

Process, Power and Marine Division

Pragmatic ISO15926 Implementation



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Pragmatic ISO15926 Implementation

- “Standards-based integration” – (lifecycle information management & interoperability aspirations) – are a large and complex set of issues.
- Evolutionary perspective on how the issues have been addressed – both in the developing standard and in pragmatic implemented solutions.
- Standardization is primarily about convergence on common usage, not about ISO publication ... what people actually do to standardize, whilst solving their real problems ?
- That convergence is almost total.

So we have a large problem, but how large ?

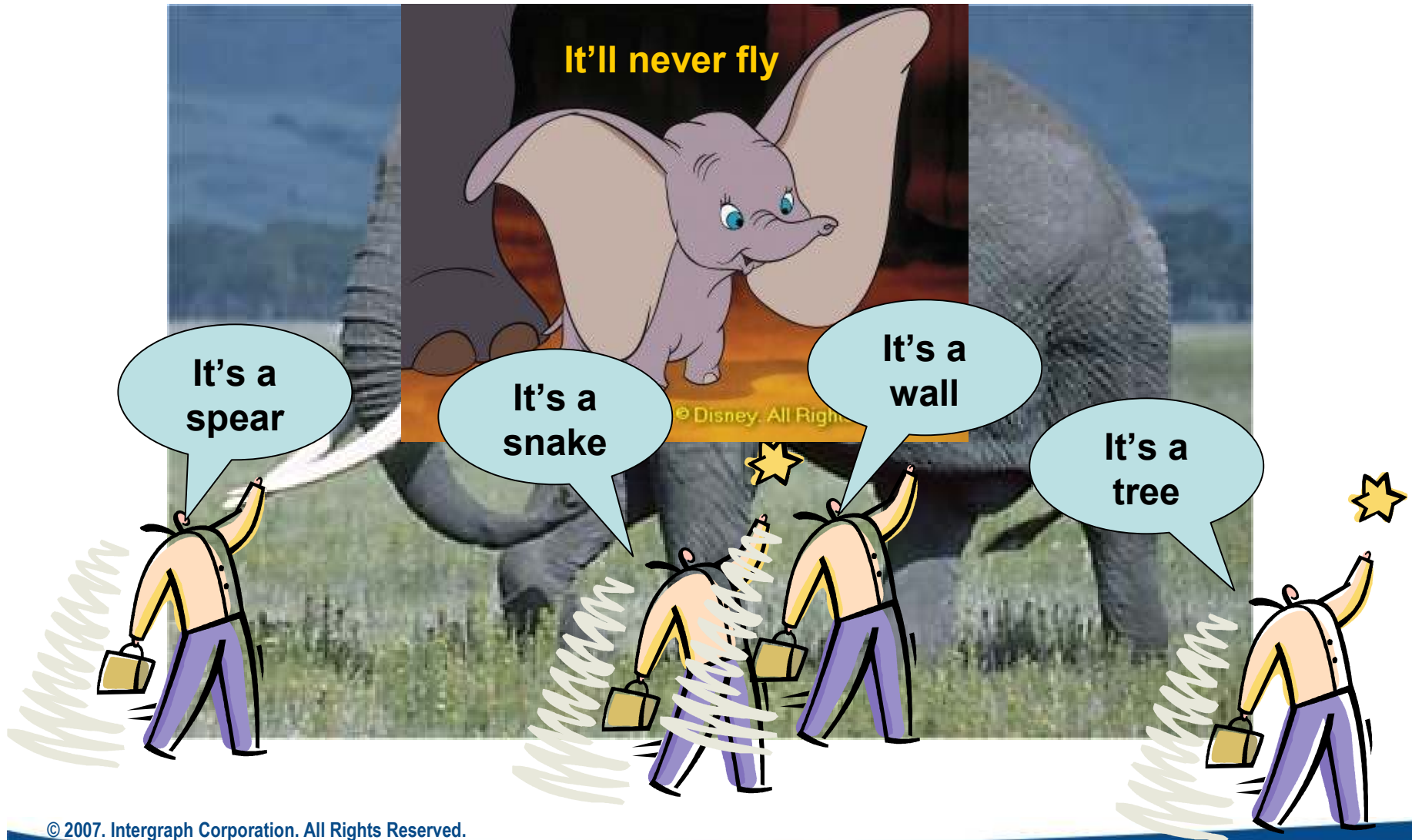
GRAPH



ELEPHANTS

Larger than the moon

Integration – “The Whole Elephant”

