



Meaningful Integration of Data, Analytics and Services

Grant Agreement No. 727721

Contract Duration: 40 months (1<sup>st</sup> November 2016 – 29th February 2020)



This project is funded by  
The European Union

H2020-SC1-2016-CNECT  
SC1-PM-18-2016 - Big Data Supporting Public Health Policies

## **Deliverable 1.1**

### ***Project Plan***

<b>Circulation:</b>	PU
<b>Nature:</b>	R
<b>Version #:</b>	1.0
<b>Issue Date:</b>	20/02/2017
<b>Responsible Partner(s):</b>	Ulster University
<b>Author(s):</b>	Ulster University
<b>Status:</b>	Final
<b>Reviewed on:</b>	dd/mm/yyyy
<b>Reviewed by:</b>	
<b>Contractual Date of Delivery:</b>	31/12/2016 (M2)

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## Executive Board Document Sign Off

Role	Partner	Signature	Date
Project Coordinator	Ulster	Michaela Black	20-02-2017
WP1 Lead	Ulster	Michaela Black	20-02-2017
WP2 Lead	SET		
WP3 Lead	VICOM	Gorka Epelde Unanue	2017-02-13
WP4 Lead	KU Leuven	Marc Claesen	2017-02-17
WP5 Lead	VTT	Juha Pajula	2017-02-17
WP6 Lead	DCU		
WP7 Lead	Ulster	Jonathan Wallace	20-02-2017
WP8 Lead	Ulster	Michaela Black	20-02-2017

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## Abstract

This deliverable outlines the MIDAS Project Plan including the objectives, scope and timeframe of the project, details of the Consortium, and governance procedures. A breakdown of the project into Work Packages is provided, as well as a list of milestones and deliverables also illustrated by a supporting Gantt chart. Resource effort by Work Package for each Consortium member is also provided.

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- DCU – Dublin City University (Ireland)
- KU Leuven – Katholieke Universiteit Leuven (Belgium)
- VICOM – Fundación Centro De Tecnologías De Interacción Visual y Comunicaciones Vicomtech (Spain)
- UOULU – Oulun Yliopisto (University of Oulu) (Finland)
- ANALYTICS ENG – Analytics Engines Limited (UK)
- QUIN – Quintelligence D.O.O. (Slovenia)
- BSO – Regional Business Services Organisation (UK)
- DH – Department of Health (Public Health England) (UK)
- BIOEF – Fundación Vasca De Innovación E Investigación Sanitarias (Spain)
- VTT – Teknologian Tutkimuskeskus VTT Oy (Technical Research Centre of Finland Ltd.) (Finland)
- THL – Terveyden ja hyvinvoinnin laitos (National Institute for Health and Welfare) (Finland)
- SET – South Eastern Health & Social Care Trust (UK)
- IBM Ireland Ltd – IBM Ireland Limited (Ireland)
- ASU ABOR – Arizona State University (USA)

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## Document History

Version	Issue Date	Stage	Content and Changes
V0.1	12/01/2017	Draft	Initial draft version
V0.2	03/02/2017	Draft	Minor changes
V0.3	13/02/2017	Draft	Changes addressing comments from consortium reviewers
V0.4	17/02/2017	Draft	Changes addressing comments from consortium reviewers
V1.0	20/02/2017	Final	Finalised document

### Statement of Originality:

This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.

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## Executive Summary

<b>Work Package:</b>	WP1
<b>Work Package leader:</b>	Ulster University
<b>Task:</b>	T 1.1 – Project Coordination and Management
<b>Task leader:</b>	Ulster University

This deliverable outlines the MIDAS Project Plan including the objectives, scope and timeframe of the project, details of the Consortium, and governance procedures. A breakdown of the project into Work Packages is provided, as well as a list of milestones and deliverables also illustrated by a supporting Gantt chart. Resource effort by Work Package for each Consortium member is also provided.

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## Glossary of Terms

ASU	Arizona State University
BIOEF	Public Foundation of the Health Department of the Basque Government
BSO	Business Services Organisation
CA	Consortium Agreement
CEN	European Committee for Standardisation
DCU	Dublin City University
DH	Department of Health
DoA	Description of the Action
EB	Executive Board
EC	European Commission
EPAG	Ethical and Privacy Advisory Group
EU	European Union
GA	General Assembly
GP	General Practitioner
HSCB	Health and Social Care Board
HSE	Health Service Executive
IM	Innovation Manager
MIDAS	Meaningful Integration of Data Analytics and Services
MNC	Multinational Corporation
MS	Milestone
PC	Project Coordinator
PB	Policy Board
PHE	Public Health England
PM	Participant Manager
QM	Quality Manager
QUIN	Quintelligence
RTO	Research and Technology Organisation
SME	Small and Medium-Sized Enterprises
STC	Scientific and Technical Committee
SET	Southern Eastern Health and Social Care Trust
STM	Scientific-Technical Manager
THL	National Institute for Health and Welfare
TL	Task Leaders
UK	United Kingdom
Ulster	Ulster University
UOULU	University of Oulu

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US	United States
VTT	Technical Research Centre of Finland
WP	Work Package
WPL	Work Package Leaders

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## 1 Introduction and Overview

The MIDAS consortium is a partnership involving health authorities in five European Union (EU) countries and the U.S. and technical big data experts from research institutions, Multinational Corporations (MNCs) and Small and Medium-Sized Enterprises (SMEs). Managing big data for 'health in all' is a monumental challenge for policy makers. MIDAS is addressing this challenge by developing and delivering an integrated solution which will liberate knowledge from data silos and unify heterogeneous big data sources to provide evidence-based actionable information and transform the way care is provided.

Despite the urgent need and opportunity, the level of e-health deployment, to share medical data is very low. Indeed 52% of the hospitals do not share any medical information with external general practitioners (GP) electronically.

MIDAS will map, acquire, manage, model, process and exploit this heterogeneous health care, governmental and open data to provide an innovative world leading beyond state of the art solution which will inform risk stratification and long term policy-making decisions, demonstrating a positive impact across the European Union (EU) and beyond.

MIDAS will:

- Provide a data mapping solution
- Use open, social media and citizen data for high level policy analysis
- Use technology to exploit the value of big data for actionable information
- Disseminate best practice on privacy by design, ethics and governance
- Make Europe a leader in e-health platforms

Policy makers, patients and citizens will be co-creators of the solutions produced by MIDAS. These co-creators will assist the consortium by performing user validation and providing feedback. The consortium will then enhance the solution by implementing improvements based on user feedback. By inviting end-users to validate the solution throughout the development cycle, this will ensure results are actionable and knowledge is created to show benefit across a range of epidemiology challenges. Major health challenges which will be addressed include: ageing population, obesity and mental health.

Stakeholders will work together to transform Europe into a leader in e-health

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solutions, thus stimulating new opportunities for industry in this innovative field.

