



*The Depository Trust &
Clearing Corporation*

***ISO 15022 XML: A model for
Standards Convergence***

**Sandy Dinetz, Director
Depository Trust & Clearing Corporation**

**Interoperability Summit
June 27, 2002**

Standards for Securities

ISO 15022 XML Working Group 10

ISO 15022, second edition (XML)

Convergence and Interoperability

Conclusion



Standards for Securities



The pre-XML era

- **'70s: Financial Industry creates**
 - **SWIFT for global processing/ID for US Domestic processing**
- **'80s: ISO/TC68/SC4 defines ISO 7775**
- **'84 - '97: ISO 7775 deployed (on SWIFT)**
- **'90s: several industry initiatives**
 - **e.g. Financial Information eXchange (FIX)**
- **'94-'99: ISO/TC68/SC4 defines ISO 15022**

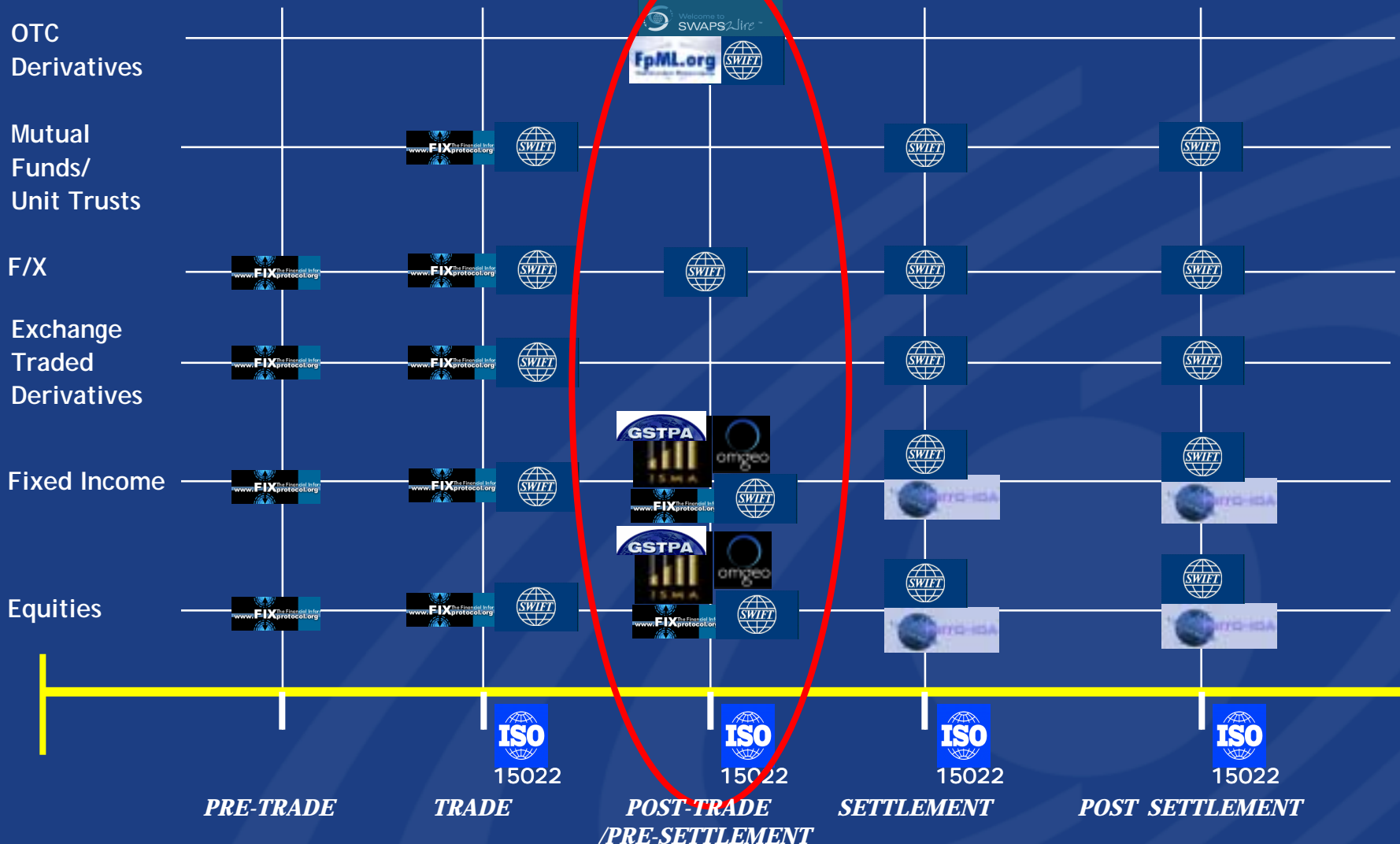


The XML era

- **Multiple XML-related initiatives emerge.**
- **Some examples:**
 - **FIX defines its XML-version: FixML**
 - **SWIFT defines “SWIFTStandards XML”**
 - **FpML: XML-standards for derivatives**
 - **MDDL: XML-standards for market data**
 - **GSTPA, Omgeo: “ISO 15022-based” XML**



The current standards landscape





Post-Trade – Pre-Settlement

	FIX	SWIFT	GSTPA	Omgeo
Field	Side	Indicator	Buy/Sell Indicator	Buy/Sell Indicator
Values	1=Buy 2=Sell 3=Buy Minus ...	BUYI=Buy SELL=Sell	BUYI=Buy SELL=Sell	BUYI=Buy SELL=Sell
Syntax	54=1 or <Side Value='1'>	:22a::/BUSE// BUYI	<BuySellInd> BUYI </BuySellInd>	<BuySellIndicator> BUYI </BuySellIndicator>
Codes	Proprietary plus ISO Codes	ISO Codes	ISO Codes	Proprietary plus ISO Codes