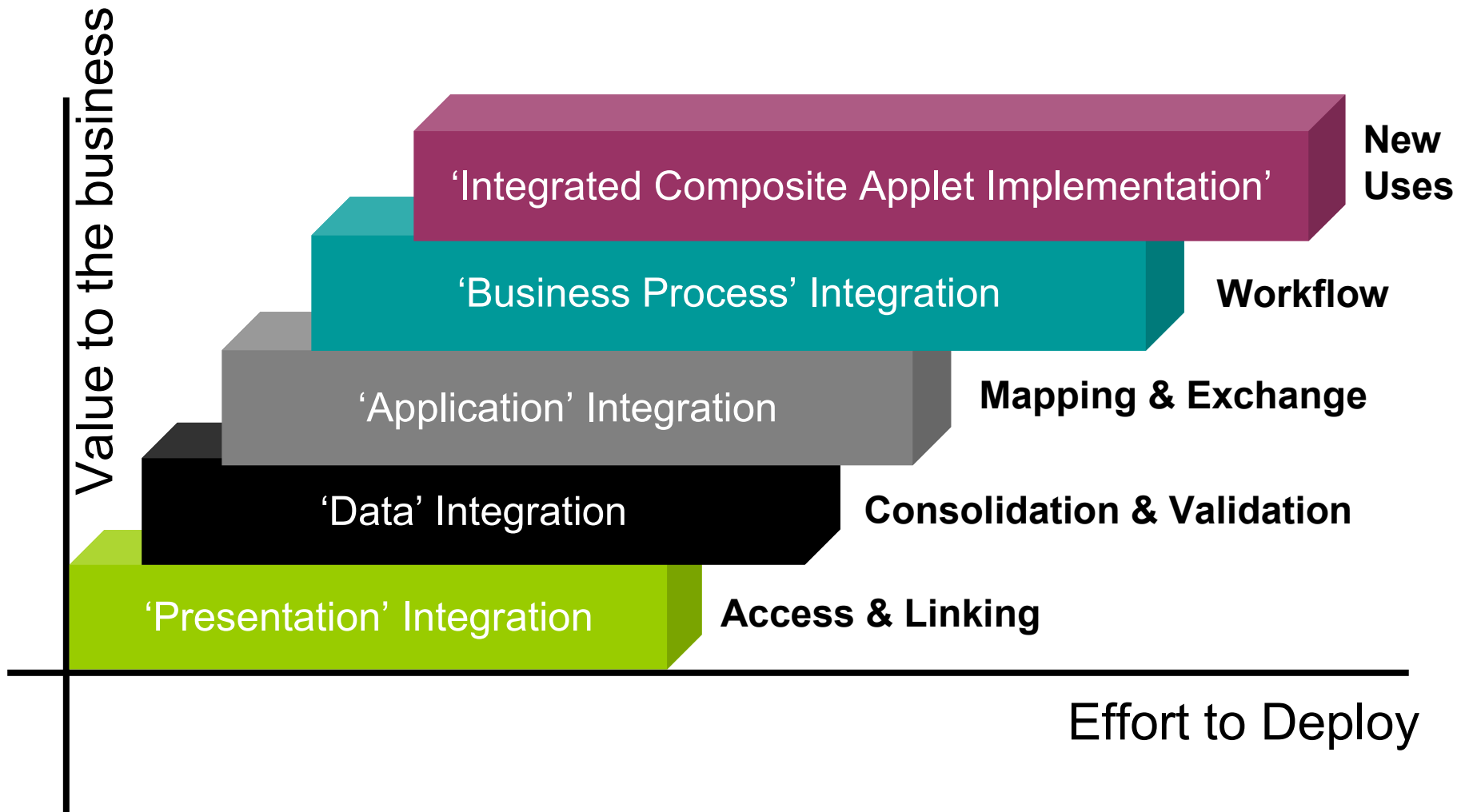


Breaking down the problem

- So, when dealing with a large and complex problem, with many aspects.
- Problem can be sliced & diced *many* ways,

... three main *information* dimensions
- Firstly the tiers of integration ... the nature of the integration itself

Breakdown #1 “Tiers of Integration”



