the caption generator initiated by the programme planning currently play an important role.

As an emergency action, both NDS centres were connected in such a way that agency messages on a local NDS can be retrieved from the other location, i.e. messages in the NDS in Bonn can be retrieved in Berlin.

Archive databases Music and Word (ADAMO)

In 1997 the archive database Music and Word ADAMO was set up to archive DW's and external productions. Technical base is the database software Basis of the firm Open Text.

Reference data to archived sound storage mediums and audio files are stored. For digital recordings the respective reference data is linked with the audio file that is deposited on DW'S mass storage. Editors search for music and word recordings on a Web interface of one of the two databases. As long as the wanted recording is available digitally, it can be "pre-listened" in reduced quality directly from the result mask using a media player. By using this result mask, copies of audio files can be transferred from the audio mass storage into the digital production and broadcast system (DIAS).

In 2003, the database system has been integrated into the new hardware and operating system SUN/Solaris. Currently about 1,300,000 music and 200,000 word data files are stored.

After the set-up of the NRS (Newsroom System), the archive databases Music and Word can be retrieved via the NRS user interface.

Text Database for Manuscripts, Press and Agency Messages (ADAPRESS)

In order to supply the editorial teams with up-to-date information and background reports from German and foreign-language newspapers, journals and other press publications, the electronic press archive (ADAPRESS) was set up in 2000. The system using a database was installed by the company CCI (today Atos Origin).

To provide the editorial teams with a wide range of publications, DW established a co-operation with other ARD broadcasters named PAN (Press Archive Network). The regional broadcaster WDR installed an own acquisition system for DW. The system ADAPRESS serves as research database.

Via a net connection up to 2,400 press articles (reference data, ASCII-texts, images) are transferred from the participating broadcasters to DW's press database. Beside press articles some chosen manuscripts stored in the NDS are transferred via WDR's acquisition system to the press database ADAPRESS.

Within the scope of the NRS project, the archiving of manuscripts and the archiving of chosen agency messages in the press database is envisaged. Firstly, a data export to WDR's recording system must be installed.

At the moment a fill level of 140 GB is reached. The yearly growth rate is about 40 GB. This rate will increase significantly with the start of the archiving of agency messages. Editors can retrieve press articles via a Web interface. It is planned for the future to retrieve the press database via the NRS.

Digital Audio Production and Broadcast System (DIAS)

In several expansion stages the **Di**gital **A**udio Production and Broadcast **S**ystem (DIAS) at Deutsche Welle was built up. Core task of this system is the production of

simple audio contributions by editors at so-called audio-work-stations (AWS), the play-out of all contributions in the broadcast studio and the programmed play-in and –out of contributions in automated broadcast tracks (e.g. transcription service Radio, music channel).

The complete tape-free production and broadcast handling is realised with this system through a multitude of interfaces (e.g. to the digital audio archive, to the programme and contribution exchange as well as to studio production systems).

In 2001 the final state was achieved and in 2003 the system was adjusted to the requirements of the new broadcasting centre. The asset comprises about 60,000 titles with an audio capacity of about 600 GB (approx. 5,500 hours).

About 700 users deploy the system at 50 audio work stations, 150 edit stations in the editorial departments. Furthermore 80 PCs serving as play-out or editing computers in the broadcast and production studios and in the play-in areas.

The production and broadcast system possesses fully-automated interfaces to several systems, such as:

- Replicator (contribution exchange between the members of the ARD and the capital studio)
- DigaMailbox (individual contribution-file-transfer via ISDN)
- individual contribution-file-transfer via the Internet (FTP, HTTP, E-Mail)
- programmable recording system for internal and external audio sources for up to 24 parallel recordings
- production work stations (SADiE) with professional, linear edit system for high-quality cutting
- Pre-listening of contribution at any PC via a Web interface (DaletWeb)
- Exchange of contributions for long-term storage (digital audio archive)
- Contribution transfer for the Internet presence of the DW CMS (content management system)
- Provision of billing, controlling and documentation files for the SAP system (DW's bookkeeping system)

The currently used production and broadcast system at DW-RADIO in Bonn (software: DALET 5.05) must be replaced. The to-be system must meet technical further developments and increased requirements to a production and broadcast system. The DIAS interface used by the editors needs to be initiated from the NRS in the future.

TV database of the ARD Network (FESAD)

FESADneu is a co-production of the ARD members that will replace the currently existing database FESAD which has been in use since the mid-80s. The data organisation is based on the relational database management system Oracle 9i which will replace the hitherto used STAIRS database from IBM. FESADneu has been used by the TV archive of Deutsche Welle since December 2004.

FESADneu documents and archives all TV productions of DW-TV as well as camera material, external material and agencies. The database is the reference system to the archived material and supports the re-use of DW's programme. Via a Web client all data of the TV archive can be retrieved in read-only mode. In the future the TV database can be accessed with the NRS.

FESADneu will be expanded successively: a new interface to the server-based production systems (FESADpreview) and a new module for electronic programme exchange (PASAD) will be installed.

After the introduction of FESADpreview the application can be started while using the NRS.

Content Management Systems of DW-WORLD

DW-WORLD uses several content management systems (CMS). These are made up of an editorial system and a presentation system, both containing an emergency system, as well as a test and development system. Central database is an Oracle database server which has a stand-by database and a MySQL database.

At the moment DW-WORLD's offers following Internet pages:

http://www.dw-world.de
http://mobile.dw-world.de
http://www.kalenderblatt.de
http://www.campus-germany.de
http://www.dw3d.de
http://www.german.tv
http://www.inspiredminds.de
http://www.germanizer.com

The applications have several interfaces to other applications (inter alia DW networks, DIAS, NDS, Internet provider).

Within the scope of the NRS project it is planned to integrate a user-friendly way to transfer manuscripts from the NRS to the CMS. Furthermore, online manuscripts of each language shall be made available in an NRS pool for DW-internal research.

Video Management System (VMS)

In the course of the digitisation of the TV production, Deutsche Welle integrated a video management system (VMS) in Berlin. The complete system will be implemented successively; the VMS is only the first part of it. It is fully operational since the beginning of 2006.

The system is responsible for the digital (news-) production process. It records automatically or manually the video feeds of following agencies:

- APTN
- Eurovision (EBU)
- Reuters Television
- More routes (transmissions etc.)

Editors can watch and choose a low resolution copy of the recorded material. The editor compiles an editing list (EDL) that is processed either automatically by the system or by a cutter working at a non-linear edit suite. The result is a video file ready for transmission. It is transferred to the broadcast server "Omneon" after release by the duty editor. Furthermore contributions can be processed immediately by foreign-language editors.

In a later stage a so-called highlight archive will be implemented in the VMS. The highlight archive enables editors the fast access to older material that bears reference to the latest news.

The further development of the VMS requires a close connection of the VMS to the news distribution system as well as to the newsroom system.

The requirements are:

- the use of a distinct machine-readable contribution ID (from the first idea to the billing after the broadcast)
- Integration into the transmission scheduling of the NRS. A "viewer" playing video files shall be started from the contribution pool of the NRS or from the broadcast schedule of the NRS
- Providing key frames which can be displayed as thumbnails in every summary of the NRS
- Providing information on the edit status of a contribution to be displayed in the transmission schedule of the NRS
- Providing metadata for further use in the contribution container of the NRS.

  Examples:
  - Title
  - Author
  - Source
  - Date
  - Additional information

A central requirement to the VMS is to follow the Microsoft Office Specialist (MOS) standard to ensure a smooth integration into the NRS as well as the ability to integrate clients of external applications in the interface (plug-in).

Time, Topic and Transmission Scheduling (TTS) at DW-TV

The TTS is relevant in following fields:

Time scheduling

Topic planning

Transmission scheduling

Contact management

Producer's estimate

Handing over to internal payment allocation

In conjunction with the NRS project internal payment allocation, producer's estimate and contact management are not considered.

Following illustration provides an overview about the TTS processes and entities.

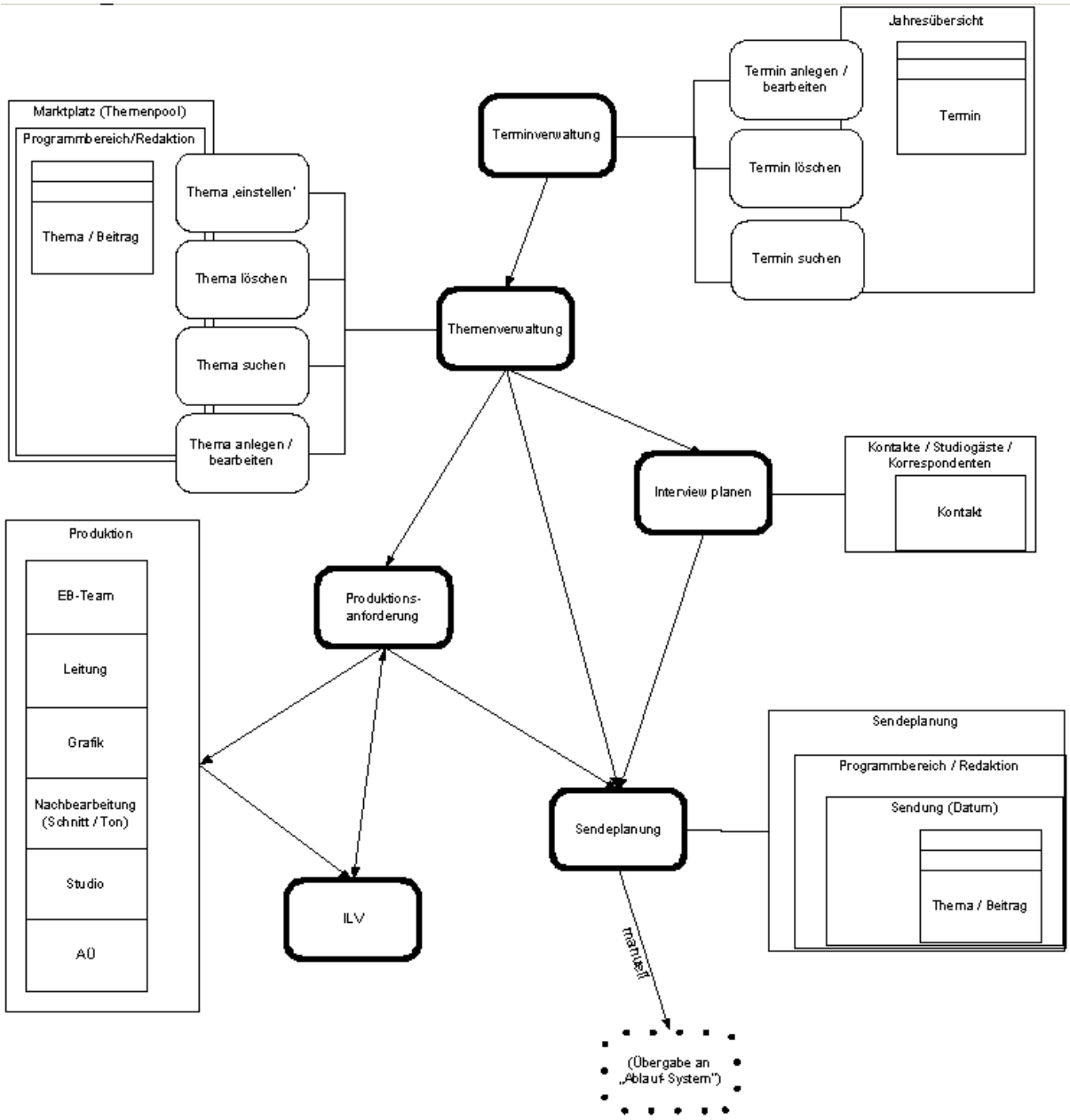


Figure 5: TTS processes and entities at DW-TV

The TTS is Web-based (HTML, IIS,MS-SQL server).

Time scheduling

Time scheduling is a fundament for topic planning. Beside date and time, the title, search terms and memos are collected.

A fixed date can be allocated to one or more editors and/or directly be taken over to a topic.

The daily schedule contains all fixed dates of the day and all dedicated broadcasts and topics. More overviews exist: monthly and yearly schedules as well as an evaluation of free dates, i.e. those dates that are yet not allocated to a broadcast.

Topic Planning

A topic entry includes following data:

- Production number

- Cost centre / cost unit
- Editorial staff
- Duty chief, duty editor, telephone number
- Reporter
- Date and length of broadcast
- Title
- Memos (information, links)
- Manuscript
- Producer's estimate

Editors use the topic planning for a long-term preparation and for requesting the essential production resources.

A topic entry can be initiated by fixed dates (from the time schedule) or other sources such as the news situation (agency messages), editorial conferences or the necessity to request production resources.

Topic entries that are not allocated to a broadcast date are stored automatically in the topic pool. After allocating a broadcast date, the topic can be found in the transmission schedule.

Accepted manuscripts and archive memos are in the topic of the transmission schedule; the status is displayed in the summary. The archive memo is the starting point for creating the insert list. The insert list is transferred manually into the transmission schedule or directly into the caption generator.

Transmission Scheduling

The transmission scheduling is also used for short-term scheduling.

The work in the transmission scheduling is carried out with a selection mask. By choosing the date the broadcast schedule is opened; it sums up all contributions of the day and per editorial staff. Furthermore allocated dates and interviewees are visible. Via "topic pool" one can access free topics.

Existing contributions without broadcast date can be allocated to a broadcast here. Contributions which shall be repeated are also entered here.

The transfer of contributions into the newswire transmission schedule is carried out manually in the presentation continuity. This work flow includes the supply of contributions and the registration of all required components for the continuity. This work can be partly accomplished by using copy and paste.

The time, topic and transmission scheduling shall be realised in the new NRS. The TTS systems in Bonn and Berlin have the same technical groundwork, but they vary in their functional range. The functional requirements can be found in the corresponding chapters.

TTS at DW-RADIO

The system time, topic and transmission scheduling (TTS) Radio is based on the homonymous system of DW-TV, but the specific Radio requirements have been taken into account. It comprises of the modules transmission scheduling, topics/contributions, diary, contacts/interviews and a secured area for master data administration.

The TTS displays the programme structure and the broadcasts of DW-RADIO in different importance levels. The top level contains the programme pattern which is

structured by day and time of broadcast and programme line. The single broadcasts are located in the programme line. Due to the summer/winter time change the programme line must be adjusted at least twice a year. Programme reforms entail more modifications. The structure of the programme line in the TTS should comply with the structure used in today's DALET system. An automated adjustment does not occur. The consistency between the two systems is currently not warranted.

The beginning of the scheduling or the documentation of a broadcast starts by choosing the appropriate programme or the wanted day of broadcast. The modules time scheduling and contacts/interviews may be used irrespective of a certain broadcast. One can connect these by taking over fixed dates or contacts.

The contribution level is displayed in the modules topics/contributions and transmission scheduling. The module topic/contributions offers a non-sortable overview about all contributions of a broadcast or of the day of broadcast. The order of the single contributions of a broadcast is set in the transmission schedule.

The TTS system shall be replaced completely after the start-up of the NRS.

6.3. Work Flows and Objectives at DW-TV

Core Process Information Extraction

Work in a TV editorial staff is fragmented and the division of labour requires a twofold display of all NRS-relevant work flows: as a process model and as activities of all persons/roles/systems involved. These two models help to vulgarise work and data flows and processes that come along with the production of a broadcast.

To ensure ascertainability, the representation as activities requires the reduction of the complex interactions of a TV editorial staff. This representation allows for seeing all NRS-relevant activities in the system context. The activities that take place in the NRS environment are also displayed in the process representation.

Text information on all activities is provided in the following chapters.

Representation of Activities/Data

To the left of the activities, the data sources are shown, to the right the results of the activity are displayed. Details are not given here. The details on the data can be found in the directory of services under "Data flow in the work flows".

Roles

By reducing the number of involved persons to four, the representation is simplified significantly. It is reduced to such roles that are important in the later technical realisation (authorisation concept, mechanisms of communication). A role can be taken by different users and a user can perform different roles (at the same time).

Following roles are of importance in a TV editorial staff:

- Orderer – in general duty editors
- Producer – e.g. reporters, correspondents, authors
- Service providers – cutter, sound recordists, designer, speaker, cameramen, and colleagues from the editorial staff

Obtaining Information

The process of obtaining information has many consistencies in the single departments DW-RADIO, DW-WORLD and DW-TV. There are no fundamental

differences in the activities research and time scheduling at DW-RADIO, DW-WORLD and DW-TV.

At the beginning the data must be collected, indexed and provided with metadata. This first acquisition can be performed automatically (agency stream), manually (video feeds), locally (by the VTR editor) or remotely (metadata in the agency stream).

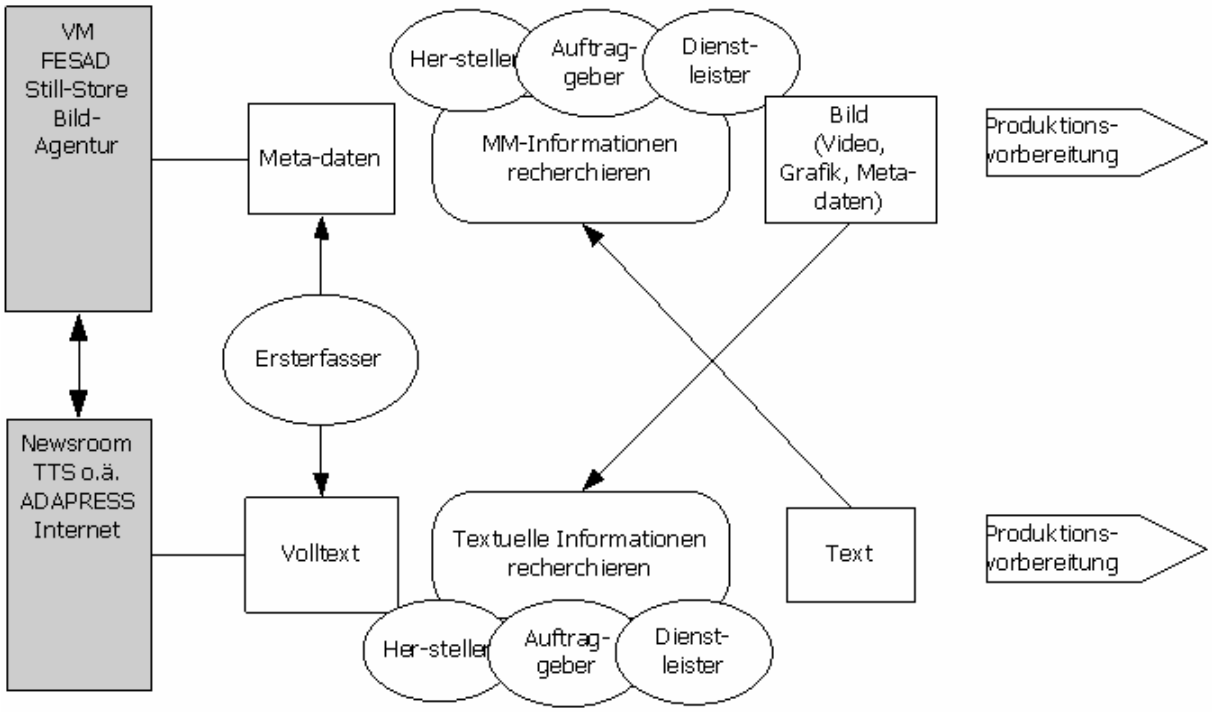


Figure 6: Dataflow in DW structures

The figure shows the data flow (on the left: sources and source systems; to the right: activity results):

Sources are:

- NRS
- Topic and Time Scheduling of the NRS (TTS at present)
- DW-internal databases
- DW-external databases
- Video Management System
- Graphics sub-system
- Archive systems (for text and multi media content)

Four defined roles participate in the information obtaining process:

- Collector
- Orderer (for topic evaluation)
- Producer (for realising topics)
- Service Provider

The activities „Search for text information“ and „MM information“ (**m**ulti **m**edia information) interact: if multi media content is found, search for additional text information may be required. Correspondingly, retrieving text information may lead to the search for adequate MM content. This procedure my lead to several iterations within the process “Obtaining Information” - in any case it ends in an information pool that is forwarded to the process “Production Preparation”.

The following figure demonstrates the work flows and illustrates the main difference between text and multi media research: multi media content (graphics, videos) must generally be modified by the collector, before it can be retrieved in the NRS or a sub-system. In any case the research result is the same: information that is directly influencing the evaluation of a topic and the production of a contribution.

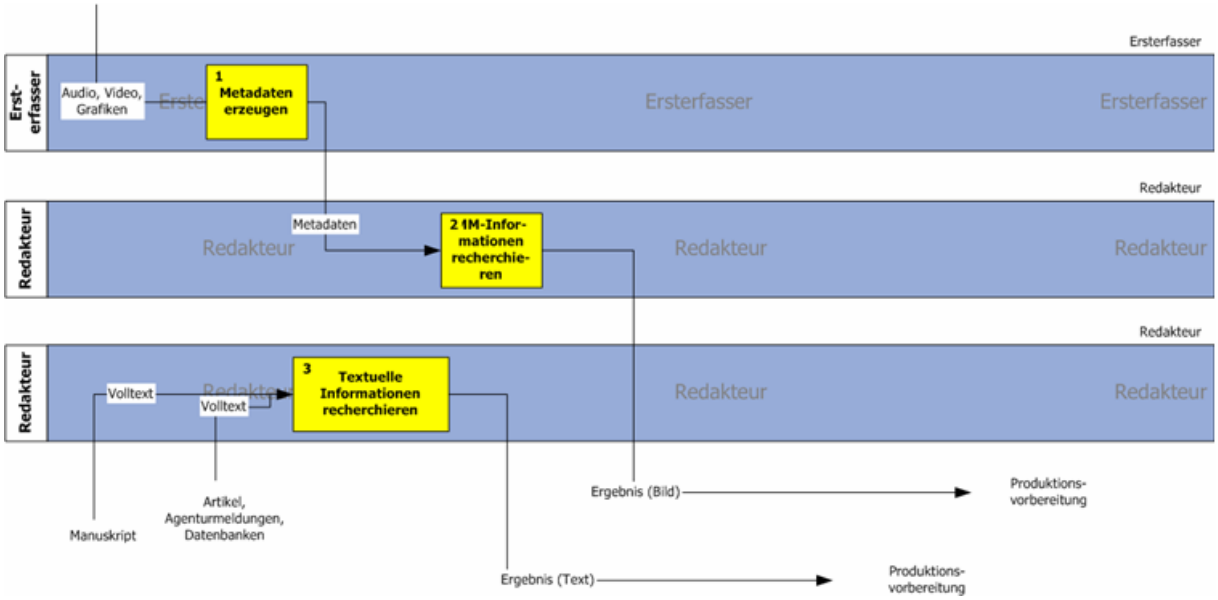


Figure 7: Workflows in DW structures

Producing Meta-data (1)

For the time being image and video agencies do not provide trustworthy and complete meta-data to the actual content. Consequently, an automatic transfer into the editorial system is not warranted. The systems for the creation and the modification of meta-data must support the editor’s work intuitively and user-friendly. First, the content must be viewed and a suited sub-system (application window or ActiveX-Plugin in the NRS window) allows for the creation and modification of meta-data. The NRS must provide an opportunity to import the meta-data from the sub-system, to display the retrieved text information and to make it available for research.

Information Research

Basically the clients of each sub-system have a more or less sophisticated search function. In order to ensure an efficient and convenient research, the NRS and its sub-systems should provide a consistent search function.

Multi Media Information Research (2)

Multi media content, when not fed in a broadcast live, comprise

- Audio data from the sources:
  - ADAMO
  - DIAS (very uncommon)

- Video data from the sources:
  - Video Management System
  - FESADNeu
  - Avid Environment
- Graphics data from the sources:
  - Graphics Sub-system (Signum, VizRT)
  - AP Image Server
  - Internet Image Databases

The direct research of multi media (i.e. contents saved in binary format) is not possible, but the search for meta-data. For the research text terms of one or more of the following categories are necessary:

- Source
- Date
- Time of day
- Title
- Description
- Priority

The search can take place in any system/sub-system that contains meta-data for MM content. These are VMS, graphics sub-system and other systems at the periphery (e.g. ADAMO), but also – after importing the meta-data - the NRS. By clicking the search result, a viewer/editor opens: if a client is installed in the sub-system the application itself (ideally as plug-in in the NRS client), at any other working places a web client or a license-free viewer.

Researching Text Information (3)

Text information can be found in:

- Articles from:
  - Daily newspapers (analogue)
  - ADAPRESS
  - Internet Archive Databases
- Manuscripts from:
  - NRS
  - ADAPRESS
- Agency Messages from:
  - NRS
  - Databases with access: Intranet, Internet

For searching text information in the NRS it is necessary that the NRS offers a search engine. It would be helpful to install a “meta search” for data that is not imported into the NRS, i.e. the search mask of the NRS forwards the query to other sources.

The user can take search terms of one or more of the following categories:

- Source
- Date
- Time
- Title
- Keyword
- Full text
- Priority

The search results should be listed and linked to the appropriate full text.

The search results can also be the starting point of a new research. Text and MM search may influence one another. The result of the core process is information that is part of the media product (contribution, presentation, broadcast).

Core Process Production Preparation

Due to the plethora of feasible sources and the subsequent work steps, the core process "Production Preparation" has many activities that are carried out simultaneously.