The role of XML

- **Has XML solved all problems?**
 - **Single technology**
 - **Multiple XML-based standards initiatives**
 - **Not more interoperability than before**
- **So what has XML done?**
 - **XML has made the issue more apparent**
 - **XML has accelerated the drive towards convergence**



ISO 15022 XML Working Group 10



*The mission statement**

“Evolve ISO 15022 to permit migration of the securities industry to a **standardized use of XML**, guaranteeing **interoperability** across the industry and with **other industry sectors**, particularly but not restricted to the financial industry”

**WG 10 is a working group created in 2000 by the ISO Technical Committee TC68 (Banking, securities and other related services) under their sub-committee SC4 (Securities and related financial instruments)*



Drivers resulting from the mission statement

- **Integrate all domains of securities industry (from pre-trade to post-settlement)**
- **Take into account existing industry standards in Securities (e.g. FIX, FpML, MDDL, ...)**
- **Take into account international initiatives on message standards and XML (e.g. ebXML)**
- **Take into account technological evolution: XML is not the end**



WG10's objectives

- **Stability**
 - **Business-driven approach**
- **Interoperability and convergence**
 - **End-to-end based on common semantics**
- **Flexibility**
 - **Market practices and asset classes**
- **Predictability and speed**
 - **Foster reuse and automation capabilities**

