Banking Industry Architecture Network

BIAN's Relationship to Other Standards Initiatives: a BIAN Positioning White Paper

Author: BIAN
Version: 1.0
Last Change: September 10, 2009

Banking Industry Architecture Network

Authors

Name	Company
Rares Pateanu	CGI
Colin Kerr	Microsoft
Koen Van den Brande	Temenos
Stephen Lindsay	SWIFT
David S. Frankel	SAP
Joseph M. Bugajski	OMG
Victor Dossey	Microsoft
Oliver Kling	SAP

Members of BIAN

Banks	Software vendors	Service Providers
Credit Suisse	Callatay & Wouters	Axon
Deutsche Bank	FERNBACH	Ifb AG
Deutsche Postbank	Microsoft	IKOR Financials
ING	SAP	innobis AG
Standard Bank of South Africa	SunGard	Steria Mummert
Züricher Kantonalbank	Temenos	SWIFT
	Validata	Syskoplan
		ZEB

© 2010 BIAN e.V. / P.O. Box 16 02 55 / 60065 Frankfurt am Main / Germany

Copyright

© Copyright 2009 by BIAN Association. All rights reserved.

THIS DOCUMENT IS PROVIDED "AS IS," AND THE ASSOCIATION AND ITS MEMBERS, MAKE NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT, OR TITLE; THAT THE CONTENTS OF THIS DOCUMENT ARE SUITABLE FOR ANY PURPOSE; OR THAT THE IMPLEMENTATION OF SUCH CONTENTS WILL NOT INFRINGE ANY PATENTS, COPYRIGHTS, TRADEMARKS OR OTHER RIGHTS.

NEITHER THE ASSOCIATION NOR ITS MEMBERS WILL BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF OR RELATING TO ANY USE OR DISTRIBUTION OF THIS DOCUMENT UNLESS SUCH DAMAGES ARE CAUSED BY WILFUL MISCONDUCT OR GROSS NEGLIGENCE.

THE FOREGOING DISCLAIMER AND LIMITATION ON LIABILITY DO NOT APPLY TO, INVALIDATE, OR LIMIT REPRESENTATIONS AND WARRANTIES MADE BY THE MEMBERS TO THE ASSOCIATION AND OTHER MEMBERS IN CERTAIN WRITTEN POLICIES OF THE ASSOCIATION.

TABLE OF CONTENTS

1 EXECUTIVE SUMMARY 5

2 WHY DOES THE BANKING INDUSTRY NEED STANDARDS? 6

3 THE DIFFERENT STANDARDS NEEDED TO IMPLEMENT AN SOA STRATEGY 7

4 SWIFT AND ISO 20022 8

4.1 ISO 20022 8

4.2 Many Contributors 9

5 THE OMG: MODEL DRIVEN ARCHITECTURE® AND THE FINANCE DOMAIN TASK FORCE 10

5.1 Model-driven architecture and finance standards 10

5.2 The OMG Finance Domain Task Force 10

6 IFX AND ITS FOCUS ON MESSAGING 11

6.1 IFX History 11

6.2 About the IFX standard 11

6.3 IFX and alignment with other standards 11

7 THE ROLE OF BIAN AND ITS FOCUS ON SEMANTIC DEFINITION OF SERVICES 13

7.1 A top-down approach 13

7.2 Multiple views 13

7.3 Exchanging service providers 14

8 HOW BIAN, IFX, OMG, AND SWIFT COMPLEMENT EACH OTHER 15

8.1 Overview 15

8.2 How the model of complementary work is structured 16

8.3 Walking through the model 16

8.4 Conclusion 18

9 A VISION FOR THE FUTURE 19

10 APPENDIX - STANDARDS GROUPS IN THE FINANCE INDUSTRY 20

© 2010 BIAN e.V. / P.O. Box 16 02 55 / 60065 Frankfurt am Main / Germany

1 Executive Summary

Rares Pateanu

Vice President Architecture

CGI

With its formation in late 2008, BIAN sought to create an industry-wide consensus regarding the architecture for banking IT systems that could improve agility and reduce cost. This vision assumes that banks can achieve the flexibility they require by implementing banking IT services that are semantic, standards-based, and interoperable -- whether they are produced in-house or commercially.

To achieve this vision and ensure a practical and effective standards alignment, it was necessary to provide a clear positioning of BIAN's semantic definition for standard banking services. Through close collaboration with various standards bodies, BIAN seeks to establish a context for this definition with respect to other widely used banking standards.

This white paper presents an overview of standards currently used in the banking industry. It positions BIAN standards for the semantic definition of banking services in the existing standards landscape. It also presents a framework for cooperation between SWIFT, IFX, OMG, and BIAN to make standards-based service-oriented architecture (SOA) a reality.

© 2010 BIAN e.V. / P.O. Box 16 02 55 / 60065 Frankfurt am Main / Germany

2 Why does the banking industry need standards?

Colin Kerr

Worldwide Industry Manager Core Banking and Payments

Microsoft

It can be argued that the banking industry has always had standards and that the last thing it needs is more of them.

