



Data, Information and Process Integration  
with Semantic Web Services

## **DIP**

*Data, Information and Process Integration with Semantic Web Services*

**FP6 - 507483**

Deliverable

### **D7.3**

## **DIP Standardization Strategy**

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## **EXECUTIVE SUMMARY**

This document describes a strategy for standardization activities from DIP research undertaken particularly throughout work packages 1 to 6 and 8 to 10. It has been extended with a recommendation for a combined SDK Cluster strategy – considering the EU FP6 Integrated Projects (IPs) of DIP and SEKT (see <http://sekt.semanticweb.org/>) with a related EU FP6 Network of Excellence (NoE) KnowledgeWeb.

This document is tightly coupled to DIP deliverable D7.4 “Standardization Impact Analysis Update” that will be delivered in December 2004 but also updated on a regular basis internally throughout the course of DIP. Therefore some sections of this document address a proposed standardization group evaluation process and the internal processes required to coordinate the proposed standardization engagements.

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## 1 INTRODUCTION

This document will address the process of developing a standardization strategy for the DIP (see <http://dip.semanticweb.org/>) project from 2 perspectives:

1. an organizational approach; and
2. a proposed initial “standardization watch” process for work package 7 to adopt as an active process for the overall DIP project, and deliver initially through deliverable D7.4 (in month 12).

If these perspectives are accepted by the DIP TPMB (Technical Project Management Board) then it is proposed that the coordinators of the SDK Cluster projects of SEKT (Semantically-Enabled Knowledge Technologies – see <http://sekt.semanticweb.org/>) and KnowledgeWeb (see <http://knowledgeweb.semanticweb.org/>) be approached for negotiation for the formalization of a unified SDK Cluster approach.

## 2 AN ORGANIZATIONAL PERSPECTIVE

The organizational perspective will address 2 areas:

1. an internal DIP organizational perspective; and
2. a proposal for the combination, coordination and synchronization of standardization efforts across the SDK Cluster projects – SEKT & KnowledgeWeb.

Although coordination and synchronization is an ideal approach for the building of synergies between projects in a similar topic area it is not seen as the only mechanism for gaining synergistic benefit. Similar (although informal) benefits can be gained through the connection of project ‘*thought leaders*’ for development of many conference workshops and tutorials that can be the ‘test bed’ for mature standardization efforts and provide a high profile for the dissemination of project results throughout Europe and internationally.

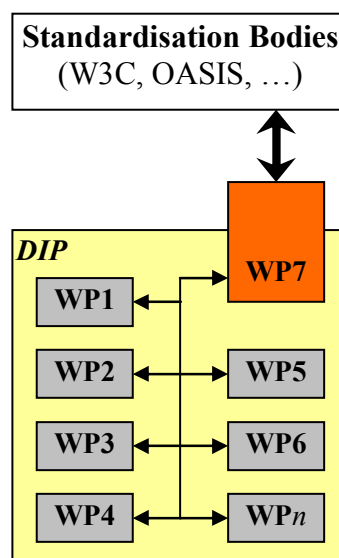


Figure 1: Coordination of DIP Standardization Efforts through DIP Work Package 7

## 2.1 DIP Internal

Implicitly the DIP Description of Work (DoW) described the accumulation and coordination of standardization activities in work package 7 (See *Figure 1*).

This implicit positioning of work package 7 in the DIP project does not in itself provide the scope required for the implementation of an active process for standardization impact. Therefore the activities designed in section 3 are proposed as necessary to achieve more formal coordination.

## 2.2 SDK Cluster Proposal

The Standardization Strategy described in this deliverable is intended to be a basis for DIP activities involving the coordination of standardization group evaluation, impact analysis and engagement approaches, but can also be made a common activity for the mutual benefit of all SDK Cluster projects (see *Figure 2*). However the dissemination of standardization analyses, agreement on suitable standardization strategies and the development of content proposals must be undertaken internally with the express mandate of each project's technical project management board (shown in *Figure 2* as TPMB – but the instrument may vary between the projects), and then communicated into the SDK Cluster activity for coordination.