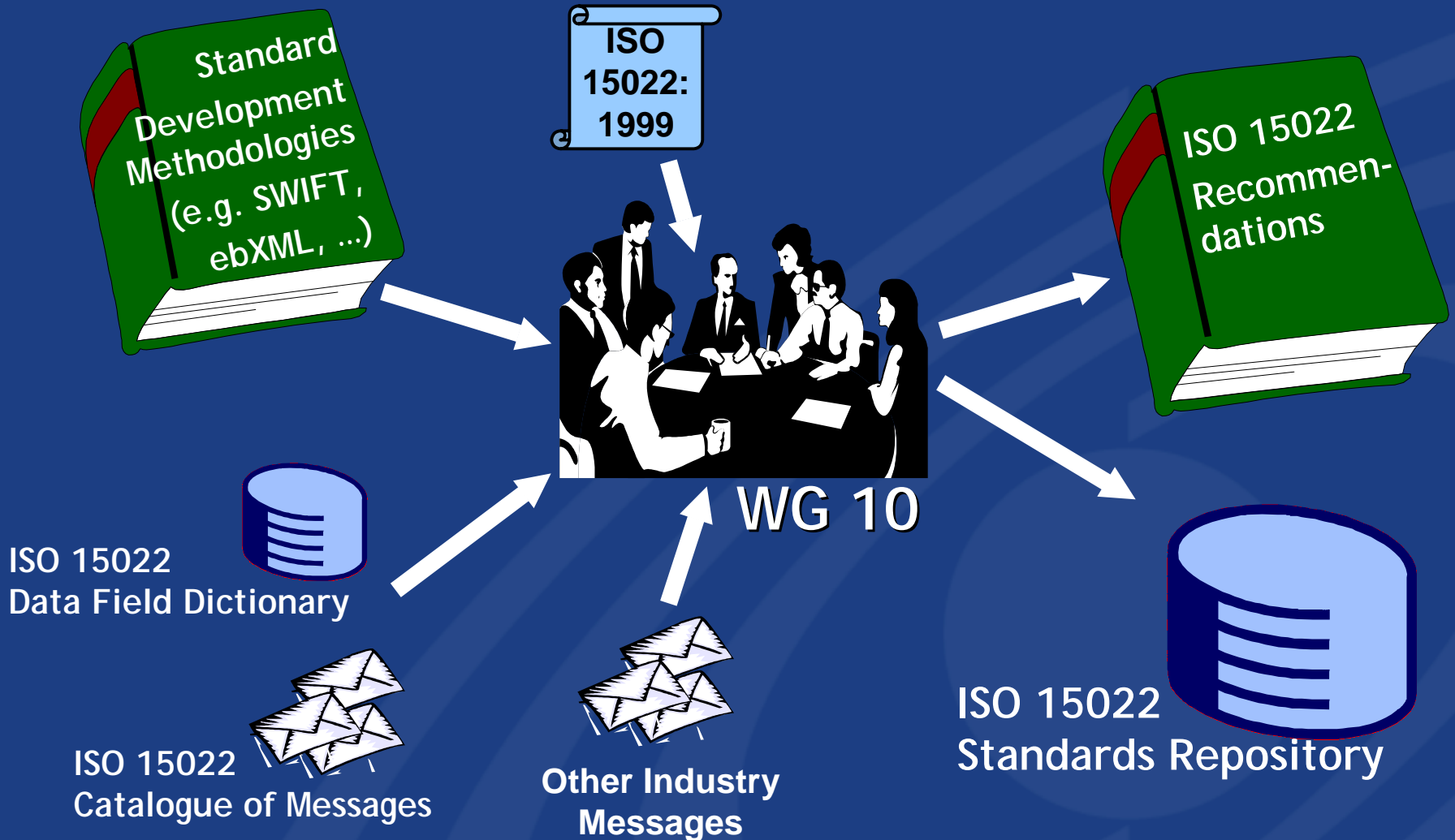


Standards Development

- **Leveraging New Technology**
 - **Business Modeling – Unified Modeling Language (UML)**
 - **XML**
 - **Evolving Existing Standards**
 - **Creating New Standards**
 - **Standards Repository**
- **Expanding Asset Class Coverage**
- **Focusing on Market Practice**



WG10's approach





ISO 15022 second edition (XML)



Main focus

Create a framework to establish an agreement on how to develop, implement and maintain (securities) industry standards

Building Blocks:

- **Applying Business Modeling to Standards Development**
- **Harmonizing the Use of syntaxes (XML)**
- **Implementing a centralized Standards Repository**
- **Leveraging Industry Coordination**



The building blocks

- **Business Modeling for standards development**
 - **Syntax-independent business standard**
 - **Neutral way to cover all functionality**
 - **Aligned with international approach**
- **Harmonizing the use of syntax (e.g. XML)**
 - **Predictable & “automate-able” design rules**
 - **Protect standard from technology evolution**