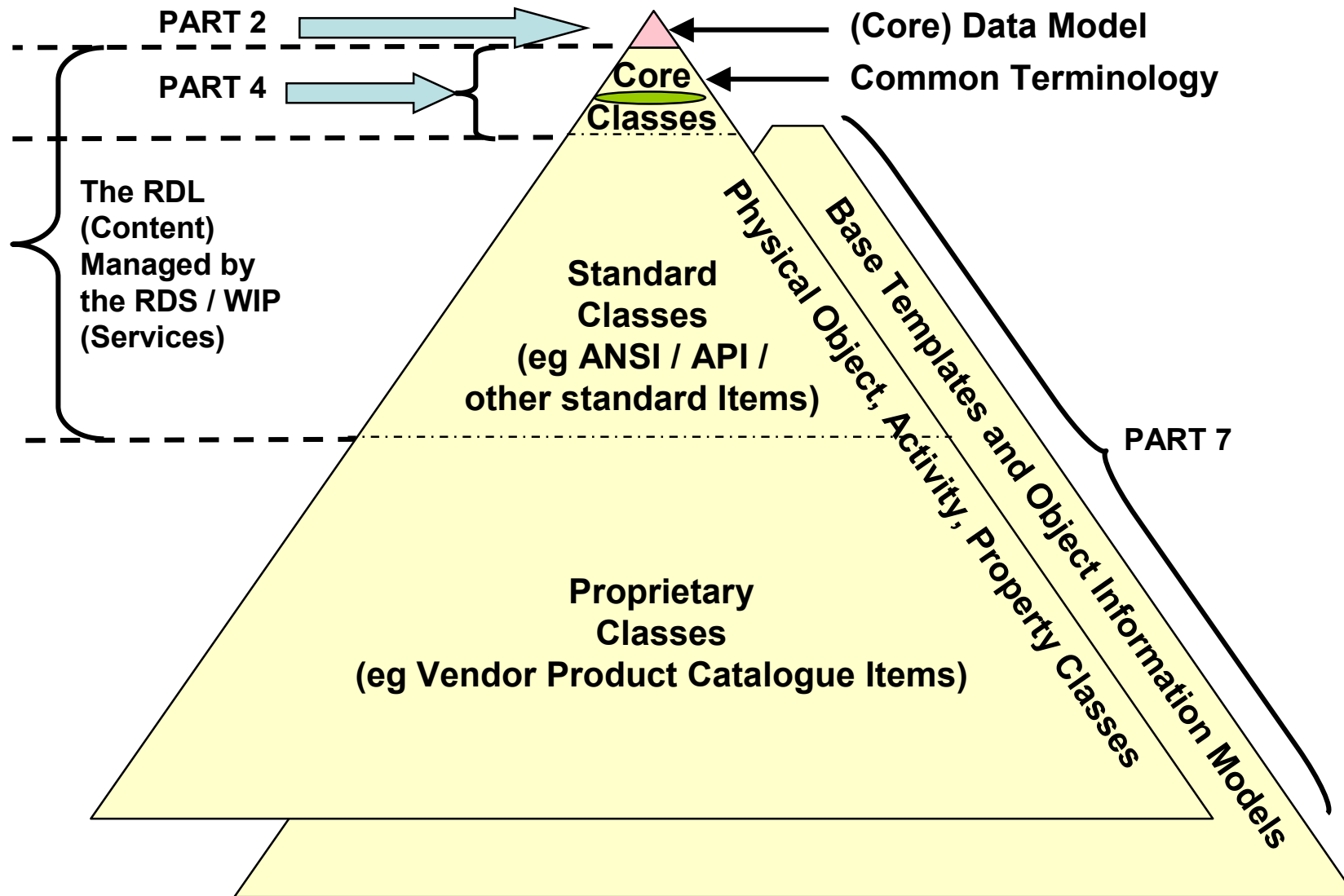
Breakdown #2 - Layers of Information

- **Identifiers**
- **Breakdown & Assembly Relationships**
- **Status / Quality / Meta-data**
- **Other (*prioritised*) Attributes / Relationships**
- **Schematic / Geometric Representation**
- **Other (*more or less*) Structured Datasets**
- **Other Documents / Files**

Breakdown #3 - Layers of Modelling

- **Core Schema**
- **Reference Data**
- **Schema Views (re-usable building block patterns, in above terms.)**
- **“Business Objects”
(ditto, in business terms)**
- **External “Foreign” Schemas**
- **Mapping Definitions**

The Whole Elephant – 15926-wise



Model / Classes / Templates



- Part 2 (Core) **Model** – the *fundamental entity* and relationship things (~200 entities)
- Part 4 (Reference Data) **Classes** (all the specialized *types or categories* of things (or specific things), and their properties and relationships)
(10,000's >>> millions of RDL Items)
- Part 7 **Templates** – *building blocks / re-usable patterns* to construct object information models from the above.
 - **Short-cut** (Part-7-Lite) form
to allow business experts to define and select them,
 - **Short-hand** form
to allow modelling experts to implement them.

(50 >> 200 base templates, many possible specializations and assemblies up to business “document templates” or any datasets involved in business processes and exchanges.)

ISO 15926 – The Standard



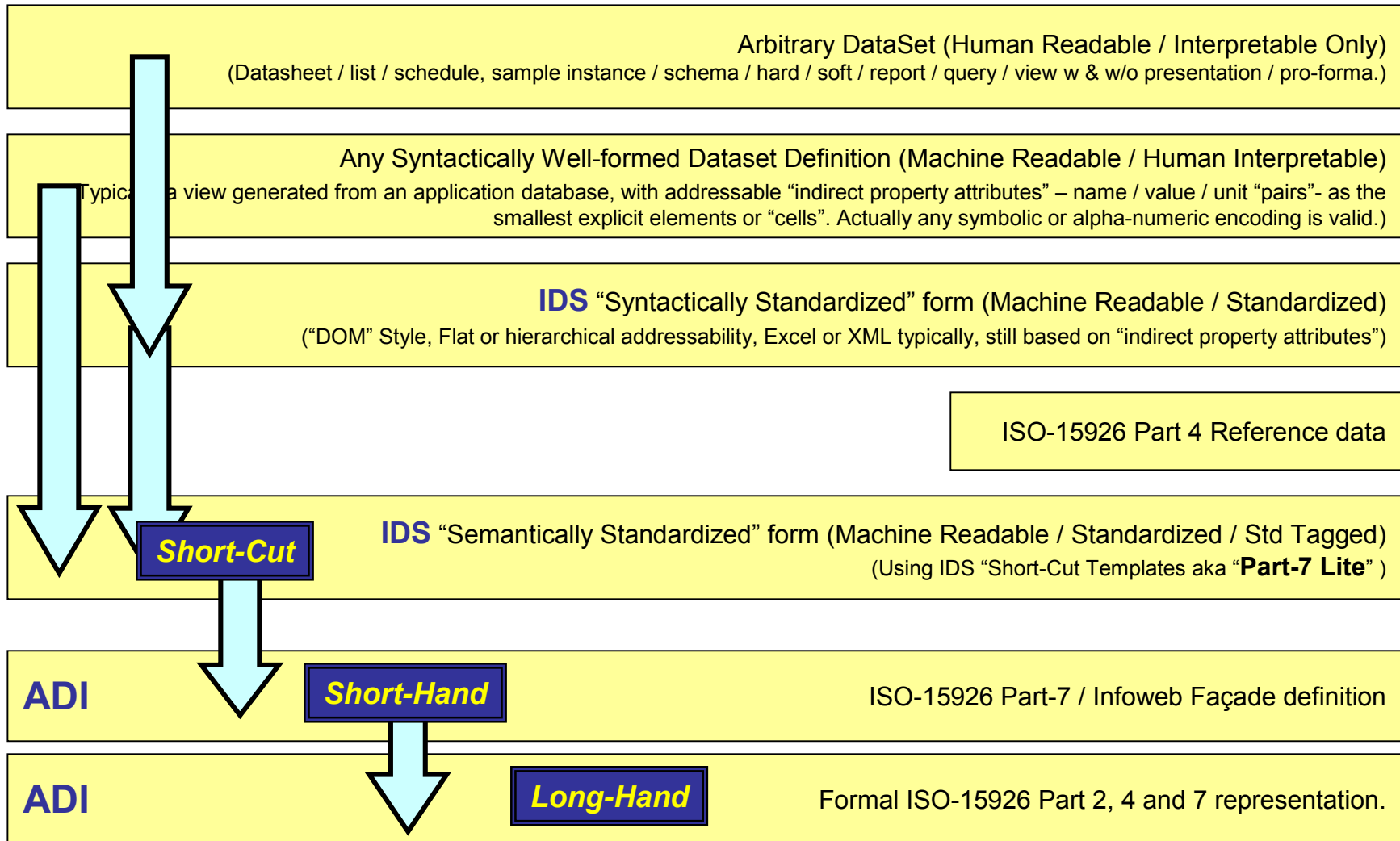
- **ISO 15926 Integration of life-cycle data** for process plants including oil and gas production facilities
 - ISO 15926 - 1 Overview and fundamentals (Approved IS)
 - **ISO 15926 - 2 Data model** (Approved IS)
 - ISO 15926 - 3 Geometry. (Approved TS)
 - **ISO 15926 - 4 Initial reference data.** (Approved TS)
(Included in the RDS/WIP)
 - ISO 15926 - 5 Procedures for registration and maintenance of reference data (NWI/CD pending resolution on MA)
 - ISO 15926 - 6 Scope and methodology for developing additional reference data (NWI/CD to be submitted to ISO Q3 2007)
 - **ISO 15926 - 7 Implementation methods** for the integration of distributed systems (TS submitted to ISO Q3 2007)

