



Proposal

Proposal full title:	Terrorism and Organized Criminal Search Database upgrade
Proposal acronym:	TOC Search 3.0
Type of funding scheme:	STREP
Work programme topics addressed:	ICT-2009.4.1: Digital Libraries and Digital Preservation e) Interdisciplinary research networks b) Advanced preservation scenarios b1) Methods and tools for preserving complex objects
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Project partners

Part. No.	Organisation name	Short name	Country
1 (Coordinator)	University of Belgrade, Faculty of Mathematics, http://www.matf.bg.ac.rs	MATF	Serbia
2	University of Belgrade, Faculty of Security Studies, http://www.fb.bg.ac.rs	FB	Serbia
3	IBM UK, http://www.ibm.com/uk/en/	IBM	United Kingdom
4	George C. Marshal European Center for Security Studies, http://www.marshallcenter.org	MC	Germany
5	RR & CO., http://www.rr-co.eu	RR	Slovenia
6	University of Manchester, Faculty of Engineering and Physical Sciences http://www.manchester.ac.uk	FEPS	United Kingdom
7	LDK consultants http://www.ldk.gr/	LDK	Greece

Project Abstract

Every nation is faced by a problem of terrorism and organized criminal. There are various methods and tools that help to work on that problem, but all of them include quantitative and qualitative information. To have that information we have to build system that provides it. One of the tools used in that purpose is TOC search database.

By connecting two different scientific areas such as mathematics and security sciences, combined together into software tool, we get TOC search, terrorism and organized criminal search database. The scope of the TOC Search database is public safety and prevention of terrorism and organized criminal.

TOC Search database provides in-depth research and analysis on terrorist incidents, terrorist groups, organizations, their members, leaders and also links and relations between the individuals and groups. The idea is to integrate data from variety of sources, including foreign and domestic news, professional security journals, reports and databases, academic works. There will be two data access levels, blue and red key. Blue key will provide access to open source data. Red key will provide access to classified data beside open source data.

As a final result TOC search can be used in practical and educational purposes. In educational use, people that work on entering and analyzing data will tune their analytical skills and get global knowledge about terrorism and organized criminal. In practice, TOC search can be used as additional tool at country borders and high risk happenings, or in purpose of public safety generally.

Users of TOC search will be everyone interested in public safety, or involved in prevention of terrorism and organized criminal. That could be security experts, researchers, analysts, students, and others.

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1 Scientific and/or technical quality, relevant to the topics addressed by the call

1.1 Concept and objectives

The TOC search (Terrorist and Organized Criminal Search) is a dynamic data base which offers comprehensive information on global terrorist network and help researchers, analysts, students and others working to prevent terrorism. It is result of a common project realized by the Faculty of Security Studies and Faculty of Mathematics, University of Belgrade, which had started in December 2007.

The scope of the TOC-search data base is to provide in-depth research and analysis on terrorist incidents, terrorist groups, organizations, their members, leaders and also links and relations between the individuals and groups. The idea is to integrate data from variety of sources, including foreign and domestic news, professional security journals, reports and databases, academic works.

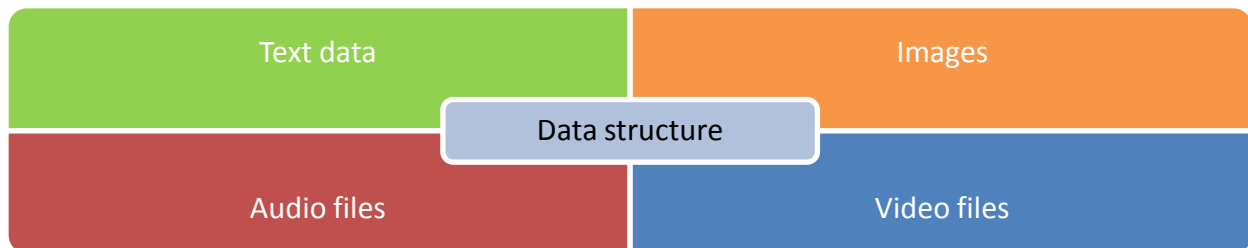


Figure 1 Data types

The starting point in the TOC-search project was the data presented on the map Al-Qaeda Network: Principals, Supporters, Selected Cells and Significant Activities (1992-2004). The map was prepared by J. L. Boesen, Raytheon Genesis Facility Institute Reston (2004), using the data derived from open sources. The data presented in the map were classified and stored in order to create backbone of the base.