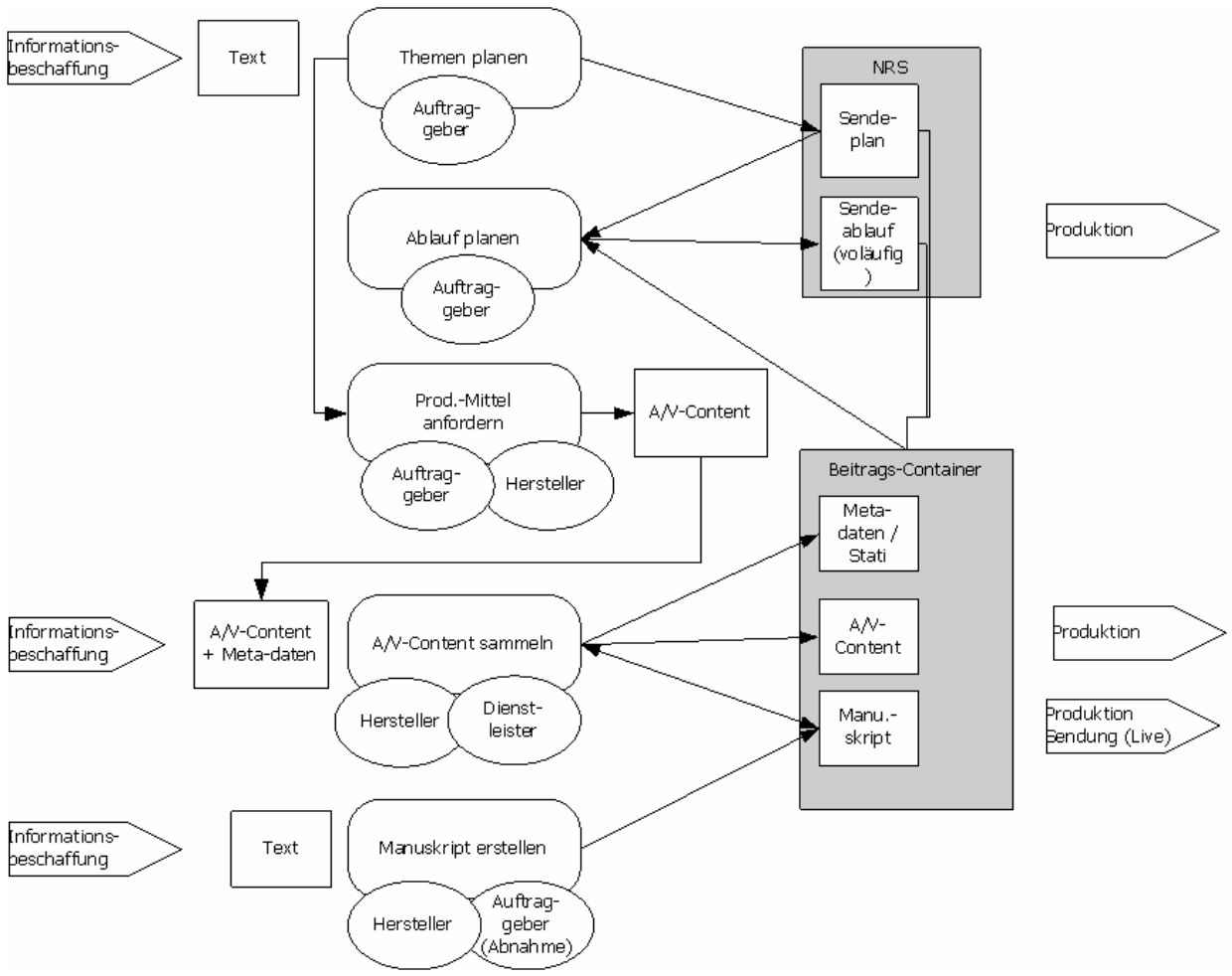


Figure 8: Core product production work flows

The figure shows an overview of data and work flows. The flow is running from the left to right and from the top to the bottom (beside interactions and loop-backs). The activities "Topic Planning", "Story-board" and "Creating Manuscript" are NRS-relevant and are displayed graphically in the following.

Topic Planning

Topic and story-board planning are core activities of a newsroom. Beside collecting, administrating and displaying agency messages, a modern NRS must support ideally the editors at the creation, administration and realisation of a transmission.

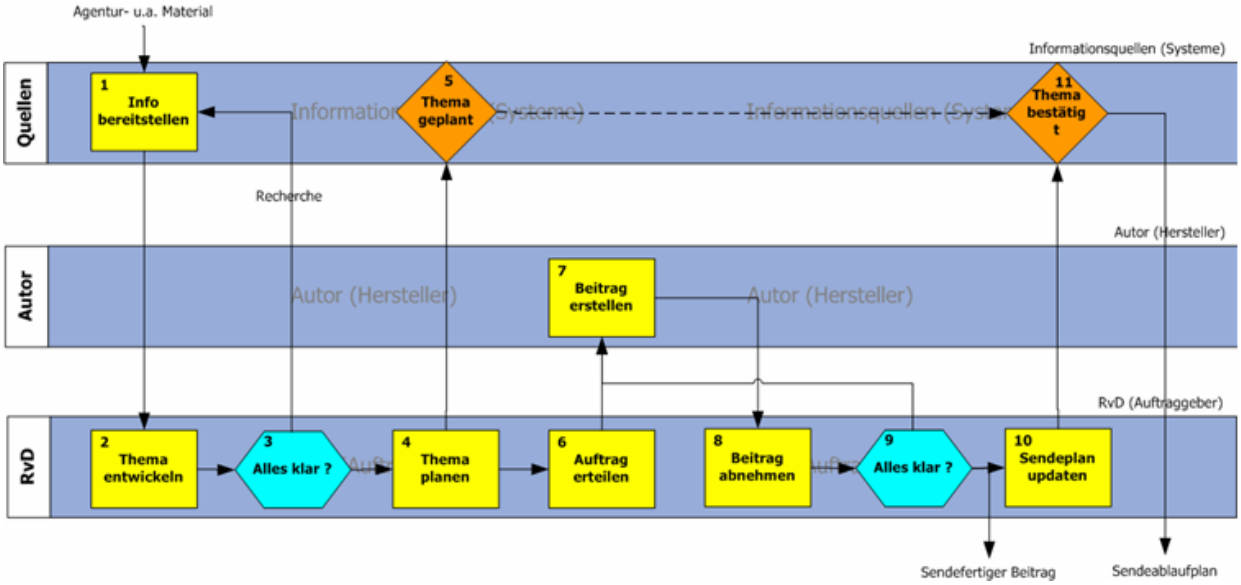


Figure 9: Topic Planning, Story-board and Creating Manuscript workflow

Providing Information (1)

Information is the starting point for topic planning. This information is available in text format be it an agency message, news, a notice or simply a thought. The information is analysed, a topic idea is born and evaluated by the editor and his team. The NRS supports this interaction between editors and their colleagues (e.g. instant messaging).

Topic Development and Planning (2,4)

At the end of the editorial process the topic is recorded in the topic plan. The system for storing and modifying topic plans should be integrated in the NRS or at least connected to it via an interface. To develop a topic, the duty editor must be able to create a "contribution pool" in the scheduling tool (NRS or other). This set of data can contain various text or MM contents (copies of the raw data or a link to the raw data). The contribution pool is either stored in the story-board of an existing broadcast or in a pool defined by the editor. By drag and drop it can be moved to the story-board of the broadcast in which the contribution shall be transmitted the first time.

Here are some examples of object in a contribution pool

Broadcast materials:

- Video clip
- Contribution text
- Presentation text

- Inserts
- Frame graphics, set-in

- Information materials:
  - Agency messages
  - Presentation proposals
  - Archive material (text or multi media) as background material

Only a limited number of materials to be broadcast can be stored in the contribution pool (example: only one video clip, but more inserts). In contrast, any number of information materials can be added to the contribution pool. The run-down transfers only broadcast materials for the play-out to the sub-systems. In case information material is rededicated during a transmission, the sub-systems must receive this information and the play list must be corrected accordingly (cf. §functional requirements to the interfaces").

Story-board

The creation and update of story-boards is a continuous process starting days or weeks in advance of the transmission and ending with the broadcast.

This process starts with collecting topics and ends in an entry in the broadcast schedule and, thus, in a contribution pool for contents and meta-data.

Updating Broadcast Schedule

The broadcast schedule should be updated manually or automatically (through status changes in the NRS or other systems). After creating or transferring a contribution pool in a transmission schedule updates can be carried our by:

Status change "Approved" (texts: in the NRS; video clips: automatically from the VMS or manually with acknowledgment to the VMS)

Status change "For transmission" (automatically from the VMS or manually with acknowledgment to VMS, additionally this change must be noticed in the run-down for the sequential control of submission "Pebble Beach", because the contribution cannot be broadcast otherwise)

Status change "On hold" (manually, must be taken into account in the run time calculation: on hold contributions are not counted and this status must be transferred to the studio server)

Status change "Activated" (contrast of "On hold", manually)

Status change "On air" (automatically from the sequential control of submission "Pebble Beach")

Status change "Transmitted" (automatically from the sequential control of submission "Pebble Beach")

And all changes in the contribution pool, e.g. meta-data, text run time of a contribution

Requesting Production Resources

With the creation of a contribution pool the production preparation of the actual contribution starts. At this stage it means the request for production resources:

Camera team

Transfer

Creation of graphics

Booking of an edit suite

The A/V content produced here is raw material for the actual production. It is together with the A/V material from the core process „Information extraction" the working material for the activity "Collecting A/V content".

Collecting A/V Content

Creating and Accepting TV Manuscript

Core Process Production

Cutting a Contribution and Setting the Contribution to Music

Accepting Contribution

Completing Story-board

Core Process Transmission

Running a Transmission

Core Process Post-Processing

Archiving

Bringing to Account

6.4. Programme and Publishing Structures at DIAS

DIAS is the largest media group in Cyprus operating two TV and three Radio stations along with publishing two newspapers and six magazines.

Broadcasting

- **Television**

Sigma

Sigma is the only fully independent television station in Cyprus, celebrates ten years of broadcasting this year. On the air 24 hours a day, seven days a week since 1995, It attracts a mainly young, urban audience in the 18-45 age group. Sigma licenses content directly from all the major US studios and from the largest international distribution companies and but also produces a number of local series and shows. Sigma TV has the largest news production group on the island with a number of journalists and news crews.

Sigma Sports

Recently Sigma has lunched two new digital channels that will be dedicated to sports and primarily the UEFA Champions league for which Sigma has an exclusive broadcasting agreement with UEFA.

- **Radio**

Radio Proto
Launched in 1990, Radio Proto is now the most popular island-wide radio station. It has the widest selection of news, music, talk shows and DJ personalities on the island. It broadcasts live 24 hours a day on the Internet and claims more than 10,000 unique visitors per day. Radio proto also has a dedicated group of journalists and sport analysts but frequently cooperates with journalists from both the television's news group and journalists from the publishing department of the company.

Radio Super
Radio Super is the primary choice of music stations on the island. The program is focused mostly on Greek music with frequent guest stars from the Greek and Cypriot music scene.

Love radio
Love radio is the Cypriot version of the well known Greek radio station. The Greek program of the station is re-transmitted to the island.

Publishing

- **Newspapers**

Simerini
Simerini is an independent tabloid with an average daily circulation of over 10,000 copies. Its circulation shoots up to 35,000 on Sundays, when the second-largest in circulation magazine in Cyprus, TV Star, is distributed with the paper. SIMERINI is the first Greek speaking newspaper to offer its readers an electronic daily edition on the Internet in 1998 with more than 10,000 unique daily visitors that generate more than 120,000 hits

City free press
City free press is the first free press newspaper on the island of Cyprus. It circulates on the Friday each week. The distribution points for the newspaper are Cafes, Bars and other social venues around the island. The content is mixture of lifestyle, entertainment, sports and other easy to read material.

- **Magazines**

Time out
Time Out Cyprus", the first international magazine to be officially licensed for a Cypriot edition. The first issue, published in February 2002, sold out its initial print of 7,000 copies within days and it is already another success for Dias.

"Time Out Cyprus", which is published in Greek, follows the style and format of six other Time Out magazines, providing information on a huge range of entertainment genres: cinema, theatre, music, art & books, sport, clubs & bars, eating out and more. In addition to the related articles and listings, the magazine also features some 40 pages of interviews, features and regular columns aimed at a broad readership aged 18-45.

Mme Figaro

When it became obvious that the Cyprus market not only has the capacity but also requires the existence of a new monthly magazine for women, Dias Publishing House decided to fill in this gap by bringing to Cyprus the successful international magazine Madame Figaro. With subjects both taken from the international versions and original content Madame Figaro has established itself in the Cypriot market.

To Periodiko
Founded in 1986, "To Periodiko" was the first weekly magazine to be published in Cyprus. It introduced colour print and advertisements for the first time and claimed more than a 25,000. "To Periodiko" is a full colour weekly magazine with features on current events, politics, lifestyle and fashion.

Exclusive
Free with the Saturday edition of simerini , it has been a favourite with the reading public since its very first issue. The rich and famous, celebrities and VIPs, who's hot and who's not they're all in Exclusive.

TV Star
A popular television magazine, which combines a TV guide with features on entertainment and the island's social life. It has a weekly circulation of 25,000 copies. STAR circulates on Sundays.

In Business
In Business is the first and only business magazine exclusively for the Cypriot market. It is published monthly with topics that focus on both the local and international markets.

6.5. Existing Applications and Systems at DIAS

- **Television**

Newsroom software

The news department of Sigma TV uses a newsroom solution offered by Autocue Ltd. The original version was installed in 1995. This was based on a Dos and Novell environment and was used until 1999. In 1999 the infrastructure was updated and WinCue, the new version of the software for the Windows environment was installed. The solution allows for workflow control of news items with a review and approval process, archives old items that then can be searched, automatically receives feeds from wire services and makes them available to the journalists and can feed approved items to the autocue prompter.

The system is currently used by the team of about 20 journalists on site and covers all the newsroom needs.

Feeds from Reuters, the Cyprus news agency, the Athenian news agency and the Reuters TV service transcripts are digested by the system and made available to the whole editing team.

The plans for the near future include an update to the newsroom software with a solution that will also offer the opportunity to journalists to access digital video material, not just text transcripts and do rough editing and scene selection.

News Archive

Because all video content currently available is stored in analogue format a large collection of news items is available in Betamax tapes. These tapes are archived by the news department using a web based software that was developed by a local firm.

The person in charge of the archive labels all tapes that are to be stored and enters the code into the system along with a description, keywords and date. This is then made available to all journalists to search for relevant visual material from the search interface of the software.

With the digitization of the newsroom software down the road this software will too be replaced with a solution tied to the newsroom software. As the amount of data already available in Betamax format is quite large the old News Archive program will be available along side any new solution until the analogue data is converted to a digital format and imported into the new system.

Programs Archive

A modified version of the News Archive solution is also used to manage the rest of the TV's inventory too. While all features of the News Archive software remain the same, features for tracking of contracts and what material has been used have been added.

Even with the digitization of the newsroom the management of the rest of the TV's inventory will be managed for a while yet by this software as the amount of Betamax tapes available is many times that of the News Archive. Furthermore plans of going fully digital are still not in the immediate future as this has a very high cost.

Continuity

The continuity software is a legacy system used to interface between the commercial management software and the video servers that store and broadcast commercials. It is written for a DOS environment and will be made obsolete by the new commercial management software.

- **Radio**

Megamix

Megamix is a radio automation software developed by Soundsoft Ltd and is used in all of the group's Radio Stations. The software is based on a client server architecture with a central database where all audio material is available and accessed by a number of different clients. The main type of clients are the On-Air client which is used at the radio studio, the commercial client which is used to schedule commercial breaks and the scheduling client that is used to create play lists.

The main database can store music in mp3, wma and wav format.

- **Publishing**

NewsAsset Press Edition

News Asset is the publishing software used by all newspapers and magazines of the group. News Asset is a product of ATC and was installed at the beginning of 2005. It offers a full publishing solution including content management features, content work flow, fully searchable archive, digestion of wire feeds, integration with page layout software and web publishing software.

The software offers journalists their own workspace where they can create and store documents, search for older published articles or wire service items and collaborate with others to create content.

News Asset is based on a central repository that stores data along with metadata for all items which can then by accessed by clients from within the LAN or from the internet which allows

- **Commercial management**

All commercially related activity, such as advertisements and sponsorships are handled by a program written by Greek software house Askew. The program handles all activities related to the sale of air time or space to customers. It has a basic customer relationship management module, an advert inventory where the program keeps track of the material that is to be played or printed, scheduling for the radio and television where advert breaks can be scheduled in the program and the advertisements to be played are chosen and finally a module that keeps track of customers contracts and activities.

The software is custom made and tightly tied to the procedures that where followed at the time the software was purchased. This software is in the process of being replaced with a more modular software. The new software will have roughly the same structure as the system being replaced but will allow better integration between the television, the radio and the publishing departments of the group and be more flexible in interfacing with current broadcasting and printing equipment.

6.6. Work Flows and procedures at DIAS

- **Newspaper**

Layout

The newspapers daily layout is decided by the editorial staff of the newspaper and the newspapers advertising department. The advertising department checks the number of orders in the commercial management software for the Newspaper of the next day. It then prepares a first layout with the advertisements placed in the right places.

The layout is then handed over to the editorial team of the newspaper. The editors then decide the amount of articles that will be needed to complete the newspapers layout.

Articles

Each day a number of main articles are included in the newspaper regardless of what layout is handed to the editorial staff from the advertising department. After the editorial staff receive the initial layout the decision for what other articles will be included is taken and assigned to journalists.

Through the publishing software the articles follow the workflow and once approved for publishing are transferred to the layout department that finalizes the page layout and sends the paper to be printed.

Metadata is attached to articles and pictures as this information is entered into the system. Since the text of all articles can be searched, the metadata entered by the journalists for text articles is considered sufficient. This isn't the case with photos so all photos that enter the workflow are later re-examined and further metadata is added to allow for a richer photo archive.

- **Radio**

Programming

The radio programming department had two main jobs. To schedule what programs are playing and to give a rough outline of what kinds of songs will be played during the programs. The scheduling of radio programs is pretty easy as the program doesn't change much with the exception of sport events which are usually just added into the schedule at a later time and replace whatever program was scheduled to air.

The creative department of the radio department meets on a weekly basis and sets guidelines for producers to follow during the week. After the decision is made play lists based on the guidelines are entered into Megamix. For any song requests that are not immediately available in the Software, producers ask the programming department for the song or album. If the music requested is not in the Megamix database but can be digitized (for examples if on a CD that can be converted to mp3's) it is added to the database, if not the cd or vinyl is prepared so that the producer can pick it up before her radio program.

Advertisements

As the number of advertising slots per each hour of air time is fixed the advertising department can schedule the breaks ahead of time. Using the commercial client they scehdule a number of breaks for each hour and upload them to the database. It is then up to the producer of each program to schedule these breaks into the transmition.

News

The news department prepares news updates at the beginning of every hour and two larger news programmes that are transmitted daily in the morning and at midday. The news production uses a mix of data from both the newspaper and the television departments for the hourly updates but produces mostly original data in the format of phone and studio interviews for the morning and afternoon news programs.

- **Television**

Programming

The Programming department of the television prepares a rough outlines of the schedule at the beginning of each month. This program is then handed to the advertising department that adds to the rough outline advertisement breaks. This rough guide is then sent to all customers and advertisement agencies.

As this is only a rough guideline the daily schedule is usually revised multiple times but must be finalized by the programming at 17.00 on the day before it is to be aired so the programming department can prepare all material that is needed for transmission. The advertising department is allowed more freedom in changes to the advertising schedule as long as it does not exceed the allocated time slot.

Advertisement breaks

As soon as customers receive the schedule the advertising department starts accepting orders for booking airtime. Customers that have contracts for a specific time slot get priority while other are served usually on a first come first serve basis.

News Department

The news department prepares news updates and current affair programs. The news updates are produced daily and transmitted at 18.00, 20.30 and 24:00. The news programs are usually a mixture of both international and local news items. For local items a journalist and a cameraman are sent to capture the pictures. After they return to the station the journalist books an editing station and along with a video editor prepares the video material for the report. After the editing is done the journalist then uses the WinQue software to add the report's script, which when approved by the News editor is sent to the prompter.

If archive material is needed for a report or program the journalists use the News Archive software to search for the material and after finding the material they need then request the tape from the archive department.

For international news the video feed provided by Reuters is the main source of video material. The video feed is automatically recorded and stored each day. Along with the video Reuters sends a transcript of the video which is automatically stored in the WinQue database. Journalists then search the transcripts for any data that interests them and retrieve it for use. They then follow the normal flow of video editing and writing the script.

When a report is finished the news editor decides which reports and video are worth storing in the archive.

7. MESH Requirements

The results referred to in all the previous sections have been transformed in this closing section into requirements for the MESH platform. These are first expressed in the form of 'Use Cases' and are then grouped as system functional and non-functional requirements.

7.1. MESH 'Use Cases'

The use cases are detailed in a tabular form describing necessary features as their goal, the pre and post conditions, the corresponding scenario excerpt and the steps necessary to carry out the necessary functionality, while these steps are also shown in more detail diagrammatically after each table. These Use Cases are meant to be the guideline for the initial design and the prototype implementation of the MESH platform. It is certainly expected that these will be refined during the design and implementation processes according to a continuous feedback loop to be finalised with the final delivery of the MESH system. The identified use cases are listed in the following table:

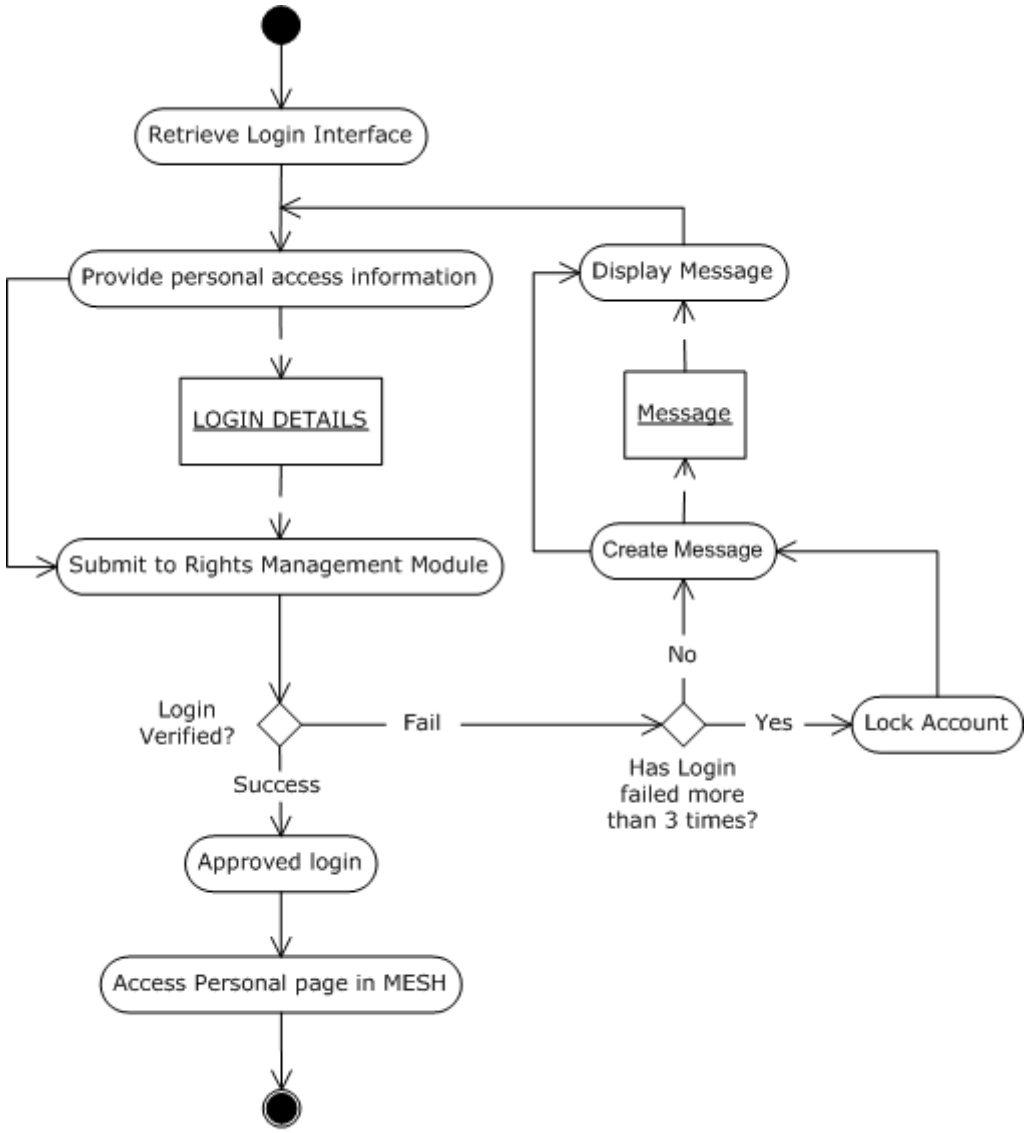
Table 6: MESH Use Cases

ID	Use Case Title
1	Secure Login
2	Community joining
3	Add new user
4	User pre-Registration
5	Add subscription services (Admin level)
6	Community building
7	Add user groups
8	User group permission policy
9	Search and select user(s)
10	Modify user
11	Content purchasing
12	Sale of news item to targeted user(s)
13	Pay in MESHros
14	e-Auctioning
15	Sell news item to MESH
16	Access personal repository
17	Submission of news content
18	Searching
19	Download content
20	Get news item from public to personal repository
21	Notifications
22	Subscription to MESH Services
23	Profile editing
24	Receive reporting
25	Content assessment
26	Manual annotation of news content
27	Speech to text
28	Text to speech
29	Real time summarization on mobile device
30	Automatic linking of media content
31	Dynamic profile update