Main 15926 Projects

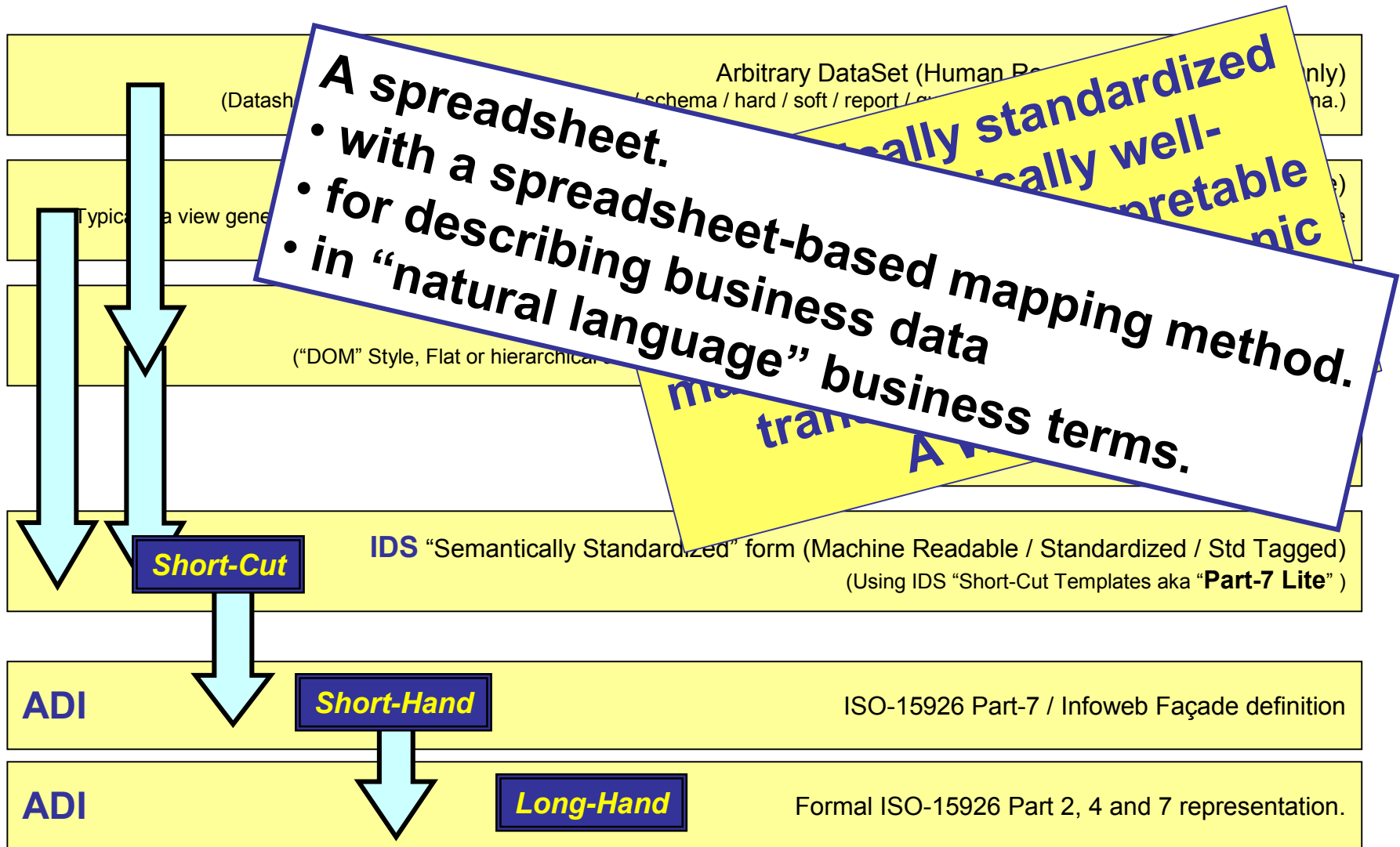


- **ADI (FIATECH)** – Accelerating deployment of 15926
 - supporting the ISO standardization process
 - not just the standard content of Parts 2, 4 & 7
 - but also including the normative implementation of Part 7 with prototype tools.
- **IDS (POSC-Caesar)** – Intelligent DataSets
 - focussing on Short-Cut Templates (or Part-7-Lite) from the business perspective, and definition of simple business-focussed mapping tools using short-cut templates to hide the rest “under the hood” so far as possible.
- **RDS / WIP (FIATECH / POSC-Caesar / DnV)**
Reference Data Services / RDL Work-in-Progress
 - services and processes to manage the use and ongoing extension of reference data content (classes and templates)