The data in the base are classified in seven entities: individuals, groups, organizations, supporter, actions, links and GMC reports (Figure 2). The simple and advanced search features are implemented in the TOC search. The simple search enables the researcher to explore the chosen entity by given keyword or part of an entity name. The advances search feature is implemented for each entity. It is performed by using different properties: alias, belongs to organization, belongs to group, leader, religion, in relation with, type or actors of the attack, etc (Figure 3). All search results are presented together with the basic information on the found subjects, enabling in-depth search to be performed as well. An important feature of the TOC search is the fact that links between the mentioned terrorist-related categories are stored and classified in the data base. The results of both simple and advance search provide information whether there is a link (active or inactive) from a particular item. The in-depth search feature gives more information on the found link. This is a unique feature of the TOC search which no other terrorist database has had up to this point.



Figure 2 Main entities in TOC search database model

One of the key advantages of the TOC-s is the fact that its basic data source is verified information from the reports prepared and provided by George C Marshall European Center for Security Studies. The PTSS Reports are produced by special newsletter service supporting the counterterrorism course at The George C. Marshall European Center for Security Studies, and it is created for educational purposes only. The newsletter is produced from the open-source media reports by GMC postgraduate students and verified by senior experts and counter terrorism officers. This is the main reason why PTSS has been chosen as the main data source for TOC-s. Besides PTSS Reports, GMC also publishes several other reports based on different open source data, such as: Department of Homeland Security Report (DHS), Terrorism Open Source Intelligence Report (TOSIR), Insurgency Literature Review (ILR) and Terrorism Literature Report (TLR).

Basic information	<ul style="list-style-type: none"> •Name, Aliases, Locations, Birth date, Image, ...
Comment/Biography	<ul style="list-style-type: none"> •Description of entity not covered by entity attributes
Access level	<ul style="list-style-type: none"> •Red key •Blue Key
Terrorist/Criminal activity	<ul style="list-style-type: none"> •List of activities (bomb attack, suicide attack, armed attack, rocket attack, hijacking, conspiracy, ...)
Multimedia files	<ul style="list-style-type: none"> •Multiple database entities can be connected with one or more multimedia items

Figure 3 Entity features

The incoming reports are sorted and stored by date in GMC section of the TOC-s database. The George Marshall Center provided us with their GMC reports archive and they keep sending us the daily PTSS and other GMC reports. In this way, a constant refreshment of the base with up-to-date information has been provided. The TOC search simple search feature through GMC reports is implemented, which enables the exploration of GMC section by using keywords.

At each moment of using TOC search, one can immediately start a new search or switch to advanced search tool. While exploring the data base, a researcher usually performs multiple search. In order to help the user of the TOC search, we have implemented the “select tool”. This tool enables the user to put all the important results obtained from different search. In this way, all the data that are essential in the research are available during the further TOC search exploration. The data in the “selection” tool are easily added or removed. By using option “Feedback” the user may send a message on TOC-s administrator on different topics (site bugs, error data, comments, suggestions, etc.)

The information in the TOC-s database has been constantly updated from the GMC reports and other publicly available, open-source materials. These include electronic news archives, existing data sets, secondary source materials such as books and journals, and legal documents. TOCs team performs constant verification of the data by comparing it with other sources and by internal checking of the data and related records.

It is also important to provide the protection of data stored in the base. In this scope, two levels of data access are implemented in the TOC search. The first level is named “blue key” and it is available for students and researchers in academic institutions and research centers. The “blue key” enables the access to all open-source data stored in the base. The second level of data access, named “red key” is reserved for legal authorities, state institutions, and state government. The “red key” opens the part of the TOC-s with confidential data. The owner of the “red key” also has access to the open source data, as the “blue key” owner. Only state institutions and agencies which have a contract with TOC-s have an access to the red key data and they are red key members.

In the next phase of the TOC-s project, several analytical features are to be incorporated in the database. Analytical tools will provide statistical information analysis of the global terrorist network. The researcher will be able to analyze terrorism trends over time and to compare different aspects of terrorism between countries, regions and terrorist groups (for example: type of terrorist attacks, level of organization, tactics, communication level, size of a terrorist group, age or race of its members, and many others). The results of statistical analysis will be presented graphically in various charts, showing the dependencies and/or the comparisons of the chosen aspects. The chart type can also be chosen by the user.

An analytical-purpose system will be used to understand the structure of different terrorist organizations with respect to particular attack types or regions of their activity. By using this system, the intelligence analysts will be able to develop hypotheses and then validate them (or not) against the data in the TOC search information space. In this way, it will be possible to provide certain predictions of international terrorism trends, seasonality, and periodicity of terrorist events.

In the future phase of the TOC-search project, we also plan to implement the image search feature. This tool will enable to search the image data base for related photographs of individuals or terrorist attacks by using keywords (individual's name, group/organization name, or the part of the name, specific terrorist incident, date, etc.).