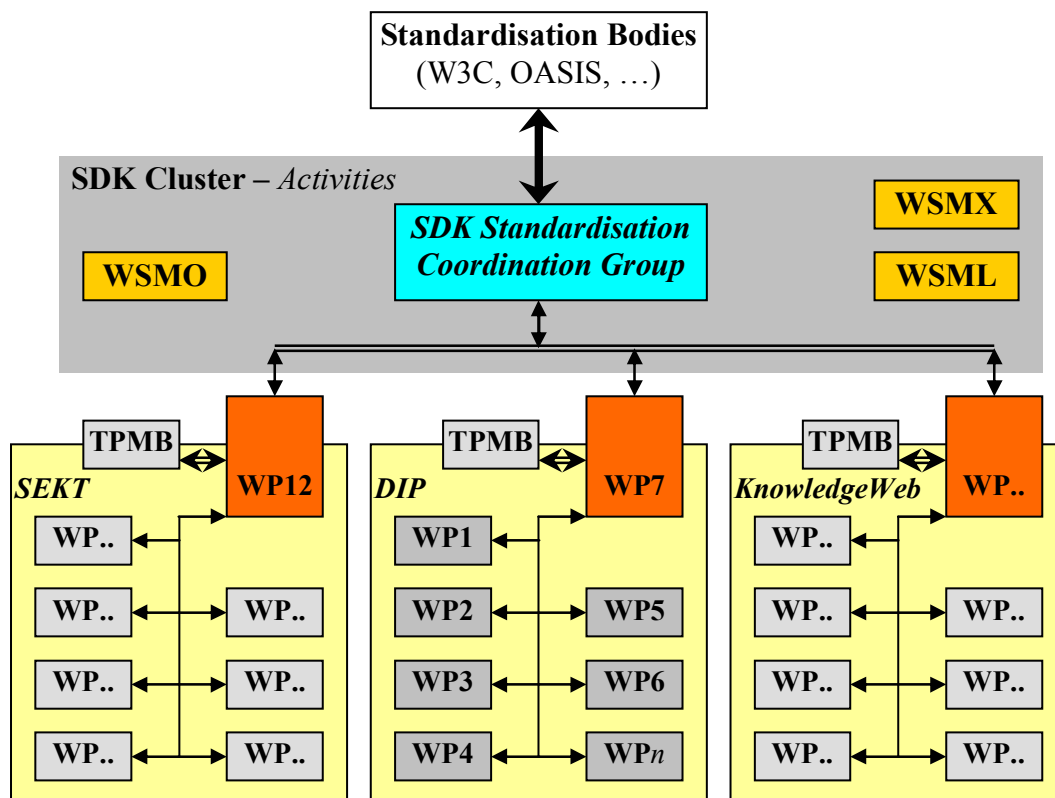


Figure 2: Coordination of Common SDK Cluster project Activities

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This is not the first activity to be established for such a common goal – the following research activities have already been established and are highly active:

- semantic web service architecture (WSMO – Web Service Modelling Ontology);
- semantically enriched web service orchestration execution environment (WSMX – Web Service Model Execution); and
- language formats for the semantic enrichment of web service interfaces (WSML – Web Service Modelling Language).

Initially, the following issues and suggestions have been identified for resolution by the SDK Standardization Coordination Group upon formation:

- Group leadership
  - A revolving leadership is suggested for each year to ensure each project of the SDK Cluster is given a focus opportunity.
- Membership
  - Partners with existing project resources should be encouraged to apply allocated resources for the benefit of the SDK Cluster.
- Existing Standardization Group Membership
  - Many industrial and research organizations within the SDK Cluster are members of various standardization groups. It is suggested that these existing activities are only enhanced through SDK Cluster identifiable results where necessary and do not require the expansion of current activities that may require additional funding or staffing.