## 2 Objectives

The objectives of MIDAS are:

1. To engage with all stakeholders involved in the crafting of Health Policy to best understand data sources of interest, requirements and needs, and apply this knowledge in driving system development and commercial opportunities.
2. To deliver a secure, multi-health site, collaboration architecture and business logic that can be replicated at further sites.
3. To deliver and map multi-source heterogeneous data ingestion conduits to enable data harmonisation, curation and integration across diverse sources, combining the best from health care providers, open data and social media.
4. To deliver privacy-preserving implementations of the analytics identified in Objective 1, to infer the impact of source variables on policy outcomes, to better assess and draft policy.
5. To develop a methodology to combine both expert knowledge and knowledge derived from data to optimise action plans.
6. To deliver simulations on the outcomes of health policy decisions, so as to evaluate the impact of policy options on health care expenditure and delivery, population wellbeing, and health and socio-economic inequalities.
7. To develop a dashboard for the visualisation of policy models, which will allow policy makers to use visual analytics to assess the impact of changing variables and indicators on their policy decisions (e.g. timeliness, design, assessment, impact).
8. To research and innovate in the domain of health policy forecasting, simulation and assessment leveraging heterogeneous multi-site data and management structures in combination with external data sources.
9. To develop an outreach programme and activities focussed on the key profiles required in translating the project's results into health policy practice, and to raise awareness of the benefits to individuals, health care systems and the wider commercial healthcare sector.
10. To contribute draft European Committee for Standardisation (CEN) workshop agreement standards on cross-health care site privacy preserving analytics and collaboration architectures.
11. To contribute to the European Commission (EC) Open Data Initiative, by providing synthetic data to an Open Portal, according to Horizon 2020

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recommended practice, and promote its use by the “Health in all Policy” Community

### 3 Scope

Table 3.a summarises the specific scope of this call and how it is addressed by the MIDAS project.

*Table 3.a Scope*

Specific scope of the topic	How MIDAS addresses the scope
To better acquire, manage, share, model, process and exploit the huge amount of data.	<p>This project will develop a framework and platform for connecting fractured and disjointed data both within the public health authorities and en route encompassing all health systems stakeholders.</p> <p>It will utilise and push the boundaries of existing best-in-class technologies to normalise and aggregate health-relevant data from population-level datasets and from personal data sources such as social media.</p> <p>Innovative big data analytic technologies from our academic and industrial research teams will enable the identification and visualisation of data which can support better policy making. [Obj. 1, 2, 3, and 4]</p>
Big Data is generated from an increasing plurality of sources and offers possibilities for new insights.	A tool will be developed that will enable native unstructured data (i.e. from social media) to be captured, mapped and integrated with other structured or unstructured data sources to provide meaningful, actionable information for policy makers. [Obj. 3]
Greater involvement of those who work within healthcare systems, patients and the public is needed.	<p>The consortium partners include Health Authorities in 5 European Regions and will involve many types of health care professionals, policy makers in health, as well as other public sector professionals and citizen groups. [Obj. 1, 8, and 9]</p> <p>The Policy Board will lead and deliver on new data governance, privacy and consent policies, learning from</p>

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	<p>each other and sharing and developing new practices across the regions.</p> <p>MIDAS will create actionable information to improve impact for health in all policies and will enable health systems to make the best use of data for health, health surveillance, health care, and health policy in the future.</p>
<p>To develop integrated solutions that support public health authorities of Member States and associated countries in particular in health care system management, long-term policy making and increase the ability to provide actionable insights.</p>	<p>MIDAS will deliver an integrated solution that will allow combining analytics over cross-health site and external sources data, presenting the simulated impact of policy options and the timely assessment of implemented policies through healthcare system management oriented policy visualisation dashboards.</p> <p>MIDAS will create actionable information to improve impact for health in all policies and will enable health systems to make the best use of data for health, health surveillance, health care, and health policy in the future. [Obj. 2, 3, 4, 5, 6, 7, and 8]</p>
<p>The governance of Big Data in order to use it proficiently across organisations and at policy levels. Integrated solutions should include suitable approaches towards enhanced security and privacy issues.</p>	<p>Privacy-ensuring multi-health site collaboration architecture and logic will be developed together with the privacy-preserving analytics algorithms adaptation, to ensure that individual data is not shared, rather algorithm level metadata.</p> <p>The Policy Board will lead and deliver on new data governance, privacy and consent policies, learning from each other and sharing and developing new practices across the regions. This task will be developed under the continuous revision of the project's ethical manager. [Obj.1, 2, 3 and 4]</p>

## 4 Timeframe

MIDAS will commence on 1st November 2016 and will run for 40 months, finishing at the end of February 2020.

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## 5 Consortium

The MIDAS consortium has been crafted to meet the specific characteristics of the SC1-PM-18–2016: Big Data Supporting Public Health Policies topic. The Consortium is driven by applied research centres in cooperation with industry, and with the guidance of the Policy Board. Research and Technology Organisations (RTO) and industry will drive (Push) applied and basic research with the goal of Technology Transfer to the end users who will define the requirements (Pull) of the project. Industry plays the role of potential service offering on the results (Facilitate).

The consortium is made up of two types of groups:

- The technical partners: research institutions and research groups, SMEs and MNC;
- The policy board who are the end-user organisations: policy advisors, data gatekeepers and health care providers; who will lead on the WP2: Governance, Consent and Privacy and WP8: Ethics Requirements and be involved in all design decisions and evaluations of the MIDAS platform prototypes at the various stages.

More specifically the consortium brings together the resources of 15 participating organisations from 6 European countries (Belgium, Finland, Ireland, Slovenia, Spain and United Kingdom) and one organisation from the United States of America (i.e. Arizona State University (ASU)), each excelling in their respective field of expertise and with significant research experience.

Table 5.a identifies each member of the Consortium, their role and which Consortium Body they are part of:

*Table 5.a MIDAS Consortium Members*

Organisation	Short name	Country	Role	Consortium Body Membership	Type
University of Ulster	ULSTER	United Kingdom	Coordinator; Lead for WP1, WP7 and WP8; Policy Board Chair	General Assembly, Executive Board	RTO
Dublin City University	DCU	Ireland	WP6 Lead	General Assembly, Executive Board	RTO

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Katholieke Universiteit Leuven	KU LEUVEN	Belgium	WP4 Lead	General Assembly, Executive Board	RTO
Fundacion Centro De Tecnologias De Interaccion Visual Y Comunicaciones Vicomtech	VICOM	Spain	WP3 Lead	General Assembly, Executive Board	RTO
Oulun Yliopisto	UOULU	Finland	Consortium member	General Assembly	RTO
Analytics Engines Limited	ANALYTICS ENG	United Kingdom	Consortium member	General Assembly	SME
Quintelligence Intelidentno Upravljanje Z Znanjem Doo	QUIN	Slovenia	Consortium member	General Assembly	SME
Regional Business Services Organisation	BSO	United Kingdom	Consortium member	General Assembly, Policy Board	Public
Department of Health	DH	United Kingdom	Consortium member	General Assembly, Policy Board	Public
Fundacion Vasca De Innovacion E Investigacion Sanitarias	BIOEF	Spain	Consortium member; Policy Board Co-Chair	General Assembly, Policy Board	Public
Teknologian tutkimuskeskus VTT Oy	VTT	Finland	WP5 Lead; Policy Board Co-Chair	General Assembly, Executive Board	RTO
South Eastern Health and Social Care Trust NHS	SET	United Kingdom	WP2 Lead	General Assembly, Policy Board, Executive Board	Public
IBM Ireland Limited	IBM IRELAND	Ireland	Consortium member	General Assembly	Industry
Arizona State University Board of Regents	ASU ABOR	United States	Consortium member	General Assembly, Policy Board	RTO
Terveystieteiden tutkimuskeskus THL	THL	Finland	Consortium member	General Assembly, Policy Board	Public

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## 6 Governance

### 6.1 Governance Structure

The following sections explain the Consortium governance structure for MIDAS and the main roles of each group. The diagram in Figure 6.a provides an overview of the Consortium governance structure.

