

1 **Proposal for CEN/ISSS Workshop Project within ISSS/WS-**
2 **EC/99/055 on E-Commerce Integration Meta-Framework**
3 **(ECIMF)**

4
5 CEN/ISSS/WS-EC/ECIMF

6
7 Draft, version 1.3
8 April 25, 2001
9

10
11
12 **1. Purpose and Project proposers**

13
14 WebGiro AB, and Nada/CID at the Royal Institute of Technology in Stockholm,
15 Sweden, supported by associated partners Hewlett-Packard, Microsoft and MCI
16 WorldCom have proposed CEN/ISSS to start a workshop project within Electronic
17 Commerce Workshop, regarding a standardized meta-framework for describing and
18 aligning various aspects of already existing e-commerce frameworks, with the aim of
19 increasing their interoperability, end-to-end Quality of Service (QoS) and to lower the
20 barriers for wide-spread adoption of electronic commerce. The parties will within their
21 business environments support and implement the result on a global basis starting in
22 the EU-countries.
23

24 The proposal for this Workshop project is made in the context of the dialogue with the
25 IT-Industry partners and e-commerce users regarding the exploding demand for
26 Quality of Service in this area. Several initiatives have been taken to open the
27 interoperability between various systems and service providers. Due to the identified
28 additional needs WebGiro AB and associated partners are now proposing this
29 initiative according to the following Workshop Project Objectives.
30

31 **2. Project Objectives**

32
33 **2.1. Background and the Problem Statement**

34 There have been many standardization activities in the area of e-commerce
35 communication. The standard bodies and industry groups in multi-national levels
36 have been promoting several standards. Some of these, with long-standing
37 tradition (like EDI variants), have gained significant acceptance, especially among
38 large industry players. However, these standards are often criticized for their
39 complexity, high implementation cost, multitude of local variants, and extensive
40 demand for expertise knowledge. Other frameworks for electronic commerce,
41 defined more recently in the Internet age, try to avoid those mistakes, and they
42 also have seen some acceptance in selected industry sectors (RosettaNet, OBI,
43 cXML, xCBL, upcoming ebXML ...).

1
2 However, the proliferation of mutually incompatible standards and models for
3 conducting e-commerce resulted in even more increased demand for
4 interoperability and expert knowledge, as business parties trying to adopt some of
5 these frameworks discover that their choice doesn't offer them as much
6 interoperability as one would expect from "standards-based" solution. So, overall,
7 the isolated efforts of industry groups and standard bodies created quite the
8 adverse effect from what was intended, when it comes to wide acceptance of
9 electronic commerce, especially in the SME market.

10
11 These issues slow down the spreading of e-commerce applications, and for this
12 reason the industry is looking for methods to meet the exploding demand in the
13 "new economy" to offer increased QoS, reduction of manual labor and cost, and
14 to meet the requirements of nearly real-time reaction to changing market
15 demands. At the same time the industry is aware that existing e-commerce
16 frameworks require costly adjustments in order to fit their business model to that
17 of specific frameworks, with the perspective that similar costs will follow if the
18 business player wants to participate in other frameworks as well.

19 20 **2.2. E-Commerce Integration Meta-Framework scope**

21 In response to these concerns from the industry, WebGiro AB together with its
22 partners, and in cooperation with Nada/CID, submits this initial proposal for an E-
23 Commerce Integration Meta-Framework (ECIMF):

24
25 ***A meta-framework, which offers a modeling language,
26 methodology, and prototype tools for all e-commerce users
27 to achieve secure interoperability of the service regardless
28 of system platforms and without major adjustments of
29 existing systems.***

30
31 The main purpose of this meta-framework is to facilitate the
32 interoperability by mapping the concepts and contexts between different
33 existing e-commerce frameworks, across multiple architectural layers. An
34 important premise for this project proposal is the following definition of
35 interoperability:

