



INSPIRE Maintenance and Implementation Group (MIG)

Rolling work programme for INSPIRE maintenance and implementation

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List of abbreviations

ARE3NA	ISA Action 1.17: A Reusable INSPIRE Reference Platform
EC	European Commission
EEA	European Environment Agency
IED	Industrial Emissions Directive
IRs	Implementing Rules
MIG	INSPIRE Maintenance and Implementation Group
MIG-P	Permanent policy sub-group of the MIG
MIG-T	Permanent technical sub-group of the MIG
MSFD	Marine Strategy Framework Directive
PoE	Pool of Experts
TG	Technical Guidelines
UWWTD	Urban Waste Water Treatment Directive
WFD	Water Framework Directive
WG DIS	WISE Working Group Data and Information Sharing
WG	Working Group
WG-DIKE	MSFD Working Group on Data, Information, and Knowledge Exchange
WISE	Water Information System for Europe
WP	work programme

INSPIRE themes – Acronyms

AD	Addresses	HH	Human Health and Safety
AU	Administrative Units	HY	Hydrography
AF	Agricultural and Aquaculture Facilities	LC	Land Cover
AM	Area Management Restriction Regulation Zones and Reporting units	LU	Land Use
AC	Atmospheric Conditions	MF	Meteorological geographical features
BR	Bio-geographical Regions	MR	Mineral Resources
BU	Buildings	NZ	Natural Risk Zones
CP	Cadastral Parcels	OF	Oceanographic Geographical Features
RS	Coordinate reference systems	OI	Orthoimagery
EL	Elevation	PD	Population Distribution - Demography
ER	Energy Resources	PF	Production and Industrial Facilities
EF	Environmental Monitoring Facilities	PS	Protected Sites
GCM	Generic Conceptual Model	SR	Sea Regions
GG	Geographical grid systems	SO	Soil
GN	Geographical Names	SD	Species Distribution
GE	Geology	SU	Statistical Units
HB	Habitats and Biotopes	TN	Transport Networks
		US	Utility and Governmental Services

1 Introduction

The rolling work programme (WP) is prepared by the permanent technical sub-group of the MIG (MIG-T) based on feedback submitted by the INSPIRE stakeholders in the Member States. It is regularly updated to take into account emerging requirements and issues. The WP is endorsed by the permanent policy sub-group of the MIG (MIG-P).

1.1 Process

The following process has been proposed for an update of the WP:

1. [continuous] MIG representatives propose actions (collected from national stakeholders)
2. [regularly, e.g. once every month] MIG-T representatives review newly submitted actions, propose a prioritization for them and identify urgent and minor issues (e.g. bug fixes) to be addressed directly.
3. [once every 6 months¹] Based on the identified issues, prepare a draft for an updated WP
4. National stakeholders are consulted on the draft WP (for at least one month)
5. In a MIG-T meeting, a final draft WP is prepared based on the feedback received from MS.
6. The final draft WP is submitted to the MIG-P for discussion and adoption

NOTE The process was discussed and the following life-cycle for MIWP tasks (Figure 1) was proposed in the MIG-P meeting on 2014-09-15. Based on further discussion in the MIG-T and MIG-P, the process for updating the MIWP may be revised in the future.

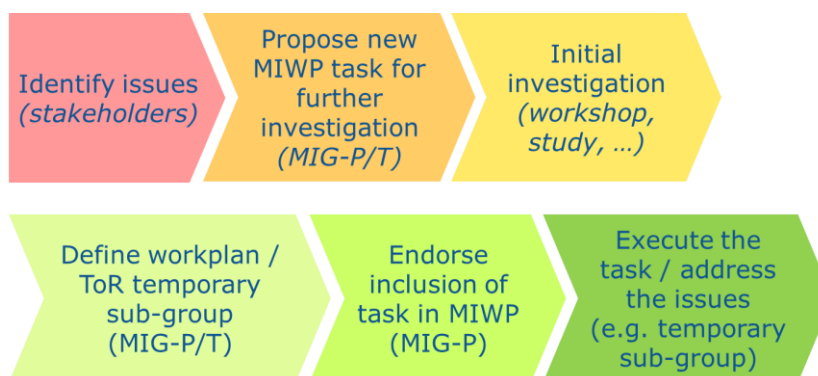


Figure 1. Proposed life-cycle for MIWP tasks

1.2 Structure for action description

Each action in the work programme is described using the following template:

Title	A short title			
ID	A unique identifier for the action			
Status	<input type="checkbox"/> Proposed	<input type="checkbox"/> Endorsed	<input type="checkbox"/> In Progress	<input type="checkbox"/> Completed
Issue	A description of the issue to be solved			
Proposed change or action	A description of the proposed change in INSPIRE documents (TGs or IRs) or action			
Links & dependencies	<p>Dependencies: List other actions in the work programme on which there is a dependency. Specify the nature of the dependency.</p> <p>Links: List other actions in the work programme that are related to this action. Specify the nature of the link.</p>			

¹ Initially, the update frequency will be 6 months. The frequency may be shortened or extended in the future based on the experience with the development and updating of the WP.

Organisational set-up	A short description of the organizational set-up (e.g. will the issue be addressed by the MIG itself, by a temporary MIG sub-group, through organising a workshop, ...). If the action should be addressed by a temporary MIG sub-group, include a link to the proposed terms of reference (ToR) for the sub-group.	
Lead	The main point of contact for the action.	
Scope	Description of the scope of this action. If addressed through a temporary sub-group, this should be consistent with the scope specified in Art. 2 of the ToR.	
Tasks	Description of the tasks to be carried out in this action. If addressed through a temporary sub-group, this should be consistent with the tasks specified in Art. 2 of the ToR.	
Outcomes	Description of the deliverables for this action. If addressed through a temporary sub-group, this should be consistent with the outcomes specified in Art. 2 of the ToR.	
Timeline	Date of Kick-off: <i>MMM yyyy</i>	
	Proposed Date of Completion: dd/mm/yy	Actual date of Completion: Dd/mm/yy
Required human resources and expertise	Description of the required expertise and effort to complete the task. If addressed through a temporary sub-group, this should be consistent with the required effort and expertise specified in the ToR.	
Required financial resources	Required financial resources for the action, e.g. for tasks to be carried out by contractors (see Art. 7 of the sub-group ToR, where relevant) or meeting reimbursement	
Risk factors	Overall risk level of the action <input type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low	Risk factors to be considered <input type="checkbox"/> Missing Resources <input type="checkbox"/> High Complexity <input type="checkbox"/> Interdependencies with other Actions Others:
	Explanation for the tagged risk level above and, if necessary or helpful a short description of the risk factors which should be considered when this action will be carried out.	
Possible funding	Funding opportunities to be investigated for the action ² .	

NOTE This template was developed by the MIG-P between November 2014 and February 2015. The first action to be documented using this template is action MIWP-7b. The older actions are still documented using the previous, simpler template.

² Please note that these are not guaranteed funding sources, but merely indications what possible sources for funding should be investigated.

