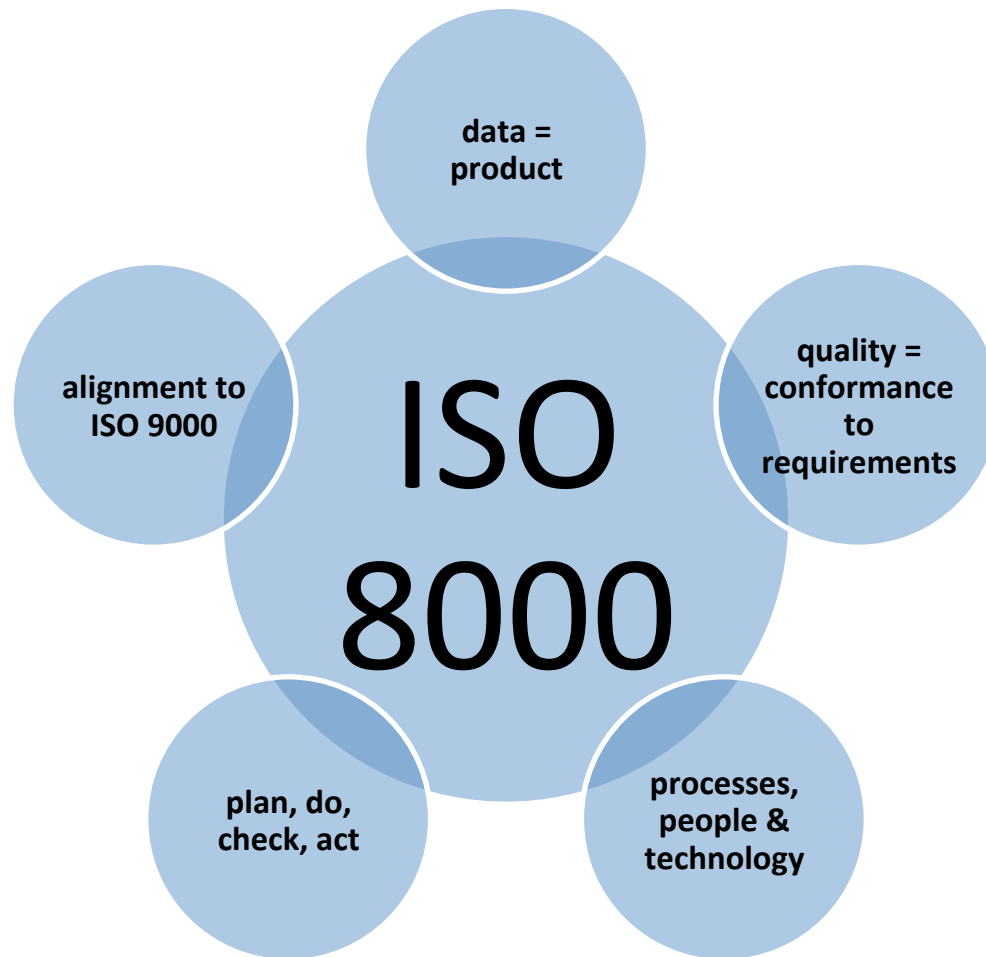




ISO 8000 MD Introduction

Dr Salomon de Jager
CEO Pilog Group



ISO 8000 Family of Standards

ISO 8000

General Principles

Master Data

Transaction data

Part 1
Introduction

Part 2
Terminology

Part 100
Introduction

Part 110

Part 120
Provenance

Part 130
Accuracy

Part 140
Completeness

Syntax

Semantic
encoding

Meets
requirements



ISO 8000 Part 100

deals with the creation and management of

Master Data

that **precedes** processes and methods

used by organizations

MOTIVATION

ISO 8000

THE INTERNATIONAL STANDARD FOR DATA QUALITY

The **motivation** for ISO 8000 Part 100 was driven by companies looking for **quality data**.

- Improved data quality
- allows data integration
- that built long term relationships



SOLUTION

SOLUTION

ISO 8000

THE INTERNATIONAL STANDARD FOR DATA QUALITY

ISO 8000 Part 100 and Part 110 standards offers the solution :



ISO 8000 Part 100 focus on **promoting quality** Master Data by starting with **the data capture** process

ISO 8000 Part 110 focus on **Standards** to create quality Master data that can be **processed by a computer**

ISO 8000 – 22745 focus on the **exchange** of processed data

PURPOSE

Whereas : ISO 9001 states: 'You have a process and you follow the process'

ISO 8000 Part 100 and 110 provide a set of rules to follow. ISO 22745 tell us how to follow the rules...

PURPOSE

ISO 8000



THE INTERNATIONAL STANDARD FOR DATA QUALITY

The **purpose of standards** is to be able to claim that your company, software and services are ISO 8000 compliant, **which means:**

You are providing data in **compliance** with a **Data Requirement** ★

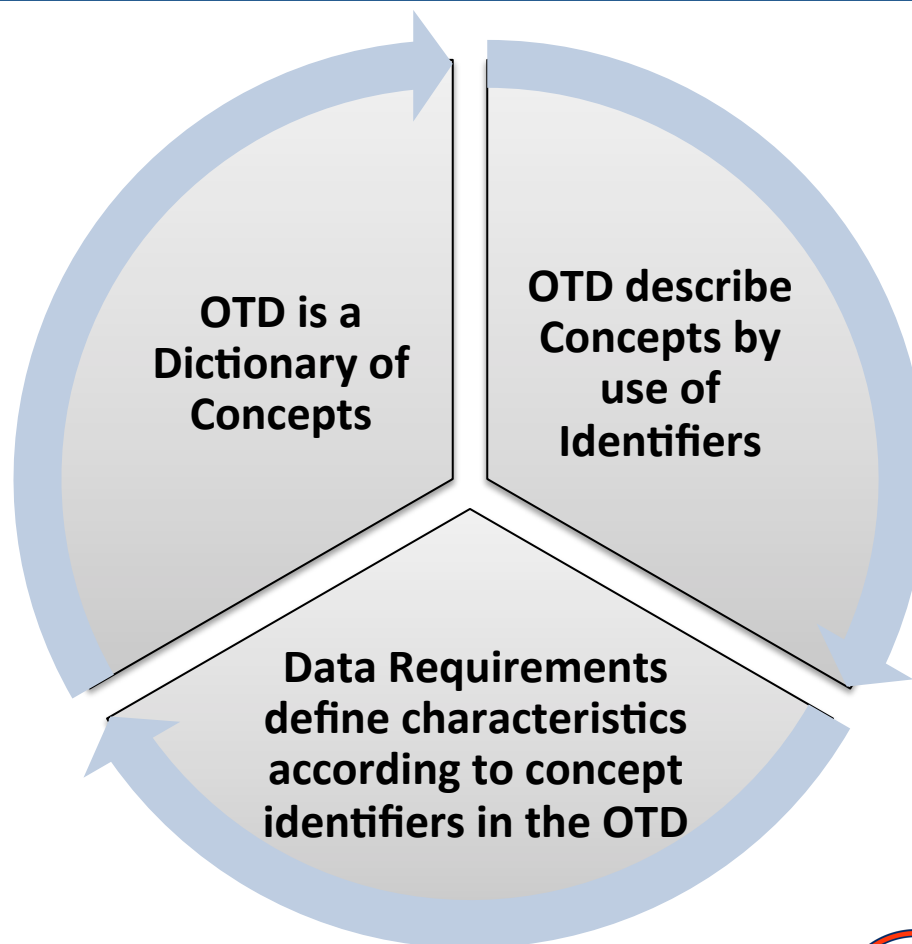
You have **quality data** that is **interchangeable** between different software applications ★

You can **formulate** your data requirements into a **Request for Data** ★

APPROACH

ISO 8000

To claim that your company is ISO 8000 compliant you need to understand:





ISO 8000

THE INTERNATIONAL STANDARD FOR DATA QUALITY



MOTIVATION

Companies looking for Quality Data



SOLUTION

ISO 8000 Part 100 and Part 110



PURPOSE

To be able to claim that Company is ISO 8000 compliant



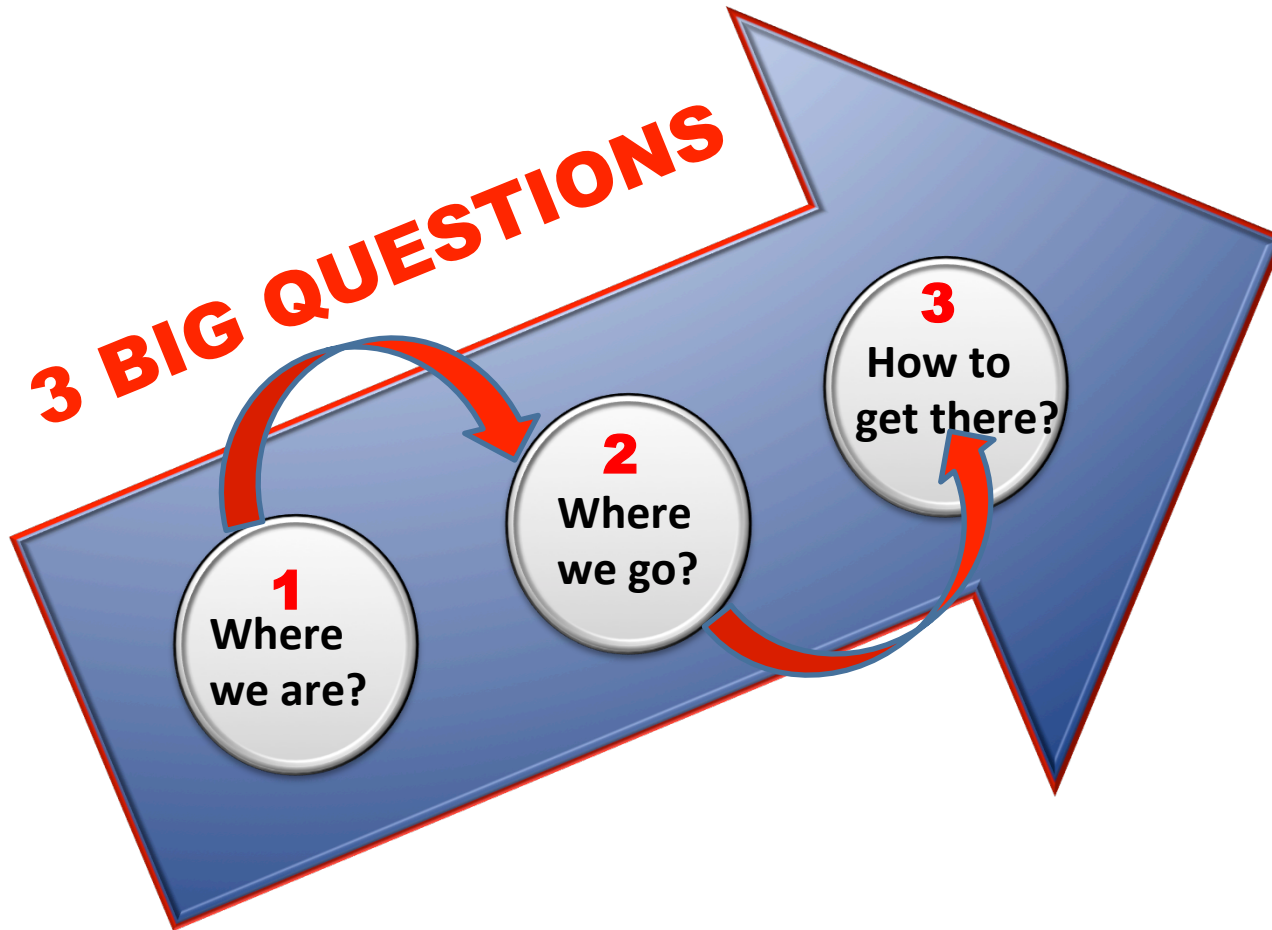
APPROACH

Need to understand OTD and Data Requirements



APPROACH

Need to understand OTD and Data Requirements





1

- Examples of how we currently use the Data Dictionary

2

- Examples of the OTD and Data Requirements as explained in ISO 8000 Part 100

3

- Working through requirements and standards documented in ISO 8000 Part 100 to Part 140

1



2



DATA DICTIONARY

OPEN TECHNICAL DICTIONARY

Standardized templates
are used to guide the
cataloguer

Concepts with
Identifiers

Terminology to
specify the meaning
of concepts



DATA DICTIONARY



Standardized
templates are used
to guide the
cataloguer

DESCRIPTOR

Data Dictionary Template

Where we are

BATTERY, DRY CELL

Dictionary

☐ Disable paging Page: 1 of 1 Record: 1 of 1

Descriptor	Object	Qualifier	Definition	Guidelines	Alternative Descriptor	Descriptor Abb
BATTERY, DRY CELL	BATTERY	DRY CELL	A battery, composed of two or more cells forming	silver oxide, mercury, carbon-zinc,		BATT, DRY CELL

Record: 1

Properties Template Level Description Settings Alternative Words Template Codification Link Web URL Links Attachment Detail Unprocessed Description Change Material Groups

Name	Mandatory Ind	Definition	Abbreviation	Incl in POD	POD Seq.	Incl in SFD	SFD Seq.	Incl Sales T...	Sales Text ...	Incl UOM in SFD
TYPE	Mandatory	This will indicate if the battery is rechargeable or if		<input checked="" type="checkbox"/>	5	<input checked="" type="checkbox"/>	5	<input type="checkbox"/>	0	<input checked="" type="checkbox"/>
APPLICATION	Ignore	The specific piece of equipment that the item is		<input checked="" type="checkbox"/>	7	<input checked="" type="checkbox"/>	7	<input type="checkbox"/>	0	<input checked="" type="checkbox"/>
CONNECTION	Ignore	The number and type of terminals on the item.		<input checked="" type="checkbox"/>	6	<input checked="" type="checkbox"/>	6	<input type="checkbox"/>	0	<input checked="" type="checkbox"/>
COMMERCIAL SIZE	Mandatory	The commercially recognized size of the item.		<input checked="" type="checkbox"/>	1	<input checked="" type="checkbox"/>	1	<input type="checkbox"/>	0	<input checked="" type="checkbox"/>
BRAND	Ignore	The specific trade name to be applied/provided.		<input checked="" type="checkbox"/>	11	<input checked="" type="checkbox"/>	11	<input type="checkbox"/>	0	<input checked="" type="checkbox"/>
TRADE NAME	Ignore	The recognized trade name of the item.		<input checked="" type="checkbox"/>	4	<input checked="" type="checkbox"/>	4	<input type="checkbox"/>	0	<input checked="" type="checkbox"/>
DIMENSIONS	Ignore	The overall physical dimensions of the item.		<input checked="" type="checkbox"/>	8	<input checked="" type="checkbox"/>	8	<input type="checkbox"/>	0	<input checked="" type="checkbox"/>
POTENTIAL	Mandatory	The rated voltage of the item.		<input checked="" type="checkbox"/>	9	<input checked="" type="checkbox"/>	9	<input type="checkbox"/>	0	<input checked="" type="checkbox"/>
CURRENT CAPACITY	Ignore	The amp hour rating.		<input checked="" type="checkbox"/>	10	<input checked="" type="checkbox"/>	10	<input type="checkbox"/>	0	<input checked="" type="checkbox"/>
MODEL	Ignore	The design or name further describing the type of		<input checked="" type="checkbox"/>	12	<input checked="" type="checkbox"/>	12	<input type="checkbox"/>	0	<input checked="" type="checkbox"/>