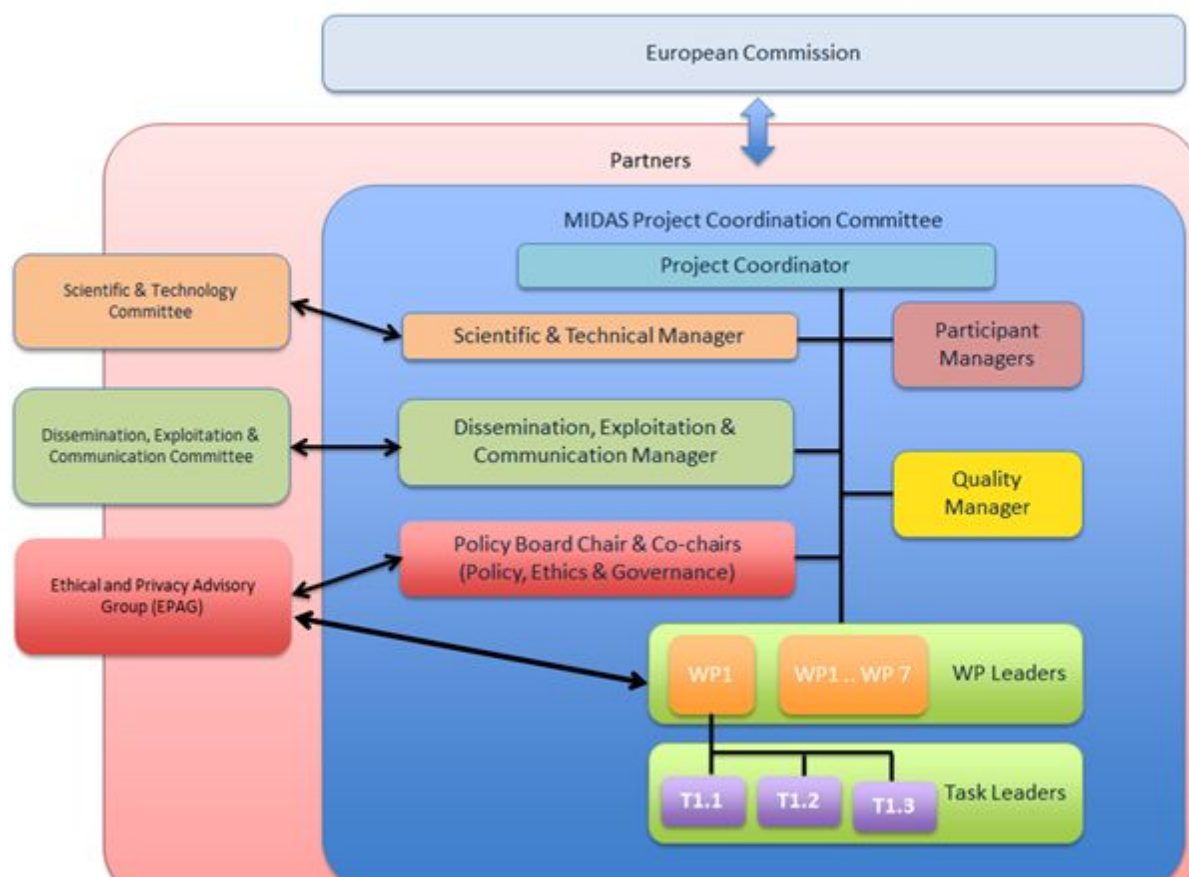


Figure 6.a MIDAS Project Management Structure

#### 6.1.1 The General Assembly (GA)

The General Assembly includes a representative of each project partner. This is the ultimate decision-making Consortium Body focusing on project governance and has overall responsibility of all technical, financial, legal and administrative, ethical coordination, dissemination and exploitation issues of the project. It will monitor and



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assess the progress and quality of the project and make adjustments where necessary.

All details about the functioning of the General Assembly and its responsibilities, the rules for voting and other specificities are described and regulated by the terms in the Consortium Agreement (CA).

#### **6.1.2 The Executive Board (EB)**

The Executive Board is the supervisory Consortium Body for the implementation of the project, reporting to and being accountable to the General Assembly. The Executive Board consists of a representative of the Project Coordinator together with Work Package leads (or their designated nominee in their absence).

Full details about the functioning of the Executive Board and its responsibilities are described and regulated by the terms in the Consortium Agreement (CA).

#### **6.1.3 The Project Coordinator (PC)**

The Project Coordinator is the legal entity acting as the intermediary for efficient and correct communication between the project consortium and the European Commission (EC). The Project Coordinator shall, in addition to their responsibilities as a consortium member, perform the tasks assigned to them as described in the Grant Agreement and the Consortium Agreement.

The PC is the chair of the General Assembly, responsible for the overall management, administration, financial management, communication and coordination of the entire project. The PC will work closely with the other managers: Scientific-Technical, Quality and Dissemination-Exploitation. They will also work closely with chair of the Policy Board ensuring these stakeholders are involved in all the relevant work packages.

The details of the tasks and responsibilities assigned to the PC are described in the Grant Agreement and the Consortium Agreement.

***This role is assigned to Dr Michaela Black (ULSTER).***

#### **6.1.4 The Policy Board (PB)**

The Policy Board (PB) has been set up by Ulster according to T1.1. The role of the PB is to complement the technical and user requirements from health policy bodies and health authorities, and increase the outreach of the project. Further to providing

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their requirements and priorities, the PB will also participate in project dissemination and communication tasks. The PB consists of representatives and organisations aligned with the different fields of expertise related to MIDAS.

#### ***The Policy Board Chair and Co-chairs***

The PB is responsible for planning, coordination and execution of the Policy Board meetings and hackathons. Technology hackathons will bring the scientific and technical teams and the Policy Board together. This format will ensure the key stakeholders are involved throughout the project providing a valuable range of requirements and data opportunities across the European project regions. The Policy Board meetings will also enable the development and sharing of good practice around key topics including governance, data privacy, MyData, and, citizen consent and open data. The Policy Board members can also use these meetings to compare and share policies and identify regional similarities or differences.

***This chair role is assigned to Prof Jonathan Wallace (ULSTER), co-chaired with Roberto Bilbao Urquiola (BIOEF) and Peter Ylén (VTT).***

#### ***6.1.5 The Work Package Leaders (WPL) and Task Leaders (TL)***

Each WPL is responsible for the management of his/her work package, including coordinating, monitoring and assessing the progress of their work package. They are supported by leaders of embodied tasks.

Each TL is responsible for the management of their tasks similar to the WPL.

Table 6.a lists the Leaders of all Work Packages. Task Leaders within each Work Package are described in the Grant Agreement.

*Table 6.a Work Package Leaders*

WP	Leader
WP1	ULSTER
WP2	SET

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WP3	VICOM
WP4	KU LEUVEN
WP5	VTT
WP6	DCU
WP7	ULSTER
WP8	ULSTER

#### **6.1.6 The Participant Managers (PM)**

Each organisation on the General Assembly will have a Participant Manager representative who can participate in any voting procedures for administration and technical issues within the project.