2 Work programme

Date of endorsement: 2015-04-30

Table 1. Change history

Date of endorsement	Procedure	Comments
2015-04-30	Written procedure	<p>The proposed action <i>MIWP-7b: Extension of Download Service Technical Guidelines for Web Coverage Services (WCS)</i> was endorsed unanimously by MIG-P in written procedure (voting by e-mail). The new action was the first to use the new action description template and prioritisation schema developed by MIG-P in January 2015.</p> <p>This updated version of the MIWP also closes actions <i>MIWP-10: Update Annex I data specifications</i> and <i>MIWP-18a Annex I xml schema updates</i>, which have been completed with the publication of the updated Annex I schemas.</p> <p>Finally, the chapter “Actions to be further elaborated” has been removed for clarity – the 3 activities that were described in this chapter are not currently discussed in the framework of the MIF.</p>
2014-09-15	MIG-P meeting	<p>In the MIG-P meeting on 2014-09-15, it was agreed that those actions that are in progress and where a clear work plan and/or terms of reference for a temporary sub-group have been defined should be endorsed. For actions MIWP-7 and MIWP-18, it was proposed to endorse only those sub-tasks that are already on-going, which lead to the split into actions MIWP-7a/7b/7c and MIWP-18a/18b. In addition, action <i>MIWP-21: Pilots for INSPIRE-based applications (including for e-reporting)</i> was endorsed because of its importance for ensuring the link between INSPIRE and e-reporting. The remaining actions can be endorsed at a later stage by the MIG-P. To facilitate the decision and prioritisation the impact of each proposed action and the associated risks and required resources should be clearly described.</p>

2.1 MIWP-5: Validation and conformity testing

Title	Validation and conformity testing
ID	MIWP-5
Status	Endorsed, in progress
Issue	<p>As INSPIRE is coming into a practical implementation phase there is a great need of tools for validation (metadata, service and data). There is a validation service (Webservice) available at the EU-portal and some countries have also developed tools for validation of metadata and services, for instance in the Netherlands and Germany. These validators might include slightly different interpretations of standards. To ensure that result from a tests of conformity are identical, a common, officially approved, validator should be accessible from INSPIRE web.</p> <p>Software vendors claim that their products are INSPIRE-compliant without having undergone a certification process.</p> <p>The abstract test suites in Inspire data specifications define the set of tests to be applied but there is no reference implementation of those abstract test suites.</p>
Proposed change or action	<ul style="list-style-type: none"> • Develop a commonly agreed European validator for data, metadata and network services (incl. performance testing) <ul style="list-style-type: none"> ○ Testing should focus on interoperability of applications and services ○ legal compliance cannot be checked based on conformity with TG ○ The validation rules should be made explicit so that data providers in Members States know what is validated upon exactly and how is validated ○ the MIG should jointly agree on the tests to be included in the validator ○ Investigate feasibility of executable tests and/or tools or services for checking conformance of datasets with the various DS • Establish rule that all new TG need to ATS and executable tests • Discuss the possibilities for setting up a compliance certification facility and process similar to the OGC
Links	<ul style="list-style-type: none"> • MIWP-6: Registries and registers • MIWP-9: Future directions for INSPIRE geoportal • MIWP-16: Improve usefulness and reliability of monitoring information
Organisational set-up	<p>Form a MIG sub-group including MIG representatives and experts from the PoE. The activities of the sub-group should be divided in the following aspects:</p> <ul style="list-style-type: none"> • 5a: Validation and conformity testing of metadata • 5b: Validation and conformity testing of service • 5c: Validation and conformity testing of data
Lead	<ul style="list-style-type: none"> • Carlo Cipolloni (IT) • 5a: FR (Marc Léobet and Etienne Taffoureau) • DE (preparation of the initial workshop)
Outcomes	<ul style="list-style-type: none"> • Commonly agreed European validator for MD, NS and DS
Timeline	<ul style="list-style-type: none"> • Workshop in May 2014 to discuss further process
Required Resources	<ul style="list-style-type: none"> • Workshop reimbursement (20-25 participants) • Software development • Hosting and operation of operational service
Possible funding	<ul style="list-style-type: none"> • ARE3NA • JRC institutional / competitive budget

	<ul style="list-style-type: none">• MS funding• Private sector funding
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2.2 MIWP-6: Registries and registers

Title	Registries and registers
ID	MIWP-6
Status	Endorsed, in progress
Issue	<p>Member States need to build registries to implement INSPIRE (and use the central INSPIRE registers). A technical guideline should explain how to build them, how to extend central INSPIRE registers and how to link national registers/extensions to the central INSPIRE registry.</p> <p>The priorities for the further development (functionality and content) of the central INSPIRE registry should be discussed between the EC and the MS. Possible topics include:</p> <ul style="list-style-type: none"> • Support for registration of mapping between code lists • Support for registration of extended models and code lists • Inclusion of updated feature concept dictionary (incl. Annex II+III) • Agreement on how to address CRS register in INSPIRE
Proposed change or action	<ul style="list-style-type: none"> • Develop technical guidelines and Best Practices explaining how to build registries and how to link them to EU registry. • Provide requirements and set priorities for the development of the central INSPIRE registry and underlying Re3gistry software • Test new releases of mainly the service (and possibly the software) and provide feedback • Set-up a test-bed for connecting national registries to the central INSPIRE registry • Set-up a registry of registries that contains metadata for registries and registers in the Member States • Define procedures and decision-making rules for a control body for the INSPIRE Registry (with the possibility to form a separate sub-group if needed)
Links	<ul style="list-style-type: none"> • MIWP-4: Managing and using http URIs for INSPIRE identifiers • MIWP-5: Validation and conformity testing • MIWP-19 Explore and improvement on the situation of controlled vocabularies in the framework of INSPIRE
Organisational set-up	Form a MIG sub-group including MIG representatives and experts from the PoE
Lead	JRC (Michael Lutz), UK (?)
Outcomes	<ul style="list-style-type: none"> • Development roadmap (functionality and content) for the central INSPIRE registry. • Updated version of the central INSPIRE registry • Technical Guidelines on how to set up registries and registers for INSPIRE (including connecting to the central INSPIRE registry), covering topics such as versioning, http URIs (while interacting with groups working on this topic elsewhere in the MIF) • Testing instances of the INSPIRE registry deployed in different participants' organisations
Timeline	<ul style="list-style-type: none"> • Initial workshop on 22-23 January 2014 • Set up a wiki and issue tracker by mid-February • Set up MIG sub-group and organise initial teleconference in early March • Initial test instances should be set up by the following groups by the proposed times

	<ul style="list-style-type: none"> ○ JRC: mid-Feb ○ UK: TBD ○ DE: April/May ○ SK: mid-March ● Presentation proposal for INSPIRE conference by 14 March ● Possible development of test scenarios by the end of April ● Initial draft / proposal for TOC for Technical Guidelines, including: <ul style="list-style-type: none"> ○ A discussion paper on the reuse of the Re3gistry and INSPIRE Registry Service instance (including reuse of content) ○ Collect and define use cases (based on information shared via the wiki) ○ Work on the test-bed will provide input for how registers/registries can be connected ● Presentation / workshop at the INSPIRE Conference
Required Resources	<ul style="list-style-type: none"> ● Workshop reimbursement (15 participants) ● Software development ● Hosting, maintenance and operation of the service ● Technical facilitator and editor of the Technical Guidelines
Possible funding	<p>ARE3NA (for registry development, testbed)</p> <p>MS funding (for registry development, testbed)</p>

2.3 MIWP-7a: Extension of Download Service TG for observation data

Title	Extension of Download Service TG for observation data
ID	MIWP-7a
Status	Endorsed, in progress
Issue	The current TG for download services are based on WFS 2.0 for direct access download services. This option may be inappropriate for direct download services for observation data.
Proposed change or action	Investigate need and feasibility of extending the TG with Direct access services based on SOS (Sensor Observation Service (SOS), Web Coverage Service (WCS) and TJS (Table Join Service) standards
Links	<ul style="list-style-type: none"> • MIWP-7b: Extension of Download Service Technical Guidelines for Web Coverage Services (WCS) • MIWP-7c: Extension of Download Service TG for tabular data
Organisational set-up	<ul style="list-style-type: none"> • The ARE3NA ISA action is launching a study on a SOS-based direct access download service, which will <ul style="list-style-type: none"> ○ make recommendations for updating the Download service TG for observation data ○ test the feasibility through a prototype implementation • A temporary MIG sub-group will be formed that should address the following tasks: <ul style="list-style-type: none"> ○ Develop a project plan including deliveries in line with the specified timeframe. ○ Review the proposal for the update of the technical Guidance for INSPIRE download services to include SOS, provided by the ARE3NA INSPIRE/SOS study. ○ Establish a web space and maintain an issue tracker for questions, related to the establishment of INSPIRE download services for observation data. ○ Maintain and extend the results of the INSPIRE/SOS study. ○ Propose and coordinate with the MIG update of the Technical Guidance document for INSPIRE download services. ○ If necessary, propose and coordinate with the MIG update of the Technical Guidance document for observations and measurements (D2.9). ○ Test the proposed approach with data from different Member states and different clients (web and desktop). ○ Regularly report the progress to the MIG.
Lead	<ul style="list-style-type: none"> • JRC (Alexander Kotsev, Paul Smits, Michael Lutz)
Outcomes	<ul style="list-style-type: none"> • Updated TG document for INSPIRE download services, including sections on download services for observations • Update TG document for observations and measurements (D2.9) (if required)
Timeline	<ul style="list-style-type: none"> • ARE3NA SOS study to start end of 2013 for 9 months <ul style="list-style-type: none"> ○ JRC to inform MIG about SOS study once the contract has been awarded ○ JRC to regularly inform MIG about progress • Workshop: April 2014 • Temporary sub-group: Sep 2014 – May 2015
Required Resources	<ul style="list-style-type: none"> • Reimbursement workshop participants (15-20) • Download service TG editor (?)
Possible funding	ARE3NA (SOS study) MS funding