With the notable exception of standards promoted by the Society for Worldwide Interbank Financial Telecommunication (SWIFT), banking standards employed to date have largely been designed to service transactions related to specific industry bodies -- such as payment associations and clearing houses. These standards have tended to be peripheral to the core business of a bank rather than a model of how a bank could, or should operate. The formation of standards at the transactional level is clearly important to initiatives mandated by the Single Euro Payments Area. However, the primary purpose of standards should be to facilitate the efficient exchange of data -- thereby lowering the risk and cost of change for banks.

Banks face a myriad of internal applications and systems that were developed some 30 to 35 years ago and are now spread across different technology platforms. These systems were often implemented to fill new product needs. Few replaced older systems. Most were integrated in an ad hoc manner, without regard to enterprise architecture. They process banking transactions in very different ways, using different formats and varying levels of support.

Add in the system complexity that results from mergers and acquisitions, as well as different national banking schemes, and it is clear how the IT environment within a financial institution can quickly and easily become unmanageable and, potentially, unreliable. As banks re-engineer their systems for the future, driven by the need to reduce costs and deliver innovative products, they are naturally reluctant to invest in applications built on additional proprietary “standards” that will make the current environment more complex.

Banks thus need a blueprint from which to develop an architecture model for the future. With such a model, they can gradually replace components of the current infrastructure as business cases permit. By abandoning the traditional protectionist view of architecture and developing standards that improve interoperability and reduce costs, banks can significantly improve efficiency.

Although no two banks are the same, the development of industry models and standards for specific banking services can provide the foundational blueprint that banks seek. When these models are adopted by banks and their industry software partners, banks can adopt consistent SOA, across all technology platforms -- whether they build or buy the software components. Banks can gradually replace ageing systems by surrounding their legacy systems with new processes and services from technology providers that support the new architectural models and standards.

According to Robert Hunt, senior research director at TowerGroup, “BIAN represents an opportunity for banks and vendors to develop a standardized approach for migration to a services-oriented architecture. TowerGroup believes that banks can realize significant benefits from both the adoption of banking-industry-specific standards and the creation of best practices for implementing SOA.”

To adapt to a rapidly changing business environment and maintain competitive advantage, banks need increased agility in their application landscape. Leveraging standards via the streamlined integration of systems and processes will help banks develop and maintain their systems more readily and at a much lower cost. The delivery of such standards will thus help the banking industry address cost reduction through greater efficiency and organizational flexibility, while laying the foundation for a more flexible information systems architecture.

© 2010 BIAN e.V. / P.O. Box 16 02 55 / 60065 Frankfurt am Main / Germany

3 The different standards needed to implement an SOA strategy

Koen Van den Brande

Group Strategy and Marketing Director, Temenos

BIAN Lead Big Picture Working Group and Advisor to the Board

While there may be broad consensus that an SOA strategy can help the banking industry modernize its legacy systems in a more gradual, more cost effective, and less risky manner, there is less agreement over how such a strategy can be most effectively implemented.

Even after the industry addresses all questions on standards with respect to infrastructure connectivity, security, discoverability, reliability, and manageability, it must still tackle the issue of integration and interoperability -- which lies at the heart of the SOA value proposition.
In recent years significant progress in information and communications technology has been made by addressing infrastructure standards. SOAP, WSDL are increasingly used to meet SOA infrastructure requirements. The SOA-related, process-driven orchestration of services has yielded a series of modeling standards including BPEL and BPMN.

SWIFT has one of the most established track records for implementing industry-wide standards around financial services. This track record is now properly reflected in SWIFT's stewardship of the International Organization for Standardization (ISO) 20022 financial messages repository of standards. In retail banking, The Interactive Financial eXchange (IFX) Forum has worked for many years to develop a standard for messaging in financial transactions. The Financial Information eXchange (FIX) has done something similar in the world of securities, and the Association for Cooperative Operations Research and Development has established the most widely used messaging standard in the insurance industry.

It could be concluded that the full set of standards required to implement an SOA strategy has been put in place, from modeling tools for a generic deployment infrastructure to domain-specific messaging for ease of integration. Just as the banking industry recognized the potential for collaboration across the Internet as a major opportunity and designed standards to enable businesses to communicate with each other and with consumers, it soon recognized the benefits of service orientation within organizations. Moreover, the problems of integration within an enterprise are often similar to those encountered between different enterprises.

The development of effective standards in the banking industry depends on the interplay between in-house development organizations and the software vendors who seek to shift the spending balance from "build" to "buy". It has been easy enough for a bank to decide on an in-house standard for integration if it uses a build strategy. But once the need to reduce costs from large R&D budgets and benefit from a focus on innovation introduced a buy element into long-term strategies, it became clear that the industry needed consensus on standards addressing integration.

