Object Management Group (OMG)

Semantics of Business Vocabulary & Rules

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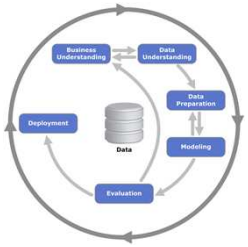

CBDA CERTIFIED IIBA

ISO International Organization for Standardization

ANSI American National Standards Institute

sas

OMG OBJECT MANAGEMENT GROUP

INCOSE International Council on Systems Engineering

IEEE

PMI Project Management Institute

Scaled Agile Framework

IIBA International Institute of Business Analysis

UNIFIED MODELING LANGUAGE

W3COMPUTING A DEVELOPER REFERENCE WEBSITE

Requirements Development Management (RDM) for

Business Data Analytics

(The Language of Data)

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Requirements Agenda

Business Data Analytics "The Language of Data"

01-FOUNDATION

- **LAB-Introductions (Name, Job Title, Objectives)**
- Dashboards and Robots (Data Mining & Machine Learning)
- Requirements and Testing (Four Quadrants)
- What are Structured Language Requirements? (Structured English and Structured Query Language)
- Why Should You Care? (Primary Source of Project Problems)
- How Do They Work? (Discreet Intellectual Property Inventory)
- Types of Requirements (Product, Project, DATA)
- Natural Language Processing (Morphology, Semantics, Syntax and Linguistics)
- OMG-SBVR (Semantics of Business Vocabulary & Rules)
- IEEE-EARS (Easy Approach to Requirements Syntax)
- INCOSE (Rules for Writing Requirements) & QVscribe
- Waterfall and Agile (Assembly Methods)

02-ELICIT

- **LAB-Vision/Scope (Seek to Understand)**

Elicitation Techniques:

- Document Analysis (Low Hanging Fruit)
- Interface Analysis (Navigation & Functionality)
- Benchmarking (Actual Data)
- Brainstorming (Every Idea is a Good Idea until it becomes a Bad Idea)
- Prototyping (Minimum Viable Product)
- Reverse Engineering (Begin with the End in Mind)
- Interview (Thinking Questions)
- Workshop (Group Interviews)
- Observation (What do you See?)
- Survey Questionnaire (Paper equals proof)

03-ANALYZE

- What are Models? (Pictures of Language)
- **LAB-The Language of Modeling (GIVEN pre WHEN process THEN output-result)**
- Types of Models (Context-Structure, Usage, Data Behavior, Process Flow)
- Context-Structure (Vision, Roadmap, Scope WBS)
- Usage (EPIC, UseCase, UserStory, Feature)
- Data Behavior (ERD, JOIN-Denormalization, Star Schema, Dimensional OLAP, Dashboard, Intelligence)
- Data Behavior (Data Dictionary, DataFlow, Data Structure Instance, Data Element Attribute, Data Store)
- Data Behavior (Process Logic, Business Rules)
- Process Flow (Swimlane)