2.4 MIWP-7b: Extension of Download Service Technical Guidelines for Web Coverage Services (WCS)

Title	Extension of Download Service Technical Guidelines for Web Coverage Services (WCS)			
ID	MIWP-07b			
Status	<input type="checkbox"/> Proposed	<input checked="" type="checkbox"/> Endorsed	<input checked="" type="checkbox"/> In Progress	<input type="checkbox"/> Completed
Issue	<p>Many INSPIRE spatial data themes (orthoimagery, elevation, geology, atmospheric conditions/meteorological geographical features, oceanographic geographical features, soil, land cover, natural risk zones, energy resources) include data that, according to the INSPIRE data specifications, have to be made available as coverages. The 'Habitats and Biotopes' and Environmental Monitoring Facilities' specifications mention that the use of coverage model should be considered once mature implementations appear.</p> <p>Other data specifications such as 'Sea Regions' whilst not mandating data should be provided as coverages, would benefit from consideration within these guidelines.</p> <p>The current TG for download services are based on Atom feeds (for pre-defined dataset download services) and WFS 2.0 (for pre-defined dataset and direct access download services). While coverage data can also be provided using Atom feeds or WFS, these options are not well suited for many coverage datasets, because single coverages are often several GB or even TB in size and users are typically only interested in some sub-set of the data, e.g. as defined by</p> <ul style="list-style-type: none"> • a user-defined bounding box or time period (trimming) • queries that reduce the dimension of the result coverage (slicing), e.g. extracting a temperature surface at a certain depth from a 3D ocean temperature coverage. <p>The MIG workshop on WCS-based INSPIRE download services on 14-15 October 2014 demonstrated that all operations required by the Download Service IRs can be mapped to the WCS 2.0 standard, and that using a WCS for providing coverage data provides a number of benefits and opportunities (depending on the supported WCS extensions), e.g.</p> <ul style="list-style-type: none"> • Data provision of model results (e.g. surfaces and grids) or multi-dimensional or multi-variable data through services • Advanced download <ul style="list-style-type: none"> ○ Queries based on filters that are not trimming and slicing, e.g. corridor selection (calculate the exposure to air pollution along a route or the air temperature along flight corridors) or a time slice of meteorological data. ○ (Server-side) advanced analyses (directly accessing the data), e.g. statistical analyses, interpolation between point values, aggregations (e.g. means, min/max, exceedances, etc.), time series analyses • Downloading data for visualisation purposes <ul style="list-style-type: none"> ○ an image coverage as-is ○ using interpolation of point clouds ○ using reclassification of range values ○ using styling as defined by the user ○ selecting a style provided by the server <p>The workshop also illustrated that further guidelines or best practices are needed for how to provide harmonised INSPIRE coverage data through the WCS. Such guidelines should revisit and, if required, propose updates to the encoding guidelines currently included in the data specifications.</p>			

Proposed change or action	<ul style="list-style-type: none"> • Propose and coordinate with the MIG any update of the Technical Guidance document for INSPIRE download services to include options for direct access and pre-defined download services based on WCS 2.0 • If necessary, propose and coordinate with the MIG technical guidelines (or updates to existing technical guidelines) for the provision of coverage data in conformance with the INSPIRE data models using a WCS (including data encoding). • Document the current state-of-play of WCS 2.0 solutions (servers and clients) and solutions based on the deprecated WCS standard versions • Demonstrate the feasibility of the proposed guidelines by <ul style="list-style-type: none"> ○ implementing the INSPIRE extensions in at least one open source WCS 2.0 solution, ○ using this open source solution to deploy sample coverage data sets from several INSPIRE spatial data themes ○ testing interoperability of the deployed data and services with (different) client applications, including the INSPIRE geoportal • Establish a web space and maintain an issue tracker for questions related to the establishment of INSPIRE download services for coverage data. • Work in establishing which coverage formats that should be supported by the INSPIRE extension of WCS 2.0. • Liaising with the OGC WCS SWG and Coverage DWG, OSGeo and other relevant organisations and initiatives. Other relevant organization is main providers of scientific coverage data, e.g. ESA and GEOSS.
Links	<ul style="list-style-type: none"> • MIWP-5: Validation and conformity testing • MIWP-7a: Extension of Download Service TG for observation data • MIWP-7c: Extension of Download Service TG for tabular data • MIWP-14: Theme specific issues of data specifications & exchange of implementation experiences in thematic domains
Organisational set-up	Form a MIG sub-group including MIG representatives and experts from the pool of experts
Lead	Jukka Rahkonen (National Land Survey Finland)
Outcomes	<ul style="list-style-type: none"> • Updated Technical Guidelines for Download Services to include WCS • Technical Guidelines (or updates to existing technical guidelines) for the provision of coverage data in conformance with the INSPIRE data models using a WCS • Open Source INSPIRE compliant WCS 2.0 implementation(s) based on existing mature WCS 2.0 software • Analysis of the impacts (e.g. costs) of implementing the updated Technical Guidelines
Proposed Impact	<ul style="list-style-type: none"> <input type="checkbox"/> Technical Adjustment / Bug Fixing <input checked="" type="checkbox"/> Technical Improvement / Development <input checked="" type="checkbox"/> Practical Support for Implementing Process <input type="checkbox"/> Cost Reducing Effect for Implementing Process <input type="checkbox"/> Direct Support on Policy-Making / - Activities
Timeline	Date of Kick-off: 01/05/2015
	Date of Completion: 30/06/2016

<p>Milestones</p>	<ul style="list-style-type: none"> • Creation sub-group: May 2015 • Initial draft WCS section for Download Services TGs: September 2015 • TGs for the provision of coverage data in conformance with the INSPIRE data models using a WCS: December 2015 • Open Source INSPIRE/WCS 2.0 implementation(s): December 2015 • Final TGs endorsed by MIG-T: June 2016 	
<p>Required Expertise of Human Resources</p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Technical Expert <input checked="" type="checkbox"/> Thematic Expert <input checked="" type="checkbox"/> Manager / Facilitator <input checked="" type="checkbox"/> Editor 	
<p>Required Actions and Material Resources (description)</p>	<ul style="list-style-type: none"> • Workshop reimbursement (15 participants) • Software development (INSPIRE/WCS open source solution) • TG editor 	
<p>Risk factors</p>	<ul style="list-style-type: none"> <input type="checkbox"/> High <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Low 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Missing Resources <input type="checkbox"/> High Complexity <input checked="" type="checkbox"/> Dependencies with other Actions Others:
<p>Possible funding</p>	<ul style="list-style-type: none"> • UK (Defra) and H2020 (EarthServer2 project) funding for implementation of INSPIRE/WCS open source solutions • JRC funding for TG editor 	