36
37 ***The interoperability, as seen from the business point of
38 view, takes place when the business effects for the two
39 involved enterprises are the same as if each of them
40 conducted a given business process with a partner using
41 the same e-commerce framework.***

42
43 As a consequence of this premise, the project proposes using a top-down
44 approach to the comparative analysis of the e-commerce frameworks, which
45 starts from the business process level. The project should also reuse the
46 experiences of other projects in the area of Business Process analysis and
47 modeling.
48

2.3. Benefits

The development and adoption of the ECIMF standard should benefit especially the following groups:

- SME market:
The small companies no longer will be forced to restructure at all costs their internal systems in order to conform to whatever framework their bigger partners have. The interoperability bridges that conform to ECIMF will allow them to do it gradually, based on the economic principles, while at the same time allowing them to participate in the e-commerce. This should result in more SME-s joining the e-market, even though their internal economy systems may not yet follow any standard e-commerce framework.
- System integrators:
The system integrators will be able to use a consistent methodology, and a precise framework for defining the integration bridges. The results of their work can be implemented on various conforming platforms, no longer locking them (and their customers) into a single proprietary tool. The overall cost for the implementing the integration solution, its maintenance and amount of manual labor will be reduced.
- Software vendors:
The software vendors will be able to offer competitive integration products that conform to the standard framework. This means that their products will be more attractive to the customers, who are more likely to choose a solution that guarantees them certain level of independence. At the same time though, the conformance to ECIMF should allow software vendors to offer clearly understood added values, which are now very often misunderstood because of the difficulty in comparing proprietary methodologies.

2.4. Relationship to various global e-commerce frameworks

The aim of the ECIMF project is not to propose yet another e-commerce framework. We recognize the efforts of various standardization bodies and industry groups to provide global solutions in this area (e.g. ebXML[1], RosettaNet, xCBL, OAGIS framework, Hewlett-Packard's e-Speak[2], Microsoft's BizTalk[3]), as well as other projects offering tailored solutions for specific market or industry sector.

The ECIMF project does not compete with any of these frameworks. We welcome and look forward to cooperate with their representatives in order to enhance the results of this project. The need that the ECIMF wants to address is the interoperability between these frameworks, especially for the transitory periods in SME environment (economic and manpower limitations), which are required for adoption of any of the frameworks.

1 In our opinion at least two factors will continue to adversely affect the wide-spread
2 adoption of e-commerce: one is the fact that quite a few businesses already made
3 commitments to some of the existing frameworks, in terms of internal expertise,
4 investments, partnerships, and adjustments to the technology and models for
5 business interaction imposed by these frameworks. This situation is combined
6 with the current approach to system integration, which very often locks up the
7 companies to specific system integrator and specific proprietary solutions.

8
9 The other limiting factor is that extensive knowledge and experience is still
10 required to adequately understand the differences between the frameworks, and
11 even more to implement some level of interoperability – both between the e-
12 commerce frameworks themselves, and between legacy systems and any given
13 framework. Also, though more and more modern frameworks use UML to
14 describe parts of their models, there is no general meta-framework that would
15 allow comparing them in a meaningful way, not to mention the fact that many
16 frameworks are defined using imprecise, natural language descriptions.

17
18 It's worth noting a fact that is often overlooked: the differences between e-
19 commerce frameworks are much deeper than just differences in their protocols,
20 scenarios and data formats. There is a need for a unified methodology to
21 compare and align also the semantics of basic building blocks in order to properly
22 understand these differences.

23
24 The development of the ECIMF standard will build on the experiences from
25 projects such as ebXML [1] (specifically BP, CC, CPA), UN/CEFACT Unified
26 Modeling Methodology (TMWG-N090R9), eCo framework [4] (and its
27 implementation in e-Speak [2]), RosettaNet [5], BizTalk [3] (and BizTalk Server
28 tools), OMG's Model Driven Architecture, and others in order to provide a
29 sufficiently broad and general model for alignment between the frameworks.