Left to its own devices, the industry would eventually create standards in this environment, resulting in the dominance of a few suppliers. But this could take a long time. Meanwhile, many banks might back one of the emerging standards that does not quite make it.
BIAN adds a new dimension to the world of standards by defining a banking services landscape and helping banks and vendors agree on what the services application building blocks should look like,. In this way, BIAN can identify in precise semantic terms what banks should be capable of doing.
The BIAN service meta-model positions the key standards required for successful implementation of a SOA strategy by describing the context of service definition in terms of:

- Service landscape -- BIAN service definitions
- Technical implementation -- infrastructure standards
- Process -- BPMN
- Use case -- UML
- Message format -- such as SWIFT, IFX, or FIX

© 2010 BIAN e.V. / P.O. Box 16 02 55 / 60065 Frankfurt am Main / Germany

4 SWIFT and ISO 20022

Stephen Lindsay

Senior Technical Product Manager, SWIFT Standards

BIAN Lead Payments Working Group

When SWIFT was founded by a consortium of international banks in 1973, its goal was to automate the Telex. This meant providing a secure network for the exchange of messages between banks as well as standards for the structure, content, and meaning of those messages to make them unambiguous and machine-processable. Although much has changed in the intervening years, secure connectivity and clearly defined message standards remain central to SWIFT's mission.

SWIFT is a cooperative, owned by member shareholders from the financial community. Its mission is to improve efficiency for the industry as a whole, rather than maximize the usage of its network. It is for this reason that over the past ten years, SWIFT has deliberately decoupled its standards activities from its network and other services and worked closely with the de jure international standards setters and, in particular, the ISO -- a worldwide federation of national standards bodies. Financial message definitions published by ISO can be used freely for messaging within or between organizations and over any public or private network. By deploying ISO messages wherever they provide the greatest benefits, the community that paid to develop the standards and invested in their adoption can maximize its return on investment.

4.1 ISO 20022

ISO 20022, the focus of SWIFT's new standards development, is an alignment project in which many groups in the financial sector are participating -- including BIAN, IFX and the Objective Management Group (OMG). It is open to submissions from standardization initiatives across the financial services industry. ISO 20022 was designed from the outset to be a point of convergence for the many standards and standards bodies that have evolved in financial services. It consists of :

- A methodology that can capture standards definitions in a consistent form
- A financial repository that is used to store and publish the definitions
- A catalogue of messages that have been developed according to the methodology and accepted for inclusion by the standard's governing body

The ISO 20022 methodology uses Unified Modeling Language (UML®) to capture definitions for business areas, business transactions, message flows and messages in a form that is independent of any particular implementation technology or syntax. XML design rules specify the way in which UML message definitions are transformed into XML schemas. Other such rules can be added to support other syntaxes. This is an important principle of the ISO 20022 philosophy. It is intended to ensure that content can be captured from the widest range of submitters, irrespective of their preferred deployment technologies.

ISO 20022 recognizes that defining the meaning of the information conveyed in messages is critical to enabling interoperability between often disparate communities of users. The standard requires definitions to be captured at two levels -- the conceptual (or business) level and the logical (or message) level. Definitions at the conceptual level involve concepts and relationships found in the business area under consideration, for example: payment transaction, settlement instruction, financial institution, individual, cash account, account owner, and account servicer.

Each concept definition includes text in English that describes the item in business terms. Definitions at the logical level are restricted to information that needs to be exchanged in messages to process a transaction. The messages refer to definitions in the conceptual layer, from which they gain their meaning. The ISO 20022 financial repository includes definitions from both layers, as well as links between the logical and conceptual levels that make it possible to understand the meaning of a message that conforms to the logical definition.

© 2010 BIAN e.V. / P.O. Box 16 02 55 / 60065 Frankfurt am Main / Germany

4.2 Many Contributors

Of the many organizations that contribute content to ISO 20022, SWIFT remains the largest submitter in terms of the number of definitions. Other standards bodies and market infrastructures that are making contributions include ISTH (an MoU between SWIFT, IFX Forum,TWIST and OAGi), ISITC, FPL, CBI Consortium, CLS, Euroclear, EPAS Consortium, Omgeo, UN/CEFACT/TBG5, GUF, and Deutsche Bundesbank. Despite the number of parties involved, a high degree of consistency is maintained between contributions because the same methodology and repository are used.

SWIFT operates the Registration Authority for ISO 20022, which is tasked with publishing the repository and ensuring that repository items conform to approved specifications. SWIFT does not own the standard, however. The technical standard ("recipe") was prepared by ISO Technical Committee 68 (TC68). TC68 continues to develop the ISO 20022 methodology via working groups of specialists that have been nominated by ISO national standards bodies.

© 2010 BIAN e.V. / P.O. Box 16 02 55 / 60065 Frankfurt am Main / Germany

5 The OMG: Model Driven Architecture® and the Finance Domain Task Force

David S. Frankel

Lead Standards Architect,
Model Driven Systems

SAP Labs

Joseph M. Bugajski

Senior Analyst - Burton Group, Inc.