The Data Dictionary: consist out of standardized Templates



ISO 8000

2

OPEN TECHNICAL DICTIONARY



Concepts with
Identifiers



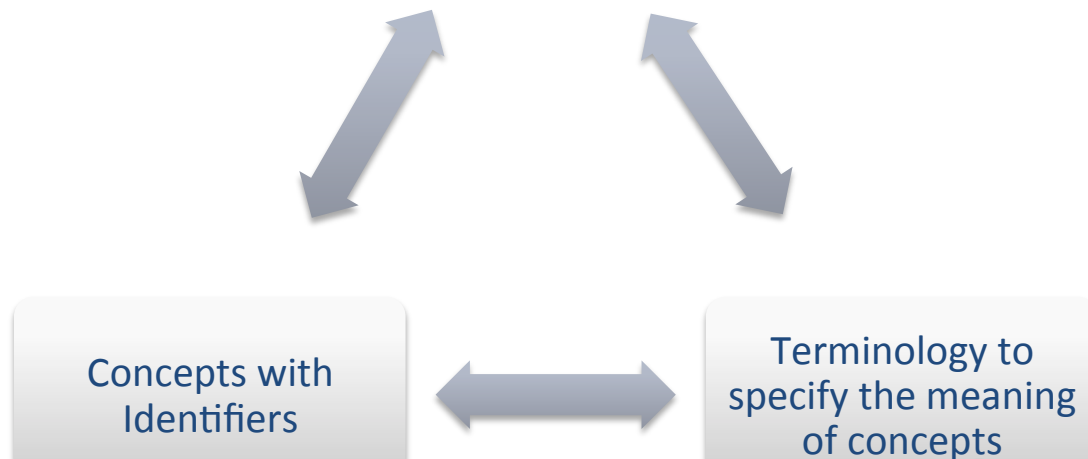
Terminology to
specify the meaning
of concepts



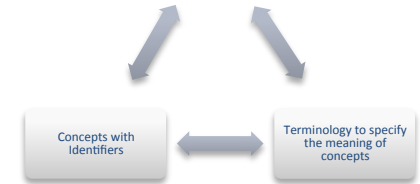
ISO 8000

The Open Technical Dictionary: consist out of **Concepts**

OPEN TECHNICAL DICTIONARY

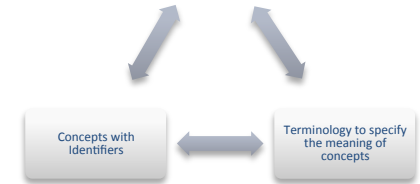


OPEN TECHNICAL DICTIONARY

[illegible]

ISO 8000

OPEN TECHNICAL
DICTIONARY



Each Concept is linked to a Concept Type

COLLAR, BEARING

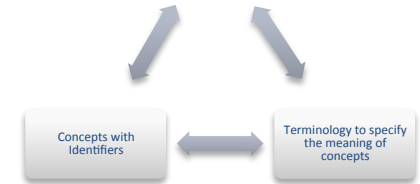
= CLASS

WIDTH

= PROPERTY

ISO 8000

OPEN TECHNICAL
DICTIONARY



Each Concept is assigned a unique and permanent identifier

COLLAR, BEARING

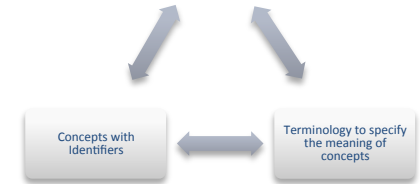
0161-1#TM-1099479#1

WIDTH

0188-1#tTM-1088786#1

ISO 8000

OPEN TECHNICAL
DICTIONARY



Each Concept has a **description** to specify the meaning of the concept

COLLAR, BEARING

0161-1#TM-1099479#1



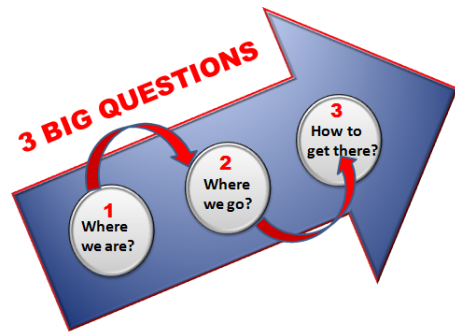
A thrust bearing having a suitably formed face or faces that resist the axial pressure of one or more collars on a rotating shaft.



ISO 8000

Example OTD

CONCEPT TYPES		CONCEPTS		DESCRIPTIONS		UNIQUE ID'S					
<input type="checkbox"/>	Concept Type	Term	Language	Definition	Abbreviation	Label	Org Name	Domain	Manuf	Active Ind	Concept IRDI
<input type="checkbox"/>	Class	BATTERY, DRY CELL	English US	A battery, composed of one cells forming a single unit, which may or may not be recharged and whose electrolyte is not in fluid form.	BATT DRY CELL	-	VOLTEX	PRODUCT	-	Y	1007-1#01-086007#1
<input type="checkbox"/>	Property	TYPE	English US	A subdivision into a particular classification.	TYP	-	VOLTEX	-	-	Y	1007-1#02-062726#1



**OPEN TECHNICAL
DICTIONARY**



**DATA
REQUIREMENTS**



ISO 8000

The **DATA REQUIREMENT REGISTRY** contains:

1. Relationships between concepts
2. Constraints on property values
3. Data types

Rule: All information used to create a Data Requirement must first be registered in the Open Technical Dictionary.

CLASS = BATTERY, DRY CELL

Example: DATA REQUIREMENT

Data Requirement (Template) of BATTERY, DRY CELL



CHARACTERISTICS OF CLASS

1 - 11 of 11

Property Name	Definition	Required	Sequence	Data Type	Language
TYPE	A subdivision into a particular classification.	Mandatory	1	String Type	English US
POTENTIAL	The rated voltage of the item.	Mandatory	2	String Type	English US
CURRENT CAPACITY	The amp hour rating.	Mandatory	3	String Type	English US
COMMERCIAL SIZE	The size of the item as it is commercially known.	Optional	4	String Type	English US
DIMENSIONS	The overall physical dimensions of the item.	Optional	5	String Type	English US

Example of Data Requirement to show *Class* **BATTERY, DRY CELL** and *Characteristic Data*

A Data Requirement: Is a set of rules describing items that belong to a particular class using entries from a Data Dictionary.

Example: DATA REQUIREMENT

PROPERTY = TYPE

PROPERTY VALUES for 'TYPE'

CHARACTERISTICS OF CLASS = BATTERY, DRY CELL

Property Name	Value	Unit Of Measure(UOM)	Required	Sequence	Data Type	Language
TYPE	BUTTON	N/A	Mandatory	1	String Type	English US
POTENTIAL	LIPO	N/A	Mandatory	2	String Type	English US
	USB RECHARGEABLE	N/A				
CURRENT CAPACITY	The amp hour rating.		Mandatory	3	String Type	English US
COMMERCIAL SIZE	The size of the item as it is commercially known.		Optional	4	String Type	English US
DIMENSIONS	The overall physical dimensions of the item.		Optional	5	String Type	English US
CONNECTION TYPE	The specific type of connection.		Mandatory	6	String Type	English US
MATERIAL	The predominant material that the item is made from.		Mandatory	7	String Type	English US

1

Example of Data Requirement to show *Property Type* with it's *Property Values*

Example: DATA REQUIREMENT

CHARACTERICS OF
CLASS = BATTERY, DRY CELL

PROPERTY
= **POTENTIAL**

PROPERTY VALUES
for '**POTENTIAL**'

Data Requirement		1 - 6 of 6			
Value	Unit Of Measure(UOM)	Required	Sequence	Data Type	Language
1.2	V	Mandatory	1	String Type	English US
1.5	V	Mandatory	2	String Type	English US
1.55	V	Mandatory	3	String Type	English US
3.6	V	Mandatory	4	String Type	English US
6	V	Mandatory	5	String Type	English US
9	V	Mandatory	6	String Type	English US
CURRENT CAPACITY		Mandatory	7	String Type	English US
COMMERCIAL SIZE		Optional	8	String Type	English US
DIMENSIONS		Optional	9	String Type	English US
CONNECTION TYPE		Mandatory	10	String Type	English US
MATERIAL		Mandatory	11	String Type	English US

Example of Data Requirement to show *Property Potential* with it's *Property*



DATA REQUIREMENTS



ITEMS

Example: ITEM ENTRY CONTROL

Home

Description Reviews

7153 Total Records.
You've created 69 Records.

Home

Dictionary Search

15 ▼

BATTERY



☐ Contains ☐ Full-text ☒ Like

Could not find what you're looking for? [Create a new Record](#)

[1756-BA2 A](#)

Programmable Logic Controller Module,Logix™ 5000,Battery,Ser B,1756-L6X,Allen-Bradley® 1756-BA2

[1770-XYC A](#)

Lithium Battery,3 V,PLC-5®,CSA/IEC/UL,1400 mAh,1.8 in.,0.68 in.,Ser B or Later,Allen-Bradley® 1770-XYC

[1763-BA A](#)

Lithium Battery,3 V,MicroLogix™ 1100,CSA/IEC/UL,850 mAh,14 mm,26 mm,-40 to 85 deg C,Allen-Bradley® 1763-BA

[1769-BA A](#)

Lithium Battery,Replacement,3 V,CSA/IEC/UL,850 mAh,14 mm,26 mm,-60 to 85 deg C,Allen-Bradley® 1769-BA

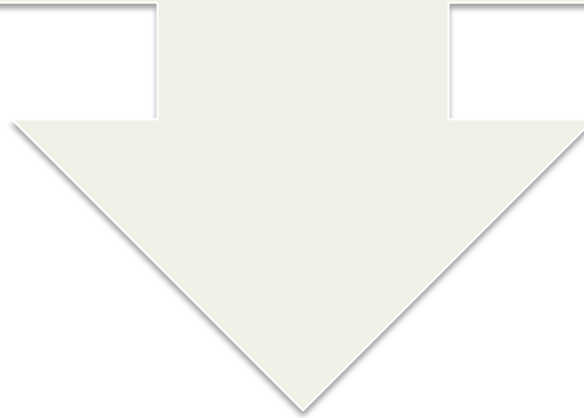
[1757-PLXBAT A](#)

Lithium Battery,ProcessLogix™,Replacement,ProcessLogix™ 1757-PLX52 Controller,CSA/IEC/UL,144 hr,Allen-Bradley® 1757-PLXBAT

For each item

descriptions are rendered

into multiple languages



Where we
go

Example:



Record Details

Record ID	40482506B8A04FFBAD5C6043A417D823
Class	Lithium Battery
Record #	2711P-RY2032 A
Catalog #	2711P-RY2032
Status	APPROVED

Descriptions

String Translations

Regenerate Descriptions

Type	Description	Language	Country	Last Generated
MKT	锂电池	Chinese	CN	2013/10/08 15:44 +02:00
MKT	PanelView Plus Lithium Battery	English	US	2013/10/08 15:44 +02:00
MKT	Batterie Lithium PanelView™ Plus	French	FR	2013/10/08 15:44 +02:00
MKT	PanelView™ Plus Ersatz Lithiumbatterie	German	DE	2013/10/08 15:44 +02:00
MKT	Batteria Al Litio PanelView™ Plus	Italian	IT	2013/10/08 15:44 +02:00
MKT	Bateria De Lítio De PanelView™ Plus	Portuguese	BR	2013/10/08 15:44 +02:00
MKT	La Bateria De Litio PanelView™ Plus	Spanish	MX	2013/10/08 15:44 +02:00
ORIGINAL MKT	PanelView Plus Accessory	English	US	2013/06/03 00:00 +02:00

3 BIG QUESTIONS

1
Where
we are?

2
Where
we go?

3
How to
get there?

MOTIVATION

Companies looking for Quality Data

SOLUTION

ISO 8000 Part 100 and Part 110

How
to
get
there



Quality Data

3

Let's go invent tomorrow instead of worrying about what happened yesterday.

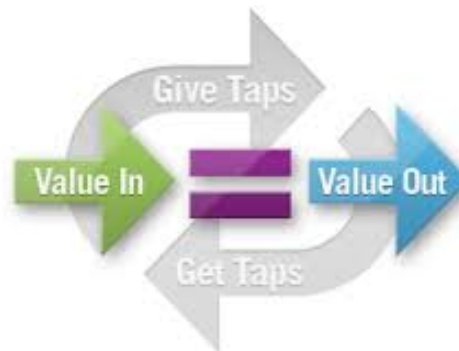
3



We have all the technology we need...



In a way it mirrors our thought processes



We need to use technology better....



Think Different.

ISO 8000 Part 100

holds the key to



Quality Data

by focusing on the true meaning of

Data, Information, Knowledge, Intelligence, Wisdom

ISO 8000



Think Different.