#### **6.1.7 The Quality Manager (QM)**

The QM is responsible for the development of the Quality Plan. The QM will also monitor and review the implementation of the quality procedures determined within the plan and verification of the MIDAS project results. They will propose suitable corrective actions for any cases of non-conformities within the quality evaluation procedures.

***This role is assigned to Prof Anthony Staines (DCU).***

#### **6.1.8 The Innovation Manager (IM)**

The IM will coordinate the work of all MIDAS partners as well as the Policy Board to ensure that the project results can be optimally exploited and commercialised. The Innovation Manager will report to the General Assembly and will also provide guidance to the Consortium with regard to best practices on innovation management, such as planning for innovation success, identifying and fostering innovation enablers/driving factors, developing the innovation management process for the project, evaluating and improving the performance of the innovation management system, and understanding and using innovation management techniques.

***This role is assigned to Austin Tanney (Analytics Engine).***

#### **6.1.9 The Scientific and Technical Committee (STC)**

This committee will be responsible for the planning, execution and controlling of the scientific and technical nature of the project. It will ensure consistency between the scientific and technical work packages (WPs 3, 4, and 5) and ensure they adhere to the governance principles from WP2 throughout. It will be under the control of and in

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compliance of the GA and co-chaired by the PC and Scientific-Technical Manager. The committee will qualify the work package results and delegate decisions to the GA where major changes are needed or no consensus can be reached.

#### ***The Scientific-Technical Manager (STM)***

The STM is responsible for ensuring S&T objectives are met and resolving any S&T issues that might occur.

***This role is assigned to Austin Tanney (Analytics Engine).***

#### **6.1.10 Ethical and Privacy Advisory Group (EPAG)**

The Ethical and Privacy Advisory Group (EPAG) is steered by the Executive Board. EPAG has ethical and privacy impact oversight of the MIDAS project. The EPAG shall assist and facilitate the decisions made by the General Assembly. The Project Coordinator will have responsibility to take EPAG's recommendations to the Executive Board for consideration.

EPAG has responsibility for all ethical and clinical research and trials issues within the project. An external Ethics Manager provides independent, unbiased and impartial advice and assistance to ensure that MIDAS is implemented according to national, European and/or International laws and that ethical procedural protocols are followed. This person will work across the PC and individual WP Leaders.

EPAG includes representatives from clinical partners with expertise on processing personal information from community and providing clinical samples. EPAG is chaired by an independent chair and co-chair (Manager of a regional ethics service, and member of national research committee, respectively).

#### **6.1.11 The Dissemination and Exploitation Committee**

##### ***The Dissemination-Communication Manager (DM)***

The DM is responsible for the coordination and execution of the overall dissemination, exploitation and communication strategies and plans. This includes supporting all project partners in developing their individual plans to enable majority impact for the dissemination, communication and exploitation of the MIDAS project results.

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***This role is assigned to Prof Maurice Mulvenna and Dr Raymond Bond (ULSTER).***

## 6.2 Reviews by the EC

There will be a number of formal and informal progress reviews with the EC throughout the lifetime of MIDAS.

### 6.2.1 Formal Reviews

Formal reviews will take place at months 18, 33 and 40. These reviews will be linked to financial payments. These reviews link to deliverables D1.3, D1.4 and D1.5 described in Table 9.a.

### 6.2.2 Informal Reviews

Regular progress meetings will be scheduled to take place between the Coordinator and the EC's Project Officer and will take place by phone/video conference.

## 7 Approach: Work Packages

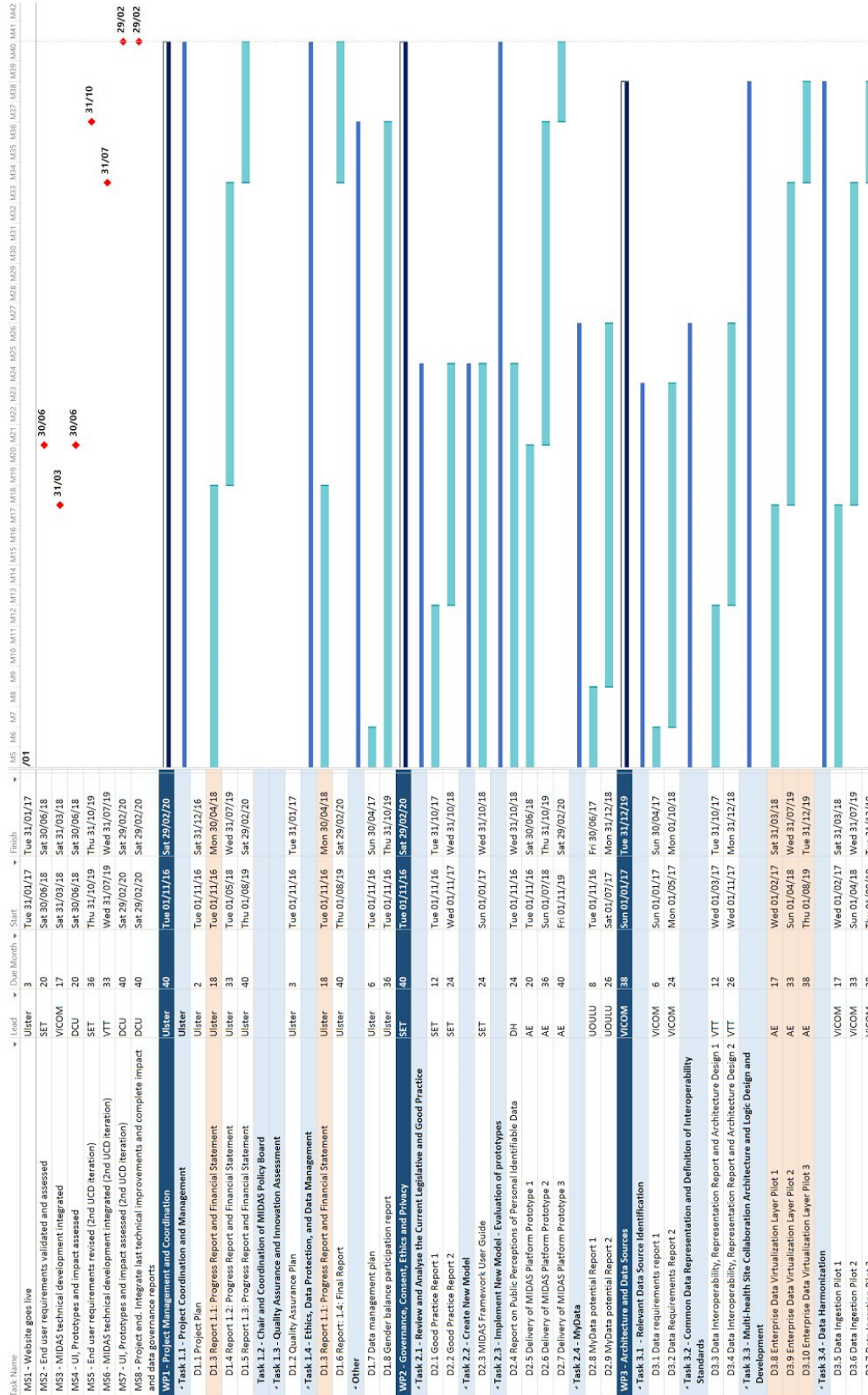
A Work Package (WP) approach has been adopted to facilitate implementation of MIDAS. Table 7.a outlines each WP, lead partner, start month and end month.