32	Automatic annotation of news content
33	Input and analysis of news items from Ext. Sources
34	Generation of news summaries
35	Run service
36	Schedule delivery of service

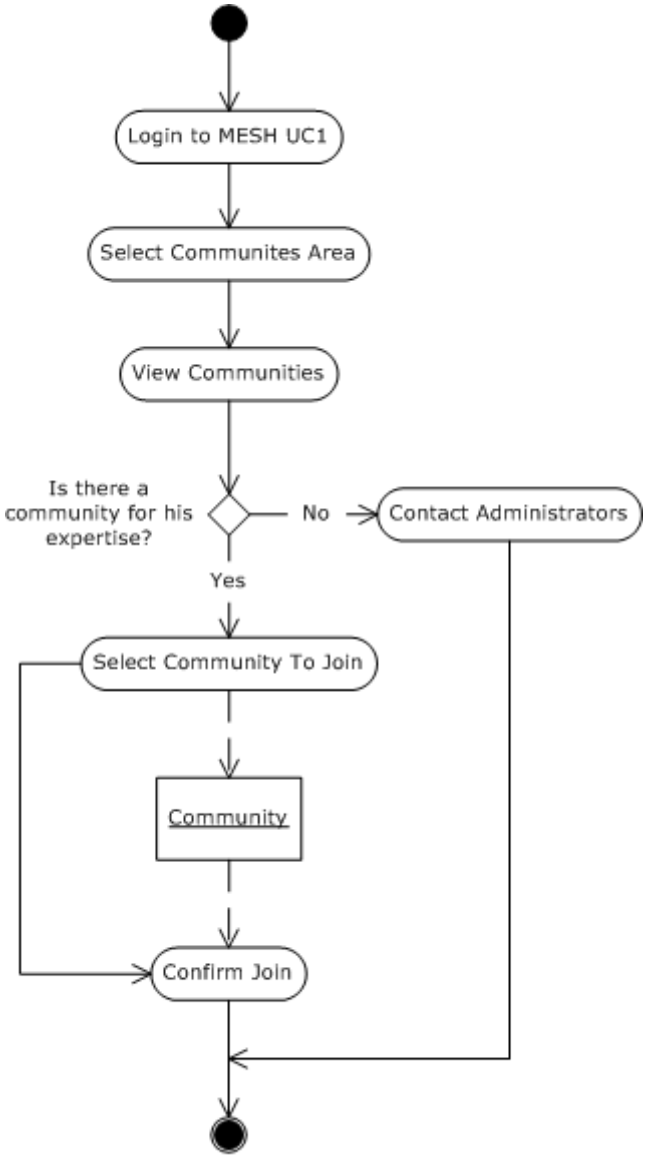
Use Case ID:	1		
Use case name:	Secure Login	**Use case reference**	1
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	25.09.2006	**Date last updated:**	03.10.2006
Role:	All Users		
Goals/Description:	User provides his access credential in order to use securely the MESH system.		
Scenario example:	Elias Bohn wants to secure access the system while travelling to submit his new article		
Pre conditions:	▪ To be pre-registered in MESH. ▪ To have internet access through his mobile device or his personal computer.		
Post conditions:	A secure connection is established.		
Priority:	High		
Frequency of use:	Several times a day		
Activity step Description:	1. Retrieve login interface. 2. Provide personal access information. 3. The user information is passed to the Rights Management Module. 4. The Rights Management Module queries the MESH database. 5. The Rights Management Module accepts or rejects the login request. 6. If the login request is accepted the user will be redirected to his own personal page in MESH. 7. In case that the login fails the user receives an alert message and is able to provide again his login data.		
Exceptions	▪ The user tries to login three times in succession unsuccessfully and then the user account is locked: After the second unsuccessful try a message window appears that informs the user that the account will be locked if the next try is not successful. After the 3rd unsuccessful try a message window informs the user that his account is locked. If the 3rd try is successful then his "unsuccessful try counter" is reset. The user should be able to contact the MESH administrator in order to unlock his account (UC#9) (if locked). ▪ The MESH system cannot establish a secure connection with the user. In this case a message window appears that informs the user.		
Includes	None		
Special Requirements:	None		
Assumptions	None		
Notes and issues:	None		
Non functional requirements:	▪ Response time for the completion of step 5 should be limited up to 5 seconds ▪ Portability: The service can be accessed by any supporting platform via internet		

	▪ Security: Due to the confidential character of all the exchanged data, the service should be provided on a strong secure connection. The service protection will allow only identified user to get access. Data encryption should be ensured at a high level.



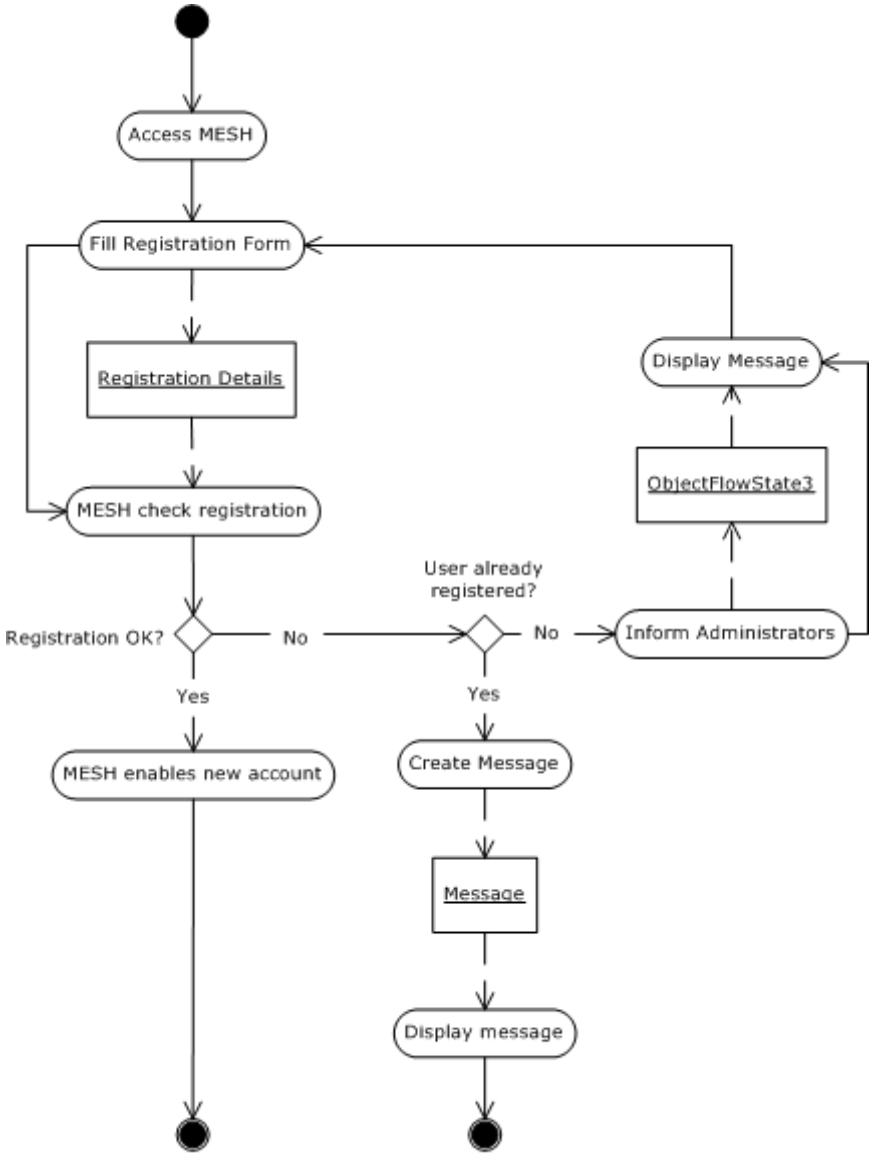
UC1: Secure Login

Use Case ID:	2		
Use case name:	Community joining	**Use case reference**	2
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	25.09.2006	**Date last updated:**	03.10.2006
Role:	All Users		
Goals/Description:	To provide community joining capability among peers who share common interests based on information from their profiles.		
Scenario example:	Elias Bohn needs to be member of a peer community group with specialists in his respective fields of expertise.		
Pre conditions:	To be registered in MESH and have a user profile.		
Post conditions:	Updating of the usage statistics and audit trail.		
Priority:	Medium		
Frequency of use:	Occasionally		
Activity step Description:	1. Access user area in MESH. 2. Select the community groups' area. 3. Select the area of expertise and join in relevant community. 4. Confirm and proceed.		
Exceptions	▪ MESH service is unavailable. The user is informed that the service is unavailable and asked to try again later or contact the administrators. ▪ No community exists for his area of expertise/interest. In this case the user should contact the administrators to add a community for his expertise or interest.		
Includes	Use case #1		
Special Requirements:	None		
Assumptions	None		
Notes and issues:	None		
Non functional requirements:	▪ Response time for the completion of step 3 should not exceed 5 seconds. ▪ Security: Due to the confidential character of all the exchanged data, the service should be provided on a strong secure connection. The service protection will allow only identified user to get access. Data encryption should be ensured at a high level.		



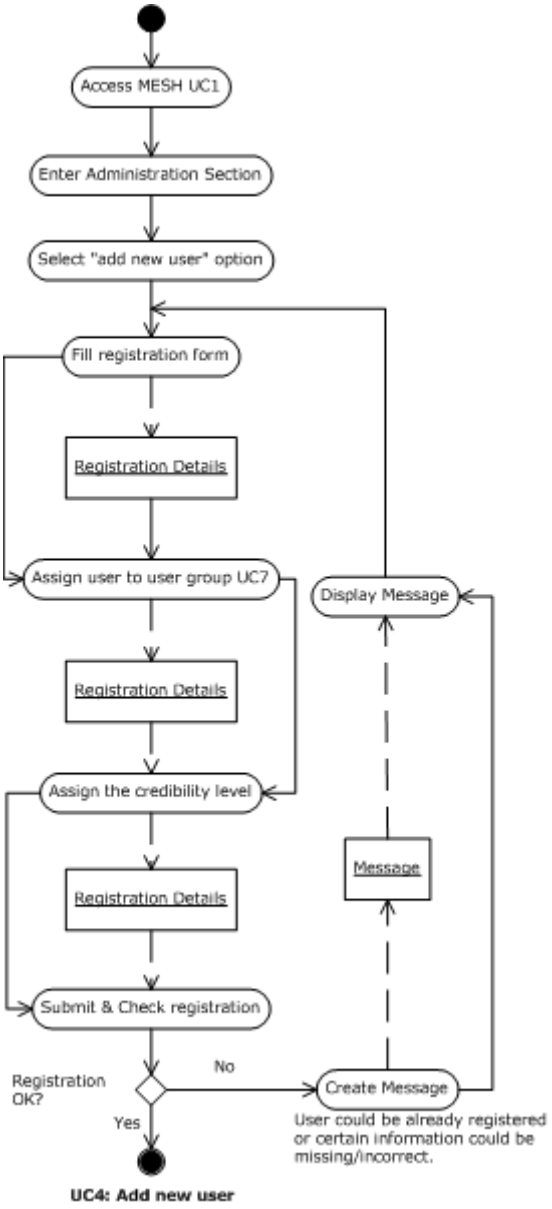
UC2: Community joining

Use Case ID:	3		
Use case name:	User Pre- registration	**Use case reference**	3
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	28.09.2006	**Date last updated:**	03.10.2006
Role:	Professional User, Business User, Personal User		
Goals/Description:	To provide a mechanism where users/organisations can become members of MESH and access the platform.		
Scenario example:	Elias Bohn wants to use the facilities of MESH to aid his work as a journalist.		
Pre conditions:	To have internet access through his PDA device or his personal computer.		
Post conditions:	▪ Updating of the usage statistics and audit trail. ▪ MESH administration staff to check problem registration requests. ▪ Administration staff to setup/enable the account if not automatically done (problem registrations). ▪ MESH administrator to complete the registration (UC#3)		
Priority:	High		
Frequency of use:	Several times a day (different users)		
Activity step Description:	1. Access the MESH platform via a PC or mobile device. 2. Fill in the registration form and submit it. 3. Automatic check of registration details. Filter out problem registrations for MESH administration staff to follow up. 4. MESH enables the new account. 5. Inform the user of the result of registration		
Exceptions	▪ User is already registered. In that case a message will appear and the user will be informed that he is already registered and should contact the administrator. ▪ Registration does not pass the registration check (problem registrations). The user is informed which field should not leave blank or which of them have mask. The registration check returns the user in the initial registration form.		
Includes	None		
Special Requirements:	None		
Assumptions	The user is interested in using the MESH platform.		
Notes and issues:	None		
Non functional requirements	▪ Registration details should be sent via a secure channel. ▪ All user details should be treated as confidential.		



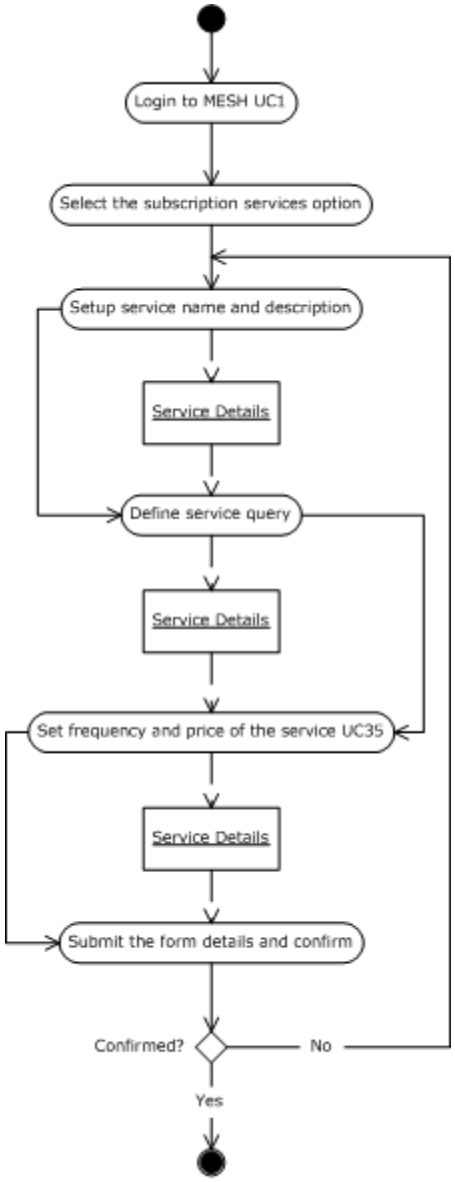
UC3: User Pre-Registration

Use Case ID:	4		
Use case name:	Add new user	**Use case reference**	4
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	25.09.2006	**Date last updated:**	06.10.2006
Role:	Administration staff		
Goals/Description:	MESH needs to provide the administration users with the capability to add new users in MESH.		
Scenario example:	An administrator needs to add a new professional user or organization to MESH		
Pre conditions:	▪ To be logged in MESH. ▪ The user to be pre-registered in MESH		
Post conditions:	▪ Updating of the usage statistics and audit trail. ▪ Receive notification about the success creation of user.		
Priority:	High		
Frequency of use:	Rarely		
Activity step Description:	1. Access administrator (password protected) area in MESH. 2. Select the "add new user" option. 3. Fill in the form with the user details 4. Assign the user to a user group (UC #7) 5. Assign the credibility level. 6. Submit the form details. 7. Inform the user about the result of registration.		
Exceptions	▪ MESH service is unavailable. The user is informed that the service is unavailable and asked to try again later or contact the administrators. The problem is also logged. ▪ User is already registered. In that case a message will appear and the user will be informed that he is already registered and should contact the administrator. ▪ Registration does not pass the registration check (problem registrations). The user is informed which field should not leave blank or which of them have mask. The registration check returns the user in the initial registration form.		
Includes	Use cases #1, #7		
Special Requirements:	None		
Assumptions	The user is authenticated in using the MESH administration platform.		
Notes and issues:	None		
Non functional requirements:	▪ Registration details should be sent via a secure channel. ▪ All user details should be treated as confidential. ▪ Response time for the completion of step 6 should not exceed 5 seconds.		



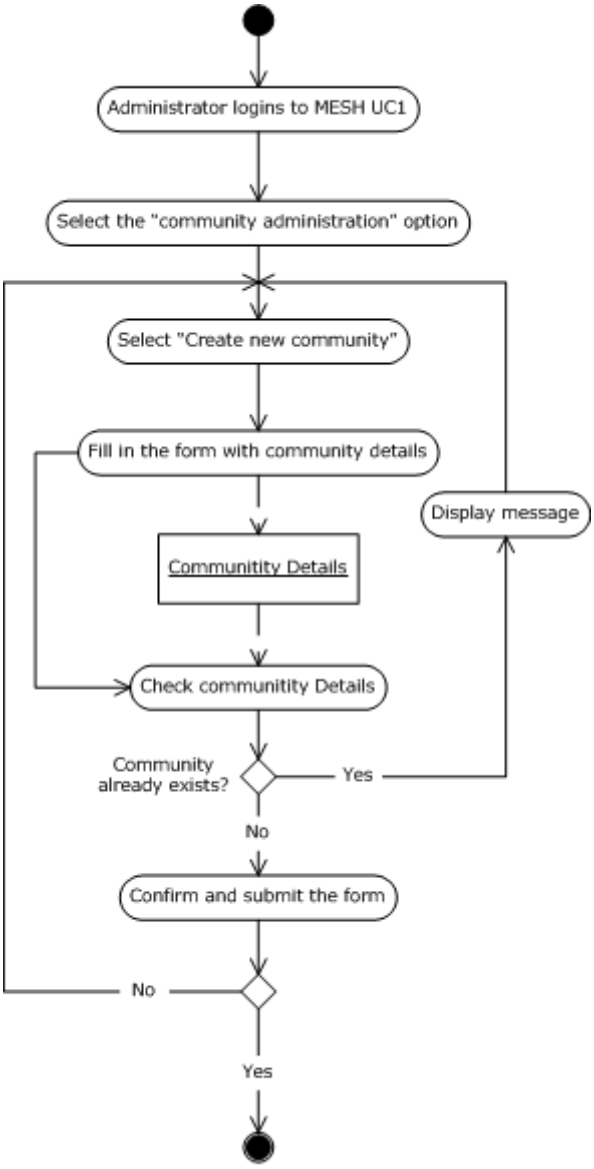
UC4: Add new user

Use Case ID:	5		
Use case name:	Add subscription services (Admin level)	**Use case reference**	5
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	28.09.2006	**Date last updated:**	03.10.2006
Role:	Administration staff		
Goals/Description:	To provide the administrators with an administration section area in which new subscription services could be added.		
Scenario example:	The administrator defines a new subscription service of MESH system.		
Pre conditions:	Registered administrator of MESH.		
Post conditions:	Updating of the usage statistics and audit trail.		
Priority:	High		
Frequency of use:	Rarely		
Activity step Description:	1. Login to MESH. 2. Select the subscription services option. 3. Setup service name and description. 4. Define the query based on which the service will retrieve the news items from public area to subscribers. 5. Setup the time frequency of service execution (UC#35) and the price of the service. 6. Submit the form details and confirm.		
Exceptions	None.		
Includes	Use cases #1, #35		
Special Requirements:	None		
Assumptions	None		
Notes and issues:	None		
Non functional requirements	▪ Response time for the completion of step 6 should not exceed 5 seconds. ▪ Portability: The service can be accessed by any supporting platform via internet. ▪ Security: Due to the confidential character of all the exchanged data, the service should be provided on a strong secure connection. The service protection will allow only identified user to get access. Data encryption should be ensured at a high level.		



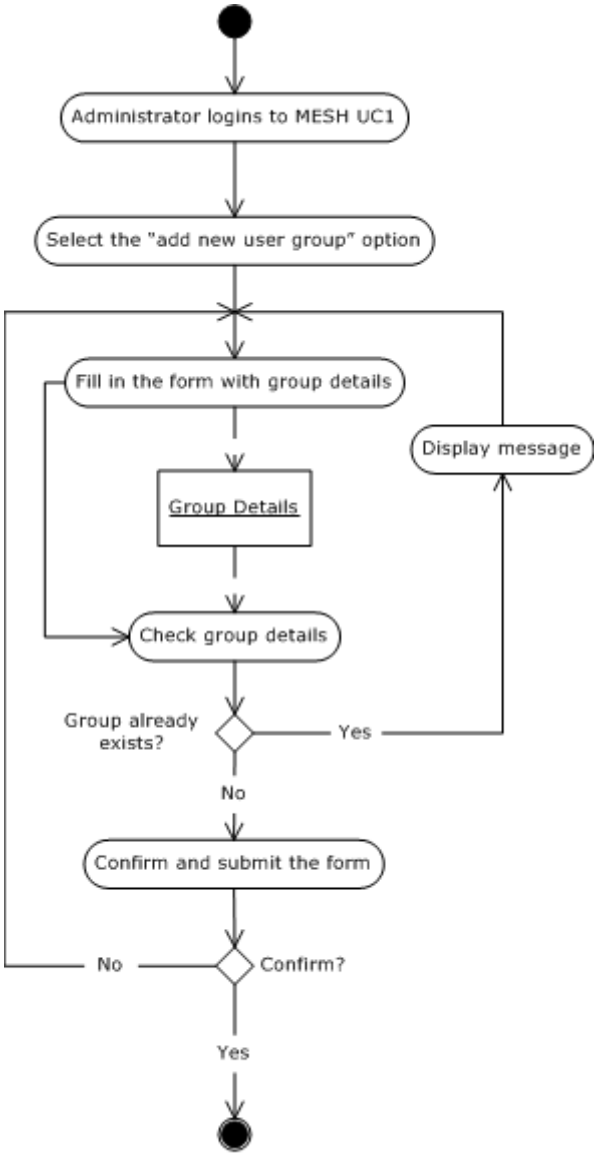
UC5: Add subscription services

Use Case ID:	6		
Use case name:	Community building	**Use case reference**	6
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	28.09.2006	**Date last updated:**	03.10.2006
Role:	Administration staff		
Goals/Description:	To provide a full peer community management section.		
Scenario example:	MESH administration would like to add a new peer community group with potential members.		
Pre conditions:	User profiling.		
Post conditions:	Invitation message to the potential members of the community.		
Priority:	Low		
Frequency of use:	Rarely		
Activity step Description:	1. Administrator logs in to MESH. 2. Select the "community administration" option. 3. Select "Create new community" 4. Fill in the form with community details 5. The MESH system searches for users with the profiles matching the community description and sends invitation notification messages. 6. Confirm and submit the form.		
Exceptions	▪ Community already exists. The user is informed that the community already exists.		
Includes	Use Case #1		
Special Requirements:	None		
Assumptions	None		
Notes and issues:	Community exact features need to be defined.		
Non functional requirements	▪ Response time for the completion of step 5 should not exceed 5 seconds. ▪ Portability: The service can be accessed by any supporting platform via internet. ▪ Security: Due to the confidential character of all the exchanged data, the service should be provided on a strong secure connection. The service protection will allow only identified user to get access. Data encryption should be ensured at a high level.		



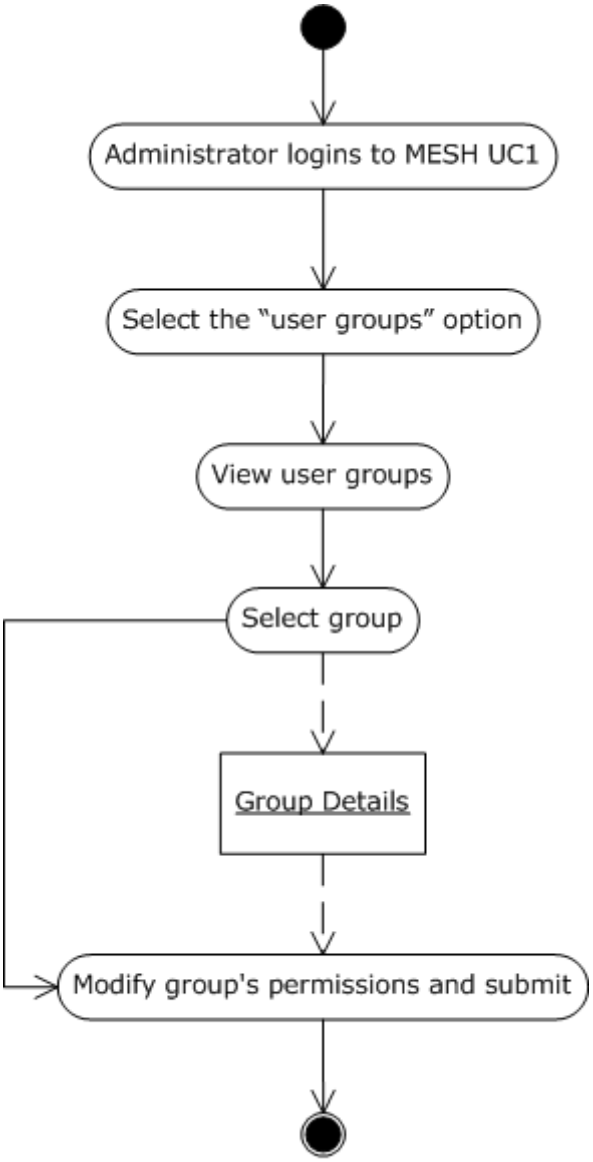
UC6: Community building

Use Case ID:	7		
Use case name:	Add user groups	**Use case reference**	7
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	28.09.2006	**Date last updated:**	03.10.2006
Role:	Administration staff		
Goals/Description:	MESH needs to give the capability to the administration users to add new user groups.		
Scenario example:	An administrator needs to add a new user group with different permission policy.		
Pre conditions:	To be registered in the MESH		
Post conditions:	▪ Updating of the usage statistics and audit trail. ▪ Confirmation of new user group creation.		
Priority:	High		
Frequency of use:	Rarely		
Activity step Description:	1. Access administrator (password protected) area in MESH. 2. Select the "add new user group" option. 3. Fill in the form and submit it.		
Exceptions	User group already exists. The user is informed that the group already exists.		
Includes	Use cases #1, #8		
Special Requirements:	None		
Assumptions	None		
Notes and issues:	None		
Non functional requirements	▪ Security: Due to the confidential character of all the exchanged data, the service should be provided on a strong secure connection. The service protection will allow only identified user to get access. Data encryption should be ensured at a high level.		