Quality Data

Achieved by combining the following:

Wisdom

Intelligence

(Value, Vision, Integrity)
The good can only be known by pure thought and intelligence

Knowledge

(Experience, Reflection, Understanding)
The past is relived and we create the future based on the past

Information (Meaning and Memory)

Symbols can reproduce an image or feeling in the mind that we believe to be true as the 'voice in the head' tell us so

Data (Symbols and Senses)

Meaning given to symbols is used to make sense of everything in life
Meaning of a word without further information is based on perception

Data Pyramid

LANGUAGE

Truth
Build intelligently

Awareness

Improvement, New ideas, New solutions

Attention

Opportunities to make decisions without fear of making mistakes

Agreement

Associate words with pictures in mind what we believe to be true

Perception

Old perceptions frozen into language force people to experience the world in old fashioned ways

Language Pyramid

Self-Actualization

Morality, Creativity
Spontaneity, Problem solving
Lack of prejudice, Acceptance of facts

Esteem

Self-esteem, confidence, achievement
Respect of others, respect by others

Love/Belonging

Friendship, family

Safety

Security of body, of employment, of resources, of morality of the family, of health, of property

Physiological

Breathing, food, water

Maslow Human Needs

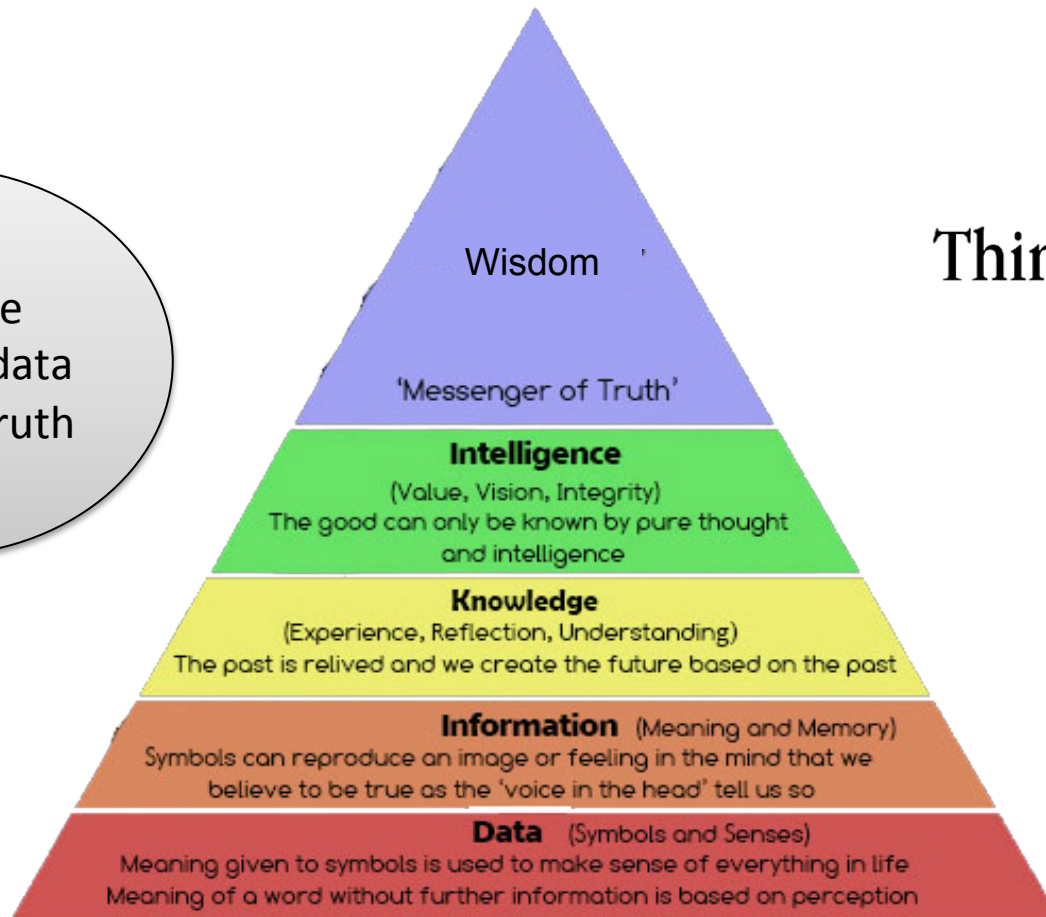
ISO 8000

Data Pyramid



Think Different.

To create
authentic data
based on truth



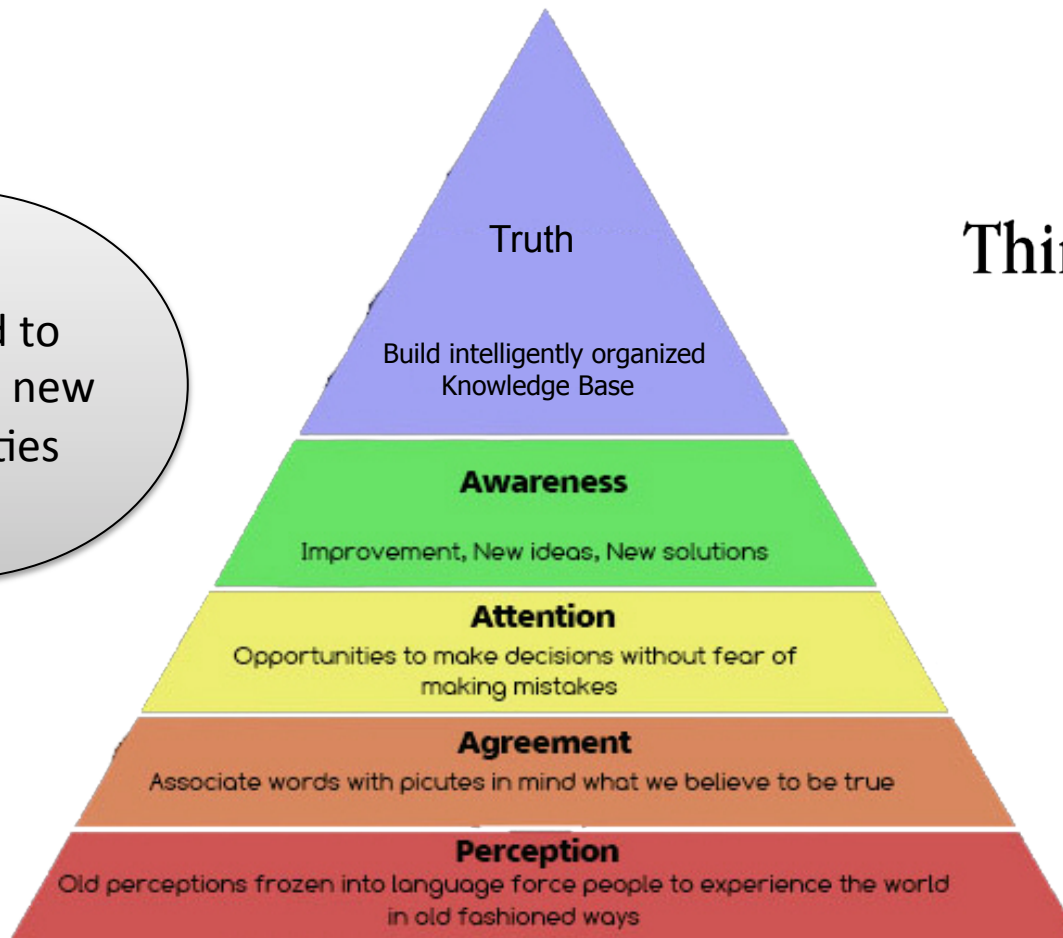
ISO 8000

Language Pyramid



Think Different.

We need to
awaken to new
possibilities



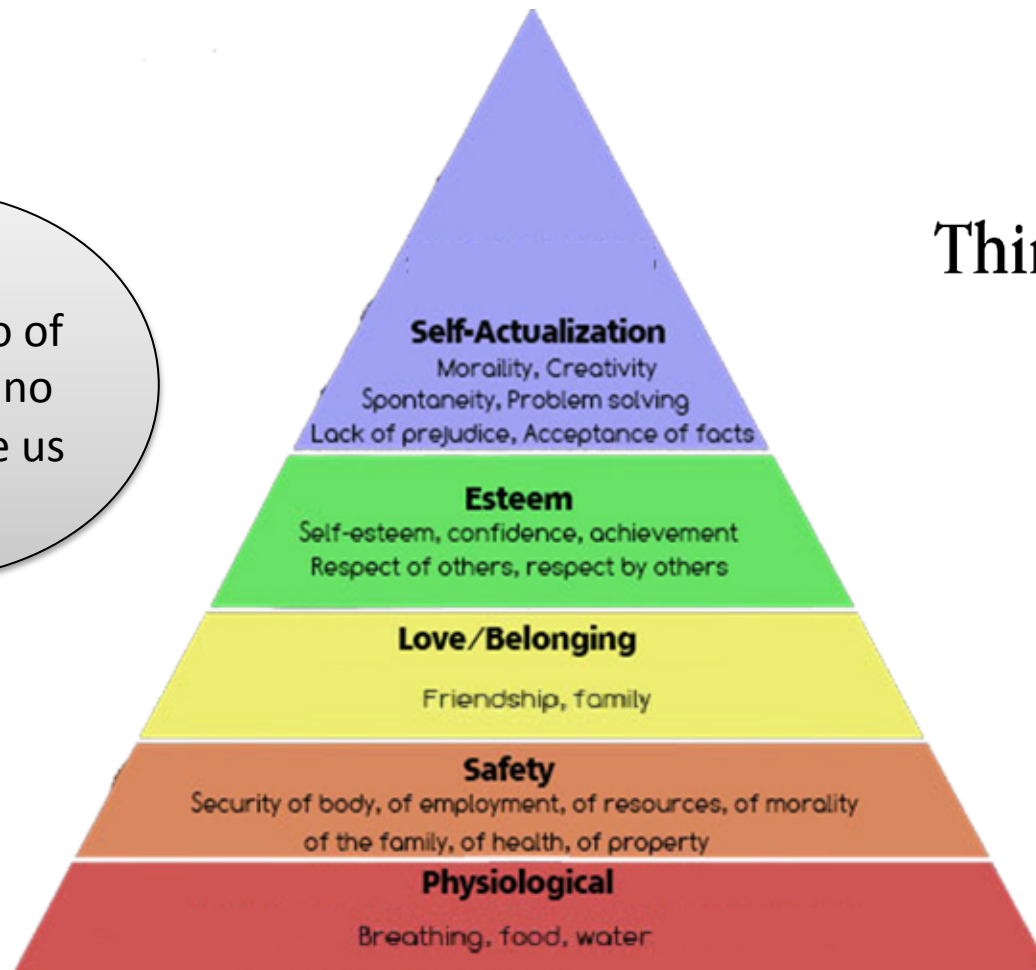
ISO 8000

Maslow Human Needs



Think Different.

By letting go of
habits that no
longer serve us





Let the journey begin.



Data and Perception

In the new Oxford American Dictionary
Data is defined as:
'**facts** and statistics **collected** together
for **reference** or analysis'

Data (Symbols and Senses)

Meaning given to symbols is used to make sense of everything in life
Meaning of a word without further information is based on perception

Data and Perception

What we call **facts** can vary from person to person based on individual **Perception**



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Old perceptions frozen into language force people to experience the world
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Data and Perception

What we call **facts** can vary from person to person based on individual **Perception**



COLLAR



In the new Oxford American Dictionary
Data is defined as:
'**facts** and statistics **collected** together
for **reference** or analysis' .

Perception is defined as:
' the way in which something is
regarded, understood or interpreted.

It becomes clear that
Data is not Information

Data is based on individual
Perception of a word

Data (Symbols and Senses)

Meaning given to symbols is used to make sense of everything in life
Meaning of a word without further information is based on perception

Perception

Old perceptions frozen into language force people to experience the world
in old fashioned ways

Information and Agreement

A collection of data for which there is no relation between the pieces of data is not information. **Information** relates to description, definition or perspective.

Information (Meaning and Memory)

Symbols can reproduce an image or feeling in the mind that we believe to be true as the 'voice in the head' tell us so

Data (Symbols and Senses)

Meaning given to symbols is used to make sense of everything in life
Meaning of a word without further information is based on perception

Information and Agreement

We need to reach **Agreement** in understanding the relationships among data



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A collection of data for which there is no relation between the pieces of data is not information. **Information** relates to description, definition or perspective.

The Problem:
We associate words and pictures in the mind what we believe to be true.

Information (Meaning and Memory)

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Data (Symbols and Senses)

Meaning given to symbols is used to make sense of everything in life
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Agreement

Associate words with pictures in mind what we believe to be true

Perception

Old perceptions frozen into language force people to experience the world in old fashioned ways

Information and Agreement

We need to reach **Agreement** in understanding the relationships among data

COLLAR = COLLAR, BEARING



A collection of data for which there is no relation between the pieces of data is not information. **Information** relates to description, definition or perspective.

The Problem:
We associate words and pictures
In the mind what we believe to be true.

The Solution: We need to reach **Agreement** upon the **meaning** of the **word**

Information (Meaning and Memory)

Symbols can reproduce an image or feeling in the mind that we believe to be true as the 'voice in the head' tell us so

Data (Symbols and Senses)

Meaning given to symbols is used to make sense of everything in life
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Agreement

Associate words with pictures in mind what we believe to be true

Perception

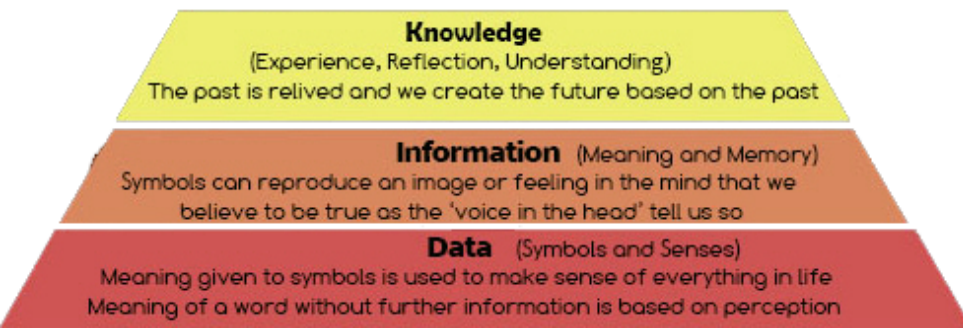
Old perceptions frozen into language force people to experience the world in old fashioned ways

Knowledge and Attention

Beliefs tells us how something may be.

Knowledge tells us how something is.

Learnt knowledge is distilled out of beliefs.



Knowledge and Attention

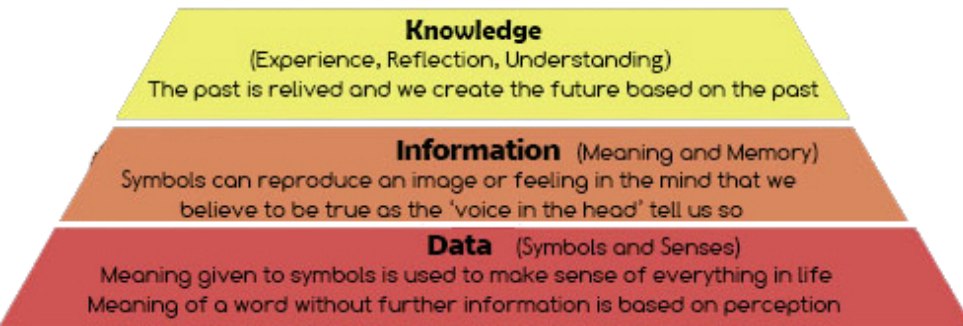
Knowledge comprise of strategy, practice, method or approach



Beliefs tells us how something may be.