*Table 7.a Work Packages*

WP Title	Lead	Start month	End month
WP1 Project Management and Coordination	ULSTER	1	40
WP2 Governance, Consent and Privacy	SET	1	40
WP3 Architecture and Data Sources	VICOM	2	38
WP4 Data Analytics and Simulation	KU LEUVEN	1	38
WP5 Big Data Visualisation for Public Health Decision Making	VTT	1	40
WP6 Integration Evaluation and Impact Assessment	DCU	1	40
WP7 Project Dissemination, Exploitation and Awareness Raising	ULSTER	1	40
WP8 Ethics requirements	ULSTER	1	40

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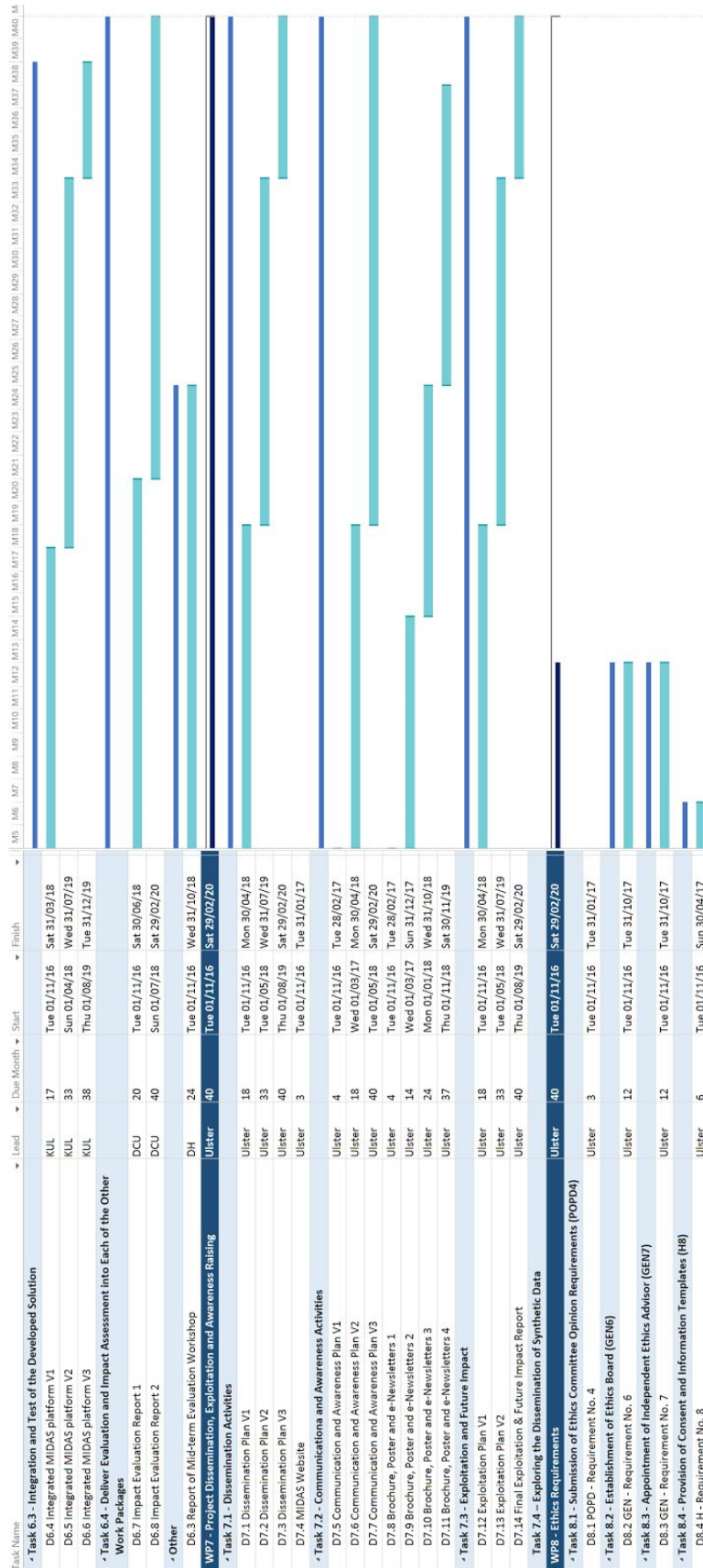
## 7.1 High Level Gantt Chart





Task Name	Lead	Due Month	Start	Finish	
Task 3.5 - Data Integration					
D3.8 Enterprise Data Virtualization Layer Pilot 1	AE	17	Wed 01/02/17	Sat 31/03/18	
D3.9 Enterprise Data Virtualization Layer Pilot 2	AE	33	Sun 01/04/18	Wed 31/07/19	
D3.10 Enterprise Data Virtualization Layer Pilot 3	AE	38	Thu 01/08/19	Tue 31/12/19	
Task 3.6 - Simulating Synthetic Data					
D3.11 Synthetic Datasets 1	Uster	33	Tue 01/11/16	Wed 31/07/19	
D3.12 Synthetic Datasets 2	Uster	38	Thu 01/08/19	Tue 31/12/19	
WP4 - Data Analytics and Simulation	KUL	40	Tue 01/11/16	Tue 31/12/19	
Task 4.1 - Create a List of Required Fundamental Data Analytics Approaches					
D4.1 Inventory of State Holder Required Data Analytics Methods	KUL	4	Tue 01/11/16	Tue 28/02/17	
Task 4.2 - Tooling to Simulate Impact and Outcomes of Health Policy Decisions					
D4.2 Health policy decision outcome simulator 1	KUL	17	Wed 01/02/17	Sat 31/03/18	
D4.3 Health policy decision outcome simulator 2	KUL	33	Sun 01/04/18	Wed 31/07/19	
D4.4 Health policy decision outcome simulator 3	KUL	38	Thu 01/08/19	Tue 31/12/19	
Task 4.3 - Modify Required Analytics to Provide Privacy Preserving Functionality					
D4.5 Privacy-preserving implementations of required analytics 1	KUL	17	Wed 01/02/17	Sat 31/03/18	
D4.6 Privacy-preserving implementations of required analytics 2	KUL	33	Sun 01/04/18	Wed 31/07/19	
D4.7 Privacy-preserving implementations of required analytics 3	KUL	38	Thu 01/08/19	Tue 31/12/19	
Task 4.4 - Reusable Implementation of Privacy-Preserving Analytics					
D4.8 Analytics Platform V1	KUL	17	Wed 01/02/17	Sat 31/03/18	
D4.9 Analytics Platform V2	KUL	33	Sun 01/04/18	Wed 31/07/19	
D4.10 Analytics Platform V3	KUL	38	Thu 01/08/19	Tue 31/12/19	
Task 4.5 - Bridge with WP5: Interfacing Data Analytics and Visualization					
Task 4.6 - Extending Data Based Actionable Information using System Dynamic Modelling					
D4.11 Framework for Combining Expert Knowledge and Data-analysis 1	VTT	17	Wed 01/02/17	Sat 31/03/18	
D4.12 Framework for Combining Expert Knowledge and Data-analysis 2	VTT	33	Sun 01/04/18	Wed 31/07/19	
D4.13 Framework for Combining Expert Knowledge and Data-analysis 3	VTT	38	Thu 01/08/19	Tue 31/12/19	
Task 4.7 - Open Data & Social Data Sources					
D4.14 API and Demonstrator for Open Data and Social Data for MIDAS Platform V1	IBM	17	Wed 01/02/17	Sat 31/03/18	
D4.15 API and Demonstrator for Open Data and Social Data for MIDAS Platform V2	IBM	33	Sun 01/04/18	Wed 31/07/19	
D4.16 API and Demonstrator for Open Data and Social Data for MIDAS Platform V3	IBM	38	Thu 01/08/19	Tue 31/12/19	
WP5 - Big Data Visualisation for Public Health Decision Making	VTT	40	Tue 01/11/16	Sat 29/02/20	
Task 5.1 - Design of MIDAS Dashboard for Actionable Information Presentation					
D5.1 Visual analytics tool(s) concept V1	VTT	12	Tue 01/11/16	Tue 31/10/17	
D5.2 Visual analytics tool(s) concept V2	VTT	24	Wed 01/11/17	Wed 31/10/18	
Task 5.2 - MIDAS Dashboard Implementation					
D5.3 Visual analytics tool(s) - MIDAS Dashboard functional prototype V1	VTT	17	Wed 01/02/17	Sat 31/03/18	
D5.4 Visual analytics tool(s) - MIDAS Dashboard functional prototype V2	VTT	33	Sun 01/04/18	Wed 31/07/19	
D5.5 Visual analytics tool(s) - MIDAS Dashboard functional prototype V3	VTT	38	Thu 01/08/19	Tue 31/12/19	
Task 5.3 - UI Testing and Validation					
D5.6 Visual analytics tool(s) - MIDAS Dashboard UI evaluation 1	VTT	20	Sun 01/04/18	Sat 30/06/18	
D5.7 Visual analytics tool(s) - MIDAS Dashboard UI evaluation 2	VTT	36	Thu 01/08/19	Thu 31/10/19	
D5.8 Visual analytics tool(s) - MIDAS Dashboard UI evaluation 3	VTT	40	Wed 01/01/20	Sat 29/02/20	
WP6 - Integration Evaluation and Impact Assessment	DCU	40	Tue 01/11/16	Sat 29/02/20	
Task 6.1 - Develop an Evaluation Model					
D6.1 Logic and Impact Assessment Model V1	DCU	5	Tue 01/11/16	Fri 31/03/17	
D6.2 Logic and Impact Assessment Model V2	DCU	12	Sat 01/04/17	Tue 31/10/17	
Task 6.2 - Develop an Impact Identification and Assessment Process					
D6.1 Logic and Impact Assessment Model V1	DCU	5	Tue 01/11/16	Fri 31/03/17	
D6.2 Logic and Impact Assessment Model V2	DCU	12	Sat 01/04/17	Tue 31/10/17	