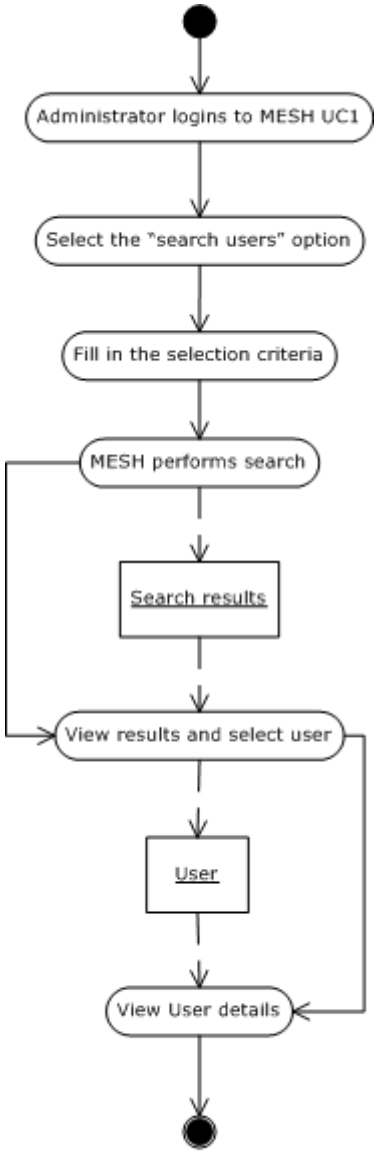
UC7: Add user groups

Use Case ID:	8		
Use case name:	User group permission policy	**Use case reference**	8
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	28.09.2006	**Date last updated:**	03.10.2006
Role:	Administration staff		
Goals/Description:	MESH needs to give the capability to the administration users to define user group access permissions.		
Scenario example:	An administrator needs to modify user group's permission policy.		
Pre conditions:	To be registered in the MESH.		
Post conditions:	▪ Updating of the usage statistics and audit trail. ▪ Updating of user group's policy.		
Priority:	High		
Frequency of use:	Rarely		
Activity step Description:	1. Access administrator (password protected) area in MESH. 2. Select the "user groups" option. 3. View the available user groups and select the one that would like to modify the permission policy. 4. Modify the form containing the user group's permissions and submit it.		
Exceptions	None		
Includes	Use case #1		
Special Requirements:	None		
Assumptions	None		
Notes and issues:	None		
Non functional requirements	▪ Security: Due to the confidential character of all the exchanged data, the service should be provided on a strong secure connection. The service protection will allow only identified user to get access. Data encryption should be ensured at a high level.		



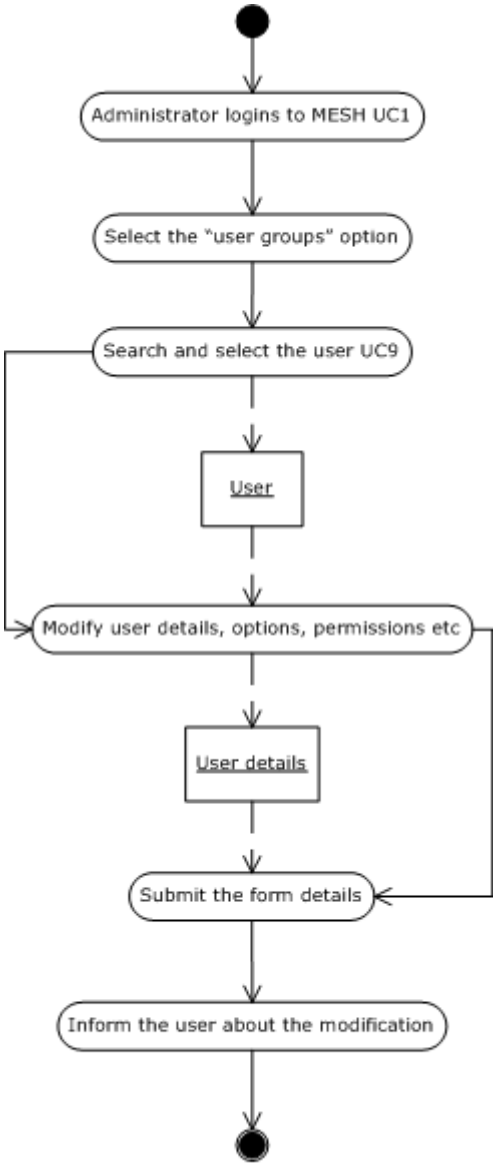
UC8: User group permission policy

Use Case ID:	9		
Use case name:	Search and select user(s)	**Use case reference**	9
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	28.09.2006	**Date last updated:**	03.10.2006
Role:	Administration staff		
Goals/Description:	MESH needs to give the capability to the administration users to search and select user(s).		
Scenario example:	An administrator needs to search for a user.		
Pre conditions:	To be registered in the MESH		
Post conditions:	None		
Priority:	High		
Frequency of use:	Rarely		
Activity step Description:	1. Access administrator (password protected) area in MESH. 2. Select the "search users" option. 3. Fill in the criteria (username, user group, fields of interest, etc) 4. View results and select user(s)		
Exceptions	None		
Includes	Use case #1		
Special Requirements:	None		
Assumptions	None		
Notes and issues:	None		
Non functional requirements	▪ Security: Due to the confidential character of all the exchanged data, the service should be provided on a strong secure connection. The service protection will allow only identified user to get access. Data encryption should be ensured at a high level.		



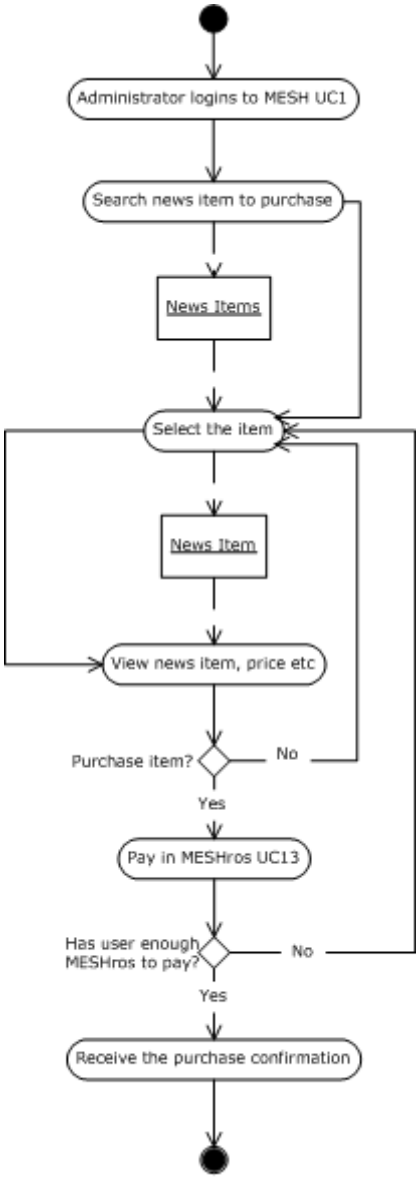
UC9: Search and select user(s)

Use Case ID:	10		
Use case name:	Modify user	**Use case reference**	10
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	25.09.2006	**Date last updated:**	03.10.2006
Role:	Administration staff		
Goals/Description:	MESH needs to provide the administration users with the capability to modify user details in MESH.		
Scenario example:	An administrator needs to modify the details of a MESH user and unlock his account		
Pre conditions:	▪ Administrator to be logged in MESH. ▪ User to be registered in MESH.		
Post conditions:	None		
Priority:	High		
Frequency of use:	Rarely		
Activity step Description:	1. Access administrator (password protected) area in MESH. 2. Select the "users" option. 3. Search and select the user(s) (UC#9). 4. Modify the form with the user details (option to unlock account), the assigned user group and the credibility level. 5. Submit the form details. 6. Inform the user about the modification.		
Exceptions	▪ MESH service is unavailable. The user is informed that the service is unavailable and asked to try again later or contact the administrators. The problem is also logged.		
Includes	Use case #1		
Special Requirements:	None		
Assumptions	The user is authenticated in using the MESH administration platform.		
Notes and issues:	None		
Non functional requirements:	▪ Registration details should be sent via a secure channel. ▪ All user details should be treated as confidential. ▪ Response time for the completion of step 6 should not exceed 5 seconds.		



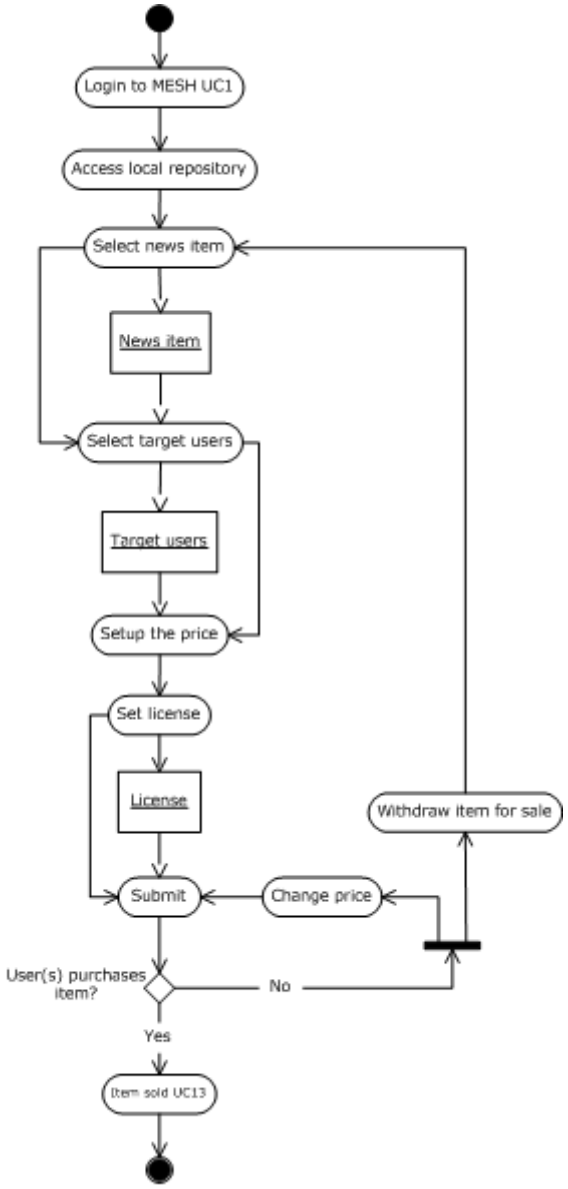
UC10: Modify user

Use Case ID:	11		
Use case name:	Content purchasing	**Use case reference**	11
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	25.09.2006	**Date last updated:**	26.09.2006
Role:	Business User, Professional User, Personal User		
Goals/Description:	User purchases news items by MESH		
Scenario example:	Bill Jones is able to purchase news items published every day by independent journalists.		
Pre conditions:	▪ To be registered in MESH. ▪ Update of the user profile ▪ To be subscribed in MESH purchasing service.		
Post conditions:	▪ Updating of the usage statistics and audit trail. ▪ Proceed with the payment. The MESH system reduces his balance in MESHros.		
Priority:	High		
Frequency of use:	Often		
Activity step Description:	1. Access user area in MESH. 2. Search news item to purchase. 3. Select the item. 4. Preview the news item summary, the price and the attached license information. 5. Pay in MESHros (UC#13). 6. Receive the purchase confirmation.		
Exceptions	▪ MESH service is unavailable: The user is informed that the service is unavailable and asked to try again later or contact the administrators. ▪ The user does not have in his account the required amount: A notification message appears that forces the user to deposit MESHros in his account. ▪ The transaction fails for some reason (e.g. the news item cannot be retrieved). The transaction should be rolled back and the user and administrators inform of the error.		
Includes	Use cases #1, #13, #20		
Special Requirements:	None		
Assumptions	None		
Notes and issues:	The purchase flow to be completed by actual payment.		
Non functional requirements:	▪ Portability: The service can be accessed by any supporting platform via internet ▪ Security: Due to the confidential character of all the exchanged data, the service should be provided on a strong secure connection. The service protection will allow only identified user to get access. Data encryption should be ensured at a high level.		



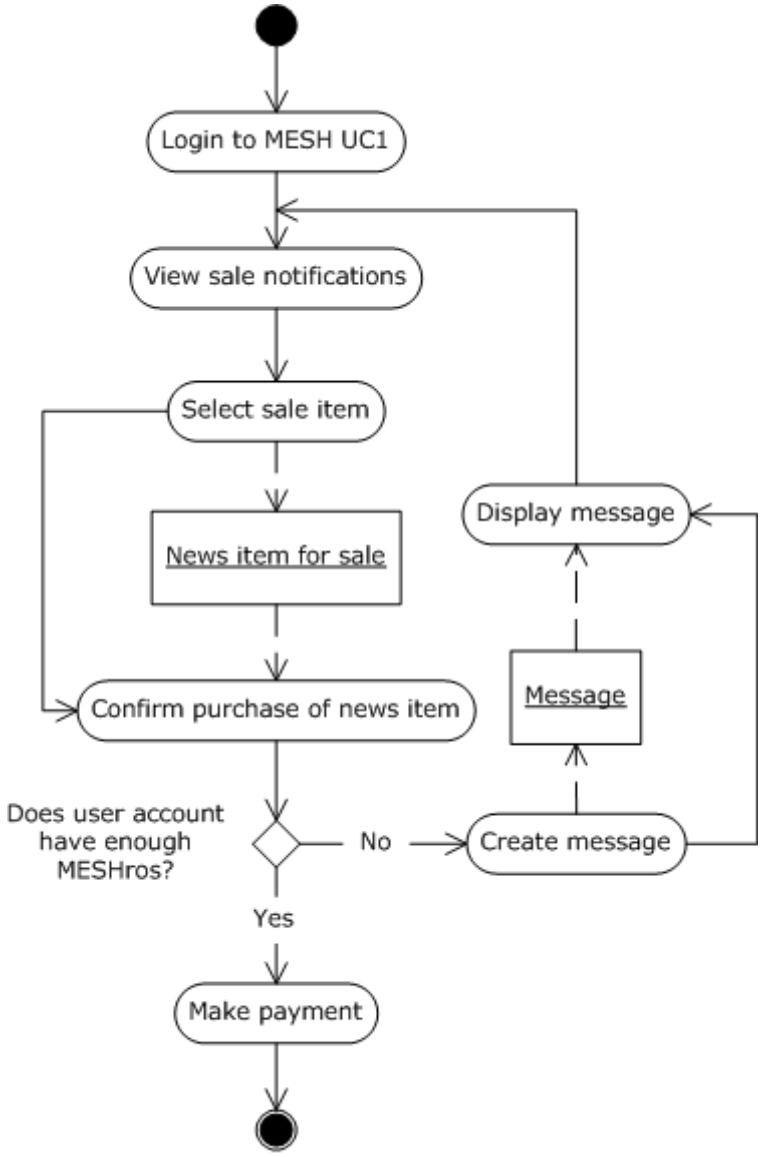
UC11: Content purchasing

Use Case ID:	12		
Use case name:	Sale of news item to targeted user(s)	**Use case reference**	12
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	25.09.2006	**Date last updated:**	05.10.2006
Role:	Professional Users, Business Users		
Goals/Description:	The user submits his own news content for sale to potential interested MESH users		
Scenario example:	Elias Bohn intends to submit his own news content for sale to the MESH users that have specific area of interest and could be potential buyers. He has the option to select the buyer(s) and the suggested price.		
Pre conditions:	To be registered in MESH.		
Post conditions:	▪ Updating of the usage statistics and audit trail. ▪ Notification to potential buyer(s).		
Priority:	High		
Frequency of use:	Often		
Activity step Description:	1. Access local repository in MESH. 2. Select the news item. 3. Select targeted user(s) 4. Setup the price 5. Fill in the license field (the field will be attached to the new item every time a sale takes place) 6. Submit		
Exceptions	▪ MESH service is unavailable: The user is informed that the service is unavailable and asked to try again later or contact the administrators. ▪ Targeted users do not purchase the new item. The seller may change the pricing policy, withdraw the item for sale or do nothing.		
Includes	Use cases #1, #13		
Special Requirements:	None		
Assumptions	Response time should be limited up to 2 days. If the potential buyer does not respond in the first day, MESH should send a reminder notification. After the two days period and if the owner has not finally responded the request is assumed to be declined.		
Notes and issues:	None		
Non functional requirements:	▪ Portability: The service can be accessed by any supporting platform via internet. ▪ Reliability: if the file transfer is interrupted, the file will be automatically resubmitted. User is notified and can stop the process. ▪ Security: Due to the confidential character of all the exchanged data, the service should be provided on a strong secure connection. The service protection will allow only identified user to get access. Data encryption should be ensured at a high level.		



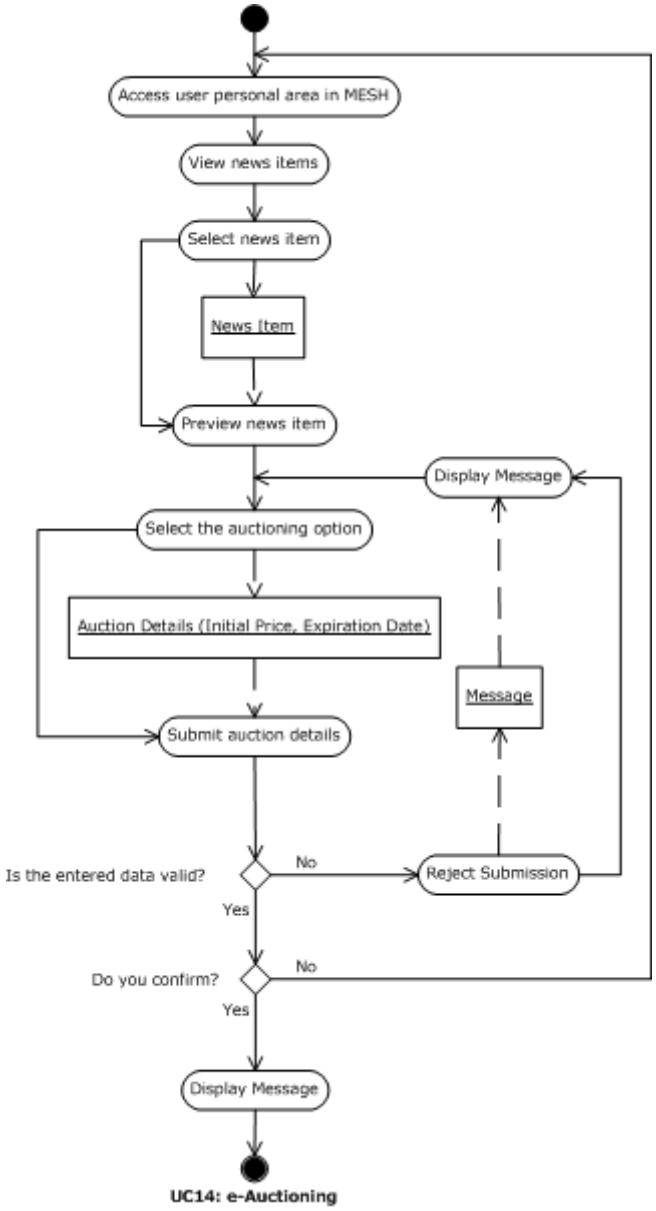
UC12: Sale of news item to targeted user(s)

Use Case ID:	13		
Use case name:	Pay in MESHros	**Use case reference**	13
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	25.09.2006	**Date last updated:**	03.10.2006
Role:	Professional User, Business User, Personal User		
Goals/Description:	The user pays in MESHros (the MESH currency unit).		
Scenario example:	Elias Bohn intends to use sources of content that is available by various content suppliers and he would like to pay in MESHros.		
Pre conditions:	▪ To be registered in MESH. ▪ The content supplier should be registered in MESH. ▪ Have available amount of MESHros.		
Post conditions:	▪ Updating of the usage statistics and audit trail. ▪ Reconciliation of MESHros balance.		
Priority:	High		
Frequency of use:	Often		
Activity step Description:	1. Confirm and proceed with the payment		
Exceptions	▪ MESH service is unavailable. In this case a message window appears that informs the user. ▪ Amount in MESHros is less than the item's value. In this case a message window appears that informs the user about the balance in MESHros of his virtual account in MESH. ▪ The transaction fails for some reason. The transaction is rolled back and the user and administrators are informed of the error.		
Includes	Use cases #1, #11		
Special Requirements:	None		
Assumptions	None		
Notes and issues:	None		
Non functional requirements:	▪ Response time for the completion of step 3 should not exceed 5 seconds. ▪ Portability: The service can be accessed by any supporting platform via internet. ▪ Security: Due to the confidential character of all the exchanged data, the service should be provided on a strong secure connection. The service protection will allow only identified user to get access. Data encryption should be ensured at a high level.		



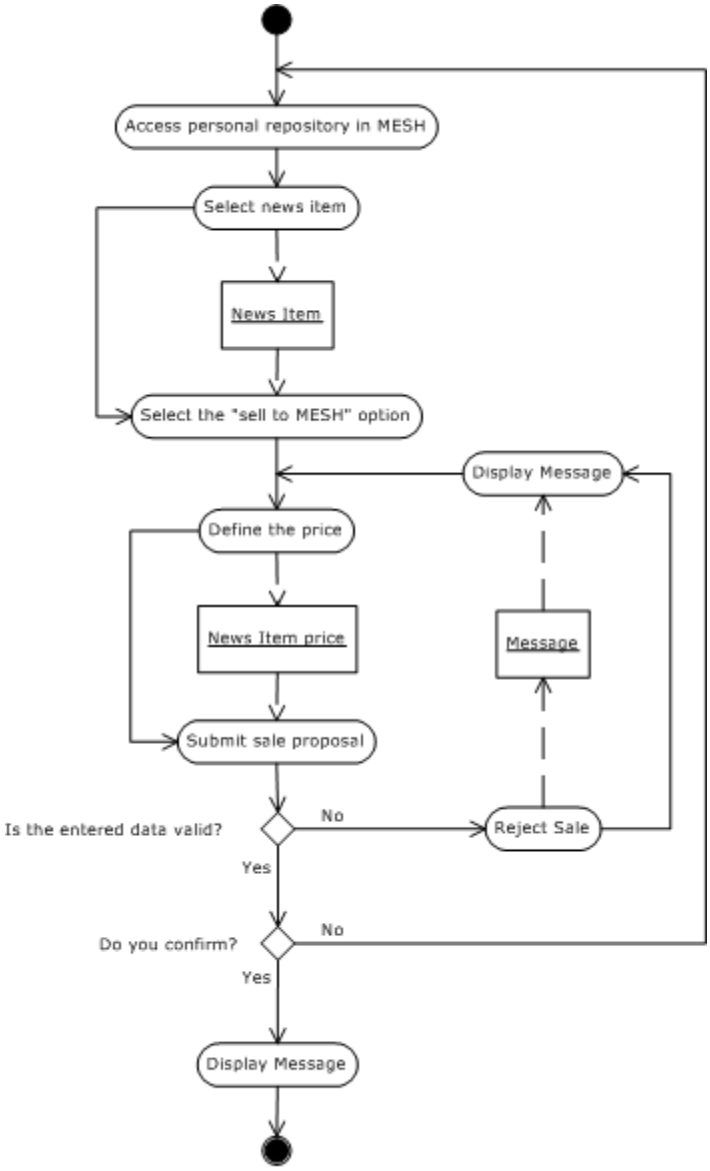
UC13: Pay in MESHros

Use Case ID:	14		
Use case name:	e-Auctioning	**Use case reference**	14
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	25.09.2006	**Date last updated:**	03.10.2006
Role:	Professional Users		
Goals/Description:	MESH needs to give the capability to the users to define e-Auctioning functionality		
Scenario example:	Elias Bohn intends to sale a news item. He has been working for days for that result and the news report he produced contains preclusive information. Elias Bohn works as individual news correspondent and thinks he can maximize his revenue for this item by offering the new item by auction.		
Pre conditions:	To be registered in MESH.		
Post conditions:	▪ Updating of the usage statistics and audit trail. ▪ Receive notification about the auction bids and the final sale.		
Priority:	Low		
Frequency of use:	Occasionally		
Activity step Description:	1. Access user area in MESH. 2. Select the news item (from his personal repository). 3. Select the e-auctioning option for the news item. 4. Define the details of the auction (initial price, expired date). 5. Confirm and proceed.		
Exceptions	▪ MESH service is unavailable. The user is informed that the service is unavailable and asked to try again later or contact the administrators.		
Includes	Use cases #1, #13		
Special Requirements:	None		
Assumptions	None		
Notes and issues:	The amount of the highest bid is reserved and the final debit takes place by the expiration of the auction and the final sale.		
Non functional requirements:	▪ Portability: The service can be accessed by any supporting platform via internet. ▪ Security: Due to the confidential character of all the exchanged data, the service should be provided on a strong secure connection. The service protection will allow only identified user to get access. Data encryption should be ensured at a high level.		