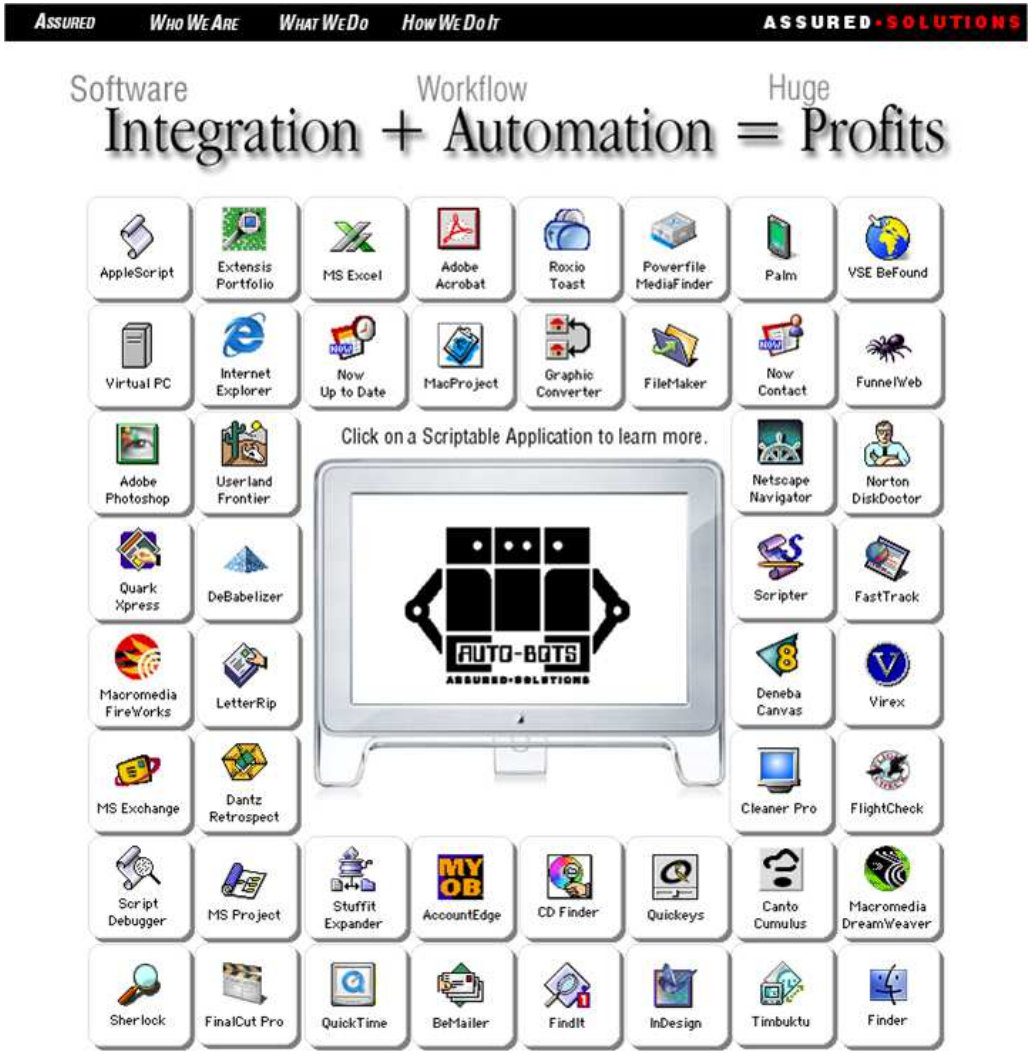
04-DOCUMENT

- Categorization, Organization, Documentation, Integration, Automation
- Making Documents Easy to Read (Fonts & Navigation)
- Document Types (BRD, TRD)
- **LAB-Business Requirement Document (Concept of Operation)**
- Technical Requirement Document (System Specification)

05-VALIDATE

- Validation thru Triangulation (Prep Drills)
- Traceability (Project Unique Identifier)
- Requirements Baseline (ROM Estimate, Planning Estimate, Definitive Estimate)
- **LAB-Estimating Story Points (Complexity and Risk)**
- Lessons Learned (Course Wrap-Up)

Assured Solutions

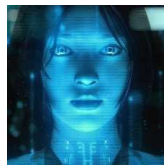


Object Management Group (OMG)