Regarding the practical aspects of the TOC-s database, we emphasize the fact that the TOC-s data were primarily collected by academic groups. This means that TOC-s team was under no political or government pressure in terms of how to collect the data or how to classify them. Although the TOC-s is still in its construction phase, it has already been used in the purpose of Security of the Olympic Games in Beijing 2008, and it is currently being used in the purpose of Security of the World Championship in Football 2010 and World Expo in China 2010.

The idea behind this proposal is to make TOC search database more practical in public safety by implementing more complex tools. So in that purpose our aim is to satisfy following objectives:

- Database model improvements
- Moving application to enterprise environment
- Implementing smart data extraction tools
- Making public opinion about some subject from extracted data
- Building internet spiders for given keywords to collect data
- Improving search algorithms in application
- Visualising relationships between entity instances in database
- Making interface between database and statistics tools for applied mathematics methods

(First year)

Objective 1: Database model improvements

Current database model must be improved in order to support new features that will be implemented in future. Some of improvements will address data security issues.

Success criteria:

- More stable entity relationships
- More flexible database for new entities
- More data on less storage space
- More flexible database new entity features, especially with types of terrorist and criminal activity

Objective 2: Moving application to enterprise environment

By growing database usage there will be needed to move from simple single server architecture to more complex and demanding enterprise environment. This movement will require upgrade of current software architecture and making changes in code of application.

Success criteria:

- Better performances
- Serving large number of users (up to 1 million)
- Easier data manipulation
- Support for huge amount of data (measured in tera bytes)

Objective 3: Implementing smart data extraction tools

Entering data manually is very demanding, regarded from human resources and time consuming aspect too. There must be some tool that will be able to extract information of importance from documents of different types. That will make data collecting process much faster and easier, and it will reduce effort of database users that work on data collecting and analysing.

Success criteria:

- Inserting data in database automatically, not manually
- Facilitating effort of human resources
- Making huge data collection in minutes

(Second year)

Objective 4: Making public opinion tool about subjects from extracted data

There is possibility to build system that will analyse data collected from different sources and based on given criteriums we can get opinion of publicity. That system will be integrated into TOC search. So for every entity in database, periodically will be analysed public opinion, so users will be able to see how is given entity listed in publicity. Such information can be valuable in order to make better strategy for public safety.

Success criteria:

- Integrated public opinion tool into database
- Easy to access and use information
- Better problem understanding with various data sources

Objective 5: Building internet spiders for given keywords to collect data

Web pages are one of the most important sources of information available. In order to collect data from web pages we have to build internet spider that will crawl sites and collect data. Collected data will be used for further analysing and extraction of information.

Success criteria:

- More data available
- Flexible system for collecting data

Objective 6: Improving search algorithms in application

TOC search database is mainly built for exploring of information. To do that, we have to have very efficient search algorithms so we can serve better information based on keywords of interest. To succeed in that, there must be implemented different search algorithms that will be tolerant to typos and syntax errors.

Success criteria:

- More relevant search results
- Faster search process
- Easier information availability

(Third year)

Objective 7: Visualising relationships between entity instances in database

Representation of data in various formats and dimensions can help in better understanding of data relationships. If there is a system that can visualise relationships between entities in database, TOC search users will be able to see how many steps (hops) are there between any two entities in database.

Success criteria:

- Visualised data
- Visualised relationships between entities in database

Objective 8: Making interface between database and statistics tools for applied mathematics methods

Testing hypotheses can be significant tool for predicting of possibility of something to be happened based on information that already exists in database. Users will be able to make some kind of scenario

and to count various possibilities related to constraints given by scenario. That need implementation of interface that will give opportunity to use applied mathematics methods.

Success criteria:

- Prediction of possibilities for given scenario

1.2 Progress beyond the state-of-the-art

Literature search

In this part, each one of the related pieces of research is presented via the following template:

- problem addressed,
- essence of the proposed solution,
- criticism of the proposed solution, from the point of view of interest for the research proposed here,
- an indication why the research proposed here will not have the deficiencies of the described existing solution.

Although the elaborated research examples do contribute a number of innovative approaches, none of them is holistic enough to offer an integrated approach, which is where this proposal goes beyond the current state-of-the-art. To clarify this point, the following text gives a short survey of the relevant issues and points to some state-of-the-art research. The conclusion is that this proposal offers a holistic approach not existing in the scientific literature.

1. Marc Sageman, *Terorističke mreže*, (Beograd: Udruženje diplomaca George Marshall Ceter, ALTERAS, 2006), 119-148.
2. Sageman (see note 1 above), 61.
3. The George C. Marshall *European Center for Security Studies*, www.marshallcenter.org
4. Rohan Gunaratna, *Inside Al-Qaeda: global network of terror*, (Columbia University Press, 2002), 95-164.
5. Gunaratna (see note 4 above), 54-84.
6. Fernando reinales, *Global Terrorism: A Polymorphous Phenomenon*, (Real Institute Elcano, <http://www.realinstitutoelcano.org>, ARI 65/2009 - 21/4/2009).
7. Alex P. Schmid, Albert J. Jongman, *Political Terrorism: A New Guide to Actors, Authors, Concepts, Data Bases, Theories, and Literature* (Transaction Publishers, 2005), 137-176.