2.5 MIWP-8: Update of Metadata TG

Title	Update of Metadata TG
ID	MIWP-8
Status	Endorsed, in progress
Issue	<ul style="list-style-type: none"> • A number of issues has been raised for the Metadata TG (e.g. issues concerning the metadata element useLimitation) that have not been fixed with the last update of the Metadata TG. • The guidelines for metadata for interoperability (aka metadata for evaluation and use) are currently contained in the data specifications rather than integrated in the Metadata TG. • The quality of the metadata harvested by the INSPIRE geoportal from the national discovery services is often quite poor, even if they are formally meeting the requirements of the metadata IRs. • The revised versions of the ISO standards on metadata needs to be addressed to give security in planning. Many implementations are based on the existing standards. Re-building these implementations would develop an enormous amount of investment. • It should be analysed how metadata, that are created now with large effort, can be used for more use cases than just the search for geodata and the allocation of information.
Proposed change or action	<ul style="list-style-type: none"> • Fix the remaining issues that has been raised. Update the Metadata TG accordingly. • Integrate metadata for interoperability into the Metadata TG. • Explain in the Metadata TG whether/how to take into account the revised versions of the ISO standards on metadata.
Links	MIWP-16: Improve usefulness and reliability of monitoring information
Organisational set-up	<p>Form a MIG sub-group based on pool of experts to define whether/how the TG need to be updated, e.g. to improve metadata quality and/or to facilitate metadata creation.</p> <p>There is a link to MIWP-16.</p>
Lead	SE (Michael Östling, michael.ostling@metagis.se), EEA (Paul Hasenohr) as follow-up from MIWP-16
Outcomes	Updated metadata TG (if deemed appropriate)
Timeline	This action should start after input from MIWP-16 and from the INSPIRE mid-term evaluation are available (i.e. towards the end of 2014).
Required Resources	TG editor
Possible funding	In-kind contributions (PoE, MIG)

2.6 MIWP-14: Theme specific issues of data specifications & exchange of implementation experiences in thematic domains

Title	Theme specific issues of data specifications & exchange of implementation experiences in thematic domains
ID	MIWP-14
Status	Endorsed, in progress
Issue	<ul style="list-style-type: none"> • A number of the issues of INSPIRE implementation is theme-specific. There is currently no agreed way for implementers in the Member States to share their experience and discuss about (theme-specific) issues they encountered, approaches they used for implementation or planned extensions or value-added thematic applications. <ul style="list-style-type: none"> ○ A number of theme-specific issues have been raised for the data specifications of PS, AD, EL, US, TN, BU, CRS and HY. This includes PS (Full application schema), which needs to be brought in line with Annex III themes and has therefore temporarily been removed from the updated PS data specification (see MIWP-10). • Since the TGs still allow some degrees of freedom for implementing the IRs there is a need of active collaboration to support “harmonised” approaches for implementation. • There is also currently no coherent overview of the status of the implementation for the different INSPIRE data themes. • Finally, there are a number of environmental and non-environmental thematic policies, for which the links, dependencies and usage of INSPIRE data should be discussed and clarified, in particular (but not only) in relation to reporting obligations, e.g. air quality, MSFD, IED, noise, UWWTD, WFD/WISE (direct link to the MIWP – 21 Thematic pilots)
Proposed change or action	<ul style="list-style-type: none"> • Build communities of INSPIRE implementers in the EU as well as in MSs for the proposed clusters of themes • Create a platform (e.g. a wiki or a re-designed INSPIRE forum) for sharing experiences and for discussing implementation issues (including results from usability tests) and approaches. This platform should be open to all INSPIRE stakeholders. • Address already identified issues on data specifications of Annex I, II and III and propose (if relevant) concrete change proposals to the TG to the MIG • Use the platform to better understand thematic implementation issues, approaches and requirements in each MS to seek common “harmonised” solutions, i.e. what tools or which options in the TG are used (where there are several), what extensions or value-added applications are developed or planned. This could be done through questionnaires or surveys on different topics. The results should be made publicly available on the platform to be re-used by all whenever relevant • Support the successful implementation (e.g. developed applications) of INSPIRE by MSs or thematic communities in order to demonstrate its benefits.
Links	<ul style="list-style-type: none"> • MIWP-1: Improve accessibility and readability of TG • MIWP-2: Create and maintain FAQ page • MIWP-5: Validation and conformity testing • MIWP-13: Theme specific issues on data specifications
Organisational set-up	<ul style="list-style-type: none"> • The EC & EEA will initiate the formation of the thematic communities for the clusters and will launch a call of interest for thematic facilitators.

Title	Theme specific issues of data specifications & exchange of implementation experiences in thematic domains
	<ul style="list-style-type: none"> • Form a temporary MIG sub-group consisting of one facilitator per thematic cluster and chaired by the EC & EEA INSPIRE team. This sub-group will also be open to interested MIG representatives. • Proposed initial thematic clusters: <ul style="list-style-type: none"> ○ GE, SO, NZ, MR, ER ○ LU, LC ○ EL, OI, GG, RS ○ EF, O&M ○ AF, PF, US ○ GN, AU, CP, AD, BU, TN, (HY?) ○ OF, SR, AC+MF, HY? ○ PS, AM, HB, SD, BR ○ SU, PD, HH • Several thematic applications and policies affect more than one cluster. Therefore, the initial clusters based on INSPIRE themes may be re-organised or complemented with cross-thematic working groups.
Lead	JRC (Robert Tomas, Vanda Nunes de Lima, Michael Lutz)
Outcomes	<ul style="list-style-type: none"> • Overview on the approaches, software tools used for INSPIRE implementation and evolution in the MS for each of the thematic clusters. • Updated TGs (where relevant) • Availability of harmonised thematic data content in line with INSPIRE IRs • Lists of maintenance issues / agreed updates proposals (ideally based on concrete implementation experiences) to be addressed in the MIF • Overview of existing applications based on interoperable INSPIRE data. • Proposals for further developments or consolidated solutions
Timeline	<ul style="list-style-type: none"> • Identification of cluster's thematic facilitators by spring 2014 • Initial content on the platform by mid 2014 • Start work in those clusters where issues already have been submitted
Required Resources	<ul style="list-style-type: none"> • Thematic facilitators • Thematic experts involved in INSPIRE implementation in the MS • MIG & EC & EEA experts
Possible funding	<ul style="list-style-type: none"> • MS funding • In-kind contributions (INSPIRE Pool of Experts) • JRC & EEA & DG ENV institutional budget • European thematic organisations • Competitive projects (FP7 and Horizon 2020)

2.7 MIWP-16: Improve usefulness and reliability of monitoring information

Title	Improve usefulness and reliability of monitoring information
ID	MIWP-16
Status	Endorsed, in progress
Issue	The participants of the Monitoring & Reporting workshop held in Copenhagen on 15/10/2013 underlined the strong need to improve the usefulness and the reliability of monitoring information.
Proposed change or action	<ul style="list-style-type: none"> • Phase 1 <ul style="list-style-type: none"> ○ Review the indicators defined in Articles 3 to 10 of the Commission Decision of 5 June 2009, implementing Directive 2007/2/EC of the European Parliament and of the Council as regards monitoring and reporting, with the objective of automating their calculation. ○ Analyse how to extract monitoring information from the metadata records available in the EU-Geoportal or from the metadata records available in national geoportals. ○ Analyse how to filter out the metadata records which are for INSPIRE datasets out of a catalogue containing metadata on more datasets than only INSPIRE datasets. ○ Design a dashboard (including functional requirements) which would provide access to all monitoring information and related indicators for every Member State. ○ Test the approach with pilot countries. ○ Update the justification document for indicators as appropriate. ○ Update the Technical Guidelines on monitoring as appropriate. • Phase 2 <ul style="list-style-type: none"> ○ Possibly, propose evolutions of discovery metadata or monitoring data requiring modifications of some legally binding pieces of INSPIRE legislation.
Links	<ul style="list-style-type: none"> • MIWP-5: Validation and conformity testing • MIWP-8: Update of Metadata TG • MIWP-9: Future directions for INSPIRE geoportal
Organisational set-up	Establish a MIG sub-group to address the issue.
Lead	EEA (Paul Hasenohr, Darja Lihteneger)
Outcomes	<ul style="list-style-type: none"> • Prototype of a dashboard • Updated justification document for indicators • Updated Technical Guidelines on monitoring
Timeline	<ul style="list-style-type: none"> • Initial tele-/web-conference 17/12/2013 • Face-to-face meeting February/March 2014 • The sub-group shall submit its project plan to the MIG by 31 January 2014 and have all work belonging to the first phase of work completed by 15 December 2014. • In addition the sub-group shall present preliminary results of its work at the INSPIRE conference which will take place in Denmark, 16-20 June 2014 and the <i>testing of the approach with pilot countries</i> shall be completed by 30 September 2014.
Required Resources	<ul style="list-style-type: none"> • Workshop reimbursement (15-20 participants) • Prototyping of a dashboard
Possible funding	<ul style="list-style-type: none"> • JRC institutional / competitive budget