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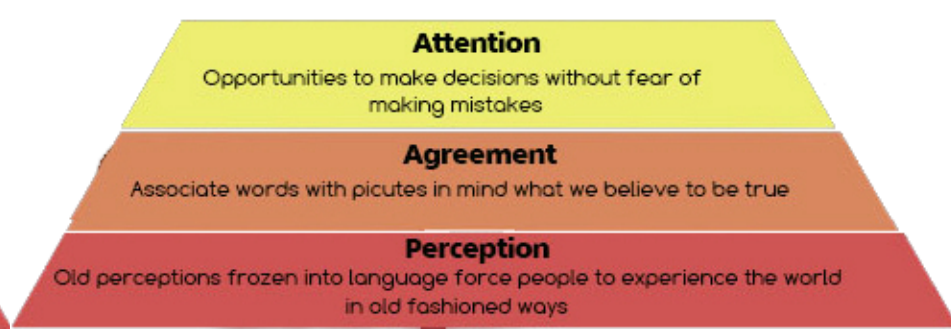
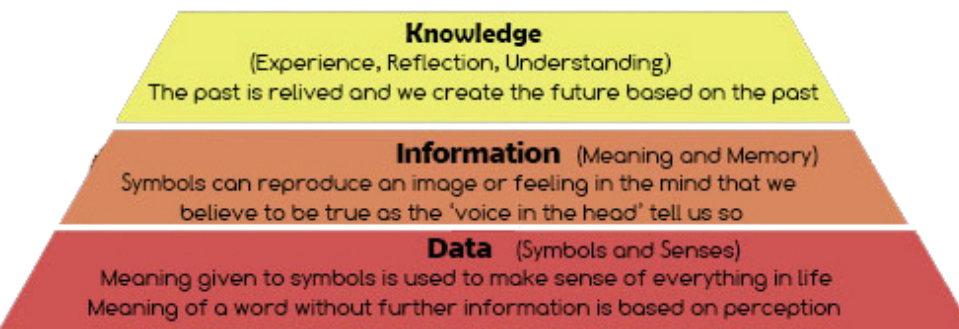
Knowledge and Attention

Knowledge comprise of strategy, practice, method or approach



Beliefs tells us how something may be.
Knowledge tells us how something is.
Learnt knowledge is distilled out of beliefs.

We need to change the power of belief we invested in symbols.
Focus Attention on making decisions without the fear of making mistakes.



Knowledge and Attention

Knowledge comprise of strategy, practice, method or approach

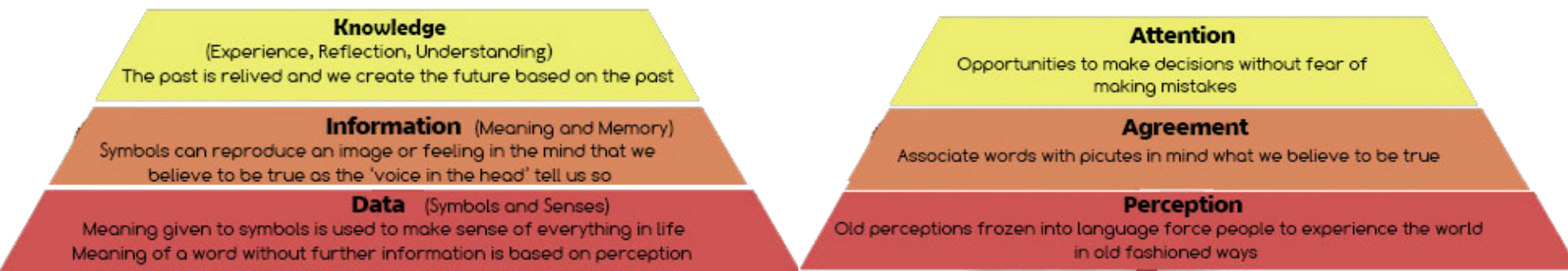
Knowledge is not about what we know, but what we don't know and need to find out.



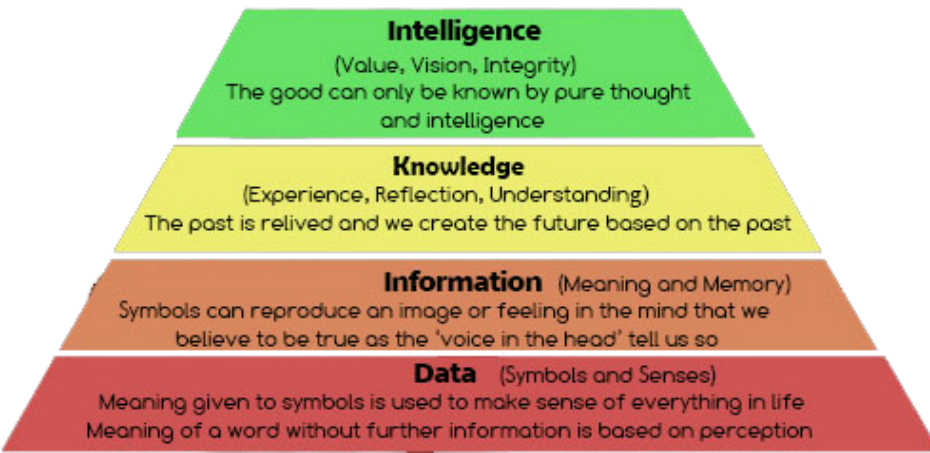
Beliefs tells us how something may be.
Knowledge tells us how something is.
Learnt knowledge is distilled out of beliefs.

We need to change the power of belief we invested in symbols.
Focus Attention on doing things different without the fear of making mistakes.

The Solution: We need to create a future no longer based on past experiences



Intelligence is a process or innate capacity to use pure knowledge in order to respond to ever-changing requirements.

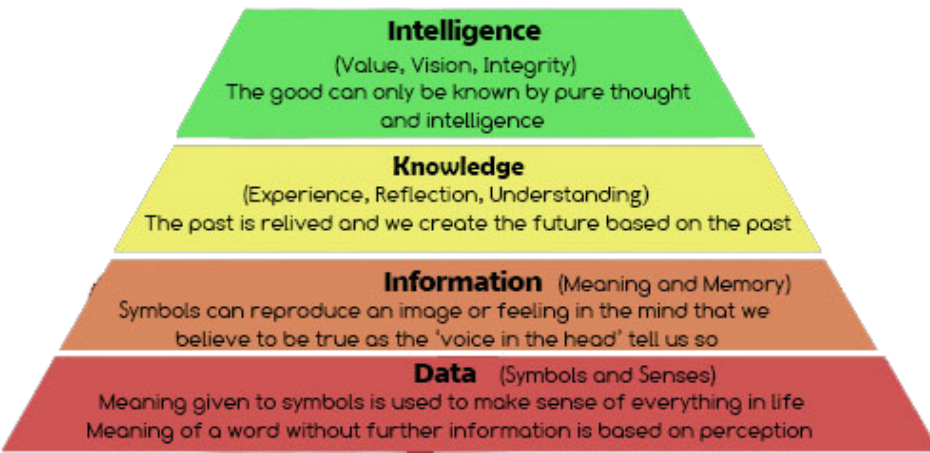


Knowledge and Attention

Through pure thought and **Intelligence, Awareness** is achieved



Intelligence is a process or innate capacity to use pure knowledge in order to respond to ever-changing requirements.



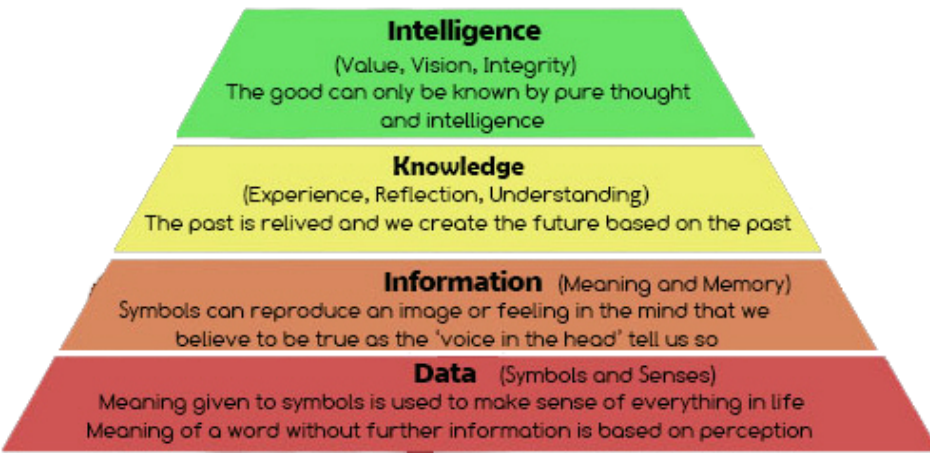
Knowledge and Attention

Through pure thought and **Intelligence**, **Awareness** is achieved



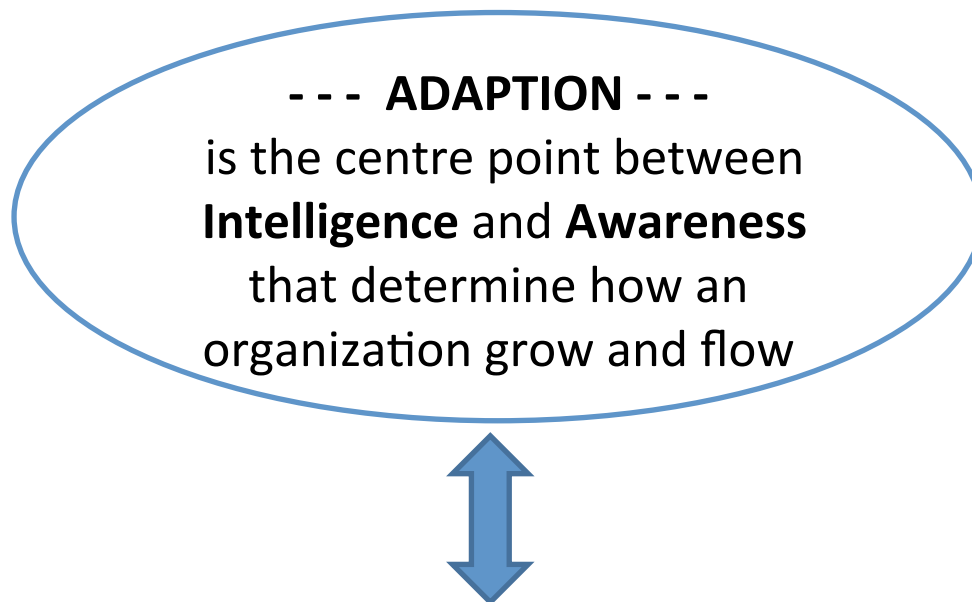
Intelligence is a process or innate capacity to use pure knowledge in order to respond to ever-changing requirements.

Awareness leads to new improvements, new ideas and new solutions.

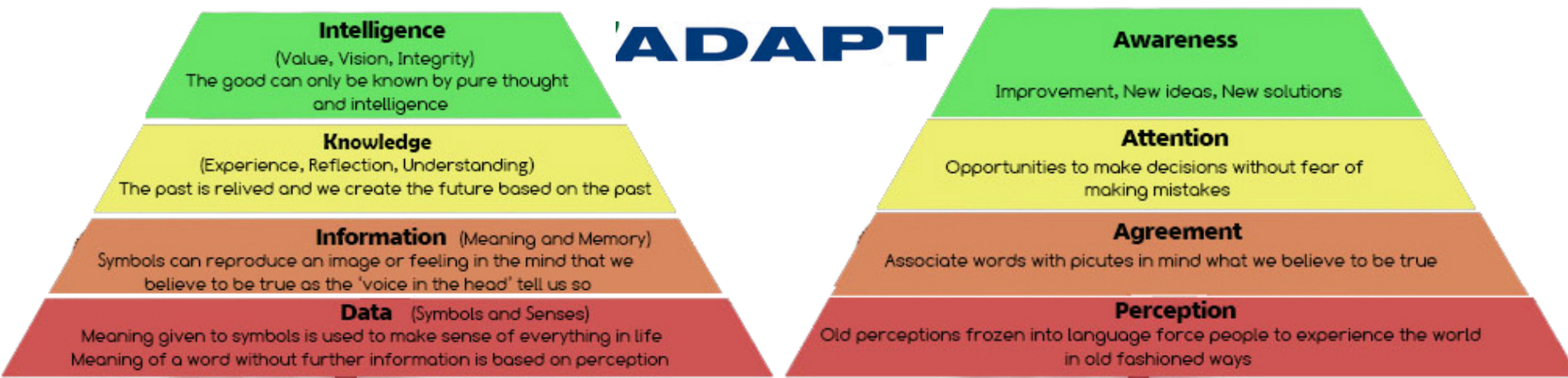


Knowledge and Attention

Through pure thought and **Intelligence**, **Awareness** is achieved



Pure thought activates **creative thinking** that results in **Intelligence** that leads to **Wisdom...**



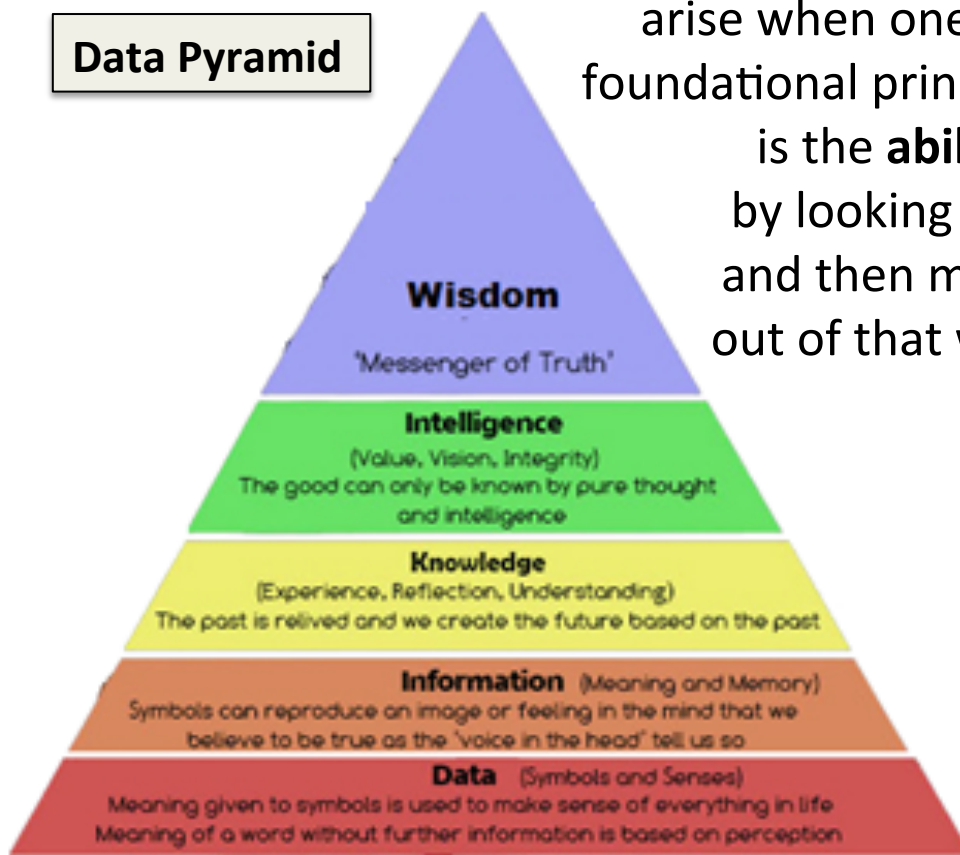
Wisdom and Truth



Data Pyramid

Language Pyramid

Wisdom
arise when one understands the
foundational principle of **Intelligence**
is the **ability to adapt**
by looking for real **truth**
and then make decisions
out of that what is known