1.3 S/T Methodology and associated work plan

1.3.1 The overall strategy of the work plan

Note that the major organizational point of this proposal is to link project objectives and work packages on the basis of 1:1 correspondence (each project objective is encapsulated into a separate work package); also, success criteria and milestones are linked 1:1 (major activity at each milestone is to check if the success criteria are satisfied). Each WP has one or more tasks, and each task has one or more deliverables.

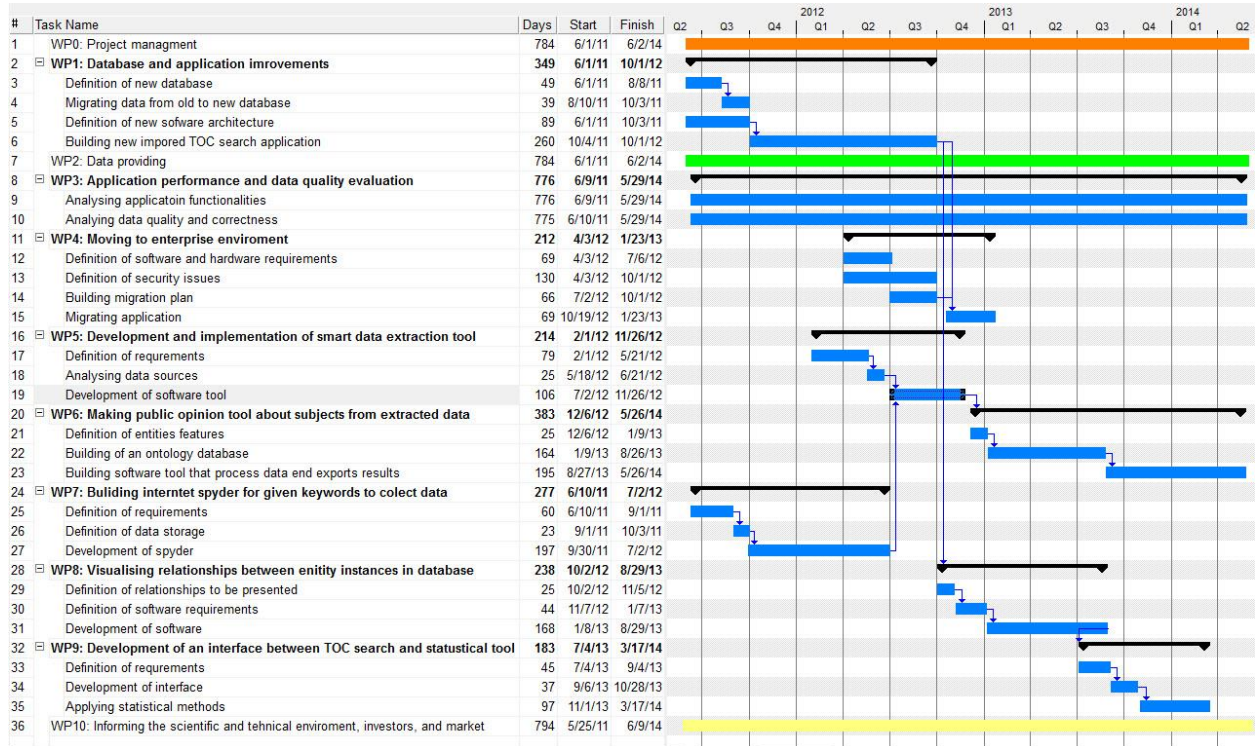
In order to achieve the overall project objectives, the following items are considered as crucial:

- competent researchers well aware of the state of the art in the research field
- and able to take the research forward;
- state of the art research infrastructure;
- excellent ability to work, communicate and collaborate with researchers
- from various backgrounds, in various circumstances and environments;
- large network of contacts in the research community;
- public awareness of the benefits of the research in a chosen field, and
- promotion of research results and achievements.