	<ul style="list-style-type: none">• MS funding
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2.8 MIWP-21: Pilots for INSPIRE-based applications (including for e-reporting)

Title	Pilots for INSPIRE-based applications (including for e-reporting)
ID	MIWP-21
Status	Endorsed
Issue	<ul style="list-style-type: none"> • Applications developed on top of INSPIRE • Different approaches for re-using and extending INSPIRE data and services in applications (e.g. for e-reporting) • Different approaches for referring to INSPIRE in thematic policies • Unclear what “INSPIRE-compliant application” means • Not yet any substantial “fitness for purpose” testing (based on real cross-theme use cases) of INSPIRE data and services
Proposed change or action	<ul style="list-style-type: none"> • Develop generic guidelines and best practices for developing applications based on INSPIRE data and services in a more harmonized way. • Develop an approach (and tool?) for sharing INSPIRE extensions • Feed back experiences from application development into implementation and maintenance of INSPIRE data and services
Links	<ul style="list-style-type: none"> • MIWP-14: Theme specific issues of data specifications & exchange of implementation experiences in thematic domains • MIWP-5: Validation and conformity testing
Organisational set-up	<ul style="list-style-type: none"> • JRC, relevant policy DGs (mainly DG ENV), EEA are setting up pilot projects with interested stakeholders in Member States for INSPIRE-based applications (including for e-reporting). In particular, pilots are currently going on or planned in the following areas: <ul style="list-style-type: none"> ○ Marine ○ WISE ○ Seveso / industrial emissions ○ Air quality • The MIG can interact with / contribute to these pilots by <ul style="list-style-type: none"> • providing feedback on pilot deliverables, in particular to ensure that the approach taken in a pilot is consistent with the INSPIRE obligations and to identify possible inconsistencies with INSPIRE TGs and IRs • supporting the identification of relevant experts & stakeholder organisations • disseminating results of pilot projects and supporting coordination at the national level • disseminating results of pilot projects in the thematic clusters • supporting the coordination between INSPIRE and thematic Commission Expert Groups • At the same time, the MIG should regularly inform about other developments of pilots or applications in Member States, thematic communities or research projects.
Lead	JRC (Vanda Nunes de Lima) – Overall coordination Pilot teams (JRC, relevant policy DGs, EEA, interested stakeholders) – individual pilots
Participants	MIG representatives (permanent policy and technical sub-groups) Experts from PoE
Outcomes	<ul style="list-style-type: none"> • Recommendations and best practices for using INSPIRE for specific applications

Title	Pilots for INSPIRE-based applications (including for e-reporting)
	<ul style="list-style-type: none"> • INSPIRE extension, e.g. extended application schemas, extended network services • Re-usable tools • Feedback to implementation and maintenance of INSPIRE data and services • Approach (and possibly tools) for sharing INSPIRE extensions
Timeline	<ul style="list-style-type: none"> • Depending on each pilot
Required Resources	<ul style="list-style-type: none"> • Depending on the definition of each pilot
Possible funding	<ul style="list-style-type: none"> • JRC/DG ENV/EEA institutional / competitive budget • In-kind contributions (MIG, MS)

3 Actions proposed for inclusion in the work programme

3.1 MIWP-1: Improve accessibility and readability of TG

Title	Improve accessibility and readability of TG
ID	MIWP-1
Status	Proposed
Issue	Some of the INSPIRE TGs are difficult to follow for practitioners “on the workflow”.
Proposed change or action	<p>Elaborate proposals on how to re-organise and/or better present the INSPIRE TG (for all INSPIRE components) and/or how they could be supplemented with other useful documents, e.g. by</p> <ul style="list-style-type: none"> • reducing choices in TG • providing simple reference implementations • developing step-by-step instructions • collecting and sharing INSPIRE guidelines and best practices from MS and research projects • clarifying which skill sets are required to read different INSPIRE documents <p>Where discussions in this action yield concrete change proposals for existing TGs, these should be addressed in the corresponding action for updating the relevant TG. In particular, change proposals on the Data Specifications TG should be discussed in close collaboration with <i>MIWP-13: Theme specific issues on data specifications</i>. If change proposals to network services TG are identified, a new action may be needed.</p>
Links	<ul style="list-style-type: none"> • MIWP-2: Create and maintain FAQ page • MIWP-13: Theme specific issues on data specifications
Organisational set-up	Create a “document team” as a MIG sub-group with members from the MIG and (if necessary) the pool of experts
Lead	JRC (Michael Lutz), EEA (Christian Ansorge)
Outcomes	<ul style="list-style-type: none"> • Proposals on how to re-organise and/or better present the INSPIRE TG and/or how they could be supplemented with other useful documents. • Updated and/or additional TGs.
Timeline	Ideally, the activity should yield results by the end of 2014 in order to support stakeholders in understanding the TGs (in particular the data specifications) and in transforming their Annex II+III data, some of which needs to comply with the IRs by October 2015.
Required Resources	TBD
Possible funding	<ul style="list-style-type: none"> • JRC institutional / competitive budget • MS funding • Competitive projects (FP7 & Horizon 2020)

3.2 MIWP-2: Create and maintain FAQ page

Title	Create and maintain FAQ page
ID	MIWP-2
Status	Proposed, initial investigation
Issue	Over the years, many questions related to the implementation of INSPIRE (related to legal interpretation as well as technical issues) have been answered by the Commission. However, these answers are not currently available to the wider INSPIRE stakeholder community.
Proposed change or action	Create an FAQ section on the INSPIRE web site containing the official EC answers to MS questions (from the legal transposition workshop and direct e-mails), including information on the legal status of the answer, the institution that gave the answer and the date of the answer. This section could also contain answers by the EC on the transposition pilots.
Links	MIWP-1: Improve accessibility and readability of TG
Organisational set-up	<ul style="list-style-type: none"> • EC & EEA INSPIRE team to make an initial proposal for content and process for updating • MIG to comment on the proposed process
Lead	JRC (Karen Fullerton, Michael Lutz)
Outcomes	<ul style="list-style-type: none"> • FAQ page on the INSPIRE web site • Workflow for maintaining and keeping the FAQ page up-to-date
Timeline	<ul style="list-style-type: none"> • Collect material for FAQ and define what should be in/out [Mar 2014] • Proposal for FAQ presentation [April 2014] • Proposal for FAQ update process [April 2014] • FAQ page – first draft [May 2014]
Required Resources	TBD
Possible funding	JRC institutional / competitive budget

3.3 MIWP-3: Guidelines and best practices for access control

Title	Guidelines and best practices for access control
ID	MIWP-3
Status	Proposed, initial investigation
Issue	<p>According to the INSPIRE Directive data providers may limit access to services for a number of reasons. However, there has been no attempt to harmonise how access control and rights management are implemented, leading to a plethora of approaches across Europe. Data providers need to manage access for a number of reasons, and in some instances need to make a charge too. In these latter cases, the Directive stipulates that they must to use e-commerce. Again, there is no attempt to harmonise how this is done. The result is that access to INSPIRE services is not interoperable, thus reducing the value of the data and services. This is also an issue for the INSPIRE geoportal, since several view and download services described in the metadata harvested by the INSPIRE geoportal from the national discovery services are not accessible and thus makes it impossible for users to access these services through the INSPIRE geoportal. Furthermore, the current usage of a free text field for conditions applying to access and use in the INSPIRE metadata does not allow for automatic analysis and filtering.</p>
Proposed change or action	Develop guidelines and best practices for addressing these issues in a more harmonized way.
Links	
Organisational set-up	<ul style="list-style-type: none"> • The ARE3NA ISA action is launching a study on AAA (authentication, authorisation and accounting), which will <ul style="list-style-type: none"> ○ review the state of the art in relevant technologies, standards and best practices for AAA/access control, ○ organize an interim workshop to discuss potential AAA/access control solutions with stakeholders, and ○ implement a testbed to examine potential AAA/access control solutions in practice. • The MIG can interact with / contribute to this study by providing input and participating in the workshop and/or testbed. • In parallel, the MIG should conduct a survey/document the currently used approaches for AAA/access control in the MS •
Lead	JRC (Robin Smith, Michael Lutz) – AAA study BE (TBC) – best practices
Outcomes	<ul style="list-style-type: none"> • Overview of the currently used approaches for AAA/access control in the MS • Guidelines and best practices for AAA/access control in INSPIRE • AAA testbed
Timeline	<ul style="list-style-type: none"> • ARE3NA study on AAA <ul style="list-style-type: none"> ○ kick-off: early 2014 for 10-12 months ○ 1st draft of AAA best practices by INSPIRE Conference 2014 ○ JRC to inform MIG about AAA study once the contract has been awarded ○ JRC to regularly inform MIG about progress
Required Resources	TBD
Possible funding	ARE3NA