Chairman, OMG Finance Domain Task Force

OMG defines internationally recognized standards for modeling software and business processes. These standards apply to any business domain and thus are horizontal in their scope. OMG has subgroups, called Domain Task Forces, that leverage its model-driven technology for vertical markets. One such subgroup is OMG's Finance Domain Task Force.

5.1 Model-driven architecture and finance standards

The trademarked name given to OMG's modeling standards is Model-Driven Architecture® (MDA®). UML is the best known MDA standard. It serves as the basis for several financial services industry standards, including ISO 20022.

UML is a modeling language that enables software architects and developers to express complex financial information and systems behavior that is machine readable and easily understood. As Figure 1 illustrates (see below), UML is flexible enough to support modeling for both application to application (A2A) and business to business (B2B) integration as well as for both service-oriented and message-oriented specifications.[1]

Designed to be easily adaptable for specific industries, UML has built-in mechanisms that allow architects to extend it for industrial-scale purposes. A UML Profile is a dialect of UML, and UML is a base language for a family of dialects. Some UML Profiles are proprietary. Some UML Profiles have been standardized by the OMG and some by other standards bodies.

The ISO 20022 core standard, which is successfully supporting alignment among standards bodies across financial sectors, defines a UML Profile. The UML Profile is a key part of the ISO 20022 methodology for specifying financial electronic commerce messages. Financial sectors as diverse as banking, wholesale and retail payments, and trading use this common methodology. (For more about ISO 20022, see the section entitled "SWIFT and ISO 20022" above.)

5.2 The OMG Finance Domain Task Force

The OMG Finance Domain Task Force is in the process of defining a UML Profile, based on ISO 20022, for modeling the mapping of financial messages to one another. The name of the Profile is Model-Driven Message Interoperability (MDMI).

The task force is an active participant in the ISO 20022 alignment project and has a formal liaison relationship with ISO, fielding a delegate who is a member of the expert group responsible for maintaining the ISO 20022 core standard. The OMG's delegate is a co-editor of the new version of ISO 20022 that recently advanced to Committee Draft status.

The task force is also working with the Financial Services Technology Consortium to define standard process models for opening financial accounts. Additionally, the Finance Domain Task Force has liaison relationships with XBRL International, XBRL US, and FIX Protocol.

[1] The OMG's Business Process Modeling Notation (BPMN) standard, which it acquired when BPMI.org merged into the OMG, is gaining traction in industry as a basis for process-oriented specifications.

© 2010 BIAN e.V. / P.O. Box 16 02 55 / 60065 Frankfurt am Main / Germany

6 IFX and its Focus on Messaging

Victor Dossey

Banking Technology Strategist, Microsoft Corporation

Member IFX Board of Directors

The IFX Forum is an international, not-for-profit association. Members come from all sectors of the financial services industry. They represent financial institutions; vendors of hardware, software and services; and related non-profit standards organizations.

The Forum helps address the daunting interoperability challenges in the financial services industry by developing and extending the IFX standard. The result is an interoperable, multi-channel specification focused on the financial messages used for electronic data exchange – both internally and with external partners.

6.1 IFX History

The IFX standard has matured significantly over time. Like many standards organizations, the IFX Forum started by leveraging the work and learning from previous standards efforts -- including EDI, OFX and IBM GOLD. This raised initial standards quality and accelerated the first release of the IFX specification,in 1998 after a period of public review.

Since that time, IFX has matured as the result of the investment of hundreds of person years by industry experts. Many regular releases have since followed -- including the most recent significant release, IFX version 2.0, which is currently in a public review period.

6.2 About the IFX standard

The IFX standard consists of the IFX messaging and communication specification as well as the IFX common object model, which organizes and defines the data elements necessary to support interoperability.

The IFX messaging specification is a request/response messaging protocol designed to support multiple modes of interaction -- including real-time, near-real-time, and batch processes. This messaging specification is built to support a well-defined set of business objects that are contained within the IFX common object model. It defines how objects are created, manipulated, and managed throughout their life cycles.

The messaging specification thus describes the data payload and communications of a message – the intent of the communications -- to produce predictable behaviors. The common object model,defines content and semantics.

Over the past few years a great deal of work has been invested in enhancing the IFX standard and optimizing its fit for SOA implementations. Additionally, a significant effort was made to identify and document common communication and messaging patterns and then create automation capabilities that could readily adapt and extend objects and messages within the framework.

The resulting messaging framework, object model, and automation capabilities of IFX 2.0 optimally position IFX as a valuable participant in an SOA, including the ability to define messages for services of varying granularity.

6.3 IFX and alignment with other standards

While IFX is clearly positioned to add value to any SOA implementation, the IFX Forum is explicit in its role within the standards ecosystem: maintaining a focus on reliable financial messaging independent of

© 2010 BIAN e.V. / P.O. Box 16 02 55 / 60065 Frankfurt am Main / Germany

implementation technologies. IFX does not focus on defining standards for services definitions or on defining an overarching services landscape. These areas are part of the work of BIAN in providing value to an SOA.