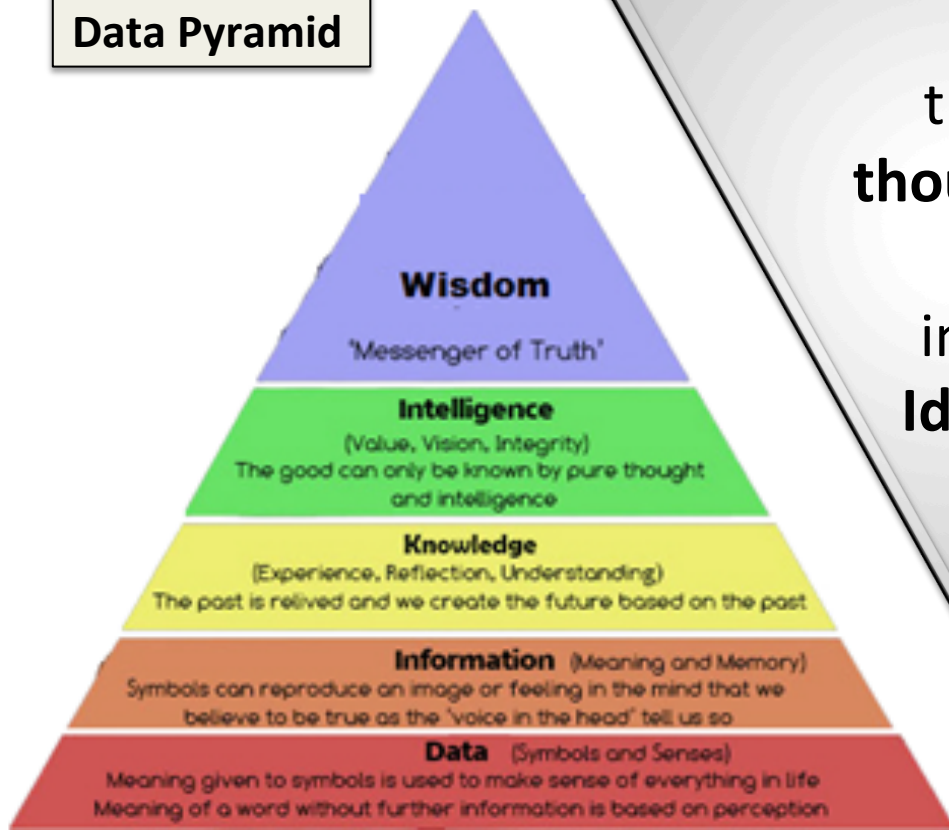


Wisdom and Truth

ISO 8000 Part 100

turn
thoughts
into
Ideas

Data Pyramid



Language Pyramid



Creative Ideas expressed and Governed by Dictionary driven DATA

Through global acceptance of the meaning of words we become 'Messengers of Truth'







Master Data is at the heart of every
business transaction
application
and
decision



About: Master Data

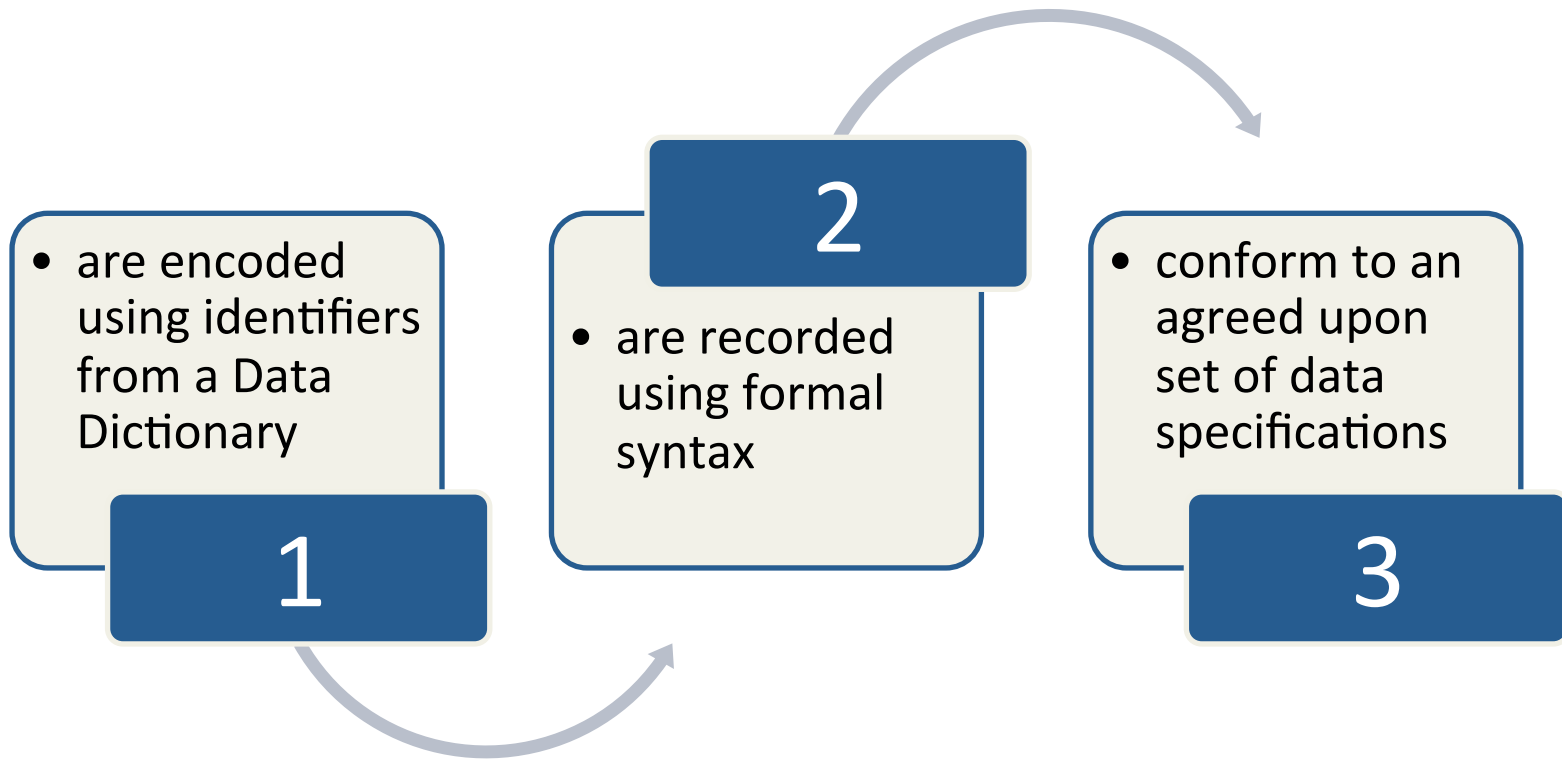
Master data is business critical information about products, services, customers, suppliers, partners, employees and more

Master Data is the high-value core information used to support critical business processes across the enterprise

— STRATEGIC DECISIONS.



Quality Master Data



ISO 8000

Quality Master Data results in **standardized Products and Services** that are:



Safer



More healthful



Higher quality



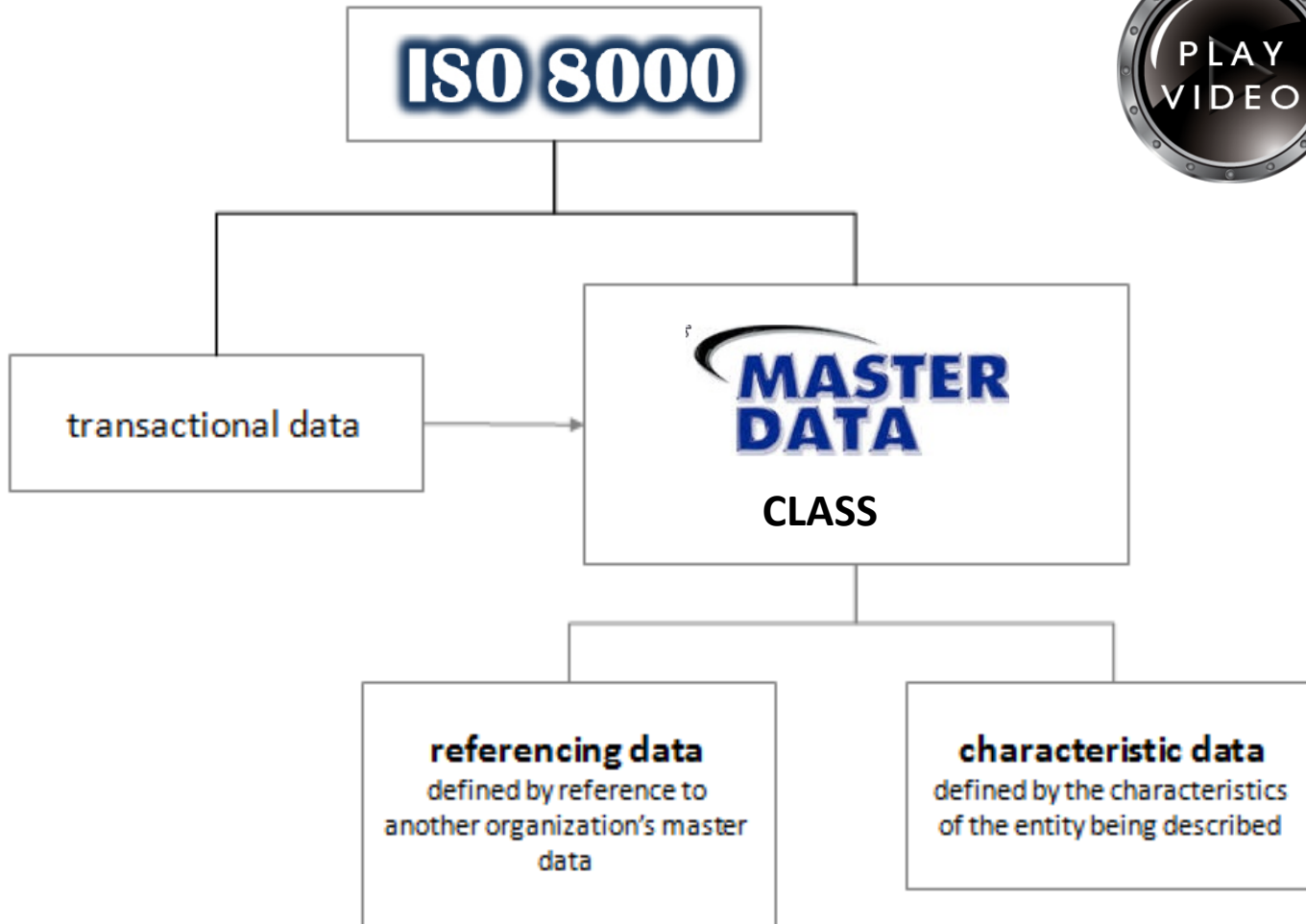
More flexible

Vital for communication



Promote Trade and Commerce





Characteristic Data: The description of an entity by the class to which it belongs and a set of property values.

ISO 8000

THE INTERNATIONAL STANDARD FOR DATA QUALITY

The rules formulated in
ISO 8000 Part 100 Standards
ensure Quality Master Data
by doing things in a **consistent way**
in addressing the key **components**

CONSISTENCY
IS THE KEY!



ISO 8000 Components

ISO 8000

Address the key components of quality data

as follows:



ISO 8000

These key components are all dependent on

The quality of the Data Capture Process



ISO 8000

The key to data quality success resides in the
Intelligent construction of software applications
to prevent data capture error



ISO 8000



ISO 8000 Standards offer the solution:

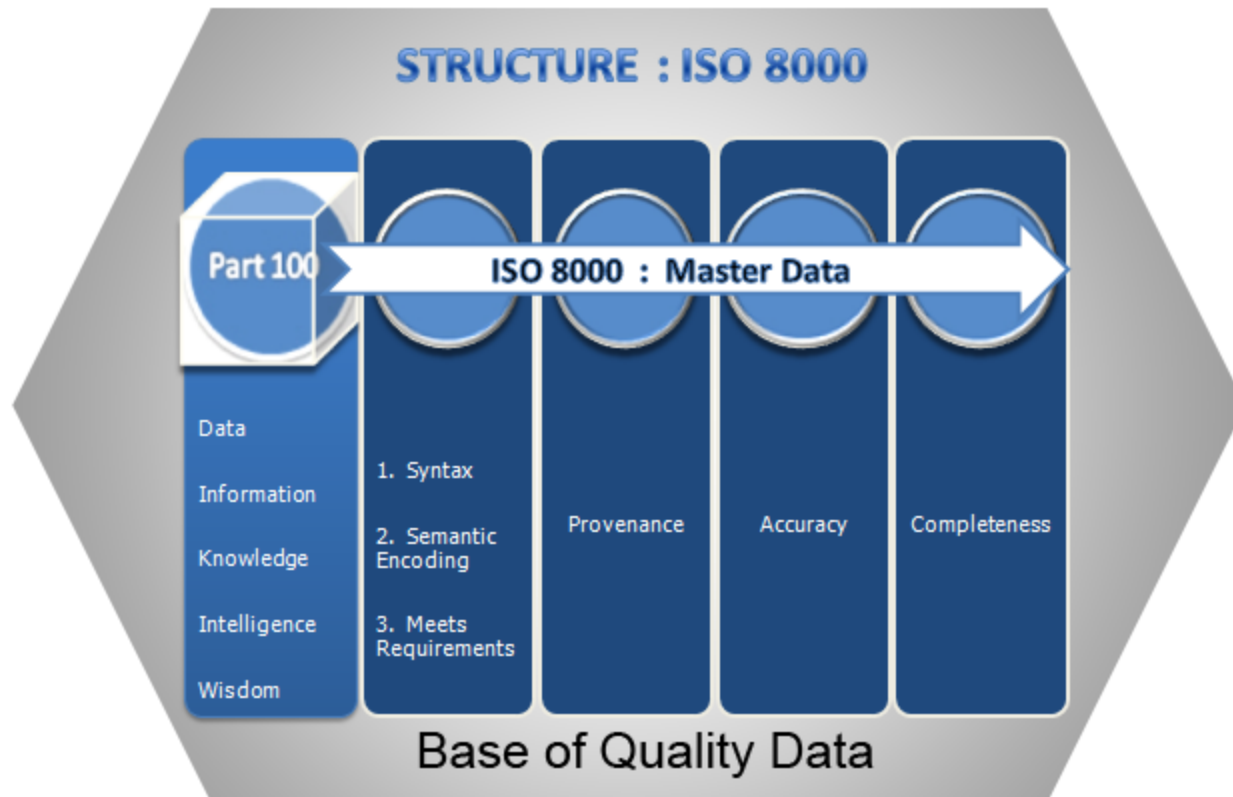
- **Data Requirement templates** must be created
- These data requirement templates are constructed by retrieving **coded concepts** recorded in the dictionary
- Information must be stored in an open format for **portability** between software applications