3.4 MIWP-4: Managing and using http URIs for INSPIRE identifiers

Title	Managing and using http URIs for INSPIRE identifiers
ID	MIWP-4
Status	Proposed, initial investigation
Issue	To uniquely identify features and other INSPIRE objects (metadata, services, documents, ...) across Member States and support web-based retrieval of these objects, we need a common syntax for resolvable and durable URI's. The registration of these URI's in EC and MS registries will enable global search, retrieval and linking of relevant INSPIRE objects.
Proposed change or action	<p>Develop a European URI strategy for all INSPIRE information objects (features, metadata, codelists, feature catalog, themes, ...), including</p> <ul style="list-style-type: none"> • guidelines for URI patterns, and • architectural approaches for accessing INSPIRE spatial objects based on their ids <p>Solutions should not be designed specifically for spatial data sets, but should re-use existing proposals for (linked) open data.</p>
Links	MIWP-6: Registries and registers
Organisational set-up	<ul style="list-style-type: none"> • The ARE3NA ISA action is launching a study on RDF and permanent ids (PIDs) for INSPIRE, which will <ul style="list-style-type: none"> ○ document the state-of-play in in the application of RDF and PIDs in INSPIRE and for location information ○ develop guidelines on methodologies for the creation of RDF vocabularies representing the INSPIRE data models (i.e. UML to RDF transformation) and the transformation of INSPIRE data into RDF (based on feedback a workshop to discuss different existing approaches) ○ make recommendations (for INSPIRE and other sectors) for a favoured governance model and most important processes for the management of PIDs (based on a review of current governance models and processes) ○ test the proposed guidelines with volunteers • The MIG can interact with / contribute to this study by providing input and participating in the workshop and/or testing exercise. • Potentially, a MIG sub-group may be formed to move this topic ahead.
Lead	JRC (Robin Smith, Michael Lutz)
Outcomes	<ul style="list-style-type: none"> • Guidelines on methodologies for the creation of RDF vocabularies representing the INSPIRE data models and the transformation of INSPIRE data into RDF • Recommendations (for INSPIRE and other sectors) for a favoured governance model and most important processes for the management of PIDs
Timeline	<ul style="list-style-type: none"> • ARE3NA study on RDF and PIDs <ul style="list-style-type: none"> ○ kick-off: Jan 2014 for 5 months ○ Workshop in Mar 2014 ○ Final results in May 2014 ○ JRC to inform MIG about study once the contract has been awarded ○ JRC to regularly inform MIG about progress
Required Resources	TBD
Possible funding	ARE3NA

3.5 MIWP-7c: Extension of Download Service TG for tabular data

Title	Extension of Download Service TG for tabular data
ID	MIWP-7c
Status	Proposed
Issue	The current TG for download services are based on WFS 2.0 for direct access download services. This option may be inappropriate for direct download services for tabular data.
Proposed change or action	Investigate need and feasibility of extending the TG with Direct access services based on TJS (Table Join Service) standard
Links	<ul style="list-style-type: none"> • MIWP-7a: Extension of Download Service TG for observation data • MIWP-7b: Extension of Download Service Technical Guidelines for Web Coverage Services (WCS)
Organisational set-up	Organise a workshop to define the requirements and scope for a potential update of the TG for download services based on TJS.
Lead	<ul style="list-style-type: none"> • NL (for organising the initial workshop)
Outcomes	Potentially updated Download service TG (depending on outcomes of the workshop / study)
Timeline	<ul style="list-style-type: none"> •
Required Resources	<ul style="list-style-type: none"> • Reimbursement workshop participants (15-20) • Download service TG editor (?)
Possible funding	MS funding ELF project, http://www.elfproject.eu/

3.6 MIWP-9: Future directions for INSPIRE geoportal

Title	Future directions for INSPIRE geoportal
ID	MIWP-9
Status	Proposed
Issue	<p>The usage of the INSPIRE geoportal is currently very limited – even if taking into account that we are still in a “middle of the road” situation where the possibility to download the actual data is still very limited, and harmonised data are not yet available. Linked to this, currently no effort has been made to communicate about or promote the INSPIRE geoportal, with as result that its existence is relatively unknown outside of the immediately concerned community of national service providers.</p> <p>Other factors that potentially have a negative impact on the usage are:</p> <ul style="list-style-type: none"> • missing access to existing pan-European datasets (with the geoportal being restricted to access Member States’ INSPIRE data) • the low quality of the metadata and data content • strong competition from related services such as Google earth as well as from certain national Geoportals • restrictions to access/view/use the data published in the geoportal • geoportal usability
Proposed change or action	Before integrating the procured geoportal version (“Planetek geoportal”) with the current geoportal pilot (“JRC geoportal”), the long term vision and roadmap should be discussed and agreed with the MS.
Links	<ul style="list-style-type: none"> • MIWP-5: Validation and conformity testing • MIWP-16: Improve usefulness and reliability of monitoring information
Organisational set-up	Organise a workshop to discuss further process
Lead	JRC (Freddy Fierens, Michael Lutz)
Outcomes	Roadmap for further developments
Timeline	TBD
Required Resources	Workshop reimbursement (20 participants)
Possible funding	JRC institutional / competitive budget

3.7 MIWP-11: Simplification and clarification of GML encoding for spatial data

Title	Simplification and clarification of GML encoding for spatial data
ID	MIWP-11
Status	Proposed, initial investigation
Issue	<p>Currently, GML 3.3 as specified by ISO and OGC is used as encoding for spatial data. We are facing several aspects:</p> <ol style="list-style-type: none"> 1. GML 3.3 is not supported by any commercial or FOSS GIS 2. it is very unlikely to expect, that any processing system (e.g. GIS or ETL tool) will support the complete GML3.3 specification 3. Current data specifications for INSPIRE use only a small fraction of the possible data types provided by GML 4. we are facing a huge effort for data transformation to produce the data according to the current encoding rules 5. even if the INSPIRE data is delivered according to the current rules, we are facing again major transformation efforts to make them processable for current systems <p>The used software (ShapeChange) for generating XML schemas from UML already implements only a subset of GML. The issue is, that this is not documented in any official INSPIRE document and not agreed by any INSPIRE body. E.g. today, GIS providers have to read and understand the (partly poorly documented) programming code of ShapeChange to know about the restrictions on the encoding of INSPIRE data themes.</p>
Proposed change or action	<ol style="list-style-type: none"> 1. investigate current INSPIRE data themes on the data types really needed for encoding in INSPIRE 2. reduce the allowed data types for encoding in GML, e.g. based on ISO19137 3. update D2.7 accordingly <p>This would encourage GIS and ETL providers to implement the same subset of GML as specified then in D2.7, instead of implementing arbitrary subsets (different for each provider) as it is today.</p>
Links	<ul style="list-style-type: none"> • MIWP-5: Validation and conformity testing • MIWP-12: Clarification of UML-to-GML encoding rules
Organisational set-up	Form a MIG subgroup to identify issues and propose the way forward
Lead	CH/LI (Christine Giger), NL
Outcomes	Updated version of D2.7
Timeline	<ul style="list-style-type: none"> • Workshop in spring 2014 • Presentation of initial results could be presented at the ISO/TC211 meeting in Berlin in June 2014
Required Resources	Workshop reimbursement (5-10 participants)
Possible funding	<ul style="list-style-type: none"> • ARE3NA • JRC institutional / competitive budget • In-kind contributions (PoE, MIG)