The project is organized in 11 work packages (WP) as follows:

- WP0: Project management, RR
- WP1: Database and application improvements, MATF
- WP2: Data providing, MC
- WP3: Application performance and data quality evaluating, FB
- WP4: Moving application to enterprise environment, IBM UK
- WP5: Development and implementing smart data extraction tools, FEPS
- WP6: Making public opinion tool about subject from extracted data, FEPS
- WP7: Building internet spiders for given keywords to collect data, IBM UK
- WP8: Visualising relationships between entity instances in database, MATF
- WP9: Making interface between database and statistics tools for applied mathematics methods, MATF
- WP10: Informing the scientific and technical environment, investors, and market, LDK

1.3.2 Gantt chart



1.3.3 Detailed work description

WP0: Project Management

The WP0 or Project Management will guarantee smooth implementation of the project ensuring an objective-driven supervision, quality control and overall coordination of research tasks described in work packages 1-10 adapted to the requirements of this STREP project. It will guarantee constant supervision of all partner-related issues, anticipating any major problems in advance, providing sound administrative and financial management coordination based on accepted rules and FP7 guidelines.

WP1: Database and application improvements

Based on previous exeperince by using TOC search, and guided by new ides for improvements TOC search will grow in new more scalabse, flexible and portable application. It will support its usage from various platforms and devices.

WP2: Data providing

One of the key data sources in TOC search database are roports made by postgraduate students ad George C. Marshal Centre for Security Studies. Those data are verified and double checked. Such data carrys sifnificant importance for whole project.

WP3: Application performace and data quality evaulating

By implementing new features and importing huge amount of data in pretty short time interval could spoil existing data. Because of that there will be employed a lot of students, security experts and

analysts to constantly evaluate TOC search, in both directions, functionality and the most important, data quality aspect.

WP4: Moving application to enterprise environment

By growing database usage there will be needed to move from simple single server architecture to more complex and demanding enterprise environment. This movement will require upgrade of current software architecture and making changes in code of application.

WP5: Development and implementing smart data extraction tool

Entering data manually is very demanding, regarded from human resources and time consuming aspect too. There must be some tool that will be able to extract information of importance from documents of different types. That will make data collecting process much faster and easier, and it will reduce effort of database users that work on data collecting and analysing.

WP6: Making public opinion tool about subject from extracted data

For every entity in database, periodically will be analysed public opinion, so users will be able to see how is given entity listed in publicity. Such information can be valuable in order to make better strategy for public safety.

WP7: Building internet spiders for given keywords to collect data

Web pages are one of the most important sources of information available. In order to collect data from web pages we have to build internet spider that will crawl sites and collect data. Collected data will be used for further analysing and extraction of information.

WP8: Visualising relationships between entity instances in database

Representation of data in various formats and dimensions can help in better understanding of data relationships. If there is a system that can visualise relationships between entities in database, TOC search users will be able to see how many steps (hops) are there between any two entity instances in database.

WP9: Making interface between database and statistics tools for applied mathematics methods

Testing hypotheses can be significant tool for predicting of possibility of something to be happened based on information that already exists in database. Users will be able to make some kind of scenario and to count various possibilities related to constraints given by scenario. That need implementation of interface that will give opportunity to use applied mathematics methods.

WP10: Informing the scientific and technical environment, investors, and market

This ongoing work package is focused on promoting the project and its participants, particularly research centres from the EU and raising general public and industry awareness of the potential benefits of deployment and exploitation of the research results.

1.3.3.a Work package list

Work package No	Work package title	Type of activity	Lead partic no.	Lead partic. short name	Person-months	Start month	End month
WP0	Project Management	MGT	5	RR	71	M1	M36
WP1	Database and application improvments	RTD	1	MATF	45	M1	M15
WP2	Data providing	RTD	4	MC	128	M1	M36
WP3	Application performace and data quality evaulating	RTD	2	FB	128	M1	M36
WP4	Moving application to enterprise enviroment	RTD	3	IBM UK	45	M9	M18
WP5	Development and implementing smart data extraction tool	RTD	6	FEPS	52	M7	M19
WP6	Making public opinion tool about subject from extracted data	RTD	6	FEPS	64	M18	M36
WP7	Building internet spyder for given keywords to colect data	RTD	3	IBM UK	48	M1	M12
WP8	Visualising relationships between entity instances in database	RTD	1	MATF	40	M15	M25
WP9	Making interface between database and statistics tools for applied mathematics methods	RTD	1	MATF	50	M25	M36
WP10	Informing the scientific and technical environment, investors, and market	OTHER	7	LDK	49	M1	M36
TOTAL					720		

1.3.3.b. Deliverables list

Del. no.	Deliverable name	WP no.	Nature	Dissemination level	Delivery date (proj.month)
D0.1	Minutes from each Steering Committee meeting	0	R	PU	M1, M12, M24, M36
D0.2	Project handbook including quality management plan	0	R	PU	M1
D0.3	Periodic reports at periods specified in the Grant Agreement	0	R	PU	M12, M24, M36