ISO 8000 STANDARDS



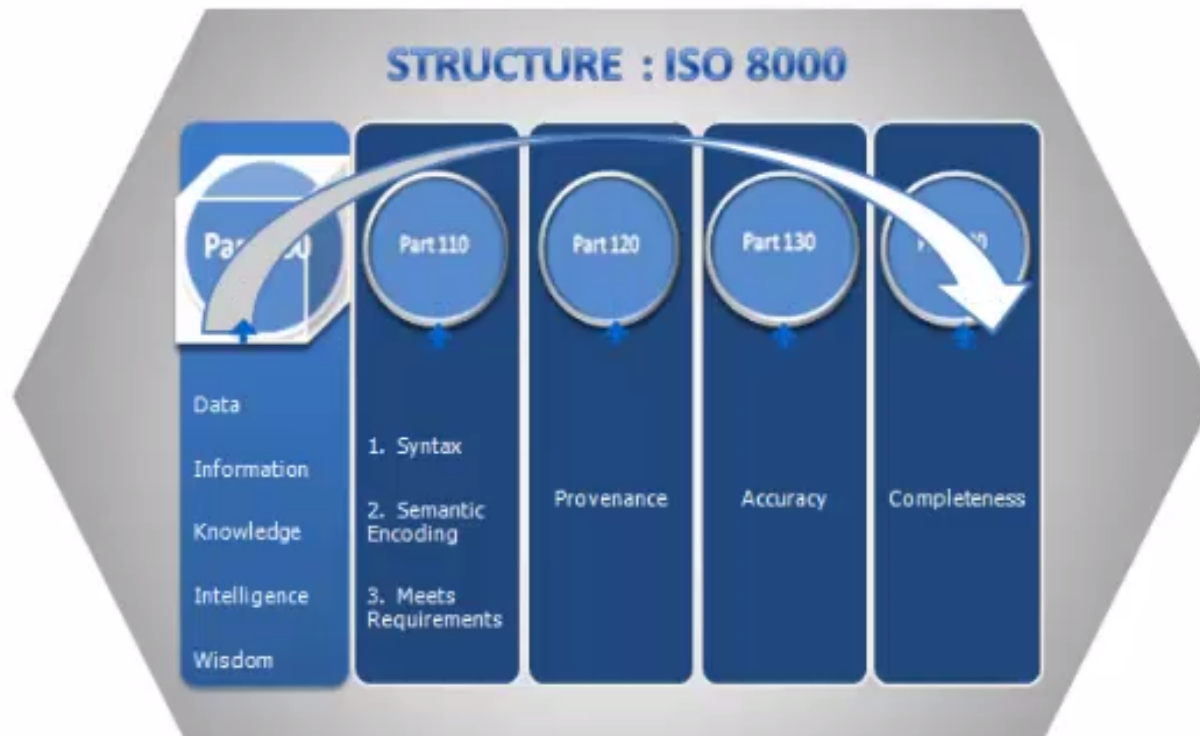
ISO 8000

The **structure** of ISO 8000 forms the base of quality data once recorded in an Open Technical Dictionary (OTD).



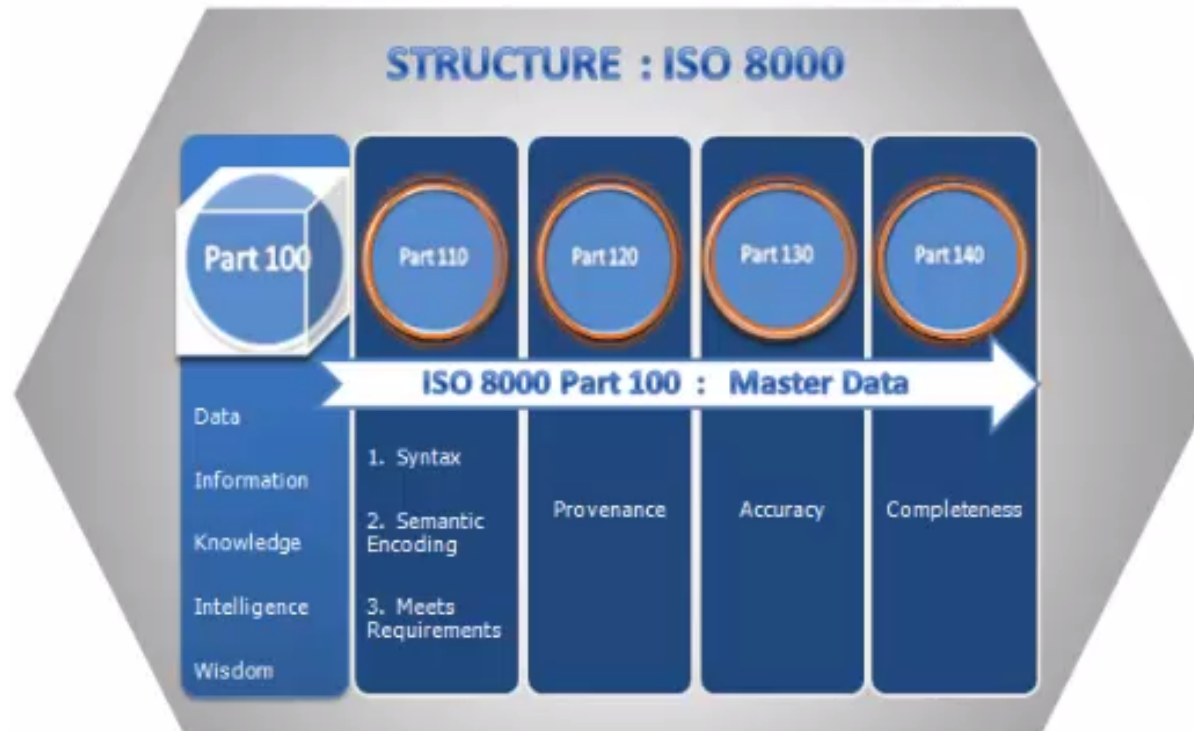
ISO 8000

ISO 8000 standards can be divided into parts



ISO 8000

Each part being a standard in its own right....





ISO 8000

ISO 8000
Standards: General
Requirements

The Master Data message must unambiguously state all needed information:

1. Specify a formal **syntax**.
2. Specify data requirements that are **machine-readable**.
3. **Refer** explicitly to the data requirement and the syntax to which **it complies**.
4. Have syntax and data requirements that are **computer verifiable**.
5. Refer to data dictionary entries in the form of unambiguous **identifiers** belonging to an **international recognized scheme**.

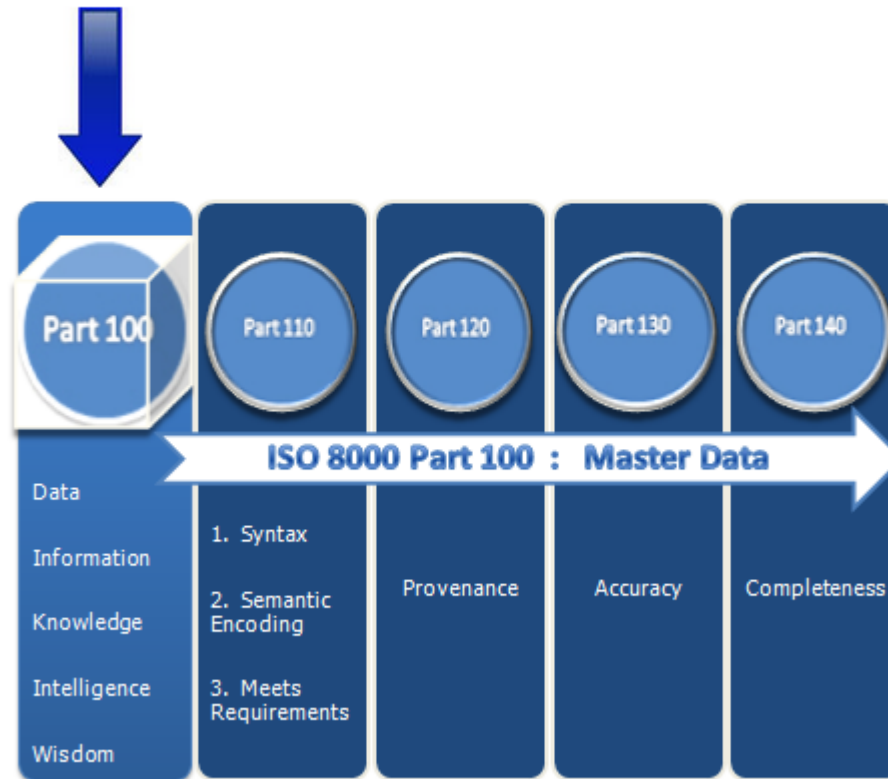
ISO 8000

ISO 8000 Part 100



Part 100: Deals with insight into the whole truth

around quality data which lie at the root of our thinking



Deals with the ability to understand information and being

able to communicate the meaning of the information to others

ISO 8000



Incorrect information produces incorrect Knowledge

Incorrect knowledge is misleading and can lead to

incorrect decisions, wasted effort

and damaged processes



Confidential
Copyright Protected
PiLog

ISO 8000



Master Data Management

requires an understanding and agreement

about the meaning of terminology

Hence, the natural role of taxonomy



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PiLog

ISO 8000



Taxonomy is about naming concepts,
coming to a consensus on the exact
meaning of each named concept and
then using these names consistently
across the enterprise



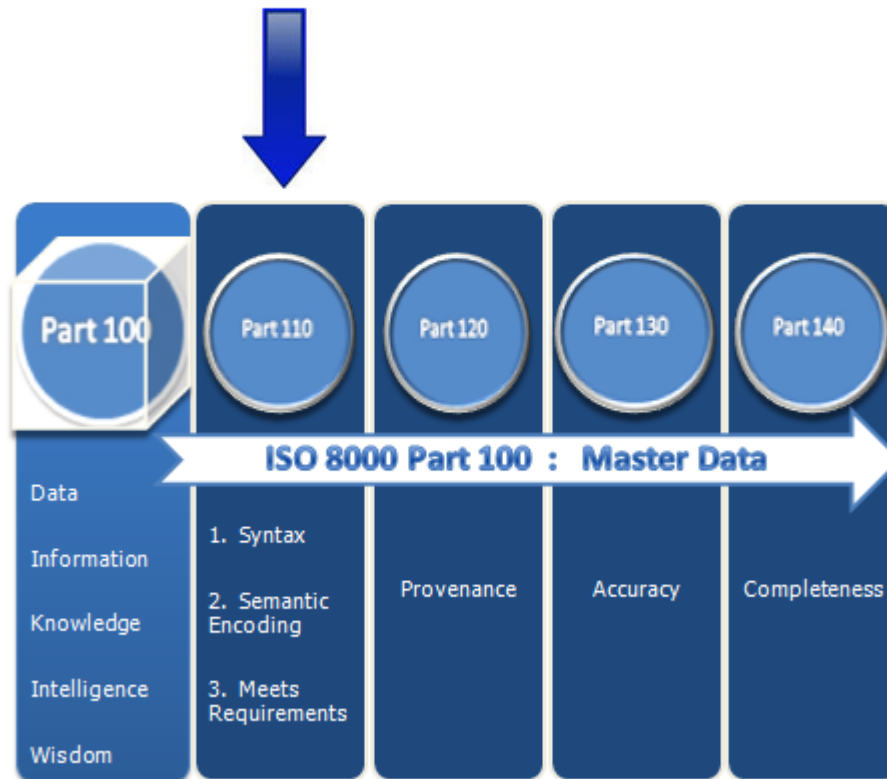
Confidential
Copyright Protected
PiLog

ISO 8000 Part 110

ISO 8000 Part 110



Part 110: Describes the use of syntax, semantic encoding and meets requirements.



Syntax and **Semantic Encoding** are terms used in relation to aspects of **language**

ISO 8000



Syntax: refers to formal rules governing the construction of valid statements in a language

Syntax is achieved in the way that words are put together to form phrases and sentences.

Example Syntax : in the OPEN TECHNICAL DICTIONARY:

CONCEPT TYPES		CONCEPTS		DESCRIPTIONS		UNIQUE ID'S					
<input type="checkbox"/>	Concept Type	Term	Language	Definition	Abbreviation	Label	Org Name	Domain	Manuf	Active Ind	Concept IRDI
<input type="checkbox"/>	Class	BATTERY, DRY CELL	English US	A battery, composed of one cells forming a single unit, which may or may not be recharged and whose electrolyte is not in fluid form.	BATT DRY CELL	-	VOLTEX	PRODUCT	-	Y	1007-1#01-086007#1

SYNTAX

ISO 8000



Semantics: refers to the set of rules which give the meaning of the statement

Semantic Encoding: is the technique of replacing natural language terms in a message with identifiers that reference data dictionary entries.

Example Semantic Encoding : in the OPEN TECHNICAL DICTIONARY

CONCEPT TYPES		CONCEPTS		DESCRIPTIONS				UNIQUE ID'S			
<input type="checkbox"/>	Concept Type	Term	Language	Definition	Abbreviation	Label	Org Name	Domain	Manuf	Active Ind	Concept IRDI
<input type="checkbox"/>	Class	BATTERY, DRY CELL	English US	A battery, composed of one cells forming a single unit, which may or may not be recharged and whose electrolyte is not in fluid form.	BATT DRY CELL	-	VOLTEX	PRODUCT	-	Y	1007-1#01-086007#1

ISO 8000

Meeting Requirements is the sum total of



ISO 8000 Part 100 and 110



Meeting Requirements

ISO 8000 Part 100:

Deals with the ability to understand information and being able to communicate the meaning of the information to others.