30
31 Consequently, we see the ECIMF project as a complementary and necessary part
32 of e-commerce adoption, reducing the cost and amount of labor required to adopt
33 any e-commerce framework.

34 35 **3. Project Details**

36 See Annex 1 for the detailed description of the project scope and the proposed
37 methodology.

38
39 The following list shortly describes the scope for the ECIMF definitions:

- 40
41 • **Meta-framework modeling methodology** – an approach to model the
42 interactions and transformations required for mapping between different e-
43 commerce frameworks:
 - 44 • Top-down analysis, based on the business process integration
 - 45 • Multi-layered modeling approach
 - 46 • Calibration of concepts within corresponding contexts

1 This part of the project requires close collaboration with the experts in order to
 2 reuse as much as possible the experiences collected by groups like ebXML,
 3 RosettaNet, OAG, EDI community and others.

- 4
- 5 • **Meta-framework modeling language** – a precise notation to describe the
 6 concepts of the e-commerce frameworks, the contexts in which they occur and
 7 interact, and the required transformations between them:
 - 8 • Semantics of the base building blocks (actors, messages, transactions),
 9 data models
 - 10 • Scenarios for message exchange (business processes)
 - 11 • Access to external resources (URLs, directories, catalogues, databases,
 12 etc...)
 - 13 • Messaging models
 - 14 • Security models and services, as far as they affect the business process
 15 and interoperability on the technical level
 - 16 • Transport protocols
 - 17 • etc.

18 For the business process modeling we suggest substantial reuse of the results of
 19 ebXML BP work, with additions of the modeling notation and language to express
 20 the transformations between the business processes on different layers.

- 21
- 22 • **Proof of Concept** – the project will aim to provide a Proof of Concept
 23 implementation of the tool-chain needed for realization of the proposed
 24 methodology, demonstrating the interoperability between some concrete e-
 25 commerce frameworks. The tools developed by the project will be published
 26 under Open Source license, freely available for both private and commercial use.

27

28 **4. Project Deliverables and Timescales**

29 The timeframe for this project is set up initially to be 18 months. The manpower
 30 allocated to this project will be at least as follows (expressed in percentage of time
 31 involvement times number of people):

- 32 • WebGiro: 1 person, 50%
- 33 • KTH: 2 persons, 25% each
- 34 • HP: 1 person, 50%
- 35 • Microsoft: 1 person, 50%

36

37 Additionally, in later stages of the project, we intend to find enough interest for the
 38 proof of concept implementation of the ECIML-compliant agent from our industry
 39 partners to allocate additional programming resources.

40

41 We invite other workshop members, groups and industry representatives to
 42 contribute their resources to broaden the scope of the project. The choice of
 43 particular topics for proof-of-concept activities results from the limitations of the
 44 resources, and the need to provide useful results in a limited time.

45

46 Assuming the above resources, the planned deliverables will consist of the
 47 following:

48

1 • **General ECIMF methodology (ECIMF-GM):**

2 A document (CWA) describing in detail the multi-layered approach, and the
 3 specification of the ECIMF methodology (notation and use). This part will result
 4 from the discussions on the general methodology on how to approach the
 5 business process integration. The intention is to keep this part vendor- and
 6 tool-independent. Depending on the involvement of the project members, this
 7 document can have a value of either general guidelines, or formalized
 8 methodology. Our aim is to provide the latter.

9
 10 • **ECIMF technical specifications (ECIMF-TS):**

11 A document (CWA) containing the formal technical specification for the
 12 serialized form for the models (i.e. the ECIML specification), and a Proof of
 13 Concept (example mapping between BizTalk and e-Speak). This part may
 14 include additional examples of mapping, depending on the contributed
 15 resources.

16
 17 • **The reference tools (ECIMF-RT):**

18 These tools include the ECIMF Navigator based on the Conzilla for conceptual
 19 navigation and calibration, integrated with a ManifestFactory implementation in
 20 order to produce the MANIFEST recipes based on the model. If the timeframe
 21 and the resources available will be sufficient, a basic ECIML-compliant agent
 22 implementation will be created to support the Proof of Concept mapping.