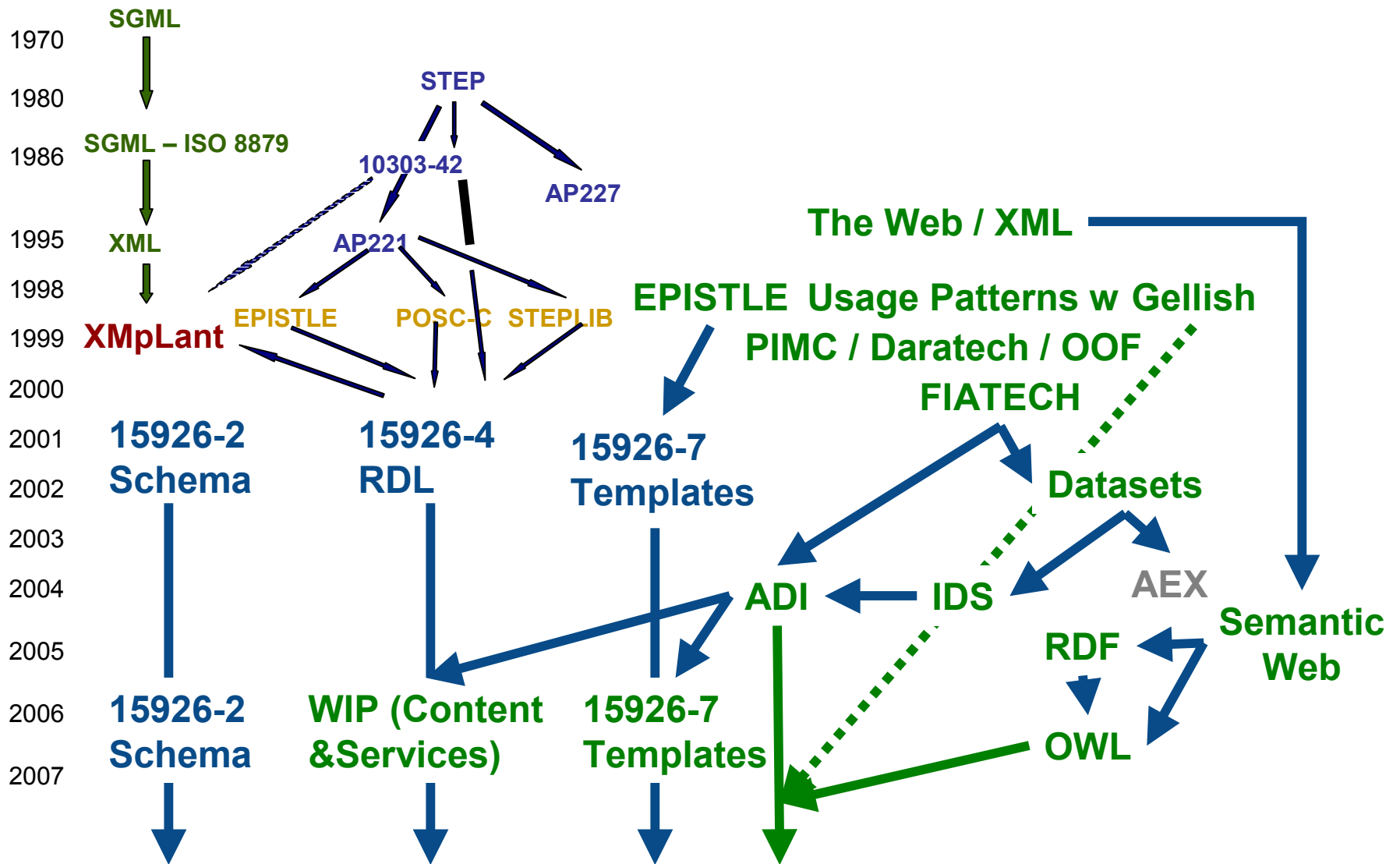
Summary of IDS Progressive Approach



Summary of IDS Progressive Approach



Continued Evolution (of acronyms !)



Note on Gellish & “Part-7-Lite”

- 1999 EPISTLE Usage Patterns document (pre-cursor to 15926 Part 7 Templates ... contained acknowledgements amongst other things, to “**the natural language of [Andries vanRenssen’s STEP] AP221 on one page**” which became known as “**Gellish**”).
- 2007 Gellish agreement to collaborate with ADI / IDS on Short-Cut Templates (Part-7-Lite)

So to summarize ...

- Integration is many layered in many dimensions.
- Evolving approaches in the standardization projects have mirrored and converged with the pragmatic priorities of real integrations (ID's, WBS, Datasheets, Mappings, Reference Data, Business Views for use and configuration by “real engineers” ...)
- The evolving standard, supports these evolving business needs.
- For reasons of common heritage of core model, and common needs to address these common issues INGR's Smart-Plant Foundation-based product integrations also support 15926.

Thank You



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Integrating the
Engineering
Enterprise...