ISO 8000 Part 110:

Deals with the intellectually disciplined process to actively and skilfully conceptualize, apply, analyze, synthesize and evaluate information.

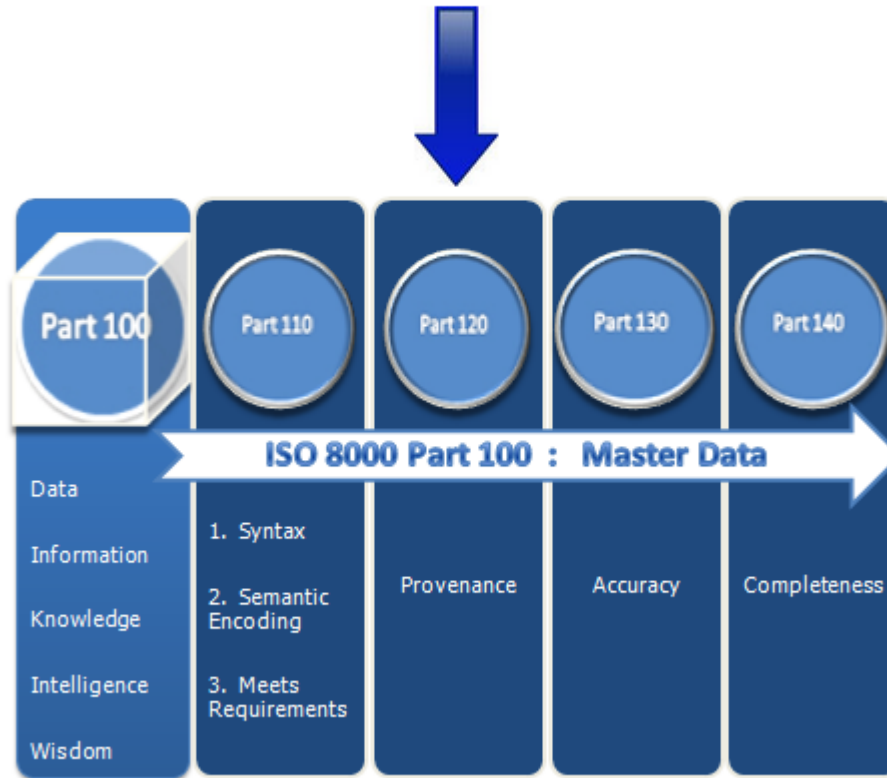


ISO 8000 Part 120

ISO 8000 Part 120



Part 120: Deals with provenance that describes the history of data.



Provenance: Is the derivation history of a **data property** starting from its original source.



ISO 8000

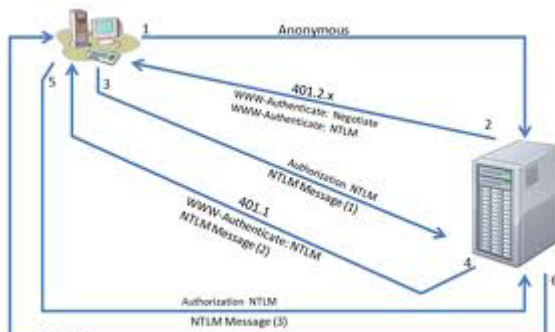
Provenance

Provenance describes the context of database systems

Provenance provides descriptions of the original data

Provenance explains the process by which it arrived in the database

Provenance provides a validity check of the source of the information



Track Info

Provenance used in conjunction with **Part 100** and **Part 110**

bridge the solution in overcoming

Big Data Security issues in Cloud



Provenance

Authentic data with **No duplications** results in **Actionable Information**

Actionable Information: means having **Quality Data Information** immediately available in order to deal with the situation at hand.

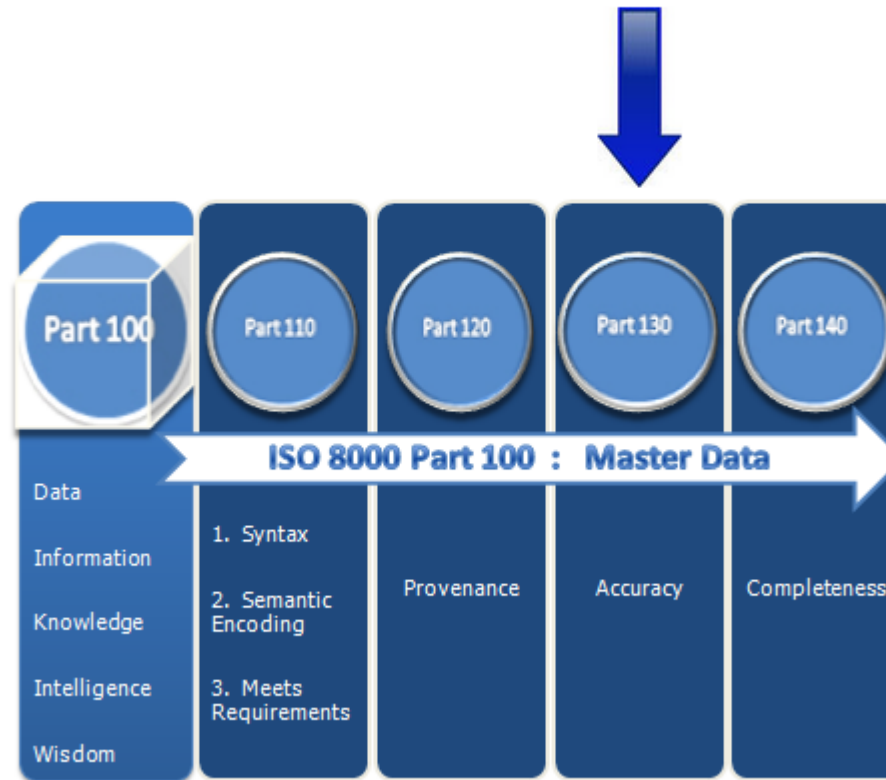


ISO 8000 Part 130

ISO 8000 Part 130



Part 130: Describe the need for accuracy in data quality.



Accuracy: Refer to the derivation of a **property value** starting from its original source

ISO 8000



Accuracy

Accuracy describes the context of dictionary

Accuracy provides descriptions of the original property values

Accuracy explains the process by which it arrived in the dictionary

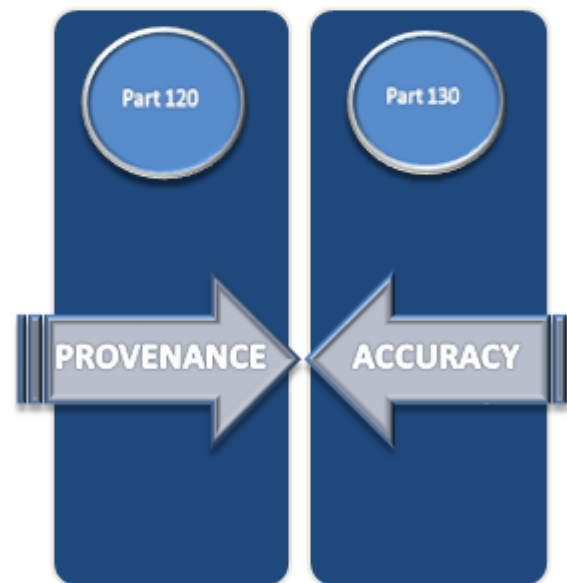
This information must be verifiably accurate....

To ensure verifiable accuracy...

Provenance determine the Accuracy

to which

results are produced

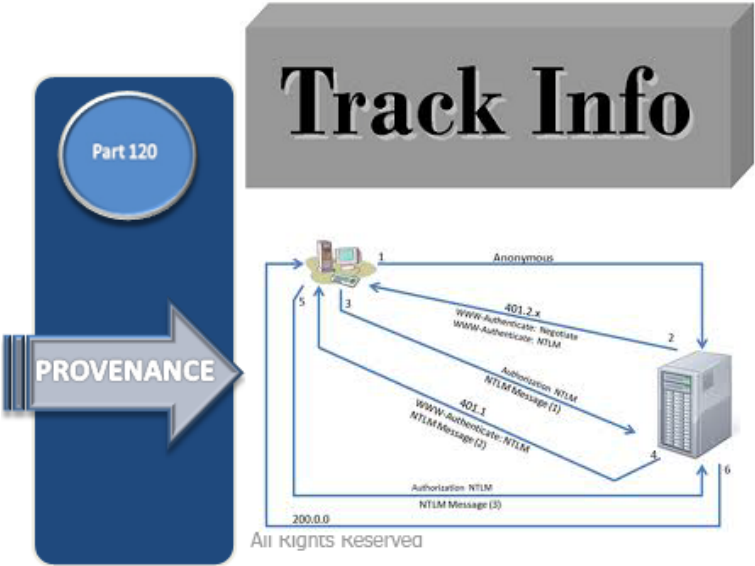




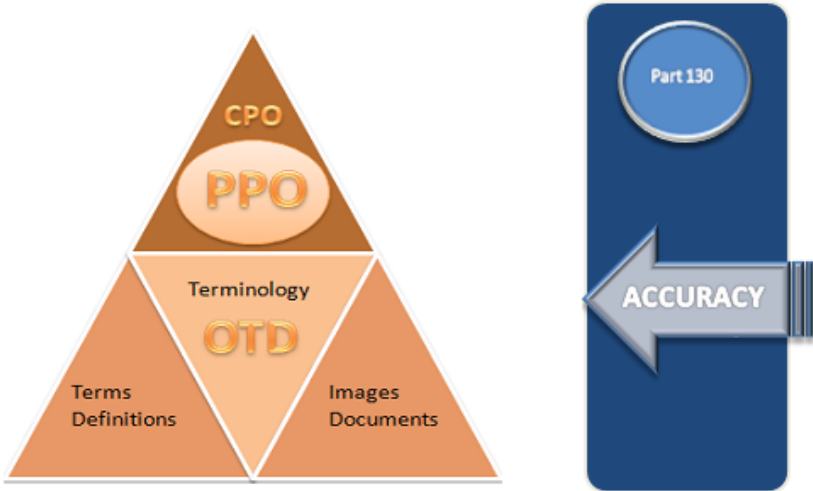
Accuracy

Provenance provides a validity check
of the source of the information

Accuracy provides true values
which predicts future performance



Open Technical Dictionary

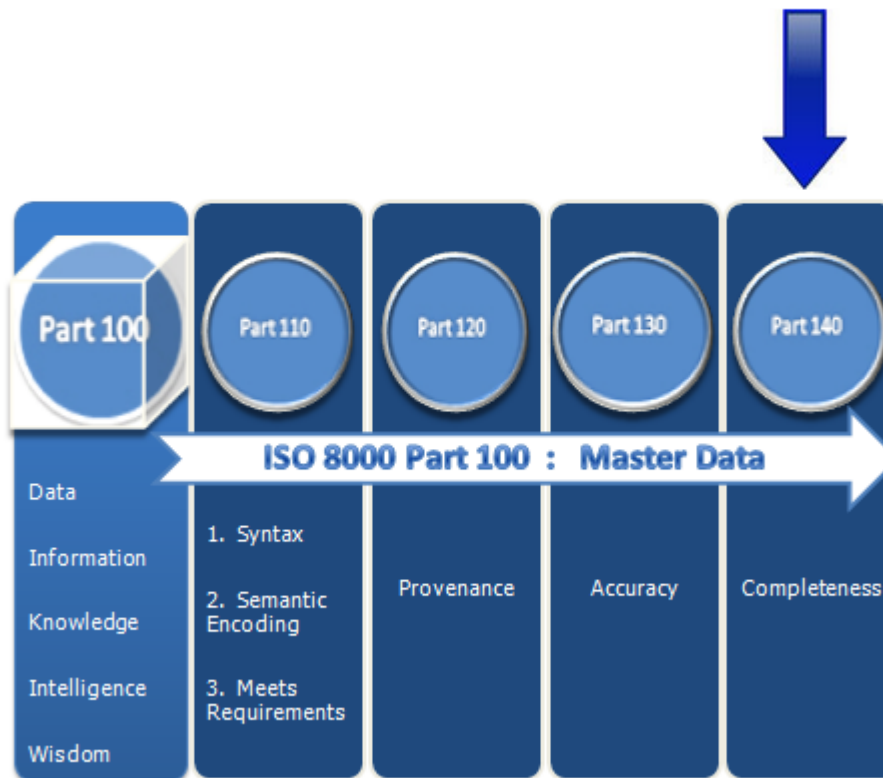


ISO 8000 Part 140

ISO 8000 Part 140



Part 140: Covers completeness at the data element level.



Every data requirement has mandatory as well as optional aspects

Incomplete optional information can meet the expectations of the user

'Expected completeness' is achieved...