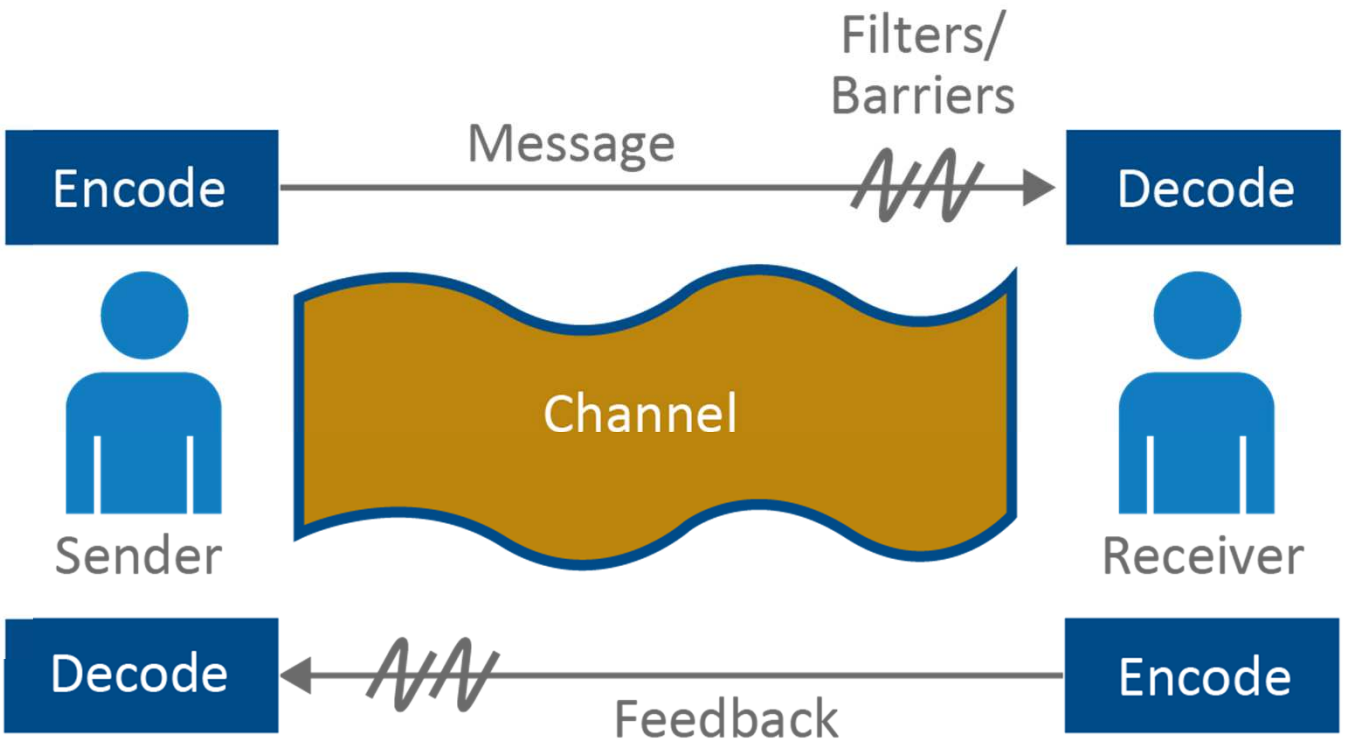
Semantics of Business Vocabulary & Rules

Overview "Seek to Understand"

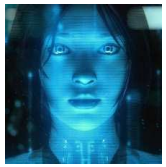
- Business Vocabulary
  "Dictionaries"
- Business Rules
  "Operating Manuals"



Communication Model



Project Management Institute, *A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)* – Fifth Edition, Project Management Institute Inc., 2013, Figure 10-4, Page 294.



Meaning vs Representation

Become a Body of Shared Meanings via Definitions & Examples

body of meaning

Representation "ENCODE"

EXPRESSION

Interpretation "DECODE"

body of meaning

Shared by a semantic community

Shared by speech communities

Meanings

Unexpressed:

- Concepts
  - Noun Concepts
  - Verb Concepts
- Propositions
- Questions

Expressions of Representations

In a language:

- Terms
- Names
- Identifiers
- Verb Concept Wordings
- Definitions
- Statements
- Text
- Non-verbal Designations

Meanings

Unexpressed:

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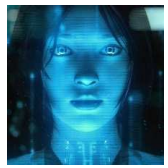


"Institutional" Semantic and "Targeted" Speech

Semantic community "Shared Meaning"

Speech community "Target Audience"

Employees:
jargon, abbreviations, transaction codes, form numbers, etc.

Legal:
contracts, product and service specifications, compliance reporting, etc.

Public:
advertisements, public-facing web sites, scripts for helpdesks, etc.