D0.4	Signed Consortium Agreement	0	R	PU	M1
D0.5	Audit certificates for each participant at times stated in the contract	0	R	PU	M12, M24, M36
D0.6	Final reports at the conclusion of the project	0	R	PU	M36
D1.1	Database model specification	1	R	RE	M2
D1.2	Migrated data	1	P	RE	M3
D1.3	Application specification	1	R	RE	M4
D1.4	Built application	1	P	RE	M16
D2.1	Data report delivered	2	R	PU	weekly
D3.1	Performance and quality report	3	R	RE	monthly
D4.1	Migration Requirements specification	4	R	RE	M12
D4.2	Security issues report	4	R	RE	M15
D4.3	Application migrated to enterprise environment	4	P	RE	M18
D5.1	Data extraction tool specification	5	R	PU	M10
D5.2	Data extraction tool implemented	5	P	RE	M22
D6.1	Entity features specification	6	R	PU	M23
D6.2	Public opinion tool built	6	P	PU	M36
D7.1	Internet spyder specification	7	R	PU	M2
D7.2	Spyder built	7	P	RE	M14
D8.1	Entity links specification	8	R	RE	M16
D8.2	Links visualised	8	P	PU	M25
D9.1	Statistical tool interface specification	9	R	PU	M26
D9.2	Interface built	9	R	PU	M36
D10.1	Dissemination Plan	10	R	RE	M1
D10.2	Project promotional materials	10	R	PU	M2, 14, 26, 35
D10.3	e-bulletin/newsletters released	10	R	PU	M6,12,18,24, 30,36
D10.4	3 Workshop reports	10	R	PU	M12,24,36
D10.5	3 Seminar reports	10	R	OU	M12,24,36
D10.6	Report on the participation on international conferences	10	R	PU	M36
D10.7	Scientific articles	10	R	PU	M36
D10.8	Articles published in local	10	R	PU	M 15, 26, 35

	printed media				
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1.3.3.c. List of milestones

Milestone number	Milestone name	Work package(s) involved	Expected date	Means of verification
M0.1	Kick-off meeting	WP0	M1	Minutes from kick-off meeting
M0.2	Consortium agreement signed	WP0	M1	Consortium Agreement with partner signatures
M0.3	Project shut down – all deliverables achieved	WP0	M36	Final deliverables report
M1	New application finished	WP1	M15	Application improved
M2	Application moved to enterprise environment	WP4	M18	Performance and usage possibilities improved
M3	Data extraction tool finished	WP5	M18	Entering data in database goes faster
M4	Public opinion tool finished	WP6	M34	External sources analysis available
M5	Spyder finished	WP7	M12	Data collection enlarged
M6	Links visualised	WP8	M25	Better understanding of data
M7	Statistical tool interface finished	WP9	M34	Prediction scenarios available

1.3.3.d. Description of each work package

Work package number	0	Start date or starting event:				M1
Work package title	Project management					
Activity type	MGT					
Participant number	5	1	All other part.			TOTAL
Participant short name	RR	MATF				
Person-months per participant	51	15	1 per each			71

Objectives
1. Ensuring an objective-driven supervision, quality control and overall coordination of research tasks

- described in work packages 1-8 adapted to the requirements of this IP project
2. Constant supervision of all partner-related issues, anticipating any major problems in advance
 3. Providing sound administrative and financial management coordination based on accepted rules and FP7 guidelines
 4. Setting up a framework for communication and managing communication flow among partners.

Description of work

- T1: Consortium management
- T2: Research (Content) management
- T3: Risk management
- T4: Change management
- T5: IPR management
- T6: Quality control management

Deliverables

Internal deliverables:

- D0.1 Minutes from each Steering Committee meeting (M1,12,24,36)
- D0.2 Project handbook including quality management plan (at the kick-off meeting) (M1)

Deliverables to the Commission:

- D0.3 Periodic reports at periods specified in the Grant Agreement (periodic activity reports, periodic management reports, periodic supplementary reports and periodic financial reports) (M12,24,36)
- D0.4 Signed Consortium Agreement (at the start of the project) (M1)
- D0.5 Audit certificates for each participant at times stated in the contract (M12,24,36)
- D0.6 Final reports at the conclusion of the project (final activity report, final management report, supplementary final reports and a report on distribution between participants of the final payment) (M46)

Milestones:

- M0.1 Kick-off meeting (M1)
- M0.2 The consortium agreement with all partners is signed (M1)
- M0.3 Project shut down – all deliverables achieved (M36)

Work package number	1	Start date or starting event:	M1
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Work package title	Database and application improvements						
Activity type	RTD						
Participant number	1	3	6				TOTAL
Participant short name	MATF	IBM UK	FEPS				
Person-months per participant	33	6	6				45

<p>Objectives</p> <ol style="list-style-type: none"> 1. Definition of new TOC search database 2. Migrating data from old to new database 3. Definition of new software architecture 4. Building new, improved TOC search application