Additionally, the IFX Forum maintains a key tenet in its vision, which is to promote interoperability of industry standards by working cooperatively with other standards organizations and consortia. Over the years, IFX has demonstrated its commitment to work with other standards development organizations -- including ANSI X12, the International Standards Harmonization Team (ISTH), and ISO 20022.

IFX's specific focus on messaging standardization, along with its demonstrated contribution to and cooperation with other standards organizations, serves to highlight how standards within the ecosystem provide specific and distinct value. It also demonstrates how the standards can coexist, be combined to derive cumulative value, and alleviate the overall integration and interoperability challenges that face financial services institutions today.

© 2010 BIAN e.V. / P.O. Box 16 02 55 / 60065 Frankfurt am Main / Germany

7 The role of BIAN and its focus on semantic definition of services

Oliver Kling

Solution Architect - SAP

Secretary General of BIAN

The strong dependence of the banking business and its processes on IT and the large benefits IT can present, reveal a major issue: the cost of IT integration. Common estimates state that up to 70% of IT budgets are earmarked for integration. Projects are often stopped before they have started, due to integration costs that can outweigh the projected financial benefits.

This spend is often focused on analysis and cross-mapping systems and their implicit understanding of the banking business. Getting the right “cut” of applications and the implied meaning (semantics) of IT definitions for banking can take experienced business analysts months, or even years, to complete. It is for this reason that a common semantic understanding -- via an alignment of major banking industry players committed to establishing a joint understanding of banking specific semantics -- has been a central focus for BIAN.

7.1 A top-down approach

BIAN concentrates on "internal" (A2A) IT, rather than helping banks communicate with their partners, (B2B). BIAN combines a top-down approach -- the decomposition of banking functional capabilities into self-contained business sub domains -- with the emergent definition of specific services that have a clear functional scope.

BIAN focuses on service-definitions rather than message definitions. Services and the providers of services are far more stable than processes. Banks will frequently change processes for various reasons, but the core capabilities required for running and executing these processes tend to stay the same.

A simple example is the advent of online banking, which did not offer dramatically new capabilities, products, features, or functions to customers but rather provided a new orchestration of existing capabilities. The new capabilities, such as increased security requirements or the behavior of this new channel overall, can be isolated from previously existing product or operational capabilities. Of course, the new channel also generated new business ideas and required new business capabilities. But overall, the impact on a service landscape (if designed properly) would still be manageable.

7.2 Multiple views

Individually defined services are single steps towards realizing this joint understanding, as the services incorporate the right cuts without enforcing a total overhaul of existing solutions and systems. The philosophy behind the BIAN methodology for service definition centers around the idea of multiple views for the service operation.

BIAN believes that the best possible result can be obtained by cross checking these views during service design. The views include:

- A software-related view of functional capabilities (service landscape) that links services with interfaces (technical representation of software)
- A process view to map services to activities and the flow of activities
- A usage view to challenge reuse ideas and define the context
- A message-and-object-modeling view to enforce a concise semantic description of banking terms for the information and date exchanged.

© 2010 BIAN e.V. / P.O. Box 16 02 55 / 60065 Frankfurt am Main / Germany

7.3 Exchanging service providers

One aspect of service orientation is the easy exchange of a service provider. Ultimately such a change can happen on the fly without substantial preparation and effort. In most cases this is currently not possible and might not be desirable from, for example, the unique selling proposition of providers. BIAN is working on deliverables that provide meaningful milestones towards this goal.

The biggest obstacle for reducing integration cost is a missing consensus on semantic meaning.
Imagine an industry that accepts (even if the pareto-rule is applied) one common understanding of core services expressed in a standard service landscape. Integration can then become a 'pick-and-connect' game rather than a nightmare of expensive manual activities. Semantics address the meanings of simple terms as well as cohesive grouping into clusters (business sub-domains) enabling loosely coupled integration via services.

BIAN resolves the overall integration problem and refines the broad view with in-depth investigations and definitions for particular functional scopes that are systematically analyzed and understood. BIAN believes that one cannot isolate the two things from each other. The big picture (service landscape) requires attention and the detailed design (service definitions) feeds back insights that are otherwise not visible. Even if one would like to deliver just the big picture or the detail, it is still necessary to think in both dimensions. One sharpens the other and friction in making things fit unveils design challenges that one needs to overcome.

BIAN has published its first results based around the service landscape, the BIAN meta-model and sub-domain definitions for payments. More results will follow, but early feedback from the market is important to refine future results.