23
 24 The following milestones are planned for delivering the results:

25
 26 **4.1. Initial Proof of Concept (POC) for the approach**

27 Deliverables:

- 28 • Reformulate and elaborate on the FAM CWA material in order to show how
 29 Conzilla tool can provide structured and contextualized added value to a
 30 textual description.
- 31 • Provide an initial description of the methodology for comparing the e-
 32 commerce frameworks (this will form the draft of ECIMF-GM document).
- 33 • Prepare a simple example of mapping the differences between two e-
 34 commerce frameworks (e.g. BizTalk and e-Speak), using the proposed
 35 approach.

36 Timescale: 12 June 2001 (Oslo meeting)

37
 38 **4.2. Initial ECIMF specification and basic integration with Conzilla**

39 Deliverables:

- 40 • Initial version of the ECIMF-GM and ECIMF-TS documents, and models of
 41 a concrete business process in BizTalk and e-Speak.
- 42 • Customization of the Conzilla tool to support the modeling notation
 43 introduced in ECIMF-GM.

44 Timescale: mid-October 2001

45
 46 **4.3. Refined ECIMF specifications and extended tool-chain**

47 Deliverables:

- 1 • Refinement of the ECIMF specifications based on further comparative
- 2 modeling of the selected frameworks (e.g. BizTalk and e-Speak)
- 3 • Extended support for the process in the tool-chain: integration of Conzilla,
- 4 scripting language and the ECIML code generation to form the ECIMF
- 5 Navigator tool.

6 Timescale: 1Q2002

8 **4.4. Further refinements to ECIMF specifications, and a reference**

9 **ECIML-compliant agent implementation**

10 Deliverables:

- 11 • More refined ECIMF specifications, and additions to the tool-chain to
- 12 support the specification.
- 13 • Depending on the support from industry partners, a basic reference
- 14 implementation of the ECIML-compliant server.

15 Timescale: 4Q2002

17 **5. Project resource funding**

18 The project resources, as mentioned in the previous section, are funded primarily by
19 WebGiro. We are also in the discussion with our partners regarding the level of their
20 participation.

21
22 After the project completion, in order to spread the adoption of the developed models
23 and techniques, there will be a need for specific resources to set up and maintain the
24 registry and repository of the MANIFESTs, as well as provide further refinements to
25 the ECIMF. It is yet to be defined how these resources will be funded (e.g. industry
26 group, membership community, already existing or upcoming registries [ebXML,
27 UDDI], ...).

29 **6. External Liaisons**

30 The project team should coordinate its activities with the following projects:

- 31 • CEN/ISSS/EC-WS/Architectures
- 32 • CEN/ISSS/EC-WS/DAMSAD,
- 33 • ebXML,
- 34 • BSR,
- 35 • RosettaNet,
- 36 • CommerceOne,
- 37 • OAG,
- 38 • OMG,
- 39 • others – tbd.

41 **7. Summary**

42 The ECIMF proposal described here is intended as a generic meta-framework
43 modeling approach, which allows the domain experts, system integrators and e-
44 commerce parties to define precisely what is needed for the different frameworks to
45 interoperate. The present situation when multiple conflicting e-commerce models are
46 advertised and to some extent accepted calls for a systematic approach to more and
47 more frequent interoperability and quality of service issues.

1
2 The project deliverables will include the meta-framework definitions, the methodology
3 for analysis and transformation between e-commerce frameworks, and the prototype
4 tools for navigation and alignment.

5
6 We are also aiming at providing an Open Source implementation of the basic
7 functionality for the ECIML-compliant agent (E-Commerce Integration Toolkit –
8 “ECIT”). The full-fledged version of the ECIT can be realized e.g. as an infrastructure
9 service, or as an in-house server for specific organizations or corporations, and may
10 include competitive commercial solutions from the software vendors.

11