Description of work

<p>Deliverables</p> <p>D1.1 Database model specification (M2)</p> <p>D1.2 Migrated data (M3)</p> <p>D1.3 Application specification (M4)</p> <p>Milestones</p> <p>M1 New application finished</p>
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Work package number	2	Start date or starting event:				M1
Work package title	Data providing, MC					
Activity type	RTD					
Participant number	4	2				TOTAL
Participant short name	MC	FB				
Person-months per participant	92	36				128

Objectives
 1. Providing analysed, classified and verified data

Description of work

Deliverables
 D2.1 Data report delivered weekly (M1)

Work package number	3	Start date or starting event:			M1		
Work package title	Application performace and data quality evaulating						
Activity type	RTD						
Participant number	2	4	1				
Participant short name	FB	MC	MATF				TOTAL
Person-months per participant	74	36	18				128

Objectives
 1. Analysing application functionalities
 2. Analysing data correctness

Description of work

Deliverables
 D3.1 Performance and quality report (Monthly)

Work package number	4	Start date or starting event:			M9		
Work package title	Moving application to enterprise enviroment						

Activity type	RTD						
Participant number	3	1					TOTAL
Participant short name	IBM UK	MATF					
Person-months per participant	36	9					45

Objectives

1. Definition of software and hardware requirements
2. Defeinition of security issues
3. Building migration plan
4. Migrating application

Description of work

Deliverables

D4.1 Migration Requirements specification (M12)

D4.2 Security issues report (M15)

D4.3 Application migrated to enterprise enviroment (M18)

Milestones

M2 Application moved to enterprise enviroment

Work package number	5	Start date or starting event:			M7
Work package title	Development and implementing smart data extraction tools				
Activity type	RTD				
Participant number	6	3	1		TOTAL
Participant short name	FEPS	IMB UK	MATF		
Person-months per participant	40	6	6		52

Objectives

1. Definition of requirements
2. Analysing data sources
3. Development of software tool

Description of work

Deliverables

- D5.1 Data extraction tool specification (M10)
 D5.2 Data extraction tool implemented (M22)

Milestones

M3 Data extraction tool finished

Work package number	6		Start date or starting event:	M18			
Work package title	Making public opinion tool about subject from extracted data						
Activity type	RTD						
Participant number	6	3	1				TOTAL
Participant short name	FEPS	IBM UK	MATF				
Person-months per participant	48	8	8				64

Objectives

1. Definition of entity features
2. Building of an ontology database
3. Development of software tool that process data and export results

Description of work

Deliverables

- D6.1 Entity features specification (M23)

D6.2 Public opinion tool built (M36)

Milestones

M4 Public opinion tool finished

Work package number	7	Start date or starting event:					M1
Work package title	Building internet spyder for given keywords to collect data						
Activity type	RTD						
Participant number	3	1					TOTAL
Participant short name	IBM UK	MATF					
Person-months per participant	36	12					48

Objectives

1. Definition of requirements
2. Definition of data storage
3. Development of spyder

Description of work

Deliverables

D7.1 Internet spyder specification (M2)

D7.2 Spyder built (M14)

Milestones

M5 Spyder finished

Work package number	8	Start date or starting event:					M15
Work package title	Visualising relationships between entity instances in database						
Activity type	RTD						
Participant number	1	2	6				TOTAL

Participant short name	MATF	FB	FEPS				
Person-months per participant	30	5	5				40

<p>Objectives</p> <ol style="list-style-type: none"> 1. Definition of relationships to be presented 2. Definition of software requirements 3. Development of software

Description of work

<p>Deliverables</p> <p>D8.1 Entity links specification(M16)</p> <p>D8.2 Links visualised (M25)</p> <p>Milestones</p> <p>Links visualised</p>
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Work package number	9	Start date or starting event:		M25			
Work package title	Making interface between database and statistics tools for applied mathematics methods						
Activity type	RTD						
Participant number	1	2	3				TOTAL
Participant short name	MATF	FB	IBM UK				
Person-months per participant	35	10	5				50

<p>Objectives</p> <ol style="list-style-type: none"> 1. Definition of requirements 2. Development of interface 3. Applying statistical methods
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Description of work

Deliverables
 D9.1 Statistical tool interface specification (M26)
 D9.2 Interface built (M36)

Milestones
 M7 Statistical tool interface finished

Work package number	10	Start date or starting event:				M1		
Work package title	Informing the scientific and technical environment, investors, and market							
Activity type	MGT							
Participant number	7	1	6	2	All other part.		Total	
Participant short name	LDK	MATF	FEPS	FB				
Person-months per participant	26	10	5	5	1 per each		49	

Objectives

1. To promote the project and its participants, particularly research centres from EU
2. To effectively disseminate achievements of the project on international, national and local level
3. To raise general public and industry awareness of the potential benefits of deployment and exploitation of the research results.
4. To organise training events