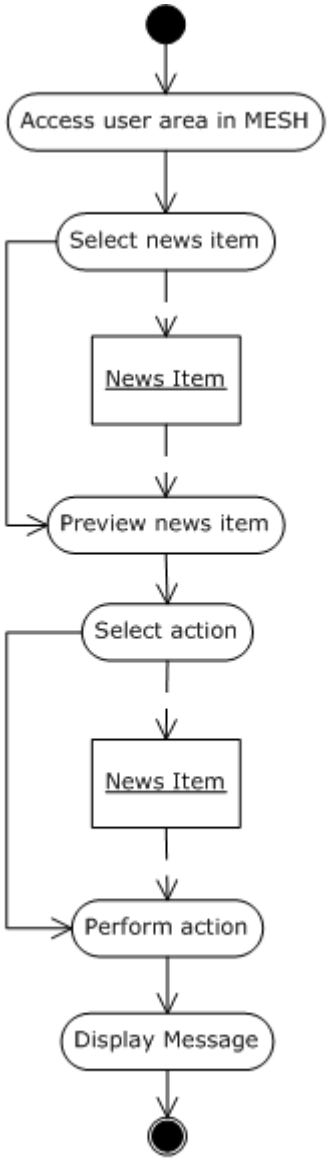
UC14: e-Auctioning

Use Case ID:	15		
Use case name:	Sell news item to MESH	**Use case reference**	15
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	28.09.2006	**Date last updated:**	03.10.2006
Role:	Professional User, Business User		
Goals/Description:	To be able to sell individual news items to MESH platform		
Scenario example:	Elias Bohn has prepared an article about financial issues and he would like to set an individual price for this and sell it to MESH platform.		
Pre conditions:	The news item must belong to Elias.		
Post conditions:	▪ Updating of the usage statistics and audit trail. ▪ Agreement notification by MESH (acceptance-Debit of seller account in MESHros)		
Priority:	Medium		
Frequency of use:	Occasionally		
Activity step Description:	1. Login to MESH platform. 2. Select news item from the personal repository. 3. Setup price. 4. Confirm.		
Exceptions	MESH service is unavailable. The user is informed that the service is unavailable and asked to try again later or contact the administrators. The problem is also logged.		
Includes	Use case #1		
Special Requirements:	The news item must belong to the user.		
Assumptions	Response time should be limited up to 2 days. After the two days period and if MESH has not finally responded the request is assumed to be declined.		
Notes and issues:	The MESH administrator should preview the item, accept or reject the suggested price and finally confirm (or not) the sale.		
Non functional requirements	▪ Portability: The service can be accessed by any supporting platform via internet. ▪ Security: Due to the confidential character of all the exchanged data, the service should be provided on a strong secure connection. The service protection will allow only identified user to get access. Data encryption should be ensured at a high level.		



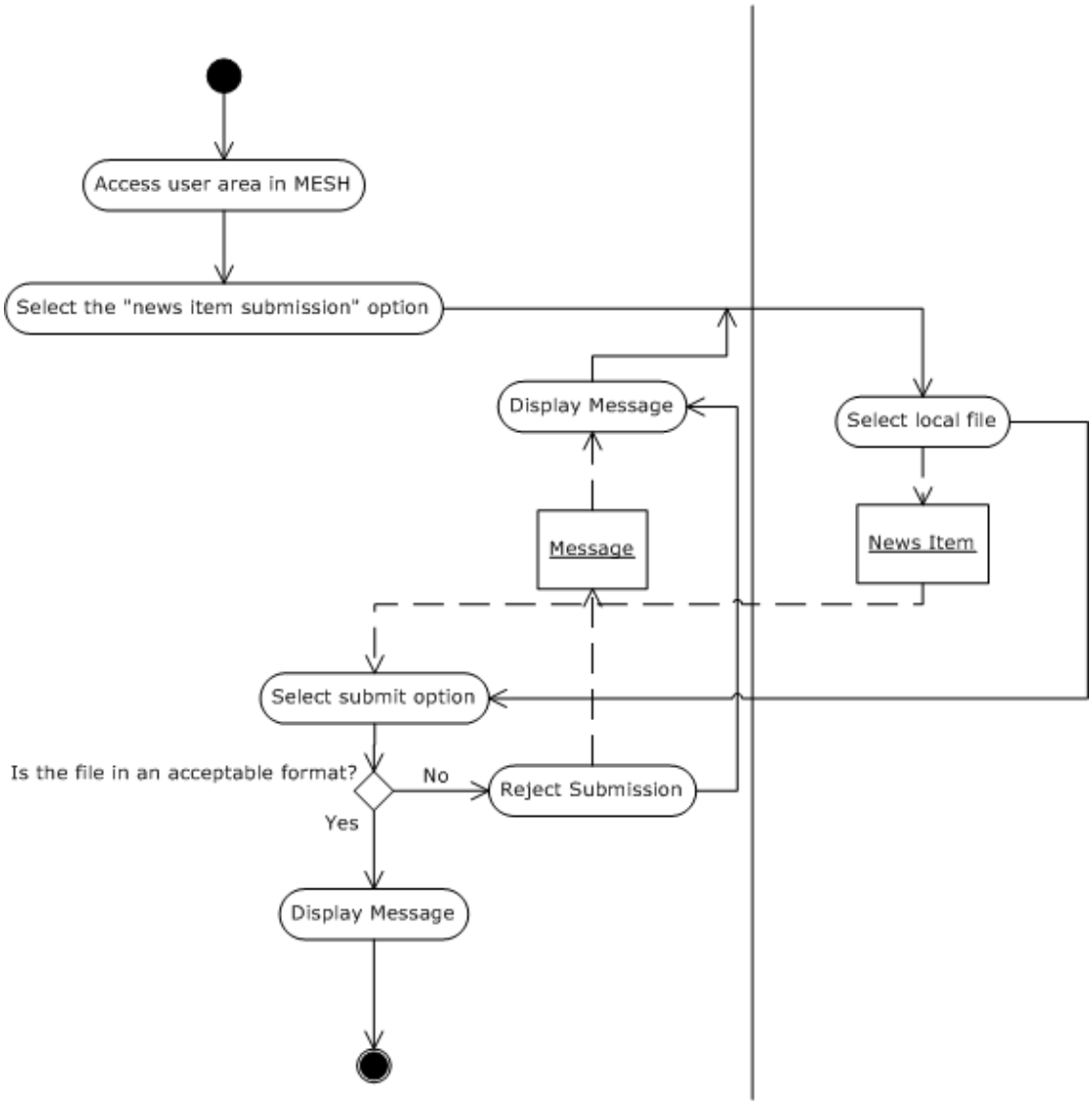
UC15: Sell news item to MESH

Use Case ID:	16		
Use case name:	Access personal repository	**Use case reference**	16
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	25.09.2006	**Date last updated:**	03.10.2006
Role:	Professional User, Business User, Personal User		
Goals/Description:	User access his own personal news repository		
Scenario example:	Bill Jones needs to have secure access to file space where he can store news content.		
Pre conditions:	To be registered in MESH.		
Post conditions:	None.		
Priority:	High		
Frequency of use:	Occasionally		
Activity step Description:	1. Access user area in MESH. 2. Select local repository option. 3. Navigate to the different personal items.		
Exceptions	MESH service is unavailable: The user is informed that the service is unavailable and asked to try again later or contact the administrators.		
Includes	Use case #1		
Special Requirements:	None		
Assumptions	None		
Notes and issues:	None		
Non functional requirements:	▪ Portability: The service can be accessed by any supporting platform via internet ▪ Security: Due to the confidential character of all the exchanged data, the service should be provided on a strong secure connection. The service protection will allow only identified user to get access. Data encryption should be ensured at a high level.		



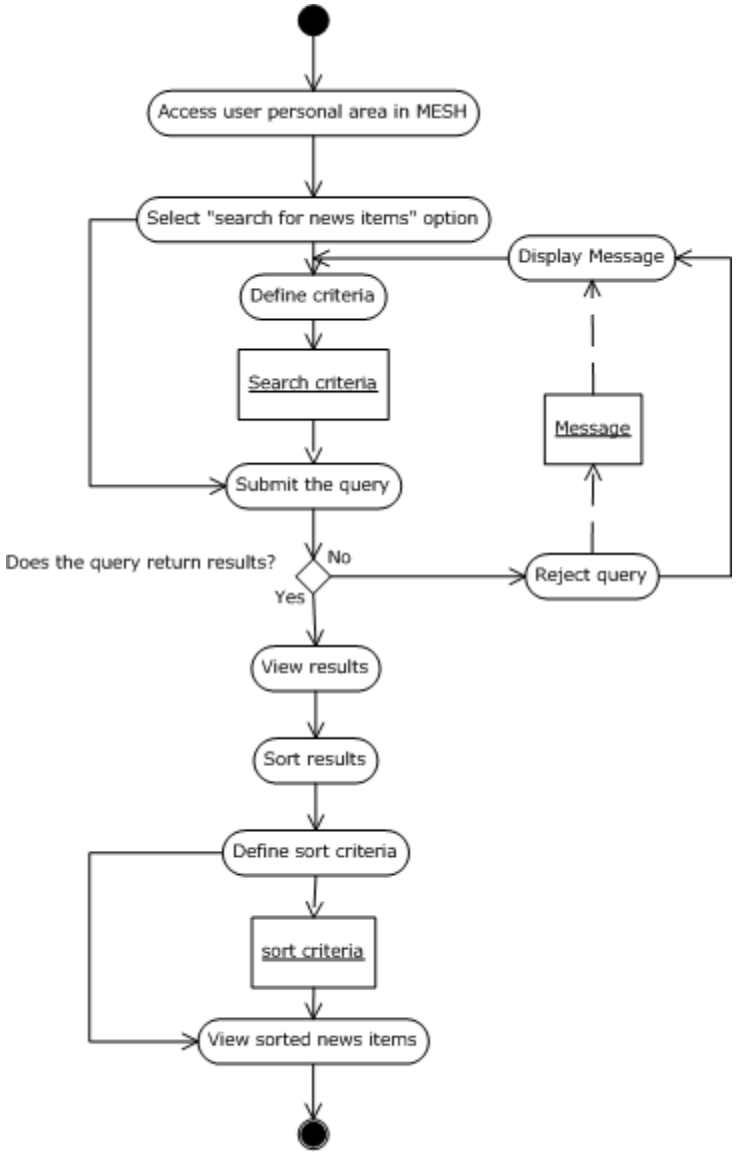
UC16: Access personal repository

Use Case ID:	17		
Use case name:	Upload of news content	**Use case reference**	17
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	25.09.2006	**Date last updated:**	26.09.2006
Role:	Professional User		
Goals/Description:	User uploads his own news content to MESH system and stores it in his personal workspace in MESH repository.		
Scenario example:	John Clark intends to submit his articles and reports to MESH system		
Pre conditions:	▪ To be registered in MESH. ▪ The news item should be in a multimedia format acceptable to MESH.		
Post conditions:	None		
Priority:	High		
Frequency of use:	Occasionally		
Activity step Description:	1. Access user area in MESH. 2. Select news item submission option. 3. Select the local multimedia file or news content that intend to submit. 4. Upload the item and view confirmation.		
Exceptions	▪ MESH service is unavailable: The user is informed that the service is unavailable and asked to try again later or contact the administrators. ▪ The uploaded news files are not in an acceptable format: In this case a message window appears that informs the user.		
Includes	Use cases #1, #16		
Special Requirements:	None		
Assumptions	None		
Notes and issues:	None		
Non functional requirements:	▪ Response time for the completion of step 4 should not exceed 10 seconds. ▪ Portability: The service can be accessed by any supporting platform via internet ▪ Reliability: if the file transfer is interrupted, the file will be automatically resubmitted. User is notified and can stop the process.		



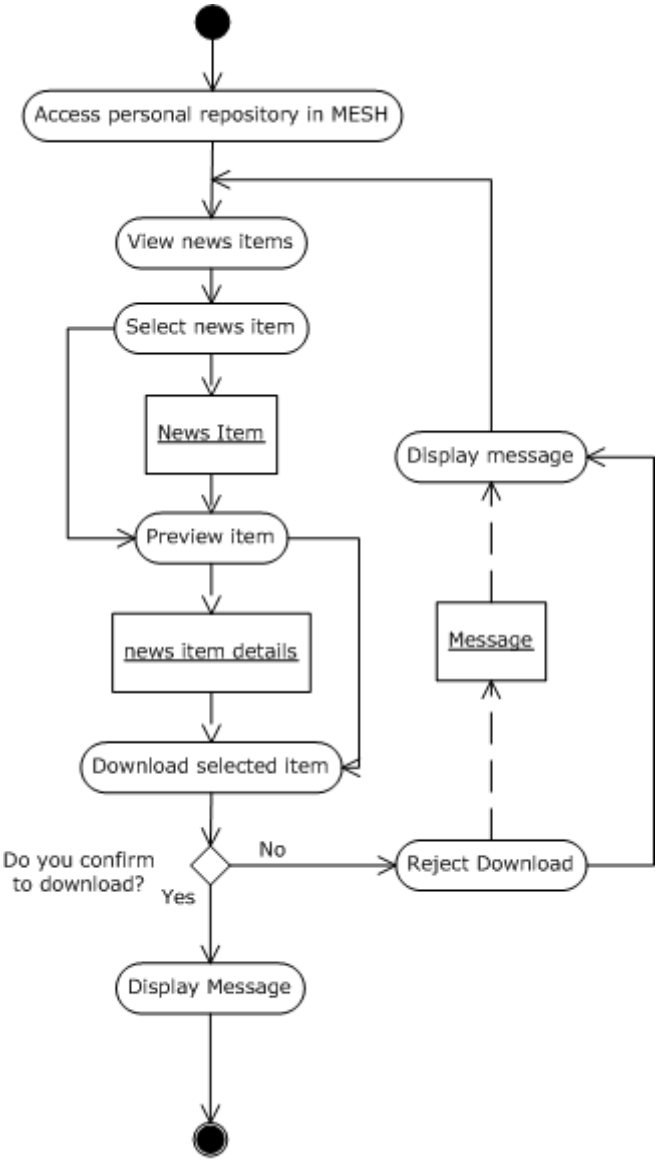
UC17: Upload of news content

Use Case ID:	18		
Use case name:	Search for news	**Use case reference**	18
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	25.09.2006	**Date last updated:**	03.10.2006
Role:	Personal User, Business User, Professional User		
Goals/Description:	▪ User is able to query for news content in his native language and retrieve results in all MESH supported languages. ▪ MESH should refine search results according to his profile (e.g. fields of interest, preferences, expertise, etc). ▪ The MESH system should provide the capability for performing searching by trust level and credibility of news sources. ▪ MESH should present search results clustered according to thematic content. ▪ MESH should keep track of the user's previous searches, so that he can reuse them and MESH can dynamically update his user profile.		
Scenario example:	Elias Bohn needs the capability of performing search queries in different languages that are supported by MESH and takes advantage of the different functionalities offered in results.		
Pre conditions:	To be registered in MESH.		
Post conditions:	None.		
Priority:	High		
Frequency of use:	Frequently		
Activity step Description:	1. Access user area in MESH. 2. Select search area. 3. Enter the query and optional select the specific area, the format of the expected result or the parameter condition. 4. Navigate to the different query results of news and items and select sorting, filtering or clustering option.		
Exceptions	MESH service is unavailable: The user is informed that the service is unavailable and asked to try again later or contact the administrators.		
Includes	Use case #1		
Special Requirements:	The result set will be paged.		
Assumptions	The result set will be limited to 1000 rows.		
Notes and issues:	None		
Non functional requirements:	▪ Response time should be limited up to 10 seconds. ▪ Portability: The service can be accessed by any supporting platform via internet		



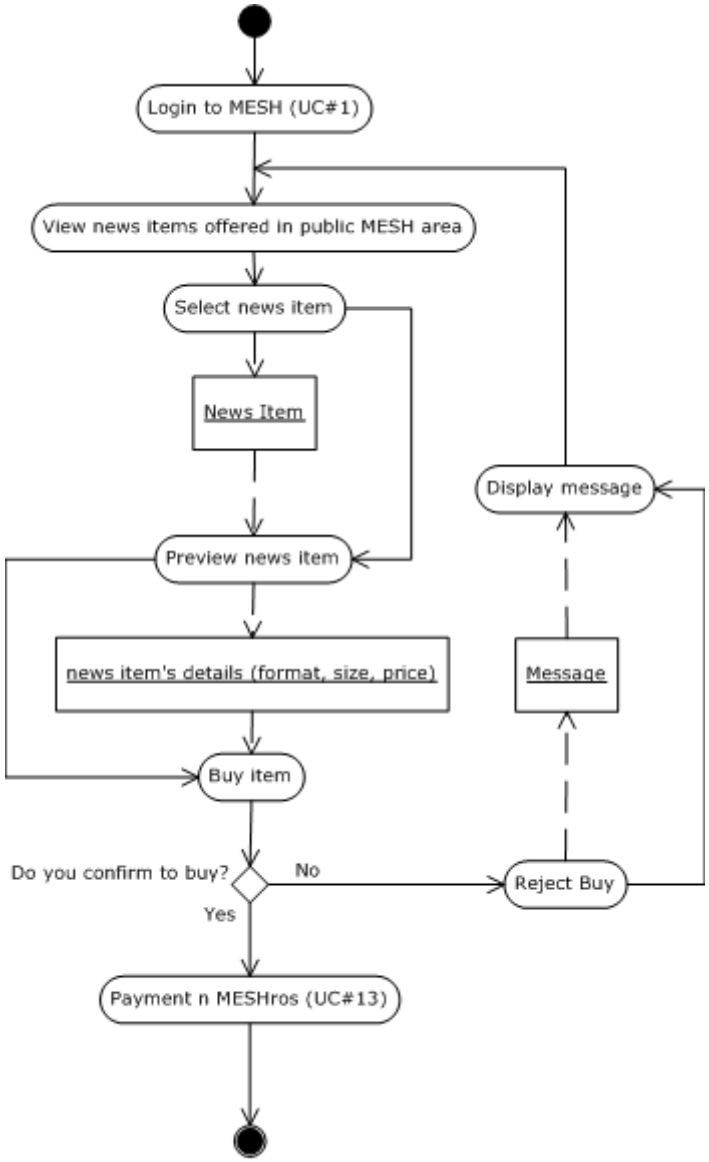
UC18: Search for news

Use Case ID:	19		
Use case name:	Download content	**Use case reference**	19
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	28.09.2006	**Date last updated:**	04.10.2006
Role:	Professional User, Business User, Personal User		
Goals/Description:	The MESH system should provide the capability of news content downloading.		
Scenario example:	Claudia accesses her personal repository in MESH and intends to download a news item to her local desktop environment.		
Pre conditions:	To be registered and have news items in personal repository in MESH.		
Post conditions:	None		
Priority:	High		
Frequency of use:	On daily basis		
Activity step Description:	1. Login to the MESH 2. View the news items in personal repository 3. Select the item that is going to be downloaded 4. Confirm and proceed with the actual download		
Exceptions	MESH service is unavailable. The user is informed that the service is unavailable and asked to try again later or contact the administrators. The problem is also logged.		
Includes	Use case #1		
Special Requirements:	None		
Assumptions	None		
Notes and issues:	Download time depends on the size of the file and the speed of the Internet connection.		
Non functional requirements	▪ Portability: The service can be accessed by any supporting platform via internet.		



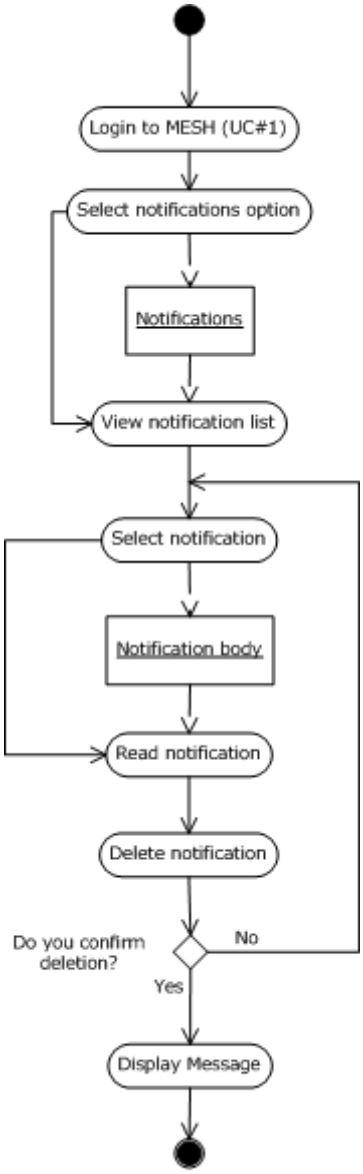
UC19: Download content

Use Case ID:	20		
Use case name:	Acquire news item	**Use case reference**	20
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	03.10.2006	**Date last updated:**	04.10.2006
Role:	Professional User, Business User, Personal User		
Goals/Description:	The MESH system should provide the capability of news content grabbing from public to the personal repository in MESH.		
Scenario example:	Claudia searches the public area in MESH, selects an item and loads it to her personal repository.		
Pre conditions:	To be registered in MESH.		
Post conditions:	Reconciliation of MESHros balance.		
Priority:	High		
Frequency of use:	On daily basis		
Activity step Description:	1. Login to MESH. 2. View the news items offered in public area of MESH. 3. Select the item that is going to be acquired. 4. Preview the item format, size and price. 5. Confirm and proceed with payment in MESHros (UC#13)		
Exceptions	MESH service is unavailable. The user is informed that the service is unavailable and asked to try again later or contact the administrators. The problem is also logged.		
Includes	Use cases #1, 13		
Special Requirements:	None		
Assumptions	None		
Notes and issues:	None		
Non functional requirements	▪ Portability: The service can be accessed by any supporting platform via internet.		