© 2010 BIAN e.V. / P.O. Box 16 02 55 / 60065 Frankfurt am Main / Germany

8 How BIAN, IFX, OMG, and SWIFT Complement Each Other

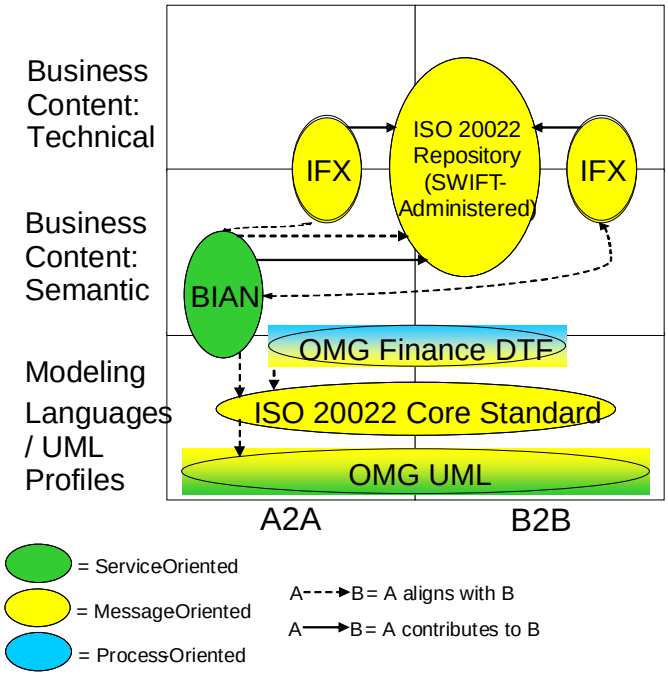
David S. Frankel

Lead Standards Architect,
Model Driven Systems

SAP Labs

The work of BIAN, IFX, OMG, and SWIFT is largely complementary. Figure 1 shows how the work of the different parties fits together, with the remainder of this section dedicated to an explanation of the model.

Figure 1: , IFX, OMG, and SWIFT – From the Banking Viewpoint



8.1 Overview

The model of the complementary positioning of BIAN, IFX, OMG, and SWIFT in Figure 1 highlights the following key points:

- BIAN has a distinct application to application (A2A) focus, which complements the business-to-business (B2B) focus of IFX and SWIFT.
- BIAN's total focus on semantic definitions, to the point that technical definitions are excluded from its official work products, helps to balance other industry efforts that, while not excluding semantics, have historically focused more on technical specifications.
- BIAN, IFX, and the OMG Finance Domain Task Force recognize that the ISO 20022 standard and the SWIFT-administered ISO 20022 Repository are key to keeping standards bodies in the finance sector aligned with one another

© 2010 BIAN e.V. / P.O. Box 16 02 55 / 60065 Frankfurt am Main / Germany

- BIAN is service-oriented, whereas IFX, SWIFT, and ISO 20022 are message-oriented.
- UML is a foundational technology that is heavily used in the financial services industry.

8.2 How the model of complementary work is structured

Modeling languages and UML Profiles
The bottom row of the Figure 1 model represents a specific category of standards – namely modeling languages, including UML Profiles. UML Profiles use UML's built-in customization mechanisms to extend and constrain UML.

From the BIAN perspective, modeling languages provide the means to define business content. Business content includes business data, business services, and business processes.

Business content: semantic vs. technical
The model distinguishes between two kinds of business content. Semantic business content defines the meaning of business data, services, and processes. Technical business content consists of low-level specifications of data, services, and processes. Implementation teams use these specifications to ensure interoperability at the technical level.

A2A vs. B2B
The model's two columns differentiate between standards that address A2A interoperability and standards that address B2B interoperability. A2A interoperability helps application components built by different companies work together within the landscape of a single business. B2B interoperability helps multiple businesses to communicate and collaborate.

The line dividing A2A and B2B is not always fixed. For example, an outsourcing decision can cause what once was an internal communication to become an external communication.

Message
The model uses coloring to distinguish between message-oriented, service-oriented, and process-oriented content and modeling languages.

Some business content is message-oriented, meaning that the content consists of message definitions. Messages definitions define data payloads that travel from application to application or from business to business. The Figure 1 model differentiates between a semantic definition of a message, a low level technical format for a message, and a modeling language for defining messages.

Service-oriented business content consists of service definitions. Service content is, in a sense, a superset of message content, because a service definition specifies the messages that the service caller sends to the service provider as input, as well as messages that the service provider returns to the caller as output.

Process-oriented content consists of business process definitions. Technical business process definitions include low-level information about how the various steps of a business process can be executed by implementation machinery, which is not a concern in a semantic business process model.

8.3 Walking through the model

With this understanding of the framework for the Figure 1 model, we can now discuss how the model positions the work of BIAN with respect to IFX, OMG, and SWIFT.

Distinctive
BIAN focuses on A2A interoperability, having decided that the first step toward improving agility in the banking industry is to promote interoperability among banks' internal application components, whether the components are supplied by different vendors or by in-house development teams. IFX, OMG, and SWIFT do not have this specific A2A focus:

- IFX supports channel-independent messaging, making it viable for quite a variety of communication channels. For example, it is currently in use as part of home banking applications (client to bank), ATM (ATM to switch to bank), Branch Banking (client to server within a bank) and Enterprise Application Integration (EAI) message hubs (A2A).