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## 8 Resource effort by Work Package for each Consortium member

Table 8.a identifies the agreed effort in person months to be spent by each Partner per Work Package, as per the original proposal and the agreed budget.

*Table 8.a Resource Effort*

	WP1	WP2	WP3	WP4	WP5	WP6	WP7	WP8	Total Person/Mont hs per Participant
Ulster	23.8	4	4	4	4	4	30	0	73.8
DCU	1.5	0.5	4.5	4.5	0.5	48.5	3.5	0	63.5
KU Leuven	1	0	10	42	4	2	1	0	60
VICOM	1	0	29	9	8	6	2	0	55
UOULU	1	11	6	3	11	7	3	0	42
ANALYTICS ENG	1	0	44	6	3	0	2	0	56
QUIN	1	0	5	24	5	0	0	0	35
BSO	0.5	3	3	0.5	0.5	0.5	0.5	0	8.5
DH	0.41	7	0.41	0.41	0.42	7	0.42	0	16.07
BIOEF	0.5	10	0	0	0	0	0.5	0	11
- Basque Health	0	4	0.5	0	0	0.5	0	0	5
- Basque Govt.	0	3	0	0.5	0.5	0	0	0	4
VTT	2	0	4	16	19	6	1	0	48
SET	0.5	17	0.5	0.5	0.5	0.5	0.5	0	20
IBM IRELAND LTD	1	1	4	24	2	2	2	0	36
ASU ABOR	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0	3.5
THL	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0	3.5
<b>Total Person/Months</b>	36.21	61.5	115.9 1	135.41	59.42	85	47.42	0	540.87

## 9 Deliverables

The following deliverables are linked to each of the Work Packages and have been agreed with the EC. Table 9.a below includes the deliverable number, title and month that the deliverable is due for submission to the EC. A detailed description of each deliverable can be found in Annex 1, Part A of the Grant Agreement.

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*Table 9.a Deliverables*

Number	Title	Month Due
D1.1	Project Plan	2
D1.2	Quality Assurance Plan	3
D1.3	Report 1.1: Progress Report and Financial Statement	18
D1.4	Report 1.2 : Progress Report and Financial Statement	33
D1.5	Report 1.3: Progress Report and Financial Statement	40
D1.6	Report: 1.4: Final Report	40
D1.7	Data management plan	6
D1.8	Gender balance participation report	36
D2.1	Good Practice Report 1	12
D2.2	Good Practice Report 2	24
D2.3	MIDAS Framework User Guide	24
D2.4	Report on Public Perceptions of Personal Identifiable Data	24
D2.5	Delivery of MIDAS Platform Prototype 1	20
D2.6	Delivery of MIDAS Platform Prototype 2	36
D2.7	Delivery of MIDAS Platform Prototype 3	40
D2.8	MyData potential Report 1	8
D2.9	MyData potential Report 2	26
D3.1	Data requirements report 1	6
D3.2	Data Requirements Report 2	24
D3.3	Data Interoperability, Representation Report and Architecture Design 1	12
D3.4	Data Interoperability, Representation Report and Architecture Design 2	26
D3.5	Data Ingestion Pilot 1	17
D3.6	Data Ingestion Pilot 2	33
D3.7	Data Ingestion Pilot 3	38
D3.8	Enterprise Data Virtualization Layer Pilot 1	17
D3.9	Enterprise Data Virtualization Layer Pilot 2	33
D3.10	Enterprise Data Virtualization Layer Pilot 3	38
D3.11	Synthetic Datasets 1	33
D3.12	Synthetic Datasets 2	38
D4.1	Inventory of Stakeholder Required Data Analytics Methods	4
D4.2	Health policy decision outcome simulator 1	17
D4.3	Health policy decision outcome simulator 2	33
D4.4	Health policy decision outcome simulator 3	38
D4.5	Privacy-preserving implementations of required analytics 1	17
D4.6	Privacy-preserving implementations of required analytics 2	33
D4.7	Privacy-preserving implementations of required analytics 3	38
D4.8	Analytics Platform V1	17
D4.9	Analytics Platform V2	33