The building blocks

- **ISO 15022 Standards Repository**
 - **Business Process Warehouse**
 - **Data Dictionary (foster reuse)**
 - **Maintained by Registration Authority**
- **Industry Co-ordination:**
 - **“Reverse Engineering”**
 - **Standards Management Groups**



The modeling methodology

“Understand the business”

Business Analysis

“What is the problem”

Requirements Analysis

“Define the solution”

Logical Analysis

“Refine the solution”

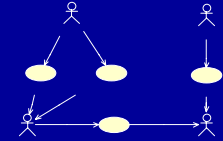
Message Design

*“Physical implementation”
(automated)*

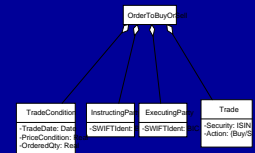
Technical Design

Technical Implementation

Standards Repository



BUSINESS MODEL



BUSINESS SCENARIOS & MESSAGES

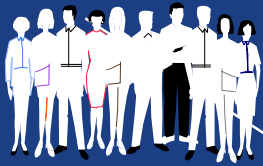


**SYNTAX, CODES
SOLUTION TO IMPLEMENT**



Proposed ISO 15022 Standards Environment

User Community



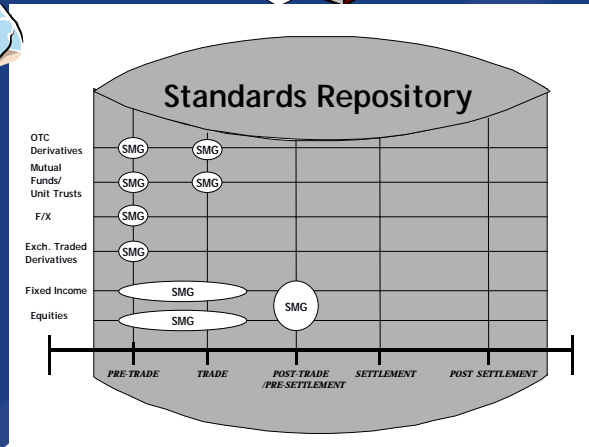
Registration Authority