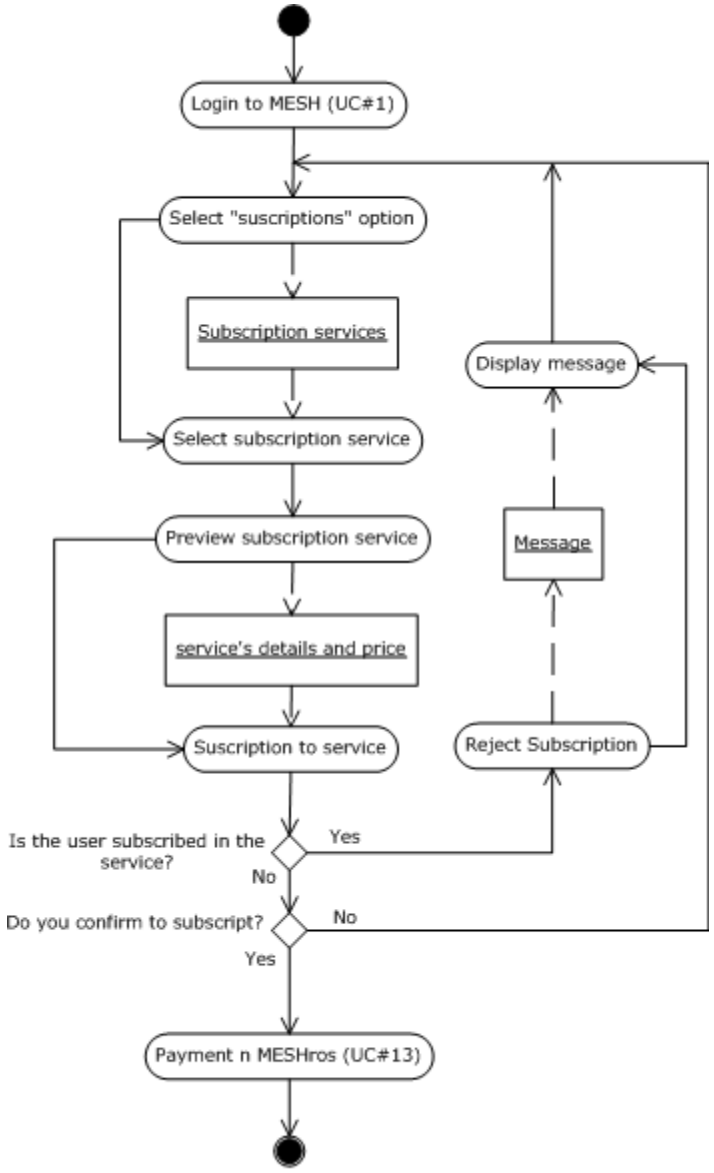
UC20: Acquire news item

Use Case ID:	21		
Use case name:	Notifications	**Use case reference**	21
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	28.09.2006	**Date last updated:**	04.10.2006
Role:	Professional User, Business User, Personal User		
Goals/Description:	▪ The MESH system should provide the capability to the users to receive notifications for specific fields of interest (as described in the user profiles) which are considered as critical. MESH should provide notices about targeted sales and auctions.		
Scenario example:	Elias Bohn needs to be instantly informed by notification about new items that could be bought.		
Pre conditions:	To be registered in the MESH		
Post conditions:	None		
Priority:	Normal		
Frequency of use:	Frequently		
Activity step Description:	1. Login to the MESH platform. 2. Select "notification" option (in order to navigate to the personal notification area of MESH). 3. View and navigate to different notifications received. 4. Select notification(s) to be deleted. 5. Confirm deletion and proceed.		
Exceptions	MESH service is unavailable. The user is informed that the service is unavailable and asked to try again later or contact the administrators. The problem is also logged.		
Includes	Use case #1		
Special Requirements:	None		
Assumptions	None		
Notes and issues:	None		
Non functional requirements	▪ Response time for the completion of step 4 should be limited up to 5 seconds. ▪ Portability: The service can be accessed by any supporting platform via internet		



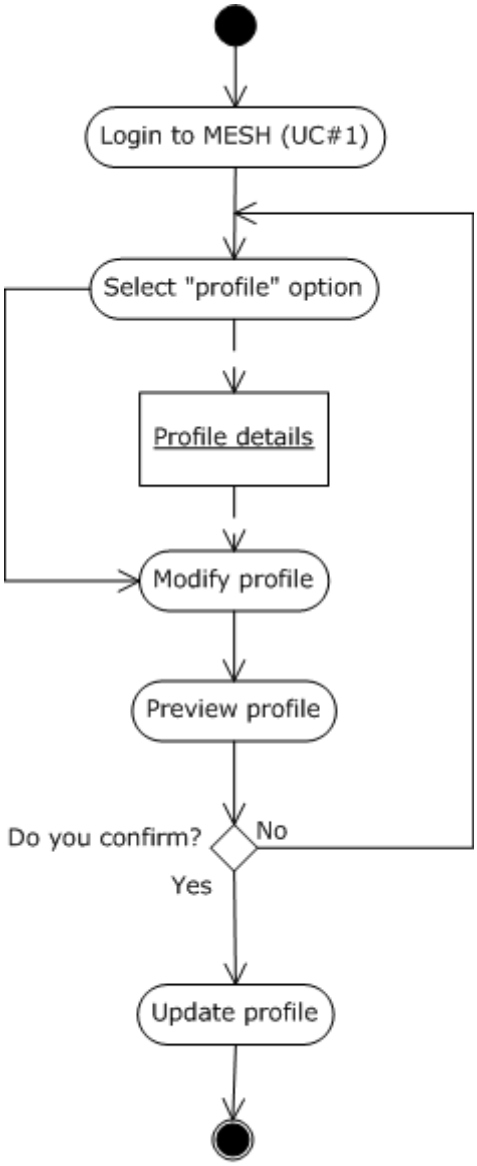
UC21: Notifications

Use Case ID:	22		
Use case name:	Subscription to MESH Services	**Use case reference**	22
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	25.09.2006	**Date last updated:**	04.10.2006
Role:	Professional User, Business User, Personal User		
Goals/Description:	User subscribes to MESH services		
Scenario example:	Claudia wants to subscribe to a specific MESH service.		
Pre conditions:	▪ To be registered in MESH. ▪ To have available amount in MESHros.		
Post conditions:	Updating of the usage statistics and audit trail.		
Priority:	High		
Frequency of use:	Occasionally		
Activity step Description:	1. Access user area in MESH. 2. Select "subscriptions" option. 3. View available services and select the desired service. 4. Preview the service details and the price. 5. Confirm and proceed with the payment in MESHros (UC #13).		
Exceptions	▪ MESH service is unavailable: The user is informed that the service is unavailable and asked to try again later or contact the administrators. ▪ User is already subscribed to the service: In this case a message window appears that informs the user.		
Includes	Use cases #1, #13		
Special Requirements:	MESH Services should already have been defined		
Assumptions	None		
Notes and issues:	None		
Non functional requirements:	▪ Response time for activity step 5 should be limited to 5 seconds ▪ Portability: The service can be accessed by any supporting platform via internet ▪ Security: Due to the confidential character of all the exchanged data, the service should be provided on a strong secure connection. The service protection will allow only identified user to get access. Data encryption should be ensured at a high level.		



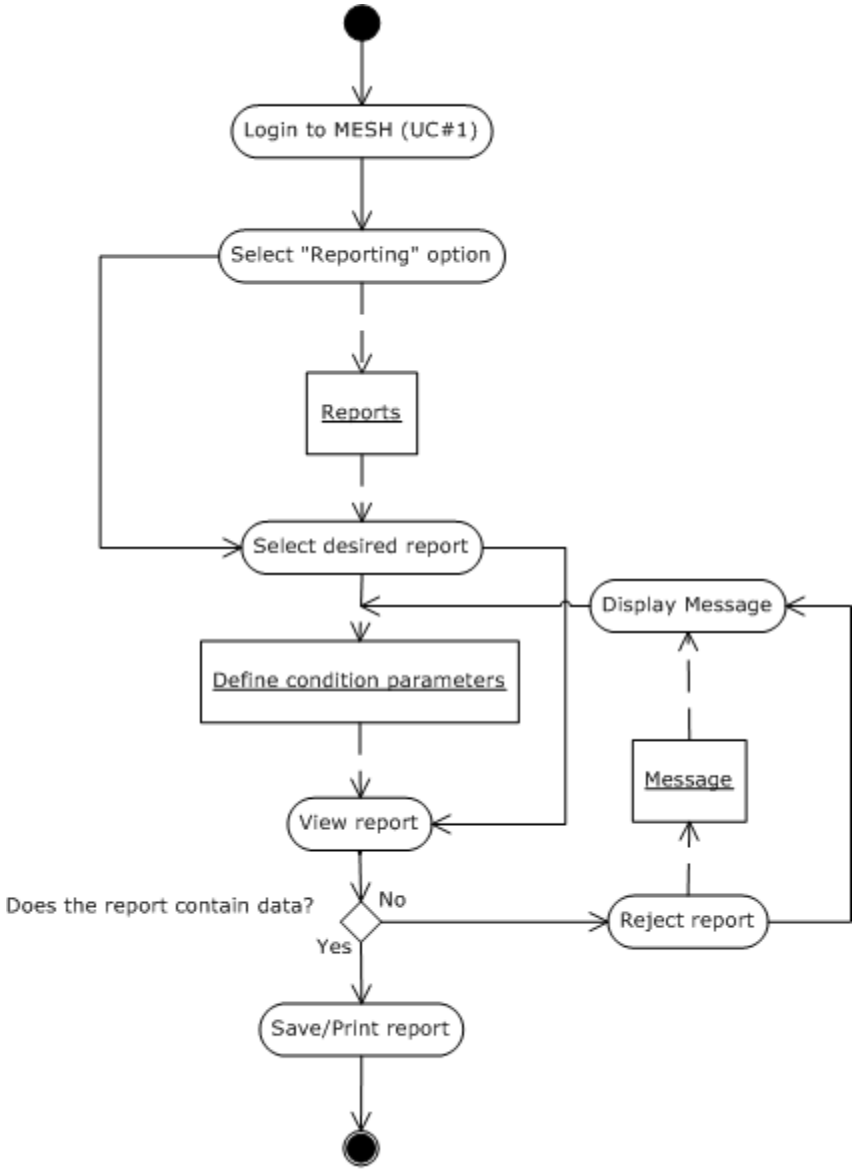
UC22: Subscription to MESH Services

Use Case ID:	23		
Use case name:	Profile editing	**Use case reference**	23
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	25.09.2006	**Date last updated:**	03.10.2006
Role:	Professional User, Business User, Personal User		
Goals/Description:	MESH needs to give the capability to the users to define manually their own profiles.		
Scenario example:	Claudia needs to have access in her profile in order to manually define or change her areas of expertise and special preferences. These selections formulate the fields of interest of the user.		
Pre conditions:	To be registered in MESH.		
Post conditions:	Updating of the user profile.		
Priority:	High		
Frequency of use:	Occasionally		
Activity step Description:	1. Access user area in MESH. 2. Select the own profile option. 3. Select or change the profile fields. 4. Confirm and proceed.		
Exceptions	MESH service is unavailable.		
Includes	Use case #1		
Special Requirements:	None		
Assumptions	None		
Notes and issues:	None		
Non functional requirements:	▪ Portability: The service can be accessed by any supporting platform. ▪ Off-line mode: Manual editing of the user profile can be done without connection (e.g. on a PDA or mobile phone) and then automatically synchronized with the other user devices when there is connectivity. ▪ Security: Due to the confidential character of all the exchanged data, the service should be provided on a strong secure connection. The service protection will allow only identified user to get access. Data encryption should be ensured at a high level.		



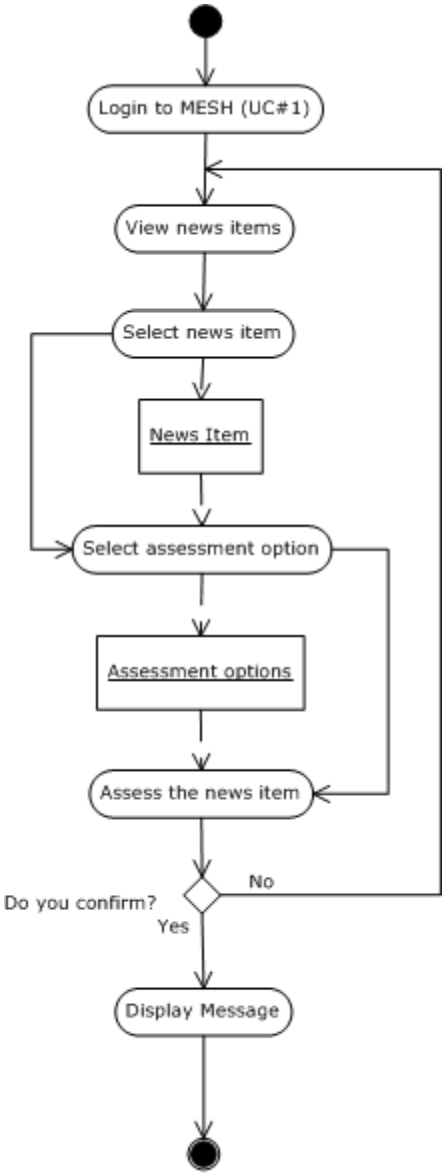
UC23: Profile Editing

Use Case ID:	24		
Use case name:	Receive reporting	**Use case reference**	24
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	28.09.2006	**Date last updated:**	04.10.2006
Role:	All Users		
Goals/Description:	The MESH system to provide the necessary reports (e.g. accounting reports, usage reports and auctioning reports).		
Scenario example:	Elias Bohn has submitted a news items for auction in MESH platform and he would like to see a detailed report with the different bids until the final close of the auction.		
Pre conditions:	The user should have submitted previously new item in MESH for auction.		
Post conditions:	None		
Priority:	High		
Frequency of use:	Occasionally		
Activity step Description:	1. Login to MESH system. 2. Select reporting option 3. Select the desired report 4. Enter condition parameters and proceed with report generation 5. View report 6. Save/print report		
Exceptions	No data to be reported. In that case an information window will be displayed to the user and he has the option to change the condition parameters (Activity step 4).		
Includes	Use case #1		
Special Requirements:	The result set will be paged.		
Assumptions	The report result set should not exceed the size of 1000 rows. In case that it passes that limit a message will be displayed to the user and he will be asked to change the condition parameters.		
Notes and issues:	The exact list of reports needs to be identified		
Non functional requirements	▪ Portability: The service can be accessed with different levels of detail by any supporting platform via internet. ▪ Security: Due to the confidential character of all the exchanged data, the service should be provided on a strong secure connection. The service protection will allow only identified user to get access. Data encryption should be ensured at a high level. ▪ Response time for the completion of step 4 should be limited up to 10 seconds.		



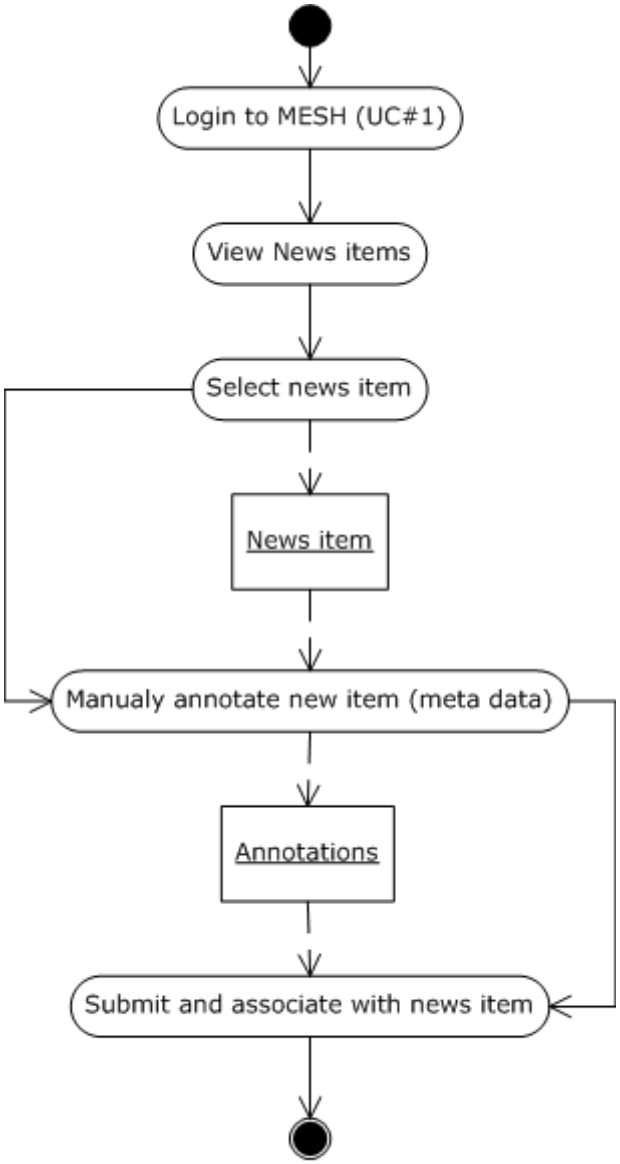
UC24: Receive reporting

Use Case ID:	25		
Use case name:	Content assessment	**Use case reference**	25
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	25.09.2006	**Date last updated:**	05.10.2006
Role:	Personal User, Business User, Professional User		
Goals/Description:	The user should have the capability to assess delivered material		
Scenario example:	Bill Jones is able to assess the multimedia extracts into predefined categories according to the involved content (e.g. violence)		
Pre conditions:	To be registered in MESH.		
Post conditions:	None.		
Priority:	High		
Frequency of use:	Daily		
Activity step Description:	1. Access user area in MESH. 2. Select the content item that is going to be assessed. 3. Select the option to assess the item. 4. Assess and submit		
Exceptions	MESH service is unavailable. The user is informed that the service is unavailable and asked to try again later or contact the administrators.		
Includes	Use case #1		
Special Requirements:	None		
Assumptions	None		
Notes and issues:	None		
Non functional requirements:	▪ Response time for the completion of step 4 should not exceed 5 seconds. ▪ Portability: The service can be accessed by any supporting platform via internet. ▪ Security: Due to the confidential character of all the exchanged data, the service should be provided on a strong secure connection. The service protection will allow only identified user to get access. Data encryption should be ensured at a high level.		



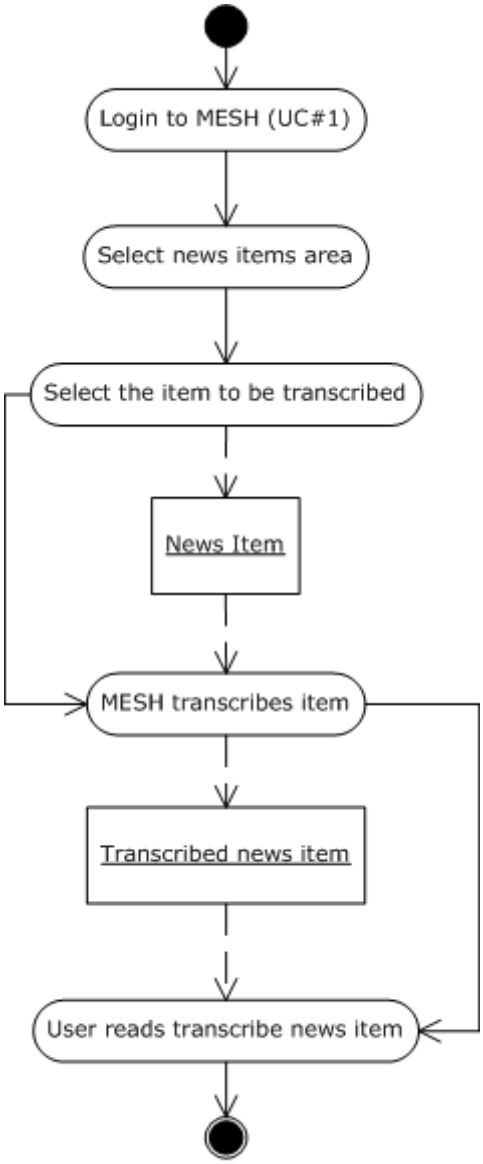
UC25: Content assessment

Use Case ID:	26		
Use case name:	Manual annotation of news content	**Use case reference**	26
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	25.09.2006	**Date last updated:**	26.09.2006
Role:	Professional User, Business User, Administration staff		
Goals/Description:	User annotates manual the news content		
Scenario example:	John Clark intends to annotate his own content to the MESH system		
Pre conditions:	▪ To be registered in MESH. ▪ The news item should be submitted and stored in MESH repository.		
Post conditions:	▪ Updating of the annotations of the item.		
Priority:	High		
Frequency of use:	Occasionally		
Activity step Description:	1. Access user area in MESH. 2. Access news items. 3. Select news item content that intend to annotate. 4. User fills the form with the relevant meta data annotations 5. User submits the annotation changes and view confirmation.		
Exceptions	MESH service is unavailable: The user is informed that the service is unavailable and asked to try again later or contact the administrators.		
Includes	Use case #1		
Special Requirements:	None		
Assumptions	None		
Notes and issues:	None		
Non functional requirements:	▪ Portability: The service can be accessed by any supporting platform via internet		



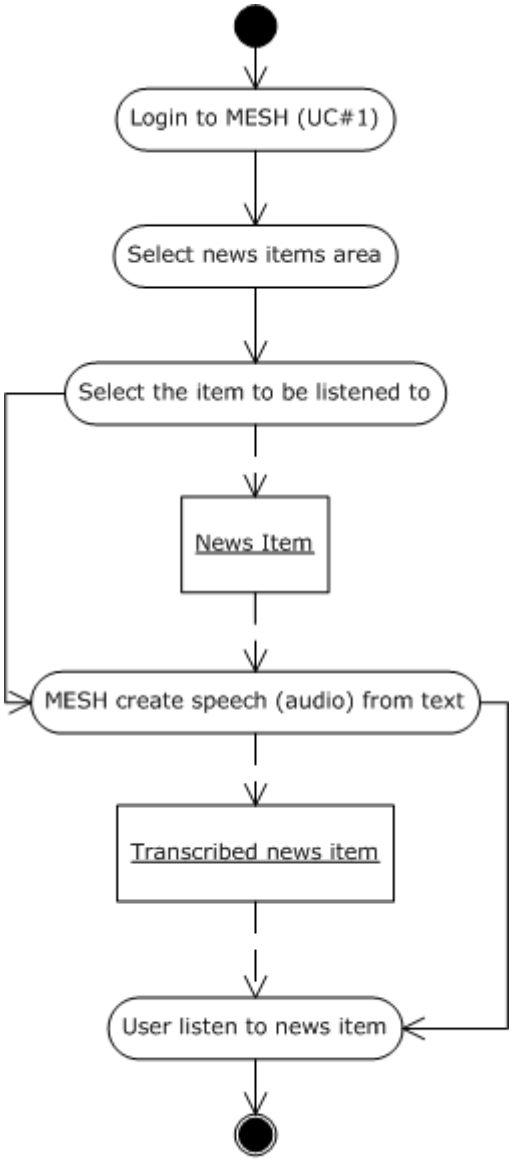
UC26: Manual annotation of news content

Use Case ID:	27		
Use case name:	Speech to text	**Use case reference**	27
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	25.09.2006	**Date last updated:**	26.09.2006
Role:	Professional User, Business User, System		
Goals/Description:	User is able to receive in real time the text content of the speech news item		
Scenario example:	Elias Bohn uses the speech to text capability in order to transcribe broadcasted news so that fellow bystanders are not disturbed		
Pre conditions:	▪ To be registered in MESH. ▪ To be subscribed in speech to text service		
Post conditions:	None		
Priority:	High		
Frequency of use:	Occasionally		
Activity step Description:	1. Access user area in MESH. 2. Select news item area. 3. Select the item that is going to be transcribed. 4. MESH through the "speech to text" module transforms the audio part of the item to text. 5. Read the transcribed item.		
Exceptions	MESH service is unavailable: The user is informed that the service is unavailable and asked to try again later or contact the administrators.		
Includes	Use case #1		
Special Requirements:	None		
Assumptions	None		
Notes and issues:	None		
Non functional requirements:	▪ Response time should not exceed 10 seconds. ▪ Portability: The service can be accessed by any supporting platform via internet.		



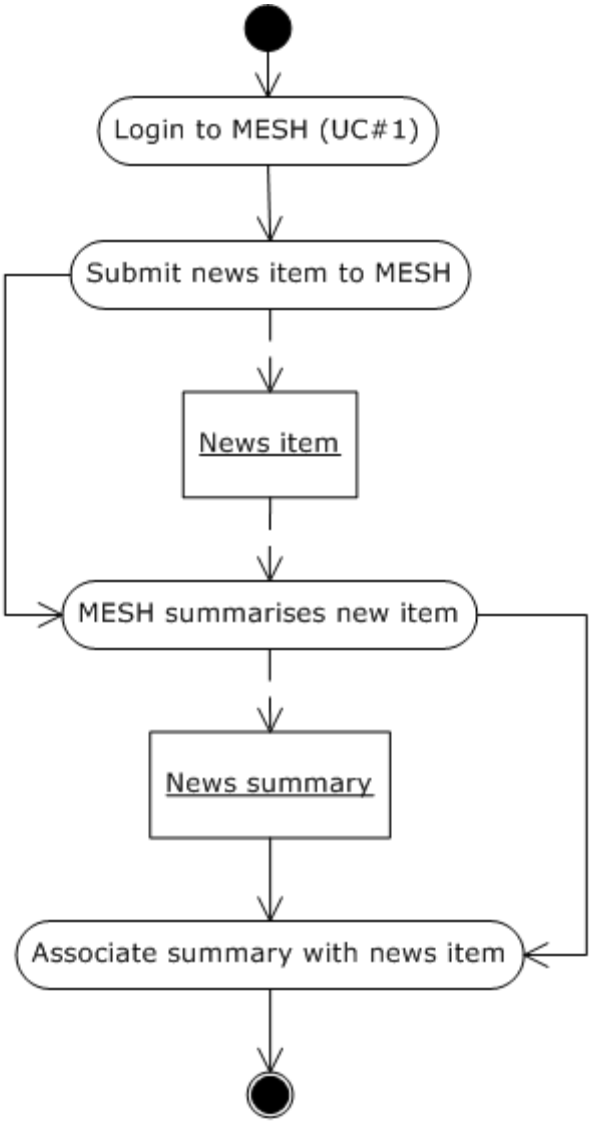
UC27: Speech to text

Use Case ID:	28		
Use case name:	Text to speech	**Use case reference**	28
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	25.09.2006	**Date last updated:**	26.09.2006
Role:	Professional User, Business User		
Goals/Description:	To provide the capability to users to listen to textual news content		
Scenario example:	Elias Bohn uses the text to speech capability in order to listen to news items by his favourite newscaster voice.		
Pre conditions:	▪ To be registered in MESH. ▪ To be subscribed in text to speech service		
Post conditions:	None.		
Priority:	High		
Frequency of use:	Occasionally		
Activity step Description:	1. Access user area in MESH. 2. Select news item area. 3. Navigate to the different items of news. 4. Select the item that is going to be listened to. 5. MESH through the "text to speech" module transforms the text news item to speech. 6. Listen to the speech item		
Exceptions	MESH service is unavailable: The user is informed that the service is unavailable and asked to try again later or contact the administrators.		
Includes	Use case #1		
Special Requirements:	A 3rd party software module will be used to perform the TTS functionality.		
Assumptions	It is assumed that there is compatible sound card in client side		
Notes and issues:	None		
Non functional requirements:	▪ Response time should be limited up to 5 seconds. ▪ Portability: The service can be accessed by any supporting platform via internet.		