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D4.10	Analytics Platform V3	38
D4.11	Framework for Combining Expert Knowledge and Data-analysis 1	17
D4.12	Framework for Combining Expert Knowledge and Data-analysis 2	33
D4.13	Framework for Combining Expert Knowledge and Data-analysis 3	38
D4.14	API and Demonstrator for Open Data and Social Data for MIDAS Platform V1	17
D4.15	API and Demonstrator for Open Data and Social Data for MIDAS Platform V2	33
D4.16	API and Demonstrator for Open Data and Social Data for MIDAS Platform V3	38
D5.1	Visual analytics tool(s) concept V1	12
D5.2	Visual analytics tool(s) concept V2	24
D5.3	Visual analytics tool(s) – MIDAS Dashboard functional prototype V1	17
D5.4	Visual analytics tool(s) – MIDAS Dashboard functional prototype V2	33
D5.5	Visual analytics tool(s) – MIDAS Dashboard functional prototype V3	38
D5.6	Visual analytics tool(s) – MIDAS Dashboard UI evaluation 1	20
D5.7	Visual analytics tool(s) – MIDAS Dashboard UI evaluation 2	36
D5.8	Visual analytics tool(s) – MIDAS Dashboard UI evaluation 3	40
D6.1	Logic and Impact Assessment Model V1	5
D6.2	Logic and Impact Assessment Model V2	12
D6.3	Report of Mid-term Evaluation Workshop	24
D6.4	Integrated MIDAS platform V1	17
D6.5	Integrated MIDAS platform V2	33
D6.6	Integrated MIDAS platform V3	38
D6.7	Impact Evaluation Report 1	20
D6.8	Impact Evaluation Report 2	40
D7.1	Dissemination Plan V1	18
D7.2	Dissemination Plan V2	33
D7.3	Dissemination Plan V3	40
D7.4	MIDAS Website	3
D7.5	Communication and Awareness Plan V1	4
D7.6	Communication and Awareness Plan V2	18
D7.7	Communication and Awareness Plan V3	40
D7.8	Brochure, Poster and e-Newsletters 1	4
D7.9	Brochure, Poster and e-Newsletters 2	14
D7.10	Brochure, Poster and e-Newsletters 3	24
D7.11	Brochure, Poster and e-Newsletters 4	37
D7.12	Exploitation Plan V1	18
D7.13	Exploitation Plan V2	33
D7.14	Final Exploitation & Future Impact Report	40
D8.1	POPD - Requirement No. 4	3
D8.2	GEN - Requirement No. 6	12
D8.3	GEN - Requirement No. 7	12
D8.4	H - Requirement No. 8	6

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### 9.1 Periodic reports and payment requests

There will be three periodic reports for MIDAS, at months 18, 33 and 40. Each of these are linked to payment requests to the EC. Article 20 of the Grant Agreement sets out the requirements for these reports (see Appendix C).

## 10 Milestones

Table 10.a lists the key milestones (MS) and due dates.

*Table 10.a Milestones*

Milestone number	Title	Month Due
MS1	Website Goes live	3
MS2	End user requirements validated and assessed	20
MS3	MIDAS technical development integrated	17
MS4	UI, Prototypes and impact assessed	20
MS5	End user requirements revised (2nd UCD iteration)	36
MS6	MIDAS technical development integrated (2nd UCD iteration)	33
MS7	UI, Prototypes and impact assessed (2nd UCD iteration)	40
MS8	Project end. Integrate final technical improvements and complete impact and data governance reports	40

## 11 Risks

Table 11.a lists the critical risks to implementation along with mitigation actions. A risk register will be developed for MIDAS and held by the Coordinator. It will be reviewed at Executive Board meetings.

*Table 11.a Risks*

Risk number	Description of risk	WP Number	Proposed risk-mitigation measures
1	Withdrawal of a partner, lack of personnel, lack of adequate resources,	WP1	All the partners in MIDAS are professional researchers who have successful track record of working together in FP7 and existing Horizon 2020 projects and have addressed similar problems. The Consortium Agreement will specify measures to be

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	partner underperforms		taken to prevent noncompliance to project activities.
2	Project execution failure (key milestones or deliverables delayed)	WP1	The Project Coordination Committee will be aware in advance of possible delays or issues from the Scientific and Technical Committee and the Quality Manager. The critical work packages will be rigorously monitored.
3	Lack of active involvement of stakeholders – drop-out	WP2, WP3, WP4, WP5, WP6	The participation of the Policy Board partners who have extensive experience in the field and a track record for successful projects will ensure active stakeholder engagement.
4	Failure to deliver stakeholder needs	WP2, WP3, WP4, WP5, WP6	The iterative use of the Agile methodology and the hackathons will ensure that user needs are well understood and managed within the project. This methodology allows dynamic flexibility during project life cycle to ensure best match between stakeholder's requirements and system deliverables. Agile methodology also incorporates user case stories to ensure clear specification of stakeholder needs.
5	Failure to access data sources	WP2	The Policy Board members have secured letters of support and commitment from the gatekeepers of the data within their region. The focus of the data within each region can be adapted to reflect the needs of the Policy Makers at the key time.
6	External stakeholders and communities outside the project are not interested	WP7	Stakeholders will be contacted early in the project through the Policy Board and through the digital platform for dissemination to enhance awareness raising throughout the scientific and stakeholder community.
7	Ineffective communication and planning hindering integration of technical work packages	WP2, WP3, WP4, WP5, WP6	The deliverables of the work packages have been designed and tasks allocated to enable effective overlap of key partners. Combining this with the key role of the Scientific and Technical Committee will guide and ensure the successful integration of the deliverable components of the MIDAS platform.
8	Development delays	WP3, WP4, WP5	The Agile methodology will quickly detect and highlight any delays. This early detection enables slippage to be management more effectively.
9	Platform integration is too complex	WP3, WP4, WP5	The critical technical work packages are running in parallel and the integration of the components will be managed through the agile methodology occurring at the end of each sprint. Delivering the integration in this phased approach removes the complexity and allows issues to resolved quickly.

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10	System failure during pilots	WP3, WP4, WP5	The technical teams will test each phased pilot within controlled test system to ensure operation before delivery.
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## 12 Assumptions

Achievement of the above timelines is dependent on:

- The Consortium having access to and committing the resources agreed as per the Grant Agreement;
- The Policy Board (see Appendix A) actively participating in the MIDAS project, providing the required data and within the required time scales;
- In order to prevent delays to the Programme, where issues are identified, it is assumed that work will progress while they are being considered and that the issues will be actioned promptly.

Any changes in the legislative or business status of the Consortium partners will present a risk to the timetable and validity of the programme execution plan.

## 13 Supporting Documents

There are two key supporting documents for MIDAS:

- The Grant Agreement between the Consortium and the EC
- The Consortium Agreement between the Consortium Partners

### 13.1 The Grant Agreement

The Grant Agreement is an EU standard contract defining the basic conditions for financing. These conditions are stipulated in the main body of the contract, under Terms and Conditions. In addition, the Grant Agreement consists of the following Annexes:

Annex 1: "Description of the Action", (DoA) composed of Part A, which includes details on the WPs, Deliverables, Milestones, Risks and committed effort by WP for each partner; and Part B which is a reduced version of the originally submitted Proposal.

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Annex 2: "Estimated Budget for the action".

Annex 3: "Accession Forms", primarily a form to be signed by those Project Participants acceding to the Grant Agreement.

Annex 4: "Model for the financial statements" – to be used in the development of financial statements.

Annex 5: "Model for the certificate on the financial statements" – to be used in the development of financial statements.

Annex 6: "Model for the certificate on the methodology".

Signatories of the Grant Agreement are the European Commission as the EU's representative and the Coordinator (Ulster). Additional Project Participants accede to the treaty by signing the "Accession Form" (Annex 3) and are thereby liable to the same rights and duties as described in the Grant Agreement.

In case of alterations during the contract duration, an Amendment must be compiled.

### 13.2 Consortium Agreement

The Consortium Agreement is an agreement made between the Consortium Partners, which sets out rights and obligations.