### 3 STANDARDIZATION ANALYSIS ACTIVITIES

Figure 3 shows a process for the refinement of interaction activities with standardization bodies and their RPFs (requests for proposal), WG (working groups) and/or any relevant open activity (depending on each organization's process) against the specifically identifiable DIP work package results.

#### 3.1 Standardization Group Analysis

In this area there are 3 main elements to analyze:

1. the description and categorization of each standardization group;
2. the analysis of the impact currently being generated by a standardization group;
3. current and future Requests for Proposal (RFP)

For the analysis of each standardization group a consistent approach needs to be adopted that would support the highlighting of the following differences:

1. membership
  - a. active members – also highlight what members are mainly interested in 'driving'
  - b. passive members – where membership is either for:

1. status quo;
  2. building an understanding from the other members; or
  3. the neutralization of the intellectual property developed
2. scope of the standardization group
  - a. what are the main objectives – considering the scope for impact, e.g., focusing upon American or European only interests, or providing a global or local impact
  - b. is the group perceived by the market as the owner of objectives identified, e.g., referenced by industrial journals and conferences as an authority
  - c. are other standardization group alliances / liaisons identified that strengthen (or threaten) the group’s position

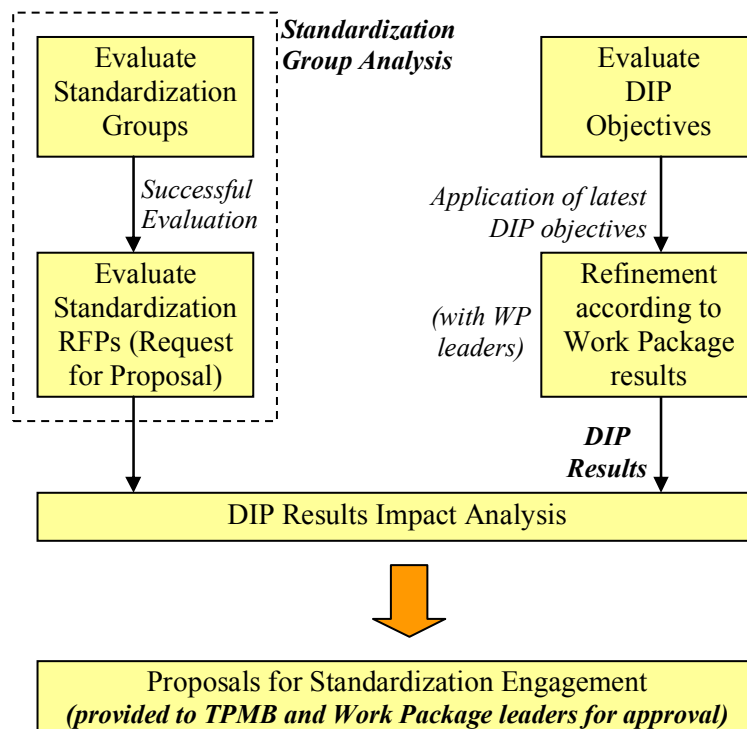


Figure 3: Process for the Evaluation of Standardization Bodies & Appropriate DIP Impact

3. group processes & timeliness
  - a. are the processes defined well so that resource commitments can be easily specified and managed
  - b. is the process of harmonizing proposal inputs effective from the point of view of keeping the intensions of the inputs and keeping the participants actively involved
  - c. are efforts developed and complemented in an effective manner – coinciding with other standardization dissemination events (conferences,