Description of work

T8.1 Definition of dissemination strategy plan (LDK)
 T8.2 Promotion of the project and its activities (LDK)
 T8.3. Organization of transfer of knowledge and dissemination events (Each partner)
 T8.4 Publications (MATF, FEPS,FB)

Deliverables

D8.1: Dissemination plan (M1)

D8.2: Project web page (M2)

D8.3: Project promotional materials (M2,14,26,35)

D8.4: E-bulletin/newsletters released (M6,12,18,24,30,36)

D8.5: 3 Workshop reports (M12,24,35)

D8.6: Seminar reports (M12,24,35)

D8.7 Report on the participation on international conferences (M36)

D8.8 Scientific articles (M36)

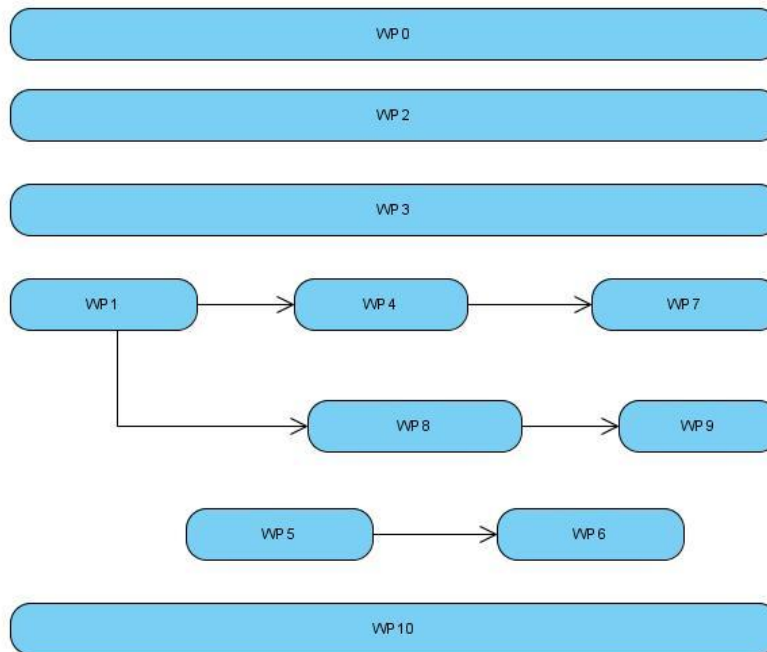
D8.9 Articles published in local printed media (M15,26,35)

1.3.3.e. Summary effort table

Partic. no.	Partic. short name	WP0	WP1	WP2	WP3	WP4	WP5	WP6	WP7	WP8	WP9	WP10	Total person months
1	MATF	15	33	0	18	9	6	8	12	30	35	10	176
2	FB	1	0	36	74	0	0	0	0	5	10	5	131
3	IBM UK	1	6	0	0	36	6	8	36	0	5	1	99
4	MC	1	0	92	36	0	0	0	0	0	0	1	130
5	RR	51	0	0	0	0	0	0	0	0	0	1	52
6	FEPS	1	6	0	0	0	40	48	0	5	0	5	105
7	LDK	1	0	0	0	0	0	0	0	0	0	26	27
Total		71	45	128	128	45	52	64	48	40	50	49	720

1.3.4 Graphical presentation of the components showing their interdependencies

Figure below illustrates interdependencies among work packages.



1.3.5 Significant risks and associated contingency plans

The research project is continuously monitored by project management and thoroughly evaluated twice per year at risk analysis meetings. All identified risks will be ranked in terms of a potential impact on the project and probability of a risk actually taking place (impact multiplied by probability). Specific measures to counteract the risks will be defined for each risk and action point assigned to people responsible for following them up. The progress will be followed up regularly until the risk is mitigated. Between the risk analysis meetings, it will be an ongoing responsibility of the project management to identify potential risks. This ongoing process will make sure that the project stays in line with the initial and possibly evolving planning, and that the quality of the work, the deliverables and the results stay at the highest level for wide acceptance.

At the first project meeting a risk analysis session will be held to identify a list of major potential obstacles. Following the process explained above, an action plan will be defined and followed up at subsequent project meetings. Potential risks envisaged at this moment are:

Risk#1: Delays in development, upsetting the work schedule
 Contingency plan: Monthly progress reports will be checked for progress. If necessary, additional effort will be organized in time.

Risk#2: Difficulties in acquiring appropriate data/permissions to use data for the test bed
 Contingency plan: Three separate, independent, domains will be examined, allowing for independent testing. Sufficient time has been allocated for finding alternative data sources.

Together with regular reporting activities (in line with the project plan) goes an obligation on all the project staff for immediate reporting of 'out of line' situations to project management who will assess the issues and deal with them.