3.8 MIWP-12: Clarification of UML-to-GML encoding rules

Title	Clarification of UML-to-GML encoding rules
ID	MIWP-12
Status	Proposed, initial investigation
Issue	<p>We are currently not sure, whether the existing encoding rules in ISO19136 for UML to GML are clear and deterministic enough to produce unique encodings. Observation: ShapeChange produces an encoding, which cannot be reproduced in the same way with other UML2GML tools based on the same specification in ISO19136. We are also not sure, whether the existing encoding specification produces usable and useful GML with respect to standard GIS and geodata processing software (e.g. difficulties with schematron processing or no possibilities to read and interpret XML annotations).</p> <p>Furthermore, the current XML schemas for the Annex I spatial data themes were generated using a previous version of the “iso19136_2007_INSPIRE_Extensions” encoding rule, which differs in some aspects (e.g. the encoding of code list-valued properties) from the encoding rule used for the Annex II+III themes.</p>
Proposed change or action	<ol style="list-style-type: none"> 1. Explore the implementation of ShapeChange and other tools, whether and how they are conformant to the existing specification 2. If necessary: clarify the specification 3. Investigate existing encodings for usefulness and usability within use cases as specified in INSPIRE data specifications, with special focus on the ability of COTS and FOSS tools to handle the encoding 4. If necessary: correct/overrule/restrict the encoding rules specification in ISO19136 5. Feedback to ISO/TC211 and OGC <p>In addition, it should be discussed whether/how to update the encodings for the Annex I data specifications using the updated encoding rule.</p>
Links	MIWP-11: Simplification and clarification of GML encoding for spatial data
Organisational set-up	Form a MIG subgroup to identify issues and propose the way forward. This should be the same group as for MIWP-11.
Lead	CH/LI (Christine Giger), NL
Outcomes	<ul style="list-style-type: none"> • Updated version of D2.7 • Change proposals to ISO/TC 211 and OGC (if appropriate)
Timeline	<ul style="list-style-type: none"> • Workshop in spring 2014 • Presentation of initial results could be presented at the ISO/TC211 meeting in Berlin in June 2014
Required Resources	Workshop reimbursement (5-10 participants)
Possible funding	<ul style="list-style-type: none"> • ARE3NA • JRC institutional / competitive budget • In-kind contributions (PoE, MIG)

3.9 MIWP-13: Theme specific issues on data specifications

MIWP-13 has been merged with MIWP-14.

3.10 MIWP-15: Overview of INSPIRE coordinating structures, architectures and tools

Title	Overview of INSPIRE coordinating structures, architectures and tools
ID	MIWP-15
Status	Proposed
Issue	<p>The role of coordinating structures in different MS needs to be better understood. Some Agencies in some countries try to monopolise the process without having yet the legal and/or the operational power to do it. As a result some countries are not connected to the geo-portal for a lack of internal governance.</p> <p>Furthermore, where possible, an overview of the used architecture, software and tools for INSPIRE implementation in the MS would be useful.</p>
Proposed change or action	Use the MIG to better understand the “architecture” of each MS, i.e. who is doing what and how (including the technical architecture). This could be done through questionnaires or surveys on different topics. The results should be made publicly available on the INSPIRE web site.
Links	
Organisational set-up	MIG representatives
Lead	JRC (Michael Lutz)
Outcomes	Overview pages/maps on the organisation, architectures, software and tools used for INSPIRE implementation in the MS.
Timeline	To start in 2014
Required Resources	MIG representatives
Possible funding	JRC institutional / competitive budget

3.11 MIWP-17: Data and service sharing & licencing models

Title	Data and service sharing & licencing models
ID	MIWP-17
Status	Proposed
Issue	<p>The basic requirements for data and service sharing are already defined in the INSPIRE Directive Article 17. This Article provides also the basis for the Implementing Rule - COMMISSION REGULATION (EU) No 268/2010 of 29 March 2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards the access to spatial data sets and services of the Member States by Community institutions and bodies under harmonised conditions. In addition to the legal basis, two supporting documents are available: (1) guidelines to the Commission Regulation by promoting the INSPIRE licencing models and (2) good practice document on implemented licencing approaches and models.</p> <p>There is a wide variety of approaches on data and service sharing arrangements in the countries. The overview of such arrangements are provided in the INSPIRE country reports every 3 years. The constraints related to access and use of spatial data sets and services (conditions applying to access and use, limitations on public access) should also be provided in metadata for spatial data sets and services based on the INSPIRE Metadata Regulation.</p> <p>The users as well as data and service providers need clear understanding of the conditions to share, access and use of spatial data sets and services. The data and service sharing could also benefit from the standardization of licences, the use of technology (for example: machine readable licences, electronic authentication and authorization) and the reduction of other barriers expressed by the countries in their country reports.</p> <p>The proposed actions are focused on the data and service providers' and users' (stakeholders) needs, standardization and awareness rising about the licencing approaches.</p>
Proposed change or action	<ul style="list-style-type: none"> • Test case from the stakeholders' perspective to have clear understanding of the conditions for sharing, access and use of spatial data sets and services (using metadata from INSPIRE geoportal and assess information related to access and use, including links to related licences): <ul style="list-style-type: none"> ○ Assessment of current use and clarity of conditions to access and use of spatial data sets and services (types of different licences) ○ Explore links and relations to INSPIRE licencing models (INSPIRE Guidelines) and existing licences (e.g. CC and others established in the MS) • Test case on licencing approaches - to match individual licences (random samples) against INSPIRE licencing (including discussions with licence providers): <ul style="list-style-type: none"> ○ Propose approaches for harmonisation and standardisation of licence environment within INSPIRE ○ Provide generic licence examples based on INSPIRE licences (focus on basic licence) • To organise a workshop and raise awareness of INSPIRE licencing models and data and service sharing practice in different countries – proposed as part of the INSPIRE conference 2014 • Explore how the outcomes of the ARE3NA project and MIWP-3 can benefit to more transparent use of licencing models and direct access to data and services (depends on the roadmap of ARE3NA project and MIWP-3 activities)
Links	MIWP-3: Guidelines and best practices for access control
Organisational set-up	Establish a MIG sub-group to address the issue.
Lead	EEA (Darja Lihteneger, Christian Ansorge)

Outcomes	<ul style="list-style-type: none">• Assessment and test case result• Dedicated workshop at INSPIRE conference• Report: potential use of AAA for INSPIRE data and service sharing
Timeline	<ul style="list-style-type: none">• Tele/web conferences (start in March 2014)• Physical meeting of this action (proposal: before INSPIRE conference or in autumn)• Workshop at INSPIRE conference 2014 (16th -20th of June 2014)
Required Resources	<ul style="list-style-type: none">• MIG and PoE experts• Reimbursement physical meeting participants (8 - 12)
Possible funding	<ul style="list-style-type: none">• JRC institutional / competitive budget• MS funding

3.12 MIWP-18b XML schema maintenance

Title	XML schema maintenance
ID	MIWP-18b
Status	Proposed
Issue	Since changes such as those proposed in <i>MIWP-18a Annex I xml schema updates</i> can impact on implementation of software, a development and release process should be developed for updating/maintaining XML schemas. This process should address acceptance, versioning, corrigenda etc. There is a need to coordinate with software developers and data providers about proposed changes to ensure implications of changes are kept to a minimum, that people are informed and plans made about how to migrate. The communication strategy should also be covered by the development and release process.
Proposed change or action	<ul style="list-style-type: none"> Define a formal process for management and updates of XML schemas
Links	<ul style="list-style-type: none"> MIWP-11: Simplification and clarification of GML encoding for spatial data MIWP-12: Clarification of UML-to-GML encoding rules MIWP-18a Annex I xml schema updates
Organisational set-up	Establish a MIG sub-group to address the issue. This could be the same group as for MIWP-11 and MIWP-12.
Lead	TBD
Outcomes	<ul style="list-style-type: none"> Process for management and updates of XML schemas
Timeline	TBD
Required Resources	<ul style="list-style-type: none"> MIG and PoE experts
Possible funding	<ul style="list-style-type: none"> JRC institutional / competitive budget MS funding