- 
- etc). Also, are the DIP results going to be timely for the standardization input call?
- d. what is the level of focus dedicated to activities so that they are seen as highly effective and acknowledged as generating true impact – i.e., some standardization groups drop proposals with inactivity or non-agreement and are subsequently seen as ineffective by the market. (This could be analyzed in a quantitative manner through counting the number of successfully completed activities over the unsuccessful ones.)
4. standardization group impact
    - a. market acknowledgement
    - b. market adoption
    - c. number of competitive implementations, and what are their individual focus
    - d. research and development projects that utilize the standard as a basis
    - e. analysis of the similarity to existing and planned DIP results should be undertaken to determine if a unique project achievement can be attained
    - f. analysis of the suitability of a standardization group for the presentation of a unique DIP results should also be undertaken
  5. overall a SWOT analysis (strengths, weaknesses, opportunities & threats) should be provided that may include many of the elements above so that a more complete picture can be provided – particularly useful as background analysis when presenting to either the DIP TPMB or other SDK Cluster activities

To analyze the Requests for Proposals (RFP) (the second sub-process in the Standardization Group Analysis activity) the following should be continuously considered:

1. timing of proposals to be compared with DIP activities (overlaps should also be explored if the SDK Cluster proposal was accepted)
2. scope of the requests and the mapping of these on to DIP results
3. other anticipated submissions that may strengthen or threaten a DIP (or SDK Cluster) submission

After analyzing both the standardization group and the RFP activities this information can be used for the dissemination of currently planned DIP results and also for the customization of some of the planned efforts – ideally a standardization group may decide to take leadership from such a diverse project as DIP (or the SDK Cluster) and thus allowing more scope for the open presentation of results.

### 3.2 Cataloging DIP Results

To be able to effectively consider the range of impact that is possible from the DIP work package research a catalog of the research results needs to be collected at each 6 month project milestone (particularly around the submission of deliverables). The following information is deemed required for such as inventory process:

1. work package number
2. deliverable the research result may have contributed to
3. partners involved – main contributor and people involved in the refinement of the idea
4. description of the applicability of the result, e.g., advancing web service protocols
5. identification of any IPR activities being undertaken

This catalog may also be considered for the identification of further topics as well as clearly articulating to the European Commission the project results developed.

### 3.3 DIP Results Impact Analysis

This part of the process is the result of combining the Standardization Group Analysis with the catalog of DIP results. By prioritizing the Standardization Group Analysis in terms of the subjective classification of ‘importance’ this analysis area can focus the efforts and provide a continuum of resources required so that decisions can be made in the DIP TPMB regarding the levels of commitment obtainable from each of the work package activities – according to the level of partner resource (i.e., man / person month) commitments.

### 3.4 Proposals for Standardization Engagement

After the DIP Results Impact Analysis has been completed proposals will be made for DIP TPMB consideration. These proposals will consider the following:

1. timeliness of a standardization activity – ‘hot’ opportunities in standardization groups
2. perceived importance of a DIP result
3. amount of resourcing (man / person months) available in work packages for additional partner commitments. Consideration will have to be made towards each partners remaining resource commitments.

After the proposals have been presented to the DIP TPMB for consideration only a status is received in conclusion – accepted or rejected. When a proposal is accepted the proposal (and relevant analysis background) is provided to the work package leader for implementation and subsequent reporting back to the DIP TPMB as to the future status of each proposal.

#### **4 PROPOSALS FOR STANDARDIZATION ANALYSIS**

The following broad areas have been identified for regular standardization impact analysis:

1. web service connectivity standardization groups – an initial analysis of emerging web service standards has been undertaken in DIP deliverable D7.1 (delivered in month 6 also)
  - e.g., such an interaction may provide enhancements for potential URI ‘hooks’ for the inclusion of ontological elements within current (or emerging) web service standards.
2. semantic web activities, e.g., W3C and DAML
  - extension and refinement of the semantic web community
3. domain (industrial) expertise forums, e.g., WS-Interoperability, Supply-Chain Management industry activities, ...

#### **5 CONCLUSION**

This deliverable presents a strategic standardization approach for the DIP project that allows the engagement of research resources in a focused manner. Some guidance towards the deliverable D7.4 has been presented, however the requirements and methods will be further defined in the DIP work package 7 group.