© 2010 BIAN e.V. / P.O. Box 16 02 55 / 60065 Frankfurt am Main / Germany

- IFX focuses primarily on B2B interoperability across the financial supply chain.
- The ISO 20022 core standard, which includes a UML Profile that defines business content, is not inherently biased toward either A2A or B2B. However, most, if not all, of the business content that has been submitted to the ISO 20022 repository addresses B2B interoperability.
- There is no focus on either A2A or B2B per se in either the OMG's UML or the OMG Finance Domain Task Force's work to define a UML Profile for mapping messages to one another. These are capable of supporting both.

Focus on Semantic Definitions

BIAN focuses on defining semantic business content, to the exclusion of technical business content. This approach is based on the realization that the greatest unmet challenge to interoperability is lack of agreement on semantics, with technical interoperability being a smaller (though vital) component of the overall interoperability equation.

IFX and SWIFT do not exclude semantics, but they spend a good deal of their energy on low level technical standards. IFX is one of the most active contributors to the ISO 20022 repository. Its contributions are mainly technical message definitions, although SWIFT assists IFX in extracting some semantic content from the technical content. Both the technical and semantic content enter the repository.

The OMG's UML supports the definition of semantic business content to some extent. The ISO 20022 core standard's UML Profile is in the process of being updated to better enable the definition of semantic content. BIAN is tracking these updates and plans to stay in synch with them. BIAN intends to reuse semantic content from the ISO 20022 repository and will define and contribute such content when it is not already available in the repository.

Service orientation

Since BIAN's work is service-oriented and ISO 20022 is message-oriented, the ISO 20022 core standard's UML Profile is necessary but not sufficient for BIAN. BIAN is defining a UML Profile that builds on the ISO 20022 UML Profile. It leverages the ISO 20022 UML Profile's support for defining messages, but makes incremental extensions to support service-orientation. UML is inherently capable of basic service and message modeling, but needs customization for industrial-scale SOA.[2]

BIAN can contribute message-oriented content to the ISO 20022 repository, but the ISO 20022 core standard does not provide the administrator of the repository (SWIFT) with an explicit mechanism for processing the contribution of service-oriented content. However, the reports that accompany all submissions of message content to the repository could arguably include explanations of how BIAN services use the message content.

IFX is message-oriented. It defines a single service that can be used to send any IFX message, but that is not (and was not meant to be) true service-orientation. BIAN services could potentially align with the semantics of IFX messages where there is overlap between the message data required for A2A and B2B purposes. Conversely, IFX could potentially align its technical message definitions with the semantic message definitions that BIAN defines and contributes to the ISO 20022 repository.

The OMG owns the SOA Consortium, which promotes SOA. The SOA Consortium is not a standards body, and it is not focused on the banking industry. But it produces events and materials that BIAN should find helpful for advancing SOA in the banking industry.

The OMG Finance Domain Task Force is defining semantic process models for account opening.[3] This semantic content is intended to be a normative standard. Because BIAN defines process models only to illustrate known uses of the services it specifies, its process models are non-normative. In that sense, BIAN stays focused on its service-oriented mission and promotes the reuse of its semantic service definitions in multiple processes.

[2] The OMG is in the process of promulgating a UML Profile called SOAml, which extends UML's basic service-modeling capabilities. SOAml is not based on ISO 20022, which is an issue for BIAN, but it may be possible for BIAN to leverage SOAml to some extent. SOAml was designed for broad industry use and is not specifically targeted to the finance sector.

[3] Although this work started out using UML, OMG is positioning its Business Process Modeling Notation (BPMN) as the language of choice for business process modeling.

© 2010 BIAN e.V. / P.O. Box 16 02 55 / 60065 Frankfurt am Main / Germany

8.4 Conclusion

BIAN, IFX, OMG, and SWIFT are pursuing paths that are quite complementary. All are committed to participating in the ISO 20022 alignment project. Ongoing communication among the organizations will minimize potential, since each organization plays a distinct role in the financial services industry.

© 2010 BIAN e.V. / P.O. Box 16 02 55 / 60065 Frankfurt am Main / Germany

9 A vision for the future

Koen Van den Brande

Group Strategy and Marketing Director, Temenos

BIAN Lead Big Picture Working Group and Advisor to the Board

In this white paper we have explored the relevance of standards in a world of financial services technology that seeks to implement SOA strategies. We have briefly reviewed the history of developing standards for financial services and examined the positions of certain key players. We have also demonstrated how these different efforts come together in a set of standards, for a comprehensive view of a service-oriented world.

The different organizations involved in setting the industry standards that will enable rapid adoption of SOA principles are doing so because they share a common vision. That vision is one of much closer alignment between business and IT. It reflects an industry that understands agility in terms of recognizing the needs of individual customers, partnering with others across the value chain, bringing new and personalized products to market quickly, and continuously fine-tuning processes for better operational efficiency and customer service.