INTERGRAPH

Examples of Short-cut Templates

SCT Mnemonic	SCT Name	Param 1	Param 2	Param 3	Param 4	Param 5
ID	Identification (without Context)	<Obj1>	is identified by	<String>		
IDC	Identification (with Context)	<Obj1>	is identified by	<String>	within context	<Obj2>
DESN	Designation	<Obj1>	is identified by	<DESN String>	within context	<RDL>
RDID	RD Identifier	<Obj1>	is identified by	<RDID String>	within context	<RDL>
LNA	Local Name in context	<Obj1>	is identified by	<String>	within context	<Obj2>
HNA	Human Naming (without Context)	<Obj1>	is identified by	<Name String>		
LNAC	The address of a placeholder for a Local Name	<String>	is represented in	<External representation adress>	within context	<Obj2>
TYP	Is of type	<Obj1>	is of type	<DESN String>		
ACC	Accreditation	<Obj1>	is accredited by	<Obj2>		
ACR	Accreditation Certificate Reference	<Obj1>	documented in	<Obj2>		
SPE	Specialization	<Obj1>	is a specialization of	<DESN String>		
PRWU	Property Range with Units	<Obj1>	has property range	<Property Range Class>	with upper limit	<real> with unit <UoM Clas>
					with lower limit	<real> with unit <UoM Clas>
PRU	Property with Units	<Obj1>	has property	<Property Class>	has value	<real> with unit <UoM Clas>
CASM	Assembly	<Obj1>	is part of	<Obj2> Assembly	with cardinality of	<CARD1> <CARD2>
CCOL	Collection (with Cardinality)	<Obj1>	is part of	<Obj2> Set	with cardinality of	<CARD1> <CARD2>
FUL	Fulfillment	<Obj1>	fulfils	<Obj2> Functional		