## 14 Appendix A Policy Board Members

Policy Board Member
South Eastern Health And Social Care Trust NHS (SET), NI, UK
Health and Social Care Board (HSCB), Business Services Organisation (BSO), NI, UK
Health Service Executive (HSE), Ireland
National Institute for Health and Welfare (THL), Finland
Public Foundation of the Health Department of the Basque Government (BIOEF), Basque Country, Spain
Department of Health (DH), Public Health England (PHE), England, UK
Arizona State University / Mayo Clinic, (ASU ABOR), Arizona, USA

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## 15 Appendix B Contact List for Consortium Members

To be updated during the lifetime of the project.

Consortium member	Region	Contact names	Contact email
Ulster	UK	Michaela Black	mm.black@ulster.ac.uk
		Debbie Rankin	d.rankin1@ulster.ac.uk
DCU	Ireland	Paul Davis	paul.davis@dcu.ie
		Eoghan McConalogue	eoghan.mcconalogue@dcu.ie
KU Leuven	Belgium	Marc Claesen	marc.claesen@esat.kuleuven.be
VICOM	Spain	Gorka Epelde	gepelde@vicomtech.org
UOULU	Finland	Minna Pikkarainen	minna.pikkarainen@oulu.fi
ANALYTICS ENG	UK	Austin Tanney	a.tanney@analyticsengines.com
QUIN	Slovenia	Flavio Fuart	flavio.fuart@quintelligence.com
BSO	UK	David Bryce	david.Bryce@HSCNI.net
DH	UK	Louise McMahon	louise.mcmahon@health-ni.gov.uk
BIOEF	Spain	Roberto Bilbao	bilbao@bioef.org
VTT	Finland	Juha Pajula	juha.pajula@vtt.fi
SET	UK	Paul Carlin	paul.carlin@setrust.hscni.net
IBM IRELAND LTD	Ireland	Simon McLoughlin	simonmcloughlin@ie.ibm.com
ASU ABOR	USA	Raghu Santanam	raghu.santanam@asu.edu
THL	Finland	Risto Kaikkonen	risto.kaikkonen@thl.fi

## 16 Appendix C Article 20 of the Grant Agreement

### ARTICLE 20 — REPORTING — PAYMENT REQUESTS

#### 20.1 Obligation to submit reports

The coordinator must submit to the *Commission* (see Article 52) the technical and financial reports set out in this Article. These reports include requests for payment and must be drawn up using the forms and templates provided in the electronic exchange system (see Article 52).

#### 20.2 Reporting periods

The action is divided into the following ‘reporting periods’:



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- RP1: from month 1 to month 18
- RP2: from month 19 to month 33
- RP3: from month 34 to month 40

### 20.3 Periodic reports — Requests for interim payments

The coordinator must submit a periodic report within 60 days following the end of each reporting period.

The **periodic report** must include the following:

(a) a '**periodic technical report**' containing:

- (i) an **explanation of the work carried out** by the beneficiaries;
- (ii) an **overview of the progress** towards the objectives of the action, including milestones and deliverables identified in Annex 1.

This report must include explanations justifying the differences between work expected to be carried out in accordance with Annex 1 and that actually carried out.

The report must also detail the exploitation and dissemination of the results and — if required in Annex 1 — an updated '**plan for the exploitation and dissemination of the results**';

- (iii) a **summary** for publication by the *Commission*;
- (iv) the answers to the '**questionnaire**', covering issues related to the action implementation and the economic and societal impact, notably in the context of the Horizon 2020 key performance indicators and the Horizon 2020 monitoring requirements;

(b) a '**periodic financial report**' containing:

- (i) an '**individual financial statement**' (see Annex 4) from each beneficiary *and from each linked third party*, for the reporting period concerned.

The individual financial statement must detail the eligible costs (actual costs, unit costs and flat-rate costs; see Article 6) for each budget category (see Annex 2).

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The beneficiaries *and linked third parties* must declare all eligible costs, even if — for actual costs, unit costs and flat-rate costs — they exceed the amounts indicated in the estimated budget (see Annex 2). Amounts which are not declared in the individual financial statement will not be taken into account by the *Commission*.

If an individual financial statement is not submitted for a reporting period, it may be included in the periodic financial report for the next reporting period.

The individual financial statements of the last reporting period must also detail the **receipts of the action** (see Article 5.3.3).

Each beneficiary *and each linked third party* must certify that:

- the information provided is full, reliable and true;
  - the costs declared are eligible (see Article 6);
  - the costs can be substantiated by adequate records and supporting documentation (see Article 18) that will be produced upon request (see Article 17) or in the context of checks, reviews, audits and investigations (see Article 22), and
  - for the last reporting period: that all the receipts have been declared (see Article 5.3.3);
- (ii) an **explanation of the use of resources** and the information on subcontracting (see Article 13) and in-kind contributions provided by third parties (see Articles 11 and 12) from each beneficiary *and from each linked third party*, for the reporting period concerned;
- (iii) *not applicable*;
- (iv) a '**periodic summary financial statement**' (see Annex 4), created automatically by the electronic exchange system, consolidating the individual financial statements for the reporting period concerned and including — except for the last reporting period — the **request for interim payment**.

## 20.4 Final report — Request for payment of the balance

In addition to the periodic report for the last reporting period, the coordinator must submit the final report within 60 days following the end of the last reporting period.

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The **final report** must include the following:

- (a) a '**final technical report**' with a **summary** for publication containing:
  - (i) an overview of the results and their exploitation and dissemination;
  - (ii) the conclusions on the action, and
  - (iii) the socio-economic impact of the action;
- (b) a '**final financial report**' containing:
  - (i) a '**final summary financial statement**' (see Annex 4), created automatically by the electronic exchange system, consolidating the individual financial statements for all reporting periods and including the **request for payment of the balance** and
  - (ii) a '**certificate on the financial statements**' (drawn up in accordance with Annex 5) for each beneficiary *and for each linked third party*, if it requests a total contribution of EUR 325 000 or more, as reimbursement of actual costs and unit costs calculated on the basis of its usual cost accounting practices (see Article 5.2 and Article 6.2, Point A).

## 20.5 Information on cumulative expenditure incurred

*Not applicable*

## 20.6 Currency for financial statements and conversion into euro

Financial statements must be drafted in euro.

Beneficiaries *and linked third parties* with accounting established in a currency other than the euro must convert the costs recorded in their accounts into euro, at the average of the daily exchange rates published in the C series of the *Official Journal of the European Union*, calculated over the corresponding reporting period.

If no daily euro exchange rate is published in the *Official Journal of the European Union* for the currency in question, they must be converted at the average of the monthly accounting rates published on the Commission's website, calculated over the corresponding reporting period.

Beneficiaries *and linked third parties* with accounting established in euro must convert costs incurred in another currency into euro according to their usual accounting practices.

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## 20.7 Language of reports

All reports (technical and financial reports, including financial statements) must be submitted in the language of the Agreement.

## 20.8 Consequences of non-compliance — Suspension of the payment deadline — Termination

If the reports submitted do not comply with this Article, the *Commission* may suspend the payment deadline (see Article 47) and apply any of the other measures described in Chapter 6.

If the coordinator breaches its obligation to submit the reports and if it fails to comply with this obligation within 30 days following a written reminder sent by the *Commission*, the Agreement may be terminated (see Article 50).