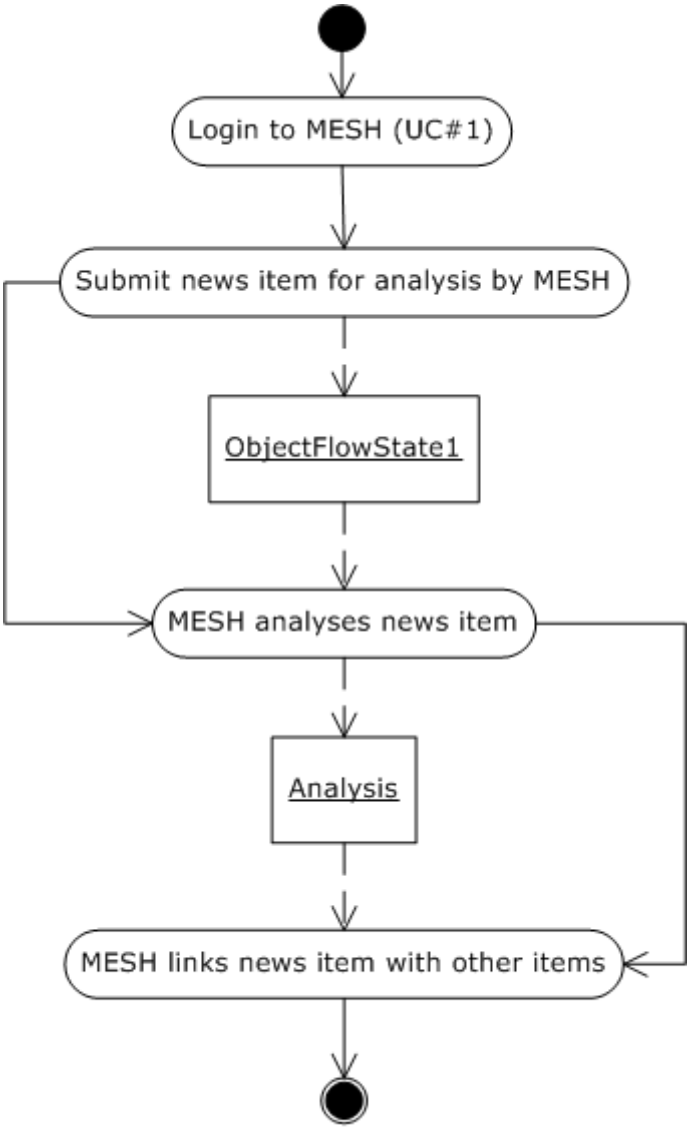
UC28: Text to speech

Use Case ID:	29		
Use case name:	Real time summarization on mobile device	**Use case reference**	29
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	25.09.2006	**Date last updated:**	26.09.2006
Role:	System		
Goals/Description:	Users should have the capability of producing real time summaries of news items.		
Scenario example:	Theodora uses the MESH mobile service and is able to produce real time summarization of all her new multimedia files.		
Pre conditions:	To be registered in MESH.		
Post conditions:	None		
Priority:	High		
Frequency of use:	Frequently		
Activity step Description:	1. User submits news item 2. MESH produces real time summaries		
Exceptions	MESH service is unavailable: The user is informed that the service is unavailable and asked to try again later or contact the administrators.		
Includes	Use case #1		
Special Requirements:	None		
Assumptions	It is assumed that the mobile application can work offline.		
Notes and issues:	None		
Non functional requirements:	None		



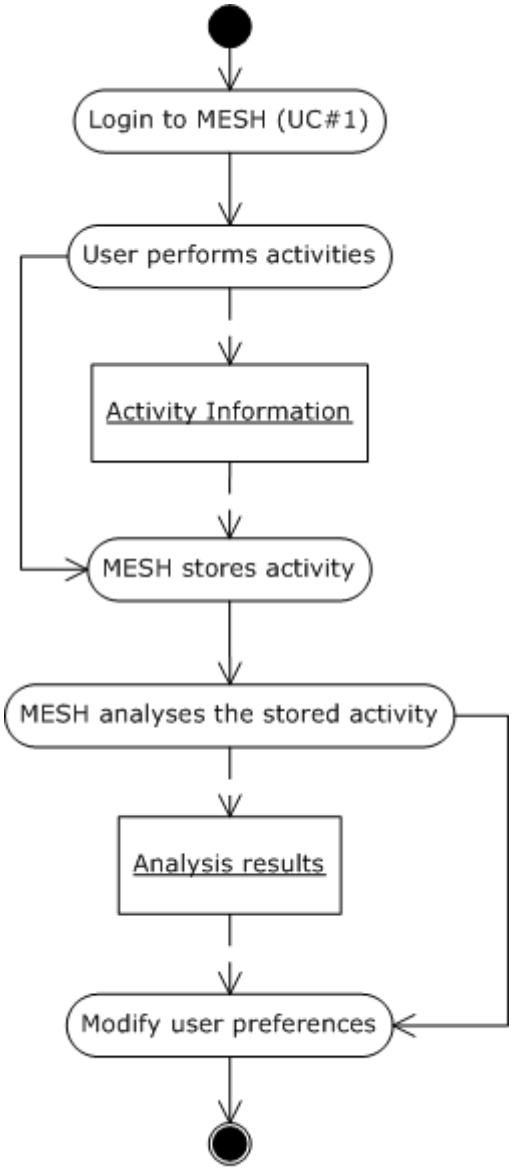
UC29: Real time summarization on mobile device

Use Case ID:	30		
Use case name:	Automatic linking of media content	**Use case reference**	30
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	25.09.2006	**Date last updated:**	26.09.2006
Role:	System		
Goals/Description:	MESH should provide the automatic linking capability in relevant media material.		
Scenario example:	John Clark is given the result of his query with links to all relevant material		
Pre conditions:	To be registered in MESH.		
Post conditions:	None.		
Priority:	High		
Frequency of use:	Often		
Activity step Description:	1. MESH analyzes the submitted in MESH news item. 2. MESH links the multimedia files with news items with similar thematic area.		
Exceptions	MESH service is unavailable. The user is informed that the service is available and asked to try again later or contact the administrators. The problem is also logged.		
Includes	Use cases #1, #15		
Special Requirements:	None		
Assumptions	It is assumed that there will be a setting parameter which limits the automatic linking time.		
Notes and issues:	None		
Non functional requirements:	▪ Portability: The service can be accessed by any supporting platform via internet.		



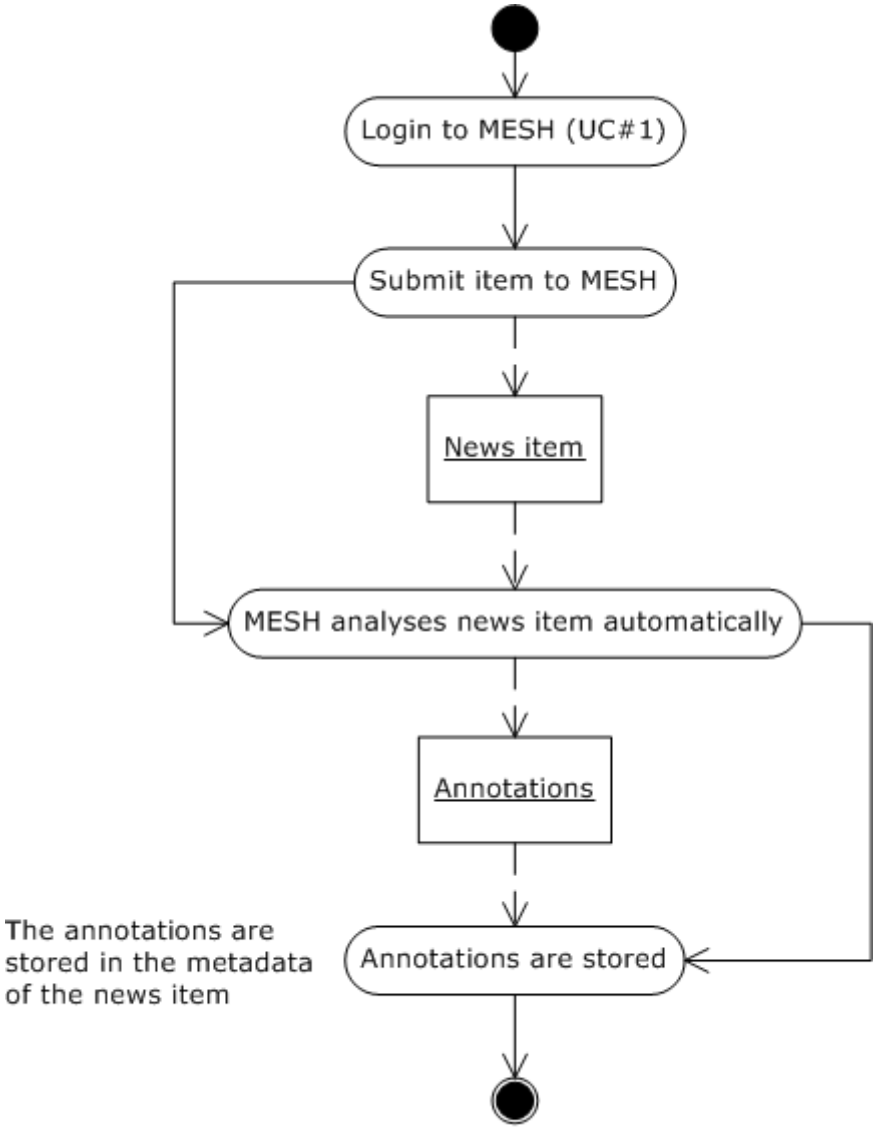
UC30: Automatic linking of media content

Use Case ID:	31		
Use case name:	Dynamic profile update	**Use case reference**	33
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	28.09.2006	**Date last updated:**	28.09.2006
Role:	Professional User, Business User, Personal User		
Goals/Description:	The MESH system should learn from user's online behaviour and update his profile dynamically in order to provide personalized content in way that the user prefers.		
Scenario example:	Claudia sees in her first page in MESH a compiled table of viewing recommendations extracted from among the news material generated since her last login, together with automatically generated expanded versions of material she accessed in previous sessions and considered interesting to track.		
Pre conditions:	To be registered and have past actions in the MESH		
Post conditions:	Profile updated.		
Priority:	High		
Frequency of use:	Depends on system usage		
Activity step Description:	1. MESH stores user's activities 2. MESH analyzes users behaviour 3. MESH modifies user's preferences based on the analysis.		
Exceptions	MESH service is unavailable. The user is informed that the service is unavailable and asked to try again later or contact the administrators. The problem is also logged.		
Includes	Use case #1		
Special Requirements:	None		
Assumptions	None		
Notes and issues:	None		
Non functional requirements	None		



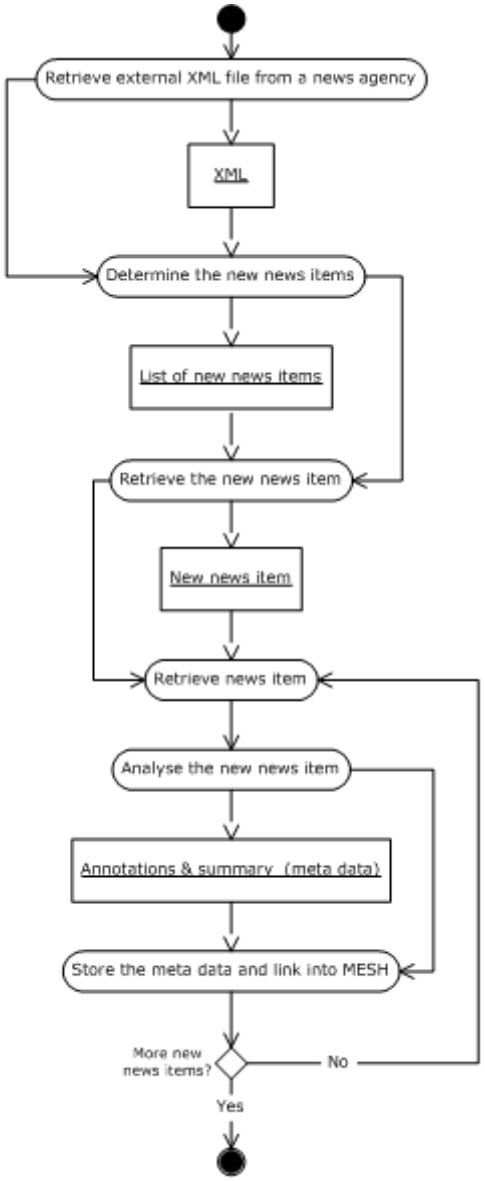
UC31: Dynamic profile update

Use Case ID:	32		
Use case name:	Automatic annotation of news content	**Use case reference**	32
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	25.09.2006	**Date last updated:**	28.09.2006
Role:	System		
Goals/Description:	The news item is automatically annotated by MESH.		
Scenario example:	MESH system annotates automatically MESH news items		
Pre conditions:	To be registered in MESH. The news item should be submitted and stored in MESH repository.		
Post conditions:	None		
Priority:	High		
Frequency of use:	Often		
Activity step Description:	1. MESH analyzes the content of the news item 2. The automatic annotations are produced 3. The annotations are stored in the metadata of the news item.		
Exceptions	MESH service is unavailable. The user is informed that the service is available and asked to try again later or contact the administrators. The problem is also logged.		
Includes	Use cases #1, #3		
Special Requirements:	None		
Assumptions	None		
Notes and issues:	None		
Non functional requirements:	▪ The automatic annotation process of one news item should be completed within 5 seconds.		



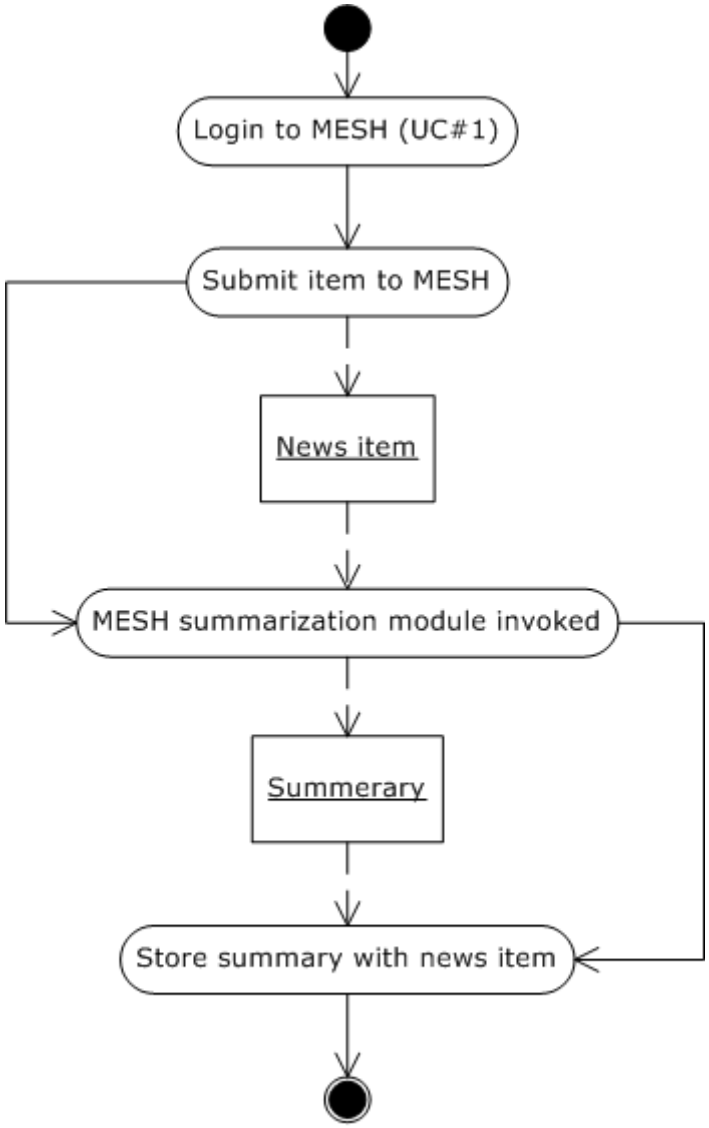
UC32: Automatic annotation of news content

Use Case ID:	33		
Use case name:	Input and analysis of news items from External Sources	**Use case reference**	33
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	28.09.2006	**Date last updated:**	04.10.2006
Role:	System		
Goals/Description:	To make news items, from external sources, available to users of MESH by the use of analysis modules.		
Scenario example:	MESH uses the RSS feed of "news agency". It regularly retrieves the RSS XML file and obtains the new news items and linked into the MESH repository.		
Pre conditions:	Predetermined news sources.		
Post conditions:	Updating of MESH meta database		
Priority:	Normal		
Frequency of use:	Very Often		
Activity step Description:	1. Retrieve external XML file from a news agency. 2. Determine the new news items. 3. Retrieve the new news item (http). 4. Analyse the new news item to create meta data (annotations, summaries etc…). 5. Store the meta data and link into MESH.		
Exceptions	▪ Cannot retrieve the external XML file. In that case system retries again in the next scheduled to retrieve the file again. ▪ Cannot retrieve individual news item. In this case the system logs the details of the problem. ▪ Analysis fails. Logs the problem.		
Includes	None		
Special Requirements:	None		
Assumptions	It is assumed that there will be a setting parameter which limits the retrieval and analysis time.		
Notes and issues:	The specific external sources will be identified and the compatible formats will be specified in the future (Subtask 6.3.2).		
Non functional requirements			



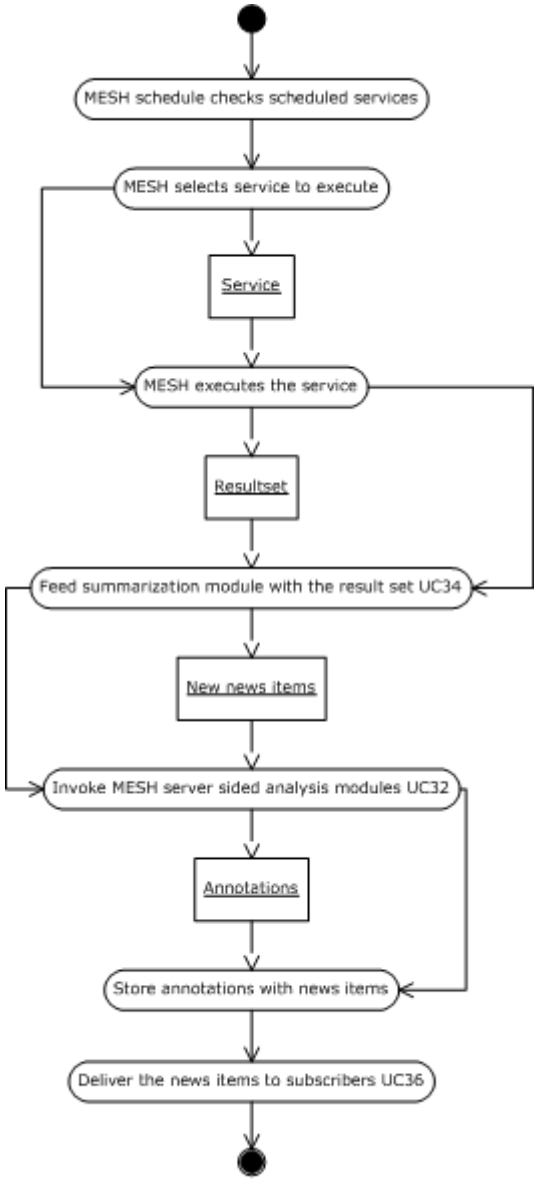
UC33: Input and analysis of news items from External Sources

Use Case ID:	34		
Use case name:	Generation of news summaries	**Use case reference**	34
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	28.09.2006	**Date last updated:**	28.09.2006
Role:	System		
Goals/Description:	MESH produces personalized summaries of news content.		
Scenario example:	Martha Jong needs summaries of news items found in different formats		
Pre conditions:	To be registered in MESH.		
Post conditions:	None		
Priority:	High		
Frequency of use:	Often		
Activity step Description:	1. Invocation of the summarization module for each news item posted in MESH platform 2. Store the result of the service in MESH database the news items.		
Exceptions	User is already registered. The user is informed that he is already registered.		
Includes	Use case #1		
Special Requirements:	None		
Assumptions	None		
Notes and issues:	None		
Non functional requirements	▪ Portability: The service can be accessed by any supporting platform via internet. ▪ Response time should be limited up to 5 seconds.		



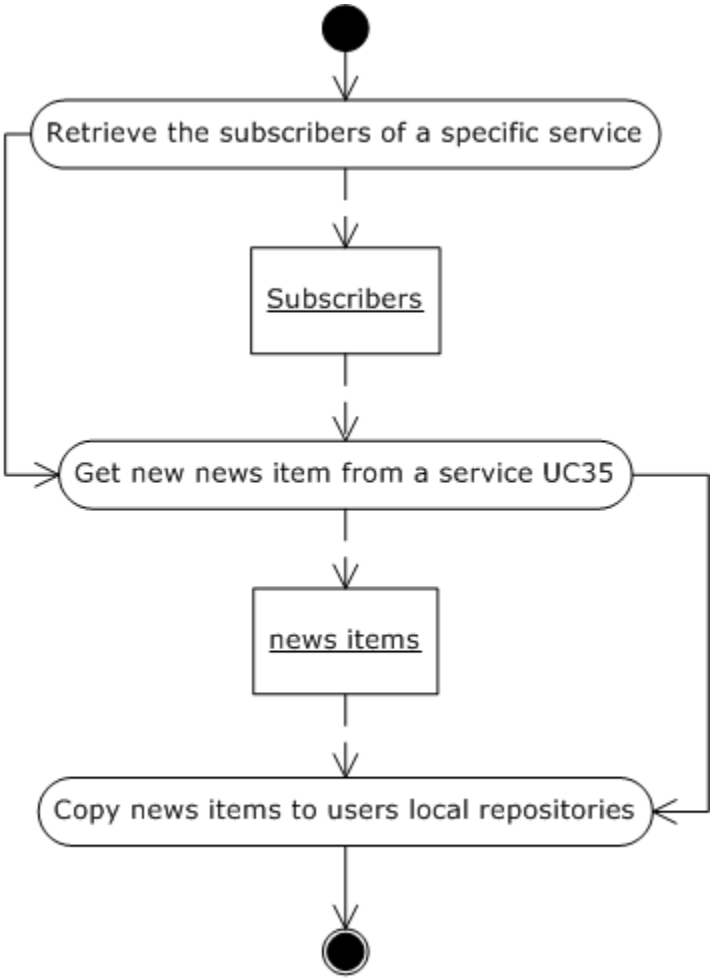
UC34: Generation of news summaries

Use Case ID:	35		
Use case name:	Run service	**Use case reference**	35
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	25.09.2006	**Date last updated:**	05.10.2006
Role:	System		
Goals/Description:	MESH performs the execution of the queries that were submitted by the administrator during the "new subscription service" definition (UC #5).		
Scenario example:	MESH system selects news items for the service.		
Pre conditions:	None		
Post conditions:	None		
Priority:	Normal		
Frequency of use:	Often		
Activity step Description:	1. Execution of the service (query defined in UC #5) 2. Feed summarization module with the result set (UC #34). The output is a new news item. 3. Invoke MESH server sided analysis modules 4. Store the news item with the updated metadata annotations. 5. Deliver the news item to subscribers (UC #36)		
Exceptions	MESH service is unavailable. The user is informed that the service is unavailable and asked to try again later or contact the administrators. The problem is also logged.		
Includes	Use cases #1, #30, #32, #34		
Special Requirements:	None		
Assumptions	None		
Notes and issues:	None		
Non functional requirements:	To be discussed		



UC35: Run service

Use Case ID:	36		
Use case name:	Delivery of the news item to subscribers	**Use case reference**	36
Created by:	D. Koutlis R. M. Brown	**Last updated by:**	D. Koutlis
Date created:	25.09.2006	**Date last updated:**	04.10.2006
Role:	System		
Goals/Description:	To make available the news item to service subscribers.		
Scenario example:	MESH system delivers new news items to subscribers.		
Pre conditions:	To be registered in MESH.		
Post conditions:	None		
Priority:	Normal		
Frequency of use:	Often		
Activity step Description:	1. Retrieve the subscribers of a specific service 2. Find the news item created from the service (UC #35) 3. Copy the news item to subscribers' (found from step #1) personal repositories.		
Exceptions	MESH service is unavailable. The user is informed that the service is unavailable and asked to try again later or contact the administrators. The problem is also logged.		
Includes	None		
Special Requirements:	None		
Assumptions	None		
Notes and issues:	None		
Non functional requirements:	To be discussed		



UC36: Delivery of the news item to subscribers

The following table maps the dependencies between different use cases, as they have also been identified in the relevant field of the Use Cases tables listed above.