Fig C – Summary Mapping Flowchart

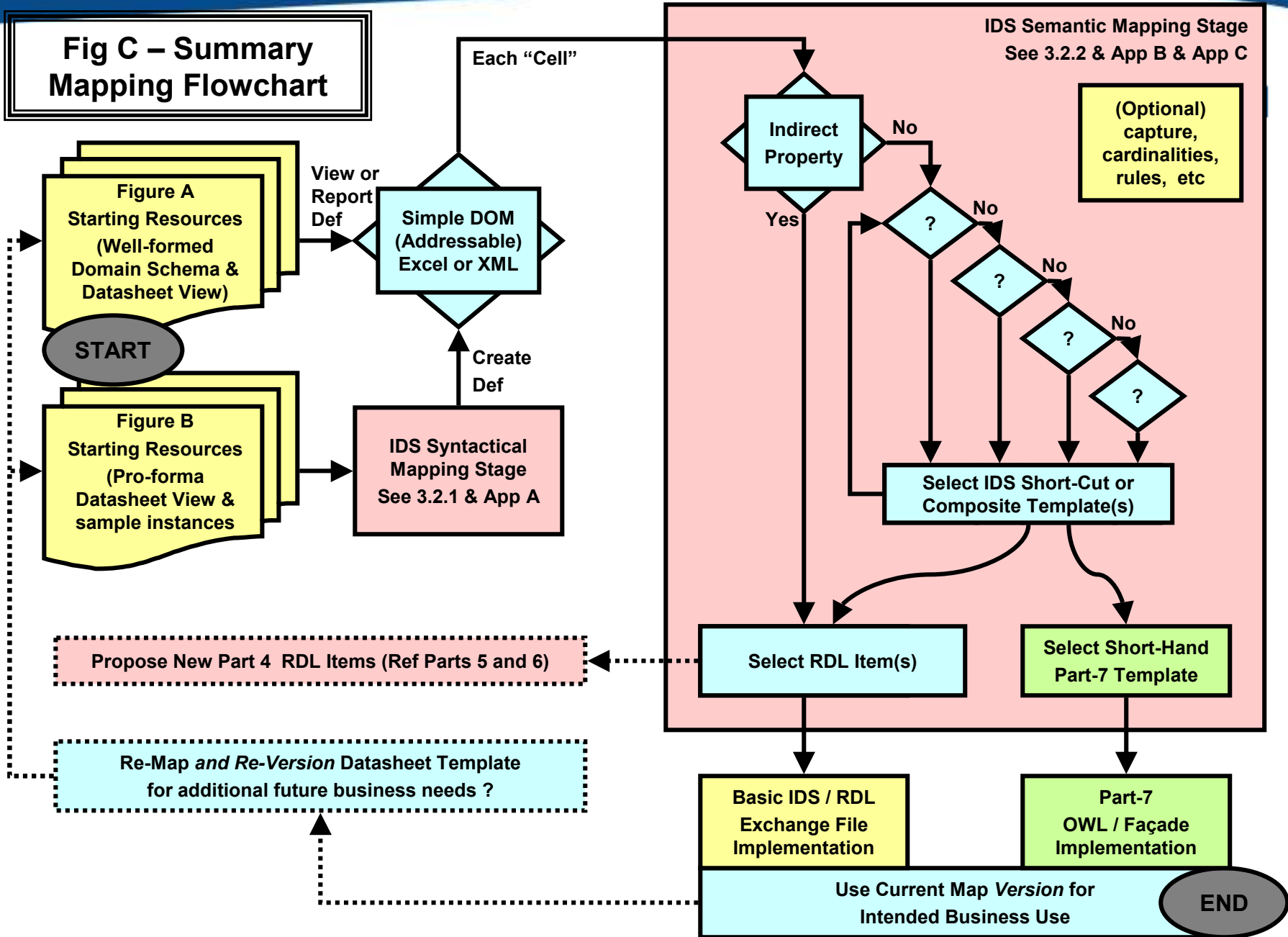
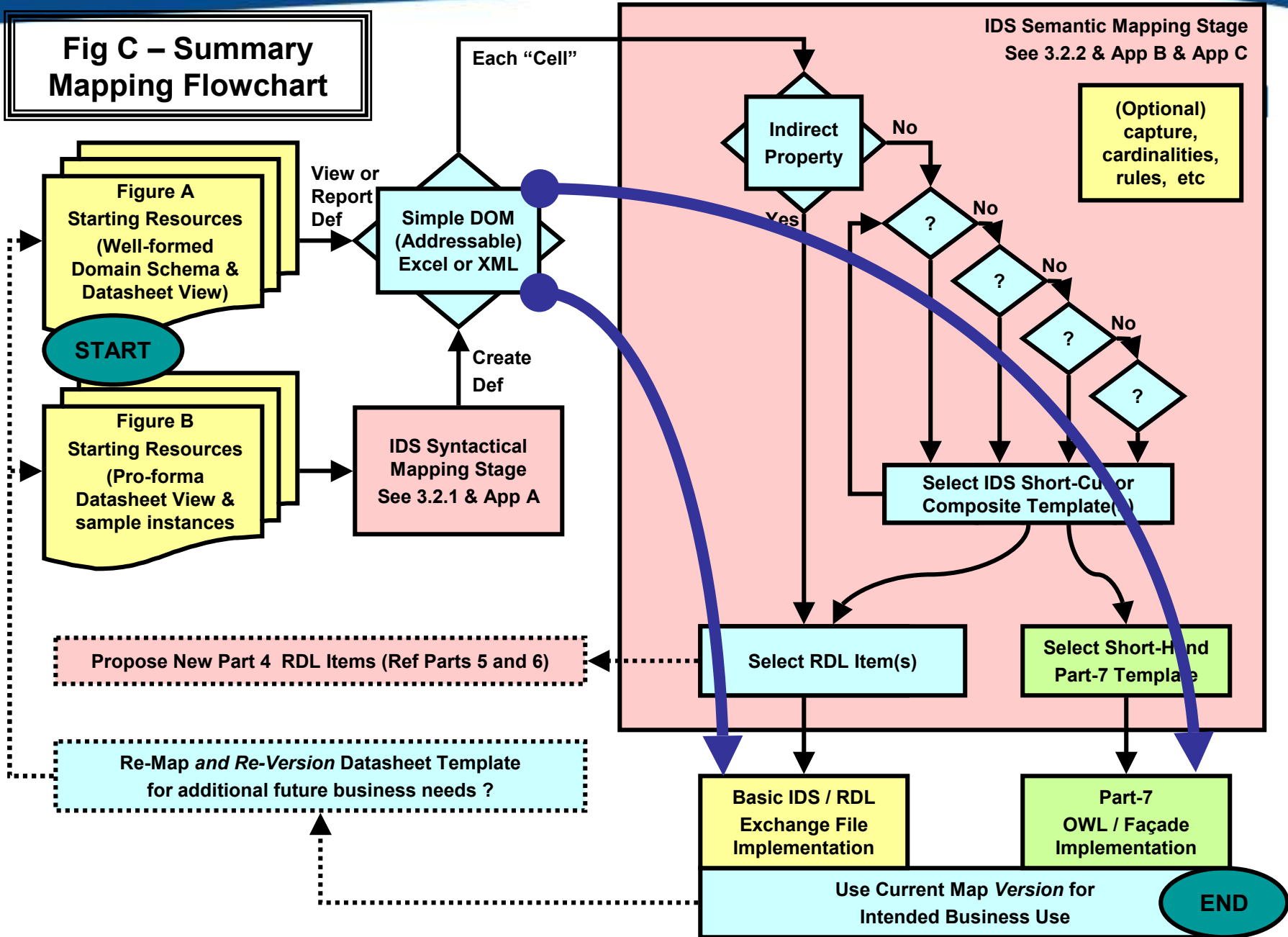
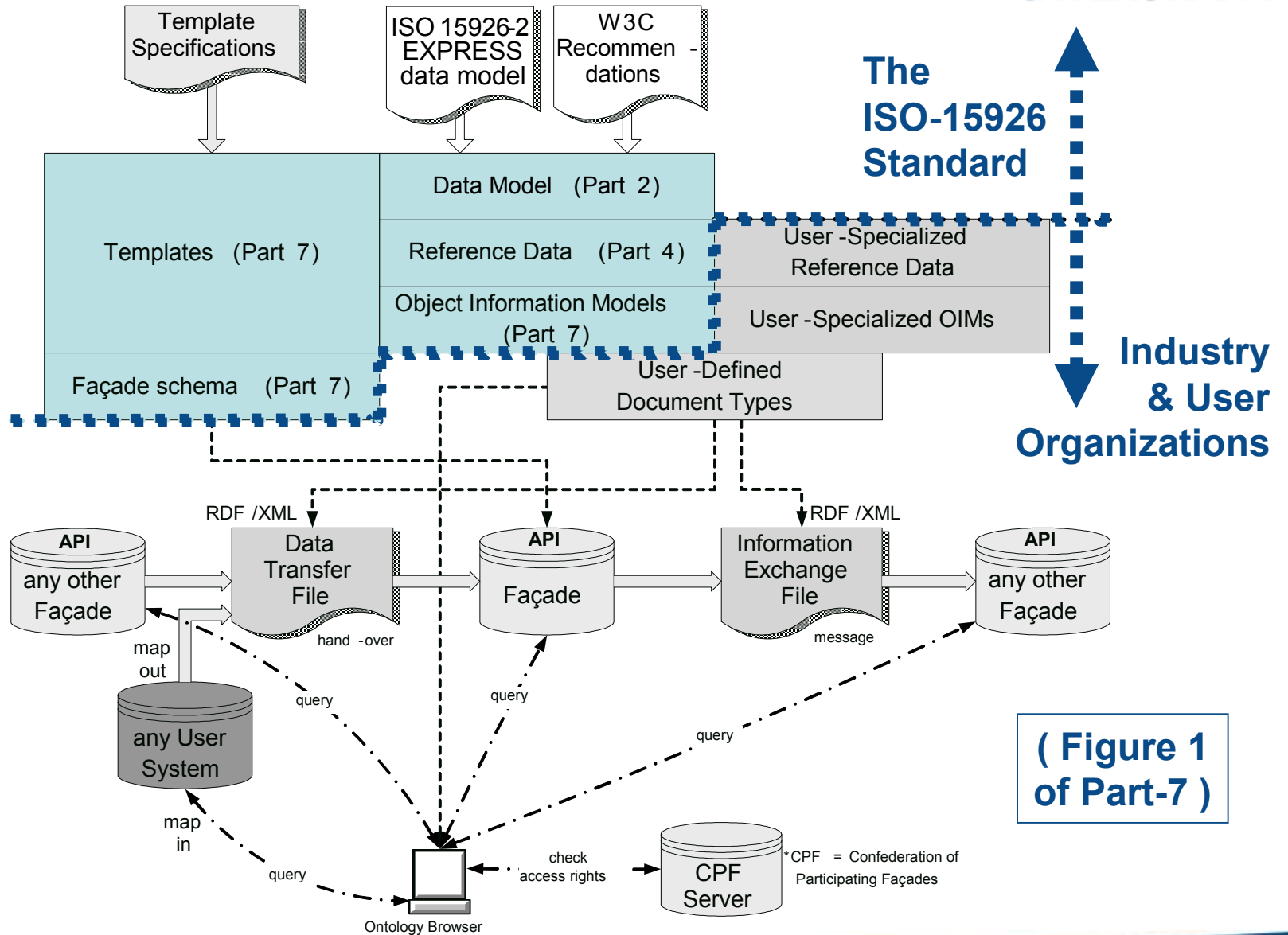