Registration Management Group



Standards Management Group



Standards Management Group



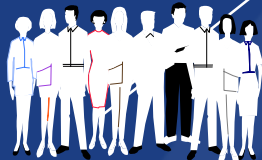
Standards Management Group



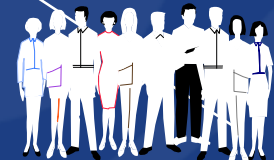
Web - Site



User Community



User Community





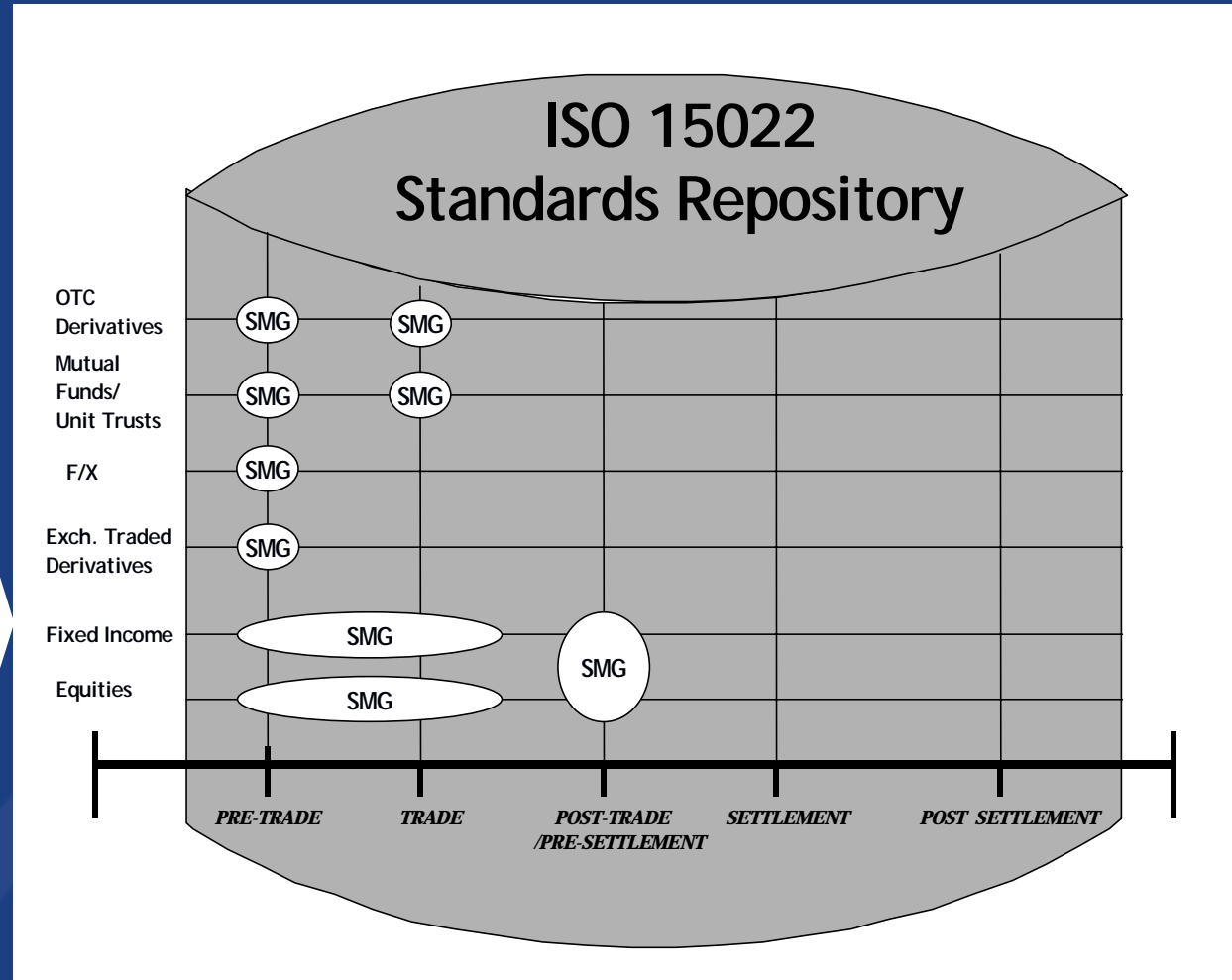
Evolving ISO 15022



SSAB	ISITC	7775	E775	EDIFACT
s1		:10:	:21::	
s2	a1	:11:	:22::	
	a2		:23::	
s3			:24::	



7775	E775	EDIFACT
520	540	
521	541	
522	542	
523	543	
534	548	



- Business Process Warehouse
- Data Dictionary

SMG - Standards Management Group



The resulting ISO Committee Draft

- **The official standard:**
 - **ISO 15022 – Part 1**
 - **High level description of modeling approach**
 - **High level description of Repository**
 - **High level description of inputs and outputs**
 - **ISO 15022 – Part 2**
 - **Definition of registration bodies**
 - **“Service Level Agreements”**