As the industry matures, this vision relies on a collaborative dynamic between financial services organizations and solution providers,. Under that dynamic, banks will gradually shift their software spending focus from build to buy and clearly spell out their requirements for integrating enterprise services. Industry vendors will seek to bring to market products that meet those requirements and implement the agreed standards to simplify implementation.

The resulting realization of the promise of SOA – the orchestration of commercially available banking services, seamlessly integrated with software developed in-house as well as with vendor-supplied, next-generation banking platforms – will herald a new era. In this era, the banking industry will be better able to differentiate itself based on superior customer service, partnerships, and innovation. These achievements will be based on flexible and responsive supporting technologies that help banks sense new trends, respond to market changes, and collaborate across organizational boundaries.

The Banking Industry Architecture Network, SWIFT, IFX and OMG are committed to making this future vision a reality.

© 2010 BIAN e.V. / P.O. Box 16 02 55 / 60065 Frankfurt am Main / Germany

10 Appendix - Standards Groups in the Finance Industry

David S. Frankel

Lead Standards Architect,
Model Driven Systems

SAP Labs

This section lists the organizations that co-authored or endorsed this white paper, along with other standards groups that are relevant to banking.

- ACORD: The Association for Cooperative Operations Research and Development is a key standards organization for the insurance industry.

- BIAN: The Banking Industry Architecture Network is the newest standards group in the financial services industry. Its approach uses service-oriented architecture (SOA) to facilitate banks' efforts to integrate software components obtained from different sources, combining components developed in-house with components from software vendors. BIAN recently released its first specifications, including the Service Landscape, which provides the banking industry with a standard functional breakdown of the banking application landscape. BIAN Working Groups defining semantic service interfaces to the components of the service landscape.

- IFX Forum: The International Financial eXchange Forum defines a protocol for business-to-business and business-to-consumer XML messages, including ATM messages. The protocol is based on previous work of the Open Financial Exchange (OFX) and IBM standards. IFX focuses on wholesale banking. IFX has been a key contributor to the ISO 20022 repository. OMG: The Object Management Group has promulgated a suite of modeling and metadata standards under the Model Driven Architecture (MDA). The best known MDA standards are UML and Business Process Modeling Notation (BPMN). The OMG is also the steward of the Common Object Request Broker Architecture (CORBA) middleware standards, which are used in embedded and realtime systems. The OMG's Finance Domain Task Force defines model-driven specifications for financial services, leveraging MDA and ISO 20022.

- FIX Protocol: The FIX Protocol organization defines the Financial Information eXchange Protocol, which is a set of message specifications for electronic trading. FIX Protocol is the steward of the FIX Protocol standard. Since BIAN's scope does not include investment banking, FIX Protocol is out of scope for this white paper. There are efforts to align FIX with ISO 20022.

- FpML: The Financial Products Markup Language defines XML messages for trading. It does not provide a transport network and defines no transport mechanism, which distinguishes it from SWIFT and FIX. The FpML organization is the steward of the FpML standard. Since BIAN's scope does not include investment banking, FpML is out of scope for this white paper. There are efforts to align FpML with ISO 20022.

- ISO: The International Organization for Standardization defines hardware and software standards for many industries. ISO Technical Committee 68 (TC68) has jurisdiction over the financial services industry. TC68 oversees ISO 20022 and many other commonly used financial standards (e.g. ISO 15022 for trades and ISO 8583 for retail card payments.)

- SWIFT: The Society for Worldwide Interbank Financial Telecommunication plays a number of roles in the financial services industry. It is owned by member banks. It provides a highly secure and reliable network for electronic financial communication. Historically, SWIFT defined its own standards, to which participating financial institutions adhered. More recently, SWIFT uses the

© 2010 BIAN e.V. / P.O. Box 16 02 55 / 60065 Frankfurt am Main / Germany

ISO 20022 standards definition and registration process. SWIFT also serves, under contract with ISO, as the administrator of the ISO 20022 repository.

- TWIST: The Transaction Workflow Innovation Standards Team defines the Global Electronic Bank Services Billing Standard (BSB). BSB helps banks communicate banking fees to their corporate customers and other parties. Historically the treasury departments of Shell, HP, and GE have played leadership roles in TWIST. BSB is a business-to-business standard, while BIAN focuses on application-to-application standards. TWIST has also been a key contributor of content to the ISO 20022 Repository, particularly in the area of payment and cash management messages. XBRL: The eXtensible Business Reporting Language (XBRL) is an XML-based standard that is widely used to define the required content of electronic filings of financial statements by public companies in all industries. An increasing number of regulatory authorities around the world are mandating XBRL for financial statements and for other purposes as well. XBRL use is prevalent in all industries, not just banking

© 2010 BIAN e.V. / P.O. Box 16 02 55 / 60065 Frankfurt am Main / Germany