3.13 MIWP-19 Explore and improvement on the situation of controlled vocabularies in the framework of INSPIRE

Title	Explore and improvement on the situation of controlled vocabularies in the framework of INSPIRE
ID	MIWP-19
Status	Proposed
Issue	<p>Controlled vocabularies (in the following COV) provide commonly agreed content and terms for elements within a conceptual model. This contains thesauri but also code lists, ontologies, glossaries and other semantic repositories. The controlled vocabulary itself is a knowledge model with a specific view and abstraction of reality related to the purpose of its development.</p> <p>Within conceptual models COV are used to enable a common understanding of meanings and terms and therefore a degree of semantic interoperability. They help to ensure data quality on provider's side and support the data discovery and integration process on user's side.</p> <p>In the context of INSPIRE the main issue known is the use of COV for keywords in metadata in order to provide a more accurate description than the sole theme name taken from GEMET (Commission Regulation (EC) No 1205/2008 of 3 December 2008 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards metadata). Here we are currently facing two major issues.</p> <ul style="list-style-type: none"> - GEMET was developed as environmental multilingual thesaurus long before INSPIRE Directive became law. The annex themes of the INSPIRE Directive are touching areas which are out of scope for GEMET as they aren't related to environmental topics (such as road network, buildings, administrative units, etc.) and only included as INSPIRE Spatial Data Themes which aren't integrated in the thesauri. Furthermore GEMET is also rather flat in some other areas, such as geology, where the terminology provided might not be deep enough for proper data set descriptions. - Other COV beside GEMET are barely known, difficult to access and search. Some relations to EuroVoc or AgroVoc exist already but furthermore there is no COV (more broader or deeper) integrated or linked.
Proposed change or action	<ul style="list-style-type: none"> - Research and list COVs which cover at least parts of the INSPIRE Spatial Data Themes - Explore options how COV can contribute to INSPIRE semantic interoperability (metadata or data specifications) - Explore options how and if metadata creation can be improved in terms of COV <ul style="list-style-type: none"> o How search for keywords across COV can be enabled. o How INSPIRE community can participate in further development of COV. o If GEMET can be extended by identified COV (vertically and horizontally) and when this should happen. o Explore business cases for COV within INSPIRE beyond metadata. - Integrate or link identified further COVs with GEMET
Links	<ul style="list-style-type: none"> • MIWP-4: Managing and using http URIs for INSPIRE identifiers • MIWP-5: Validation and conformity testing • MIWP-6: Registries and registers
Organisational set-up	Establish a MIG sub-group to address the issue.
Lead	EEA (Christian Ansoorge, Paul Hasenohr)

Outcomes	<ul style="list-style-type: none"> • Specifications and proof of concept of an IT tool allowing for a federated search across COV of relevance for INSPIRE • Policy about eligibility of COVs for inclusion in this federated search or inclusion in existing COVs such as GEMET • Report: Potential business cases for COV within INSPIRE • Workshop or talks at the INSPIRE conference to address this issue
Timeline	<ul style="list-style-type: none"> • Tele/web conferences (start in March 2014) • Physical meeting of this action (proposal: before INSPIRE conference or early autumn 2014?) • Workshop at INSPIRE conference 2014?
Required Resources	<ul style="list-style-type: none"> • MIG and PoE experts • Reimbursement physical meeting participants (8 - 12) • Technology – further GEMET development, proof of concept of a federated search across COVs (EEA, ?)
Possible funding	<ul style="list-style-type: none"> • TBD

3.14 MIWP-20: Improved guidelines for harmonised layer names

Title	Improved guidelines for harmonised layer names
ID	MIWP-20
Status	Proposed
Issue	<p>The rules defining harmonized names and titles of layers are difficult to implement. Examples of difficulties include:</p> <ul style="list-style-type: none"> - layers corresponding to generic UML concepts such as EF.EnvironmentMonitoringFacilities - layers corresponding to different versions in time of a data set - layers corresponding to different scales of representation - layers produced in different organizational contexts
Proposed change or action	<p>In France, several proposals have already been developed to solve these difficulties. For example, the name of the layers could start by the proposed harmonized name but the rest of the name could be free.</p> <p>Common solution to these difficulties should be developed.</p>
Links	<ul style="list-style-type: none"> • MIWP-13: Theme specific issues on data specifications • MIWP-14: Theme specific issues of data specifications & exchange of implementation experiences in thematic domains
Organisational set-up	Establish a MIG sub-group to address the issue.
Lead	FR
Outcomes	<ul style="list-style-type: none"> • Change proposals for updating the data specifications – Technical Guidelines
Timeline	TBD
Required Resources	<ul style="list-style-type: none"> • MIG and PoE experts
Possible funding	TBD

4 Completed Actions

4.1 MIWP-10: Update Annex I data specifications

Title	Update Annex I data specifications
ID	MIWP-10
Status	Endorsed, completed
Issue	The Annex I data specifications and corresponding XML schemas do not yet reflect the changes to candidate types and placeholders and the additional data models introduced in the Annex II+III amendment of the IRs. Also, they still use the old document template, which is not consistent with the one used for the Annex II+III data specifications and do not include an ATS.
Proposed change or action	Update the Annex I data specifications and corresponding XML schemas to take into account the changes to candidate types and placeholders and the additional data models introduced in the Annex II+III IR amendment and to make them consistent with the common document template used also for the Annex II+III data specifications (including the ATS).
Links	
Organisational set-up	<ul style="list-style-type: none"> • Draft update of data specifications and schemas by JRC • Review by MIG • Publication of updated DS and schemas
Lead	JRC (Vanda Nunes de Lima, Michael Lutz)
Outcomes	Updated Annex I specifications and XML schemas
Timeline	<ul style="list-style-type: none"> • Release candidate versions to be reviewed by MIG by end 2013 • Publication of revised documents and schemas in early 2014
Required Resources	<ul style="list-style-type: none"> • Editors
Possible funding	<ul style="list-style-type: none"> • ARE3NA • JRC institutional / competitive budget

4.2 MIWP-18a Annex I xml schema updates

Title	Annex I xml schema updates
ID	MIWP-18a
Status	Endorsed, completed
Issue	<p>In the amendment of the Implementing Rules and the corresponding updated versions of the data specification Technical Guidelines, a number of changes have been introduced to the Annex I data models (for details, see Annex II of Commission Regulation (EU) No 1253/2013 and the updated data specifications), namely:</p> <ol style="list-style-type: none"> 1. Some candidate types and placeholders and the references to them have been removed (since they have been replaced by other types in the Annex II+III themes). 2. Some candidate types and placeholders have been re-included in the Physical Waters package in the Hydrography theme 3. Some references have been updated to types in Annex II+III themes 4. Some additional sub-types of HydroObject have been created in the Sea Regions theme 5. An additional data model has been developed for Maritime Units. 6. One minor change of a geometry type (from GM_Surface to GM_MultiSurface) has been made in the candidate type Shore. <p>As a consequence, some of the Annex I xml schemas need to be updated to reflect these changes. If possible, any data sets that have already been created according to the current schemas (v3.0) should also be valid according to the updated schemas (or could be made valid by only changing a namespace).</p> <p>Furthermore, there is also a need to discuss, whether, when and how the updated encoding rules (that have been used for the Annex II+III schemas) are applied to the Annex I schemas.</p>
Proposed change or action	<ul style="list-style-type: none"> • Propose updates to XML schemas for Annex I to make them consistent with the amended IRs • Propose a roadmap for applying the new encoding rules to the Annex I schemas
Links	<ul style="list-style-type: none"> • MIWP-11: Simplification and clarification of GML encoding for spatial data • MIWP-12: Clarification of UML-to-GML encoding rules • MIWP-18b XML schema maintenance
Organisational set-up	<ul style="list-style-type: none"> • Discuss issues in a workshop • JRC to propose updates to Annex I schemas and publish them after consultation
Lead	Christine Giger (CH/LI) / Michael Lutz (JRC)
Outcomes	<ul style="list-style-type: none"> • Updated XML schemas for Annex I
Timeline	The Annex I schemas should be updated as soon as possible to make them consistent with the amended IRs, but the timeline for updating data and implementations needs to be clearly communicated. There is also a need for testing and demonstrating that proposed changes do work, showing the benefits of the new version before version approval.
Required Resources	<ul style="list-style-type: none"> • MIG and PoE experts • Reimbursement physical meeting participants (around 10)
Possible funding	<ul style="list-style-type: none"> • JRC institutional / competitive budget • MS funding