Supporting Documents

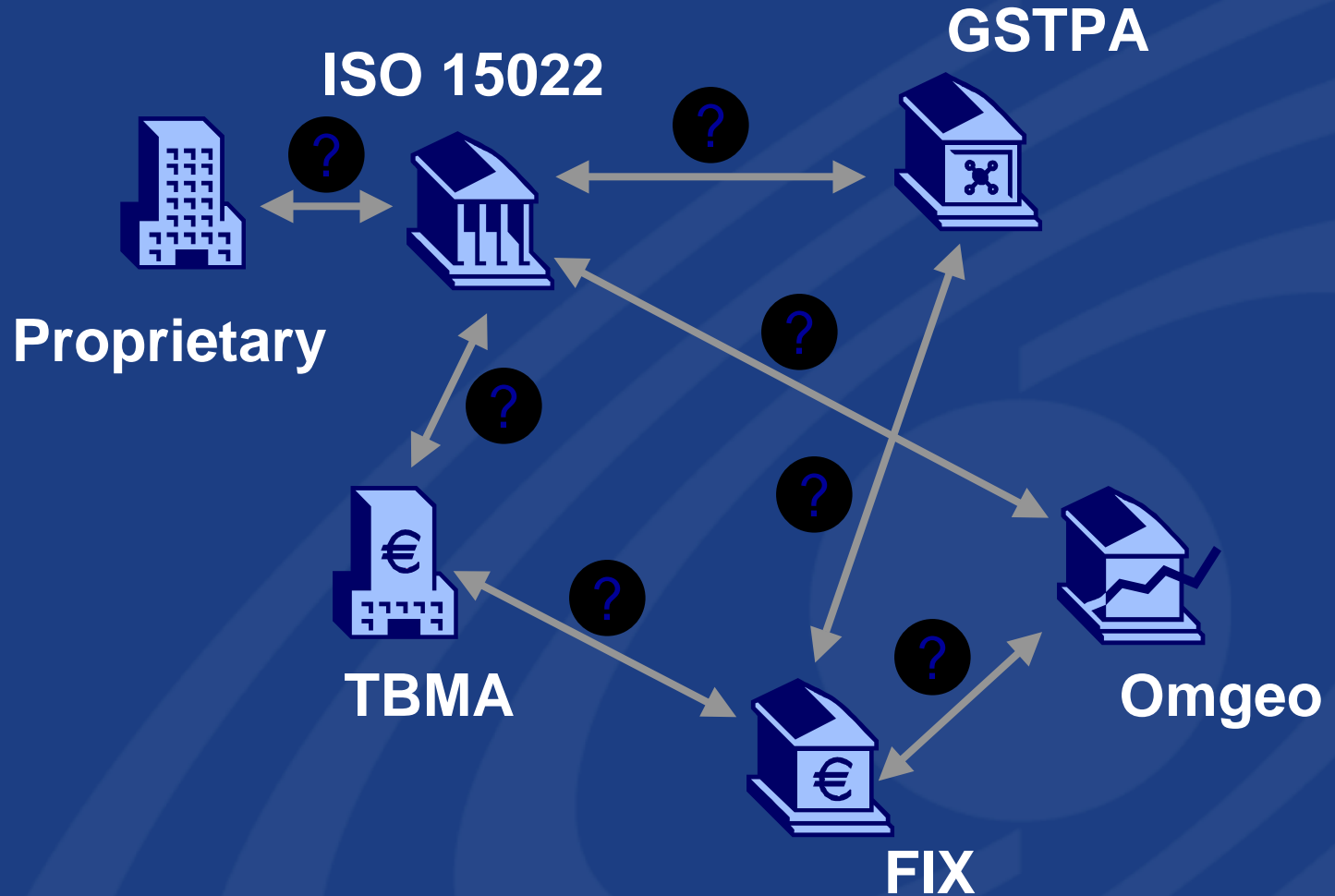
- **ISO 15022 Modeling Guidelines**
 - **How to build message standards**
- **ISO 15022 XML Design Rules**
 - **How to convert messages in XML**
- **ISO 15022 Reverse Engineering**
 - **How to capture existing industry standards**
 - **How to build “convergence documentation”**
- **ISO 15022 Submission Templates**