Requirements Dependency Traceability Table

UC	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
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35	X																																X		X		X		
36																																					

7.2. MESH system functional requirements

This section extracts a list of system requirements from the Use Cases identified in the previous section. The requirements are clustered into 10 groups:

1. Network requirements
2. File and database management requirements
3. Personalization requirements
4. Knowledge extraction requirements
5. User Interface requirements
6. Content / Content adaptation requirements
7. Security requirements
8. Requirements providing miscellaneous functionality
9. Retrieval requirements
10. Other requirements, not mapped to MESH components

In the framework of the MESH system architecture design the consortium is in the process of identifying the technical components that will comprise the building blocks of the MESH platform. Although this process has not been finalised yet the requirements identified in the following tables are also mapped on these components, so that this approach can be continued in the next phases of the design process. Thus, for every group of requirements, a table is provided that includes

- A requirement number
- The requirement description
- The MESH component(s) it corresponds to (for the last group of requirements, it contains a high-level assignment of the requirement to one of the other groups)
- Use cases that reference the requirements

7.2.1. Network

Num	Description	Associated Component	Associated UC
1.	System requires streaming server protocol (RTP)	Manual annotation tool Rights Management module Media linking	UC30

7.2.2. File management (database, file system)

Num	Description	Associated Component	Associated UC
2.	System contains a MESH repository	Rights Management module Real-time summary generation Multimedia summary generator Content syndication	UC16
3.	Server accepts images	All Component analysis/processing	UC17

Num	Description	Associated Component	Associated UC
4.	Server accepts video	All Component analysis/processing	UC17
5.	Server accepts audio	Audio Segmentation Speech recognition	UC17
6.	Server accepts text	Textual information extraction	UC17
7.	Import of images/video/data to system	Rights Management module	
8.	System allows creation of personal profiles, community and groups	User profile editor	UC2, UC7, UC23
9.	Receive content from fixed public networks	All Component analysis/processing	UC33
10.	System needs RDF repositories on standard RDBs	GPRR Temporal Reasoner Real-time summary generation Multimedia summary generator Disparity analyzer Content syndication	
11.	Download content	Manual annotation tool Multimedia summary generator Media linking	UC19

7.2.3. Personalization

Num	Description	Associated Component	Associated UC
12.	System need to give the capability to the administration users to define user group access permissions	User manager	UC10
13.	System searches for users with the profiles matching the community description and sends invitation notification message	User profile manager	UC6
14.	System requires the Rights Management Module	Rights Management Module	UC11
15.	System update user profile automatically	User profile manager	UC31
16.	System provide personalized content in way that the user profile	Long term adaptation component	
17.	System learns from user's online behaviour	Reasoning module User profile manager	UC31
18.	User profile stores user actions	User profile manager	UC31
19.	User profile contains user preferences	User profile manager	UC31

Num	Description	Associated Component	Associated UC
20.	Dynamic profiling based on user's history	User profile manager	UC31
21.	User profile stores user preferences	User profile manager	
22.	User profile stores personal information	User profile manager	
23.	System defines persistent user profile based on usage history and or user environment	Long-term and short-term adaptation component	UC31
24.	System can analyse user actions and deduce his/her preferences	Long-term and short-term adaptation component	UC31
25.	System generates a ranked list of resources with an associate rating to each resource that measures its relevance for a given user according to his profile	Long-term adaptation component	
26.	System allows user profile edition (edit, create, change, delete functionalities)	User profile Editor	UC23
27.	Store a temporal user profile usable in a particular context	User profile manager Long-term and short-term adaptation component	
28.	handle synchronization of the user profiles between the different user devices	User profile manager	UC23

7.2.4. Knowledge extraction

Num	Description	Associated Component	Associated UC
29.	Knowledge extraction is automatic and transparent to the user	Textual information extraction Reasoning for Analysis Module Disparity analyzer	
30.	Knowledge-assisted content analysis ad metadata generation	Textual information extraction ASR Textual Analysis Disparity analyzer	
31.	Extraction of visual descriptors	Visual Descriptors for Analysis and Annotation	
32.	The news item is automatic annotated by System	Textual information extraction	UC32
33.	System allows real-time analysis	Real-time analysis	UC33
34.	System makes scene detection	Real-time analysis	UC33
35.	System detects and recognize of text from images and video key-frames	Real-time analysis	UC33

Num	Description	Associated Component	Associated UC
36.	System detects regions and analyzed regions	Real-time analysis Visual Descriptors for Analysis and Annotation	UC33
37.	System makes spatio-temporal segmentation	Real-time analysis	UC33
38.	System makes motion description	Real-time analysis	UC33
39.	key-frame extraction	Visual Descriptors for Analysis and Annotation	UC33
40.	Shot temporal segmentation of the video	Training and Learning Approaches for Classification	UC33
41.	Location of speech, music, silence and speaker turns	Audio segmentation	
42.	System requires a shot detection module	Training and Learning Approaches for Classification Manual annotation tool	
43.	System gives start/end time and label of audio segments	Audio segmentation	
44.	Automatic semantic annotation	Reasoning for Analysis Module	UC32
45.	Speech recognition in English, Spanish and German	Speech Recognition Manual annotation tool	UC27
46.	ASR analysis and semantic annotation	Speech Recognition ASR Textual Analysis	UC32
47.	System generates metadata defining semantic highlights and hierarchical relations	Semantic highlights detection and automatic keyword recommendations	UC32
48.	Foreground and background segmentation	Semantic highlights detection and automatic keyword recommendations	
49.	Creation of the data and content structures ready for content navigation through the news	Media linking	UC30
50.	Generate a set of hyperlinked media elements ready for delivery and rendering on terminal	Media linking	UC30
51.	Creation of the syndication structure for generalize navigation between content	Content syndication	UC30
52.	Generate a set of media links expressing relationships for linking media pieces one to each other	Content syndication	UC30
53.	Identification of semantic interrelationships of content and creation of disparity maps	Disparity analyzer	
54.	Phone recognition	Speech Recognition	UC27
55.	Timing information on the word	Speech Recognition	UC27

Num	Description	Associated Component	Associated UC
	level		
56.	Generate saliency map	Semantic highlights detection and automatic keyword recommendations	
57.	Speaker segmentation	Manual annotation tool Audio Segmentation	

7.2.5. User Interface

Num	Description	Associated Component	Associated UC
58.	System allows contact the user with administrator	User manager	UC1
59.	Manual annotation the content	Manual annotation tool Manual Checking tool	UC26
60.	System send notifications to the users for specific fields of interest	User profile editor	UC23, UC21
61.	Manual editing of the user profile can be done without connection	User profile editor	UC23
62.	System requires identification	User Manager	UC1
63.	System needs Media Player (client side)	Rights Management module	
64.	System allows manual annotation tool	Semantic highlights detection and automatic keyword recommendations Manual annotation tool Manual checking tool	UC26
65.	Relevance Feedback tool for Semantic Annotation	Semantic highlights detection and automatic keyword recommendations Relevance feedback tool	UC3
66.	Inform the user of the result of registration	User manager	UC4
67.	Send shows inform the user of the result of registration in the MESH system	User manager	UC4
68.	Operation add new user, if user is already registered, the system shows message that the user is already registered and should contact the administrator	User manager	UC4
69.	Modify user operation, the UI shows the user any modifications performed on the user's profile	User profile editor	UC23

7.2.6. Content management / Content adaptation

Num	Description	Associated Component	Associated UC
70.	System create summary of news	Multimedia summary	UC34

Num	Description	Associated Component	Associated UC
		generator	
71.	System generates a description of the generated summary	Multimedia summary generator	UC29
72.	Clustering the summaries	Semantic-based clustering of summaries	UC34
73.	Media Adaptation module (Transcoding)	Media Adaptation Module Multimedia summary generator	
74.	Transmoding using user preferences	Media Adaptation Module	
75.	Content is adapted for network conditions	Media Adaptation Module	
76.	System produces real time summaries	Real-time summary generation	UC29
77.	System provides the automatic linking capability in relevant media material	Media linking	UC30
78.	Make news items, from external sources	Media adaptation module	UC33
79.	System produces personalized summaries of new content	Multimedia summary generator	UC34
80.	Use MPEG4-BIFS streams (which include hyperlink support)	Media linking	UC30
81.	System uses filters to convert raw speech recognition to others formats	Media adaptation module	UC27
82.	System uses a/v codecs	Multimedia summary generator	
83.	Content can be delivered	Content retrieval	
84.	Support for video in MPEG-2 MP@ML progressive format	Training and Learning Approaches for Classification	
85.	Use MPEG-21 Digital Item Description and MPEG-21 Digital Item Adaptation	Media Adaptation Module	

7.2.7. Security

Num	Description	Associated Component	Associated UC
86.	System uses data encryption	Rights Management module	UCs: 1, 2, 5, 6, 7, 8, 9, 10, 12, 13, 14, 15, 16, 22, 23, 24, 25
87.	System uses DRM	Rights Management module	
88.	System requires identification	User manager	UC1

7.2.8. Miscellaneous Functionality

Num	Description	Associated Component	Associated UC
89.	System provides administration users with the capability to add new, update, delete users to MESH	User profile editor	UC4, UC8
90.	System allows preview the new item summary	Multimedia summary generator	UC11
91.	"speech to text" module transforms the audio part of the item to text	Speech recognition	UC27
92.	System produces full text transcripts of the speech in the audio files	Speech recognition	UC28
93.	System requires a speaker segmentation module	Audio segmentation	
94.	System requires a time coded speech transcription	Speech recognition	
95.	System needs Web Server	Manual annotation tool Rights Management module	

7.2.9. Content and metadata retrieval

Num	Description	Associated Component	Associated UC
96.	Text query analysis	All modules with knowledge	
97.	System can search and select user	User manager	UC9
98.	System generates rates an item taking into account the interests of people explicitly linked with the user	Filtering module	UC24
99.	System generates rates an time according to the explicit ratings given by users with similar interests	Recommender /Filtering module	UC24
100.	Browsing and navigation for the contents	Media linking	
101.	System provides reports (accounting reports, usage reports, auctioning report)	Filtering module	UC24

7.2.10. Requirements not associated to system components.

These requirements have been generated directly from use cases. Currently there is no concrete MESH component providing support for them.

Num	Description	Type	Associated UC
102.	System provides access through different devices (PC, mobile, PDA)	Network	UC33
103.	System supports printing	File management	

Num	Description	Type	Associated UC
104.	System might also reference backup repositories	File management	
105.	System sends alert message to user, if the connection is fail	User interface	UC1
106.	If user doesn't have in his account a required amount, a notification message appears the forces the user to deposit MESHros in his count	User interface	UC13
107.	Send message if upload new files are not in an acceptable format	User interface	UC17
108.	If a user is already subscribed to a service, system shows message that informs the user	User interface	UC22
109.	A report result doesn't exceed the size of 1000 rows	User interface	UC24
110.	If a report result exceed more 1000 rows, the system displays a message to the user and he will be asked to change size of report	User interface	UC24
111.	System send message to user if a service is unavailable and it asks to try again later or contact the administrator	User interface	UC35
112.	System sends alert message to user, if the connection is fail	User interface	UC1
113.	All operations of response system shouldn't exceed 5 seconds	User interface	UC1, UC2, UC4..
114.	response search new is limited 10 seconds	User interface	UC18
115.	response 'speech to text' module is limited 10 seconds	User interface	UC27
116.	System allows to user the subscription service of MESH system	User interface	UC5
117.	System provide the capability to users to listen to textual news content	User interface	UC28
118.	System send personal notifications	User interface	UC21
119.	System adds services	Functionality	UC5
120.	Preview attached license information about item	Retrieval	UC11
121.	Preview price items	Retrieval	UC11
122.	Auctioning functionality	Retrieval	UC14
123.	Sale of new item targeted user	Retrieval	UC12
124.	Reliability System: if the file transfer is interrupted, the file	Security	UC12

Num	Description	Type	Associated UC
	will be automatically resubmitted		
125.	System should be provided on a strong secure connection	Security	
126.	The user count is locked if the user tries to login three times in succession unsuccessfully	Security	UC1
127.	System makes available the news item to service subscribers	Content	UC36
128.	System publishes items	Content	UC15,UC20
129.	System allows content purchasing	Content	UC11

The following table maps the dependency between the requirements as numbered in the previous tables and the Use Cases as listed in the previous section.

Requirements Use Cases Dependency Traceability Table

Req\UC	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
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128															x					x																
129											x																									

7.3. MESH System non-functional requirements

The following table gathers a number of non-functional requirements to be considered during the design and implementation phases of the MESH platform. Again these are to be revisited and further refined in parallel to the prototype implementation stages.

Non-functional	Requirement summary
Performance	A high capacity network has to be available for data intensive transmissions. Although this is a pilot, and time is not that critical, the requirement should be considered during the design and implementation stages.
Scalability/ Expandability	Should be able to scale and expand the dispatch centre to be able to handle more traffic.
Robustness	It should be ensured that content and content delivery services are available at al times even if some hardware or software components fail to function. For this reason alternative means for ensuring content and service availability will have to be defined. The system must log that a service, or content source has failed and log which service/source was used instead. The application should be notified, so that it is possible to inform the user that an alternative service/source has been selected. This should be done with no involvement from the end users.
Maintainability	If a service has been upgraded, then the old version of the service must be available for some time in order for the IT personnel to upgrade the software to use the new version of the service.
Portability	All client modules will run on predefined mobile hardware and since services are invoked over the Internet there are no specific requirements regarding portability.
Distribution	New mobile client module versions will be distributed using the internet.
Usability	Easy to use. User documentation should not be necessary for ordinary tasks.
User interface	Should give access to all system functionalities providing easy navigation through all features with personalisation capabilities depending on the system usage.
Availability	24/7 with 99.9% reliability. It is very important that the MESH system is available 24/7. This also has an impact on the MESH Mobile Environment and the services included in the service compositions.
Security	Username/password is required for accessing news items stored in the personal MESH Repository. If certain services require authenticating information, that will be provided at execution time, from the application and will not be stored as part of the composition specification. Secure transfer of data between the client application and MESH platform will need to be ensured. Sensitive data should be either encrypted (over SSL or through HTTPS connections).
System stability	In addition to the requirement with respect to availability, the system must handle errors occurring in a sensible way. This requirement concerns all systems/tools/services in the architecture.
Deployment	Ease of deployment - Must be able to update mobile modules through the internet.

8. Conclusions

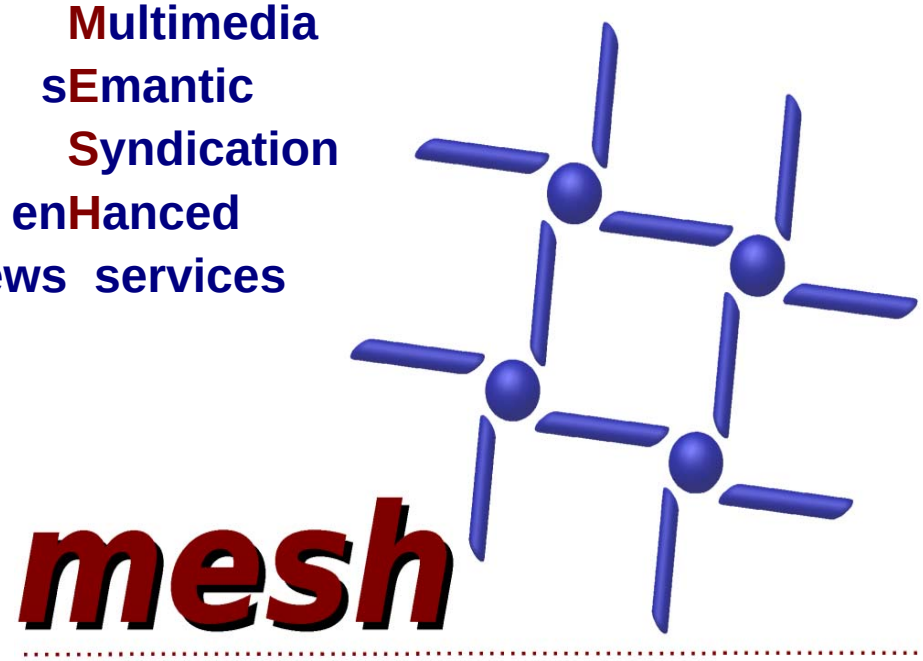
This document presented the process followed by the MESH project to capture, analyse and record the requirements for the MESH platform, as expressed by users who belong to the targeted groups. The tools used to achieve these objectives have been described in detail along with the results the consortium reached, which will be later employed in the system design process. Although this document describes a baseline of requirements, it is expected that subsequent refinements will be applied through the design and implementation phases according to a feedback loop connecting the users testing and evaluating the prototypes with the implementation team.

9. References

[1] http://bosr.unl.edu/focus_groups.html
[2] http://client.norc.org/whatisasurvey/chapters/chapter5.htm

10. Annex I – The MESH questionnaires

Multimedia
s**E**mantic
Syndication
for en**H**anced
news services



QUESTIONNAIRE

"Mesh" will apply multimedia analysis & reasoning tools, network agents and content management techniques to extract, compare and combine meaning from multiple sources. These functions will be fully exhibited in the application area of news, by the creation of a platform that will unify news organisations through the online retrieval, editing, authoring and publishing of news items.

This questionnaire is purposed to identify User Needs for potential Services and Methods, which may in the future be available through the MESH platform.

Through this User Survey we aim to collect information, which we will analyse and finally utilize in building a MESH platform in the way that it will be most useful to "Professional Users" as well as to the "Public News Audience".

Our final goal is to provide MESH Users with the necessary tools for an easier and personalized navigation in the world of news.

Respondent' S Details

*Name:	
*Organization:	
Profession:	
Country:	

*** Optional fields**

1. Personal Information

To help us evaluate your answers, please indicate:

1.1. Your age is between

- ☐ 20-30
- ☐ 31-40
- ☐ 41-60
- ☐ 60-

1.2. Your education level

- ☐ Graduate
- ☐ Post Graduate
- ☐ Doctorate
- ☐ Other (Please indicate.....)

1.3. Your work experience in your primary activity

- ☐ 1 year or less
- ☐ 2 years to 4 years
- ☐ 5 to 9 years
- ☐ 10 years or more

1.4. Average working hours per week

- ☐ less than 40 hours
- ☐ more or less 40 hours
- ☐ more than 40 hours

1.5. Your working location

- ☐ I work in an office
- ☐ I work at home
- ☐ Other (Please indicate .....)

1.6. How often do you travel for business, on average?

- ☐ Once a week
- ☐ Several times a month
- ☐ Once a month
- ☐ 1-2 times a year
- ☐ I don't travel at all
- ☐ Other (Please indicate .....)

1.7. Would you be interested in receiving news during your business travels?

- ☐ YES
- ☐ NO
- ☐ Indifferent

1.8. Would you be willing to pay for a service providing intelligent access and delivery of news?

- ☐ YES
- ☐ NO
- ☐ Indifferent

2. ICT skills

2.1. Your computer experience:

- ☐ 1 year or less
- ☐ 2 to 4 years
- ☐ 5 years or more

2.2. How comfortable do you feel using the Internet?

- ☐ Very comfortable – I can do everything that I want to do
- ☐ Comfortable – I can do most things I want to do
- ☐ Neither comfortable nor uncomfortable
- ☐ Uncomfortable –I can not do many things I would like to do
- ☐ Very uncomfortable - I can not do most things I would like to do

2.3. How comfortable do you feel using Computers, in general?

- ☐ Very comfortable
- ☐ Comfortable – I can do most things I want to do
- ☐ Neither comfortable nor uncomfortable
- ☐ Uncomfortable

2.4. How often do you use the internet?

- ☐ Under 1 hour per day
- ☐ 1-3 hours a day
- ☐ 3-6 hours a day
- ☐ More than 6 hours per day

Personal Users

3. News Preferences

3.1. Do you read a Newspaper daily?
(If yes, please indicate which below)

- ☐ YES, I read a newspaper every day
- ☐ NO, I read a newspaper often
- ☐ I never read a newspaper

Comments: .....

3.2. Are you a subscriber in any news service (printed or electronic)? (If yes, please indicate which below)

- ☐ YES
- ☐ NO

Comments: .....

3.3. Do you visit a specific internet site for reading the news? (If yes, please indicate which below)

- ☐ YES
- ☐ NO

Comments: .....

3.4. Do you use the Web for acquiring information regarding your research /work /studies, for example through a search engine, like Google?

- ☐ YES
- ☐ NO because:
  - ☐ I prefer printed material /sources
  - ☐ I do not trust the internet
  - ☐ I do not know any interesting online services
  - ☐ I find using the internet search engines complicated /troublesome

3.5. What kinds of news are you mostly interested in and in what frequency?

	ALWAYS	OFTEN	NEVER
Political	☐	☐	☐
Financial	☐	☐	☐
Breaking News	☐	☐	☐
Cultural	☐	☐	☐
Science & Technology	☐	☐	☐
Sports	☐	☐	☐

3.6. On which platform do you consume your news and in what percentage?

Please quantify your answer below, indicating the DAILY percentage of news watching:

TV ..... **%**

RADIO ..... **%**

NEWSPAPER ..... **%**

INTERNET ..... **%**

MOBILE DEVICE ..... **%**

TOTAL: **100%**

3.7.Do you use a *news- portal*, like Google -news? (If yes, indicate the name(s) of the portal(s) below)

☐ YES

☐ NO

Comments: .....

3.8. Do you use a *syndication standard*, like RSS? (If yes, indicate the name(s) of the standard(s) below)

☐YES

☐ NO

☐ I don't know what a "*syndication standard*" is

Comments: .....

3.9. Have you ever used a blog? (If yes, indicate the name(s) below)

☐ YES

☐ NO

☐ I don't know what a "*blog*" is

Comments: .....

3.10. Was there a moment when you wished you could receive news on your mobile phone? (If yes, please indicate below)

☐ YES

☐ NO

Comments: .....

3.11. In what form do you prefer receiving news?

- ☐ Text
- ☐ Image
- ☐ Video
- ☐ All the above (animated & text)

Comments: .....

3.12. How much do you trust the way news is presented to you?

- ☐ Very
- ☐ I am concerned
- ☐ Not at all

Comments: .....

3.13. Would you mind if a system kept information about your personal interests in News reading, either provided by you or by tracking the news sites you visit?

- ☐ I wouldn't mind
- ☐ I am concerned
- ☐ I would really mind

Comments: .....

3.14. In the future, who do you think will benefit the most from the use of the internet in news delivery?

- ☐ Bloggers/ Citizen Journalists
- ☐ Major Media Brands
- ☐ Telecommunications Providers
- ☐ Web Corporations
- ☐ News Audience

Thank you for your time!

Professional Users

3.1. Please indicate the news sources you use more frequently for collecting news content for your everyday work.

→ PORTALS (ex. Deutsche Welle Online, Google- News)

.....

→ PERSONAL SOURCES (Blogs/ Podcasts, etc.)

.....

→ SYNDICATION STANDARDS (ex. RSS , Atom)

.....

3.2. How much do you trust the way news is presented to you?

- ☐ Very
- ☐ I am concerned
- ☐ Not at all

3.3. Do you usually go to news sources you know/ have been using for a long time, or do you often search for new sources?

- ☐ I only use trusted, known sources
- ☐ I primarily use trusted, known sources but frequently supplement these sources with additional new sources
- ☐ I always look for new sources and have no pre–defined "regular" source
- ☐ Neither applies

3.4. Would you mind if a system kept information about your personal interests in News reading, either provided by you or by tracking the news sites you visit?

- ☐ I wouldn't mind
- ☐ I am concerned
- ☐ I would really mind

How important is for you…?

4.1. … to have a CENTRAL POINT of access to news content?

☐ Very important

☐ Important

☐ Indifferent

4.2. … to have an easy way for building a thematic news-portal?

☐ Very important

☐ Important

☐ Indifferent

4.3. … to have an easy way for establishing authorization (copyright) for the use of multimedia content?

☐ Very important

☐ Important

☐ Indifferent

4.4. … to have an easy way *for electronic payment* for news content (for re-use or plain reading)?

☐ Very important

☐ Important

☐ Indifferent

4.5. … to be able to use a mobile device, for something further to communication, for example for composing a news article?

☐ Very important

☐ Important

☐ Indifferent

Have you ever wished …?

4.6. … there was an electronic way for communicating with colleagues of the same professional Community worldwide?

- ☐ YES
- ☐ NO
- ☐ Indifferent

4.7. … there was an electronic way for syndicating your news content (content auctioning)?

- ☐ YES
- ☐ NO
- ☐ Indifferent

Would you be interested in…

4.8. … a way that allows you to find relevant articles /images /videos to the one you are viewing?

- ☐ YES
- ☐ NO
- ☐ Indifferent

4.9. … a method that allows you to annotate images and videos on a mobile device?

- ☐ YES
- ☐ NO
- ☐ Indifferent

Please indicate your opinion on the following functions:

5.1. Text to Speech

Imagine "someone" reading your mail while you are driving though traffic, without anyone else being there except you and your mobile phone

Necessary	Important	Less Important	Indifferent
☐	☐	☐	☐

5.2. Speech to Text

Imagine the same "someone" typing your speech while you are reading it out...

Necessary	Important	Less Important	Indifferent
☐	☐	☐	☐

5.3. Multimedia Summary

Receiving a daily summary (including text /images /video) of news that interest you on your mobile phone

Necessary	Important	Less Important	Indifferent
☐	☐	☐	☐

5.4. Credibility of sources

A trusted system that classifies the credibility of the news you are provided with

Necessary	Important	Less Important	Indifferent
☐	☐	☐	☐

5.5. Face Recognition

A method for automatic recognition of a face corresponding to a particular person

Necessary	Important	Less Important	Indifferent
☐	☐	☐	☐

5.6. Scene Recognition

A method for automatic recognition of the contents of a scene (place, time, season…)

Necessary	Important	Less Important	Indifferent
☐	☐	☐	☐

5.7. Video/Image Search

Inserting an image and automatically getting background information (related past events, similar images, etc.)

Necessary	Important	Less Important	Indifferent
☐	☐	☐	☐

5.8. Personalised Access to News Content

A system that can recognise your preferences while you are searching the web and automatically suggest useful information

Necessary	Important	Less Important	Indifferent
☐	☐	☐	☐

5.9. Unstructured Search Queries

Being able to formulate a search query in plain (unstructured) text

Necessary	Important	Less Important	Indifferent
☐	☐	☐	☐

5.10. Archive Library

An online archive of established libraries providing you with cross linked news

Necessary	Important	Less Important	Indifferent
☐	☐	☐	☐

Thank you for your time!