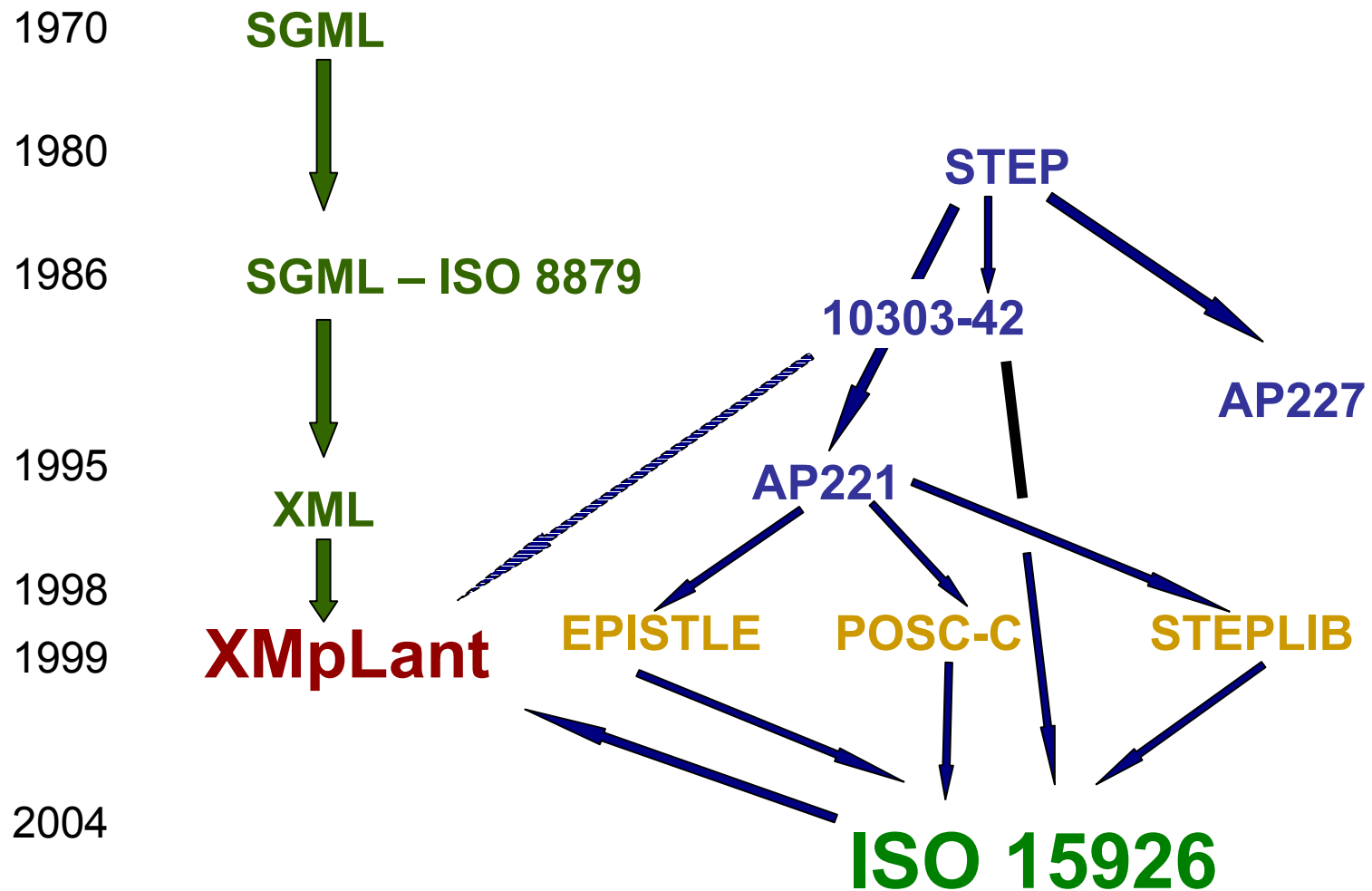
Fig C – Summary Mapping Flowchart



Overview of ISO-15926



Evolution



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