Convergence and Interoperability



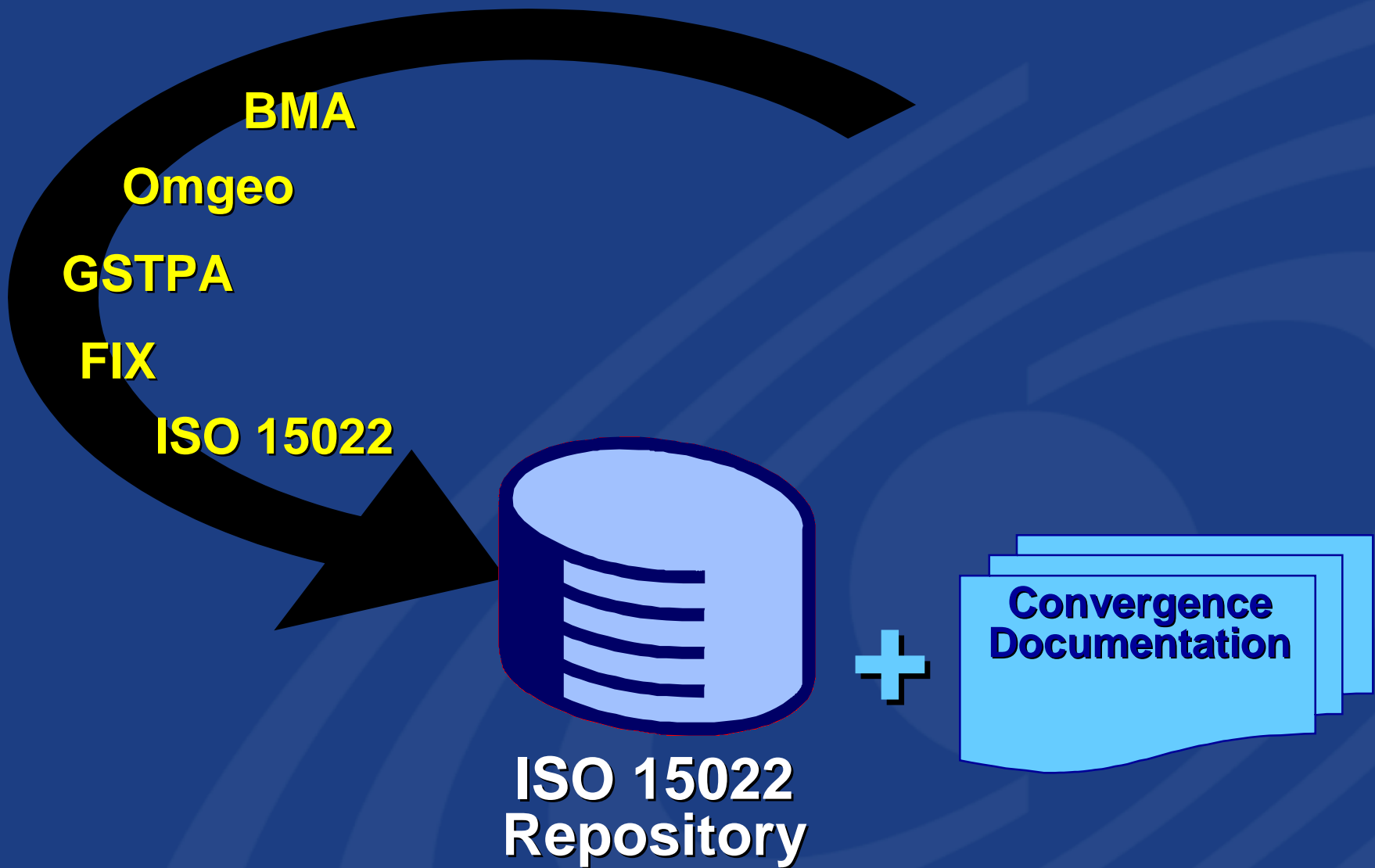
The current situation





Industry coordination is happening







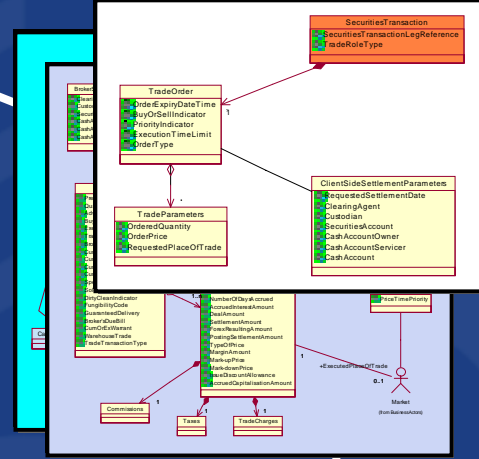
"Standard approach" for Reverse Engineering