Shares

Body of shared meanings
Noun concepts, verb concepts, business rules

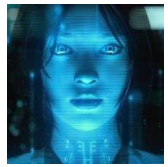
Represents

Shares

Business vocabulary
Terms, names, verbs, keywords

e.g. specialists such as lawyers, accountants, engineers

e.g. community speaking the same natural language



"Institutional" Semantic and "Targeted" Speech

Shared by a semantic community

Shared Meanings

Shared Guidance

- Business Rules
- Permissions and Possibilities

Shared Concepts

- Verb Concepts
- Noun Concepts

Shared by a semantic community

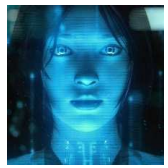
Representations

Signifiers, definitions and supporting details

- **Business Rule Statements**
- **Other Guidance Statements**
- **Verb Concept Wordings**
- **Definitions** Terms & Appellations

Shared by a speech community of the semantic community

Shared by speech communities



Operating Manual "The Structure of Rules"

Business Rules Mantra -- SBVR Version:

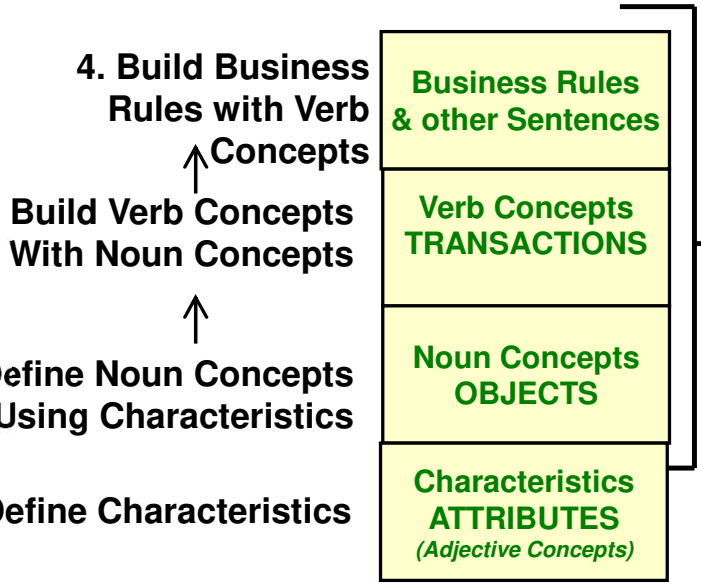
"Rules are built on Verb Concepts. Noun Concepts play roles in Verb Concepts. Noun Concepts are represented by Terms."

4. Build Business Rules with Verb Concepts

3. Build Verb Concepts With Noun Concepts

2. Define Noun Concepts Using Characteristics

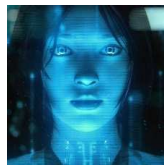
1.Define Characteristics



Develop Vocabularies to represent them (starting with terms for the noun concepts)

… to describe businesses, not the IT systems that serve them

… in language understandable by business people



Operating Manual "The Structure of Rules"

Business Terminology + Rules =

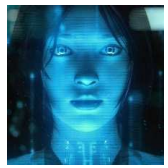
Business Glossary:
- Noun Concepts, Definitions & Primary Terms

+ Taxonomy:
- General/Specific + Whole/Part Hierarchical Relationships

+ Thesaurus:
- Synonyms, Acronyms, Abbreviations, etc. + Multilingual
- Instances of Concepts e.g. Business Events & Business Entities
- Verb concepts
  - Relations among Concepts

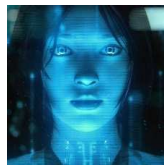
+ Semantically Rich Vocabulary (Terminology ontology):
- Relations among Instances (DATA TABLE) of Concepts (OBJECTS)
- Definitional Rules (Transitions, Conversions, Limitations)
- Definitions, Relationships & Rules specified in formal logic

+ Behavioural Business Rules (ORGANIZATION POLICY):
- Rules Governing Business Actions (Decisions)



Summary "Train the Trainer"

- Business Vocabulary
  "Dictionaries"
- Business Rules
  "Operating Manuals"



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