Existing Standard

Tag	Field Name	Req'd	Comments
	Execution Report		
	<i>Standard Header</i>	Y	MsgType = 8
37	OrderID	Y	OrderID is required to be unique for each chain of orders.
198	SecondaryOrderID	N	Can be used to provide order id used by exchange or executing system.
11	ClOrdID	N	Required for executions against electronically submitted orders which were assigned an ID by the institution. Not required for orders manually entered to the broker.
41	OrigClOrdID	N	Conditionally required for response to an electronic Cancel or Cancel Replace request (ExecType=PendingCancel, Replace, or Cancel). ClOrdID of the previous order (NOT the initial order of the day) when canceling or replacing an order.
109	ClientID	N	Used for firm identification in third-party transactions.
76	ExecBroker	N	Used for firm identification in third-party transactions.
382	NoContractBrokers	N	Number of ContractBrokers repeating group instances.
→	375 <i>ContractBroker</i>	N	First field in repeating group. Required if NoContractBrokers > 0.
→	337 <i>ContractTrader</i>	N	

Gap Analysis

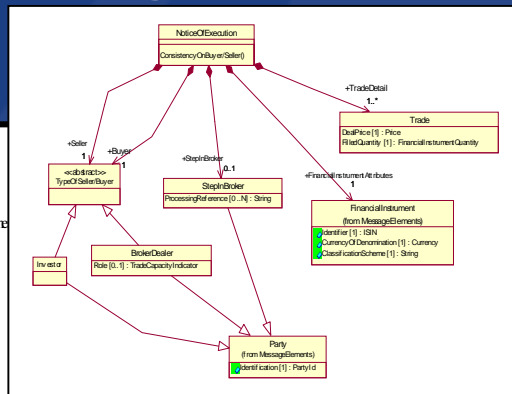
Business Model



Convergence Documentation

FIX	ISO XML	
ExecBroke	BrokerDealer	
Price	DealPrice	
..	..	

Message Model



XML Schema

```

<ELEMENT NoticeOfExecution
(Seller, Buyer, InvolvedStepInBroker?, FinancialInstrument
TradeDetail)>
<ELEMENT Seller (%_Investor_ ; %_BrokerDealer_ ;)>
<ELEMENT Buyer (%_Investor_ ; %_BrokerDealer_ ;)>
<ENTITY %_Investor_ "Identification">
<ENTITY %_BrokerDealer_ "Identification, Role?">
<ELEMENT InvolvedStepInBroker (Identification, ProcessingReference)
  
```

Development & Registration

Migration

	2001	2002	2003	> 2003
Pre-trade & Funds	FIX	FIX 15022 (XML)		
Post-trade & Pre-settlement	15022 (MT)	FIX GSTPA TBMA Omgeo	<div style="background-color: blue; color: white; padding: 5px; display: inline-block;">15022 (XML)</div>	
Settlement & Reconciliation	7775 (MT)	15022 (MT)	15022 (XML)	
Corporate Actions	7775 (MT)	15022 (MT)	15022 (XML)	
Lending & Borrowing	-	-	15022 (XML)	



Conclusion



WG10 Next steps

- **Approval of the standard (ISO process)**
- **Initial population of repository:**
 - **Reverse engineering pre-trade**
 - **Reverse engineering post-trade**
 - **Reverse engineering other domains**
- **Finalize documents, templates, web site**
- **Liaisons with relevant industry groups (e.g. MDDL, FpML, ...)**



WG10 Challenges

- **General Issues**
 - **Agreement is difficult and takes time**
 - **Implementation and migration costs**
- **WG 10 Specific Issues**
 - **Education: new technology & concepts**
 - **Business modeling (UML)**
 - **Timing & Resources:**
 - **Standards Repository population**
 - **Marketing & Liaisons**



Questions & Answers

Sdinetz@dtcc.com