ISO 8000

Completeness

'Expected Completeness' in data is considered **complete** with the following elements in place:

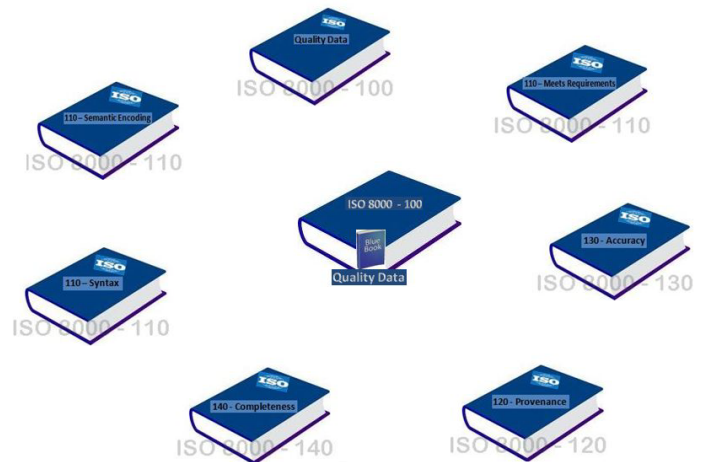
Part 100: To understand and communicate information

Part 110: To conceptualize, apply, analyze and synthesize information

Part 120: Authentic data with no duplications, results in Actionable Information

Part 130: True values predict future performance

Part 140: Completeness, is based on Truth



Application of Requirements as described in ISO 8000 Part 100 to Part 140

Construction of the
OPEN TECHNICAL DICTIONARY
according to
ISO 8000 Standards Part 100 - 110



ISO 8000



OPEN TECHNICAL DICTIONARY – ISO 8000 Part 100 and Part 110

1. The **dictionary** must consist out of **coded concepts**

<input type="checkbox"/>	Concept Type	Term	Definition ▾	Language	Concept Id
<input type="checkbox"/>	Class	valve	a mechanism for discharging products from aerosol-type dispensers	English US	1007-1#01-077516#1

2. Each **concept type** must be linked to a **unique Identification Number**

<input type="checkbox"/>	Concept Type	Term	Definition ▾	Language	Concept Id
<input type="checkbox"/>	Class	valve	a mechanism for discharging products from aerosol-type dispensers	English US	1007-1#01-077516#1

3. **Meaningful definitions** need to be constructed

<input type="checkbox"/>	Concept Type	Term	Definition ▾	Language	Concept Id
<input type="checkbox"/>	Class	valve	a mechanism for discharging products from aerosol-type dispensers	English US	1007-1#01-077516#1



HOW TO: Example of OPEN TECHNICAL DICTIONARY

Structure

(1) ISO 8000 Standard Requirement:

Master data consist of the following elements:

1. It is coded concepts in a Dictionary
2. It conforms to formal syntax
3. It conforms to a data specification

(1) See PiLog MDRM Compliance

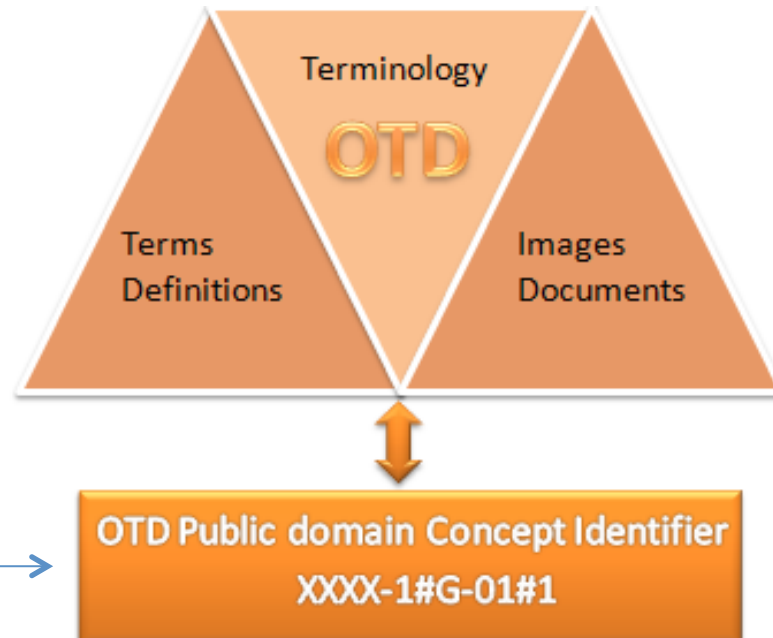
About ISO 8000 and Master Data - Part 100

ISO 8000

OPEN TECHNICAL DICTIONARY



Coded Concepts
Concept Types
Definitions



Unique Identifier →

ISO 8000



Example SEARCH: OPEN TECHNICAL DICTIONARY

Dictionary Manager Quick Search

Menu

Open Technical Dictionary

Quick Search

View OTD Statistics

PiLog Registered Ontology

Search PRO

View PRO Statistics

PiLog Preferred Ontology

Search PPO

View PPO Statistics

Search any technical Term (or) Definition available in Open Technical Dictionary (ISO 22745). Eg: BREAKER, CIRCUIT; VALVE; CONNECTION T

Quick Search

Concept Type

=

▼

Term

Like

▼

Definition

=

▼

Language

=

▼

---Select---

▼

Class

Property

Property Value

Currency

UoM

Search

Refresh

Cancel

ISO 8000



PiLog Preferred Ontology

is developed by Industry specialists
and highly recommended by PiLog to be used
across different industry verticals

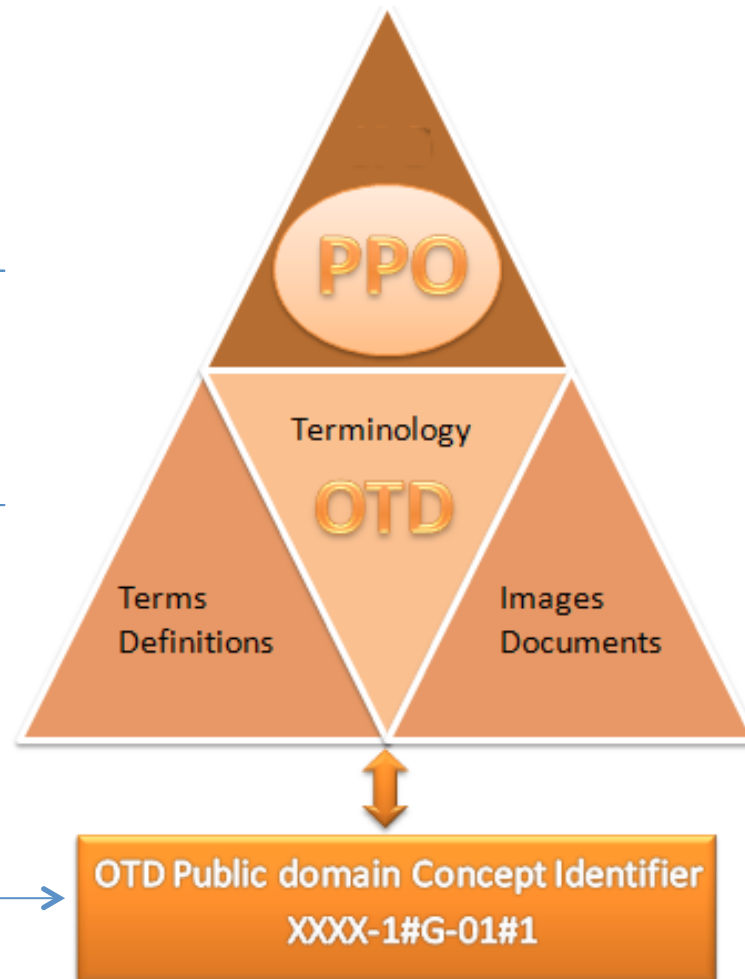
ISO 8000

PILOG PREFERRED ONTOLOGY



Coded Concepts
Concept Types
Definitions

Coded Concepts
Concept Types
Definitions



Unique Identifier →

OTD Public domain Concept Identifier
XXXX-1#G-01#1

ISO 8000



Example SEARCH: PILOG PREFERRED ONTOLOGY

Dictionary Manager Quick Search

Menu

- Open Technical Dictionary
 - Quick Search
 - View OTD Statistics
- PiLog Registered Ontology
 - Search PRO
 - View PRO Statistics
- PiLog Preferred Ontology
 - Search PPO
 - View PPO Statistics

Search any technical Term (or) Definition available in Open Technical Dictionary (ISO 22745). Eg: BREAKER, CIRCUIT; VALVE; CONNECTION T

Quick Search

Concept Type =

Term Like

Definition =

Language =

---Select---
Class
Property
Property Value
Currency
UoM

Search Refresh Cancel

ISO 8000



Client Preferred Ontology
is specific to an organization

ISO 8000

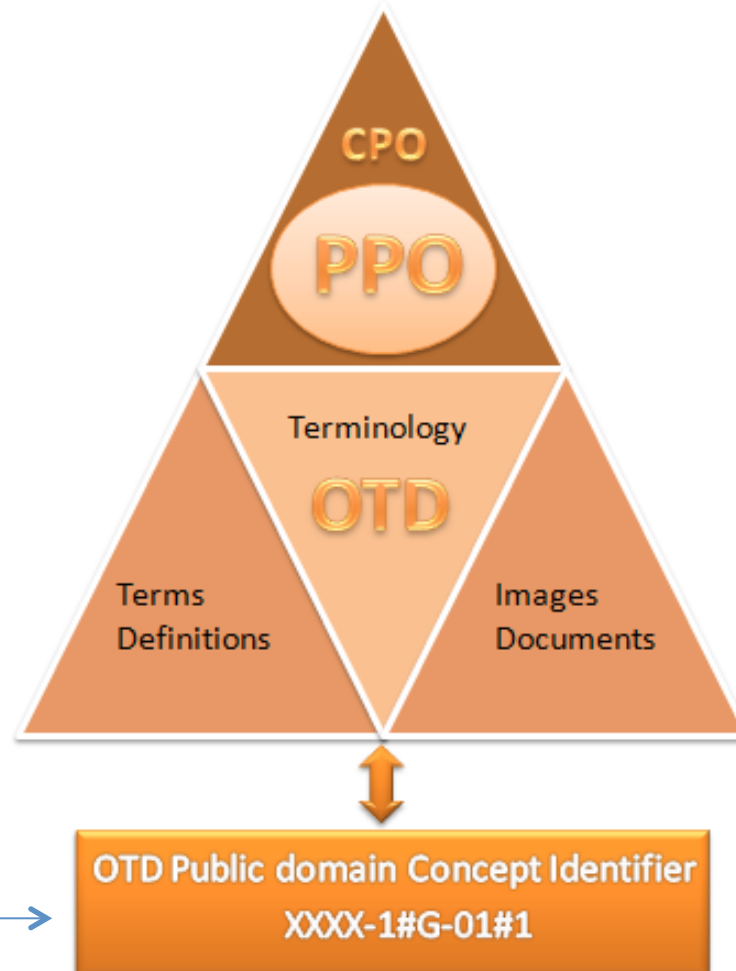


CLIENT PREFERRED ONTOLOGY

Coded Concepts
Concept Types
Definitions

Coded Concepts
Concept Types
Definitions

Coded Concepts
Concept Types
Definitions



Unique Identifier →

ISO 8000



Example SEARCH: CLIENT PREFERRED ONTOLOGY

Dictionary Manager

Quick Search

Menu

▼ Open Technical Dictionary

Quick Search

View OTD Statistics

▼ PiLog Registered Ontology

Search PRO

View PRO Statistics

▼ PiLog Preferred Ontology

Search PPO

View PPO Statistics

▼ RA Preferred Ontology

Search RA

Copy Dictionary

View RA Statistics



Search any technical Term (or) Definition available in Open Technical Dictionary (ISO 22745). Eg: BREAKER, CIRCUIT; VALVE; CONNECTION TO

Quick Search

Concept Type

=



Term

Like



Definition

=



Language

=



---Select---
Class
Property
Property Value
Currency
UoM

---Select---



Search

Refresh

Cancel

ISO 8000

REQUIREMENTS

HOW TO: Example of Meeting Requirements of OPEN TECHNICAL DICTIONARY

Meets Requirements

(6) ISO 8000 Standard Requirement:

Must be a specification of characteristic data

i -XML is a representation of data requirements in XML

d-XML is a representation of a rendering guide in XML

(6) See PiLog MDRM Compliance

ISO 8000 - Part 110

Construction of
DATA REQUIREMENTS
according to
ISO 8000 Standards Part 100 - 140

ISO 8000

Data Requirements

Is a set of rules

describing items belonging to a particular **Class**

using **entries** from the **Data Dictionary**

ISO 8000

Data Requirements are required
as a pre-requisite to measure **Data Quality**

Procedures

Quality data refer to:

Data that meets
requirements

Step 1

Data that is
unambiguously
encoded

Step 2

Data that is
application
independent

Step 3

Data that meets
requirements

Step 1

ISO 8000

Collect

- Information collected during the specification phase

Analyze

- must be analysed

Identify

- by identifying attributes to determine the structure and quality of the Data Requirement

Data that is
unambiguously
encoded

Step 2

ISO 8000

Rules:

1. All identified concepts required in the construction of a **data requirement** must exist in the **Data Dictionary**

*2. If not, it must be registered in the Open Technical Dictionary

The screenshot displays the PiLog web application interface. At the top, the PiLog logo is visible with the tagline "MASTER DATA QUALITY SOLUTIONS". A user profile indicator shows "User : PETER". Below the header is a navigation bar with tabs: Home, Dictionary Manager, Data Requirement Manager, Classification Manager, Translation Manager, Ontology Analysis, and Dictionary. The "Dictionary Manager" tab is active, and within it, the "Concept Registration" sub-tab is selected. On the left, a "Menu" sidebar lists various options under "PPO Preferred Ontology" (Search PPO, Copy Dictionary, View PPO Statistics, Dictionary With IRDIs) and "New Registrations" (New Concept, New Term, View PPO Request Statistics, Edit Abbreviations, Add Language). A blue arrow points from the asterisk in the text below to the "New Concept" option. The main content area features a lightbulb icon with the text "Register New Concept in case its not available in PPO or PRO or OTD" and a question mark. Below this are buttons for "+ Create New Request", "View Requested Concepts", "View Transferred Concepts", "Submit", and "Delete". A search bar with a magnifying glass icon and a "Go" button is present, followed by an "Actions" dropdown menu. The text "No data found." is displayed at the bottom of the main content area.

Data that is
unambiguously
encoded

Step 2

ISO 8000

During construction of the Data Requirement:

1. Each **concept** collected from the **Open Technical Dictionary**

* 2. Must be linked to a **Data Type**

The screenshot shows the PiLog Data Requirement Manager interface. The top navigation bar includes links for Home, Dictionary Manager, Data Requirement Manager, Classification Manager, Translation Manager, Ontology Analysis, Dictionary Syndication, SLA Reports, and a user profile. The main content area is titled 'Data Requirement Manager' and shows 'Edit Existing DR'. A menu on the left lists options like 'PPO Preferred Ontology', 'Search PPO-DR', 'DR Quick Builder', 'Copy DRs', 'View PPO-DR Statistics', 'New Registrations', 'Request New DR', and 'Edit Existing DR'. The main form has a search bar for existing DRs, a 'Retrieve' button, and a 'Data Type' dropdown menu. A blue arrow points from the 'New Registrations' menu item to the search bar, and another blue arrow points from the search bar to the 'Data Type' dropdown. The 'Data Type' dropdown is open, showing a list of options: String, Boolean, Composite, Controlled Value, Field, Integer, Lower, Measure, Measure Number, Measure Qualified, Qualified, Qualifier Measure, Real, Set, String, Unit Measure, Upper Bound, and Value. The 'Controlled Value' option is highlighted.

Data that is
unambiguously
encoded

Step 2

ISO 8000

Descriptions

Descriptions are rendered that include
all the properties and property values
that form part of the

Data Requirement

Material #	Catalog #	Record Status	Record Created By	Description Type	Description
AGA0000163	CN163	CREATED	PETER	TECH (en_US)	BEARING, BALL,10 MM,20 MM,30 MM,4,Stainless Steel,5000 RPM,Box; FFT163; PART NUMBER: 6203/A OEM: SKF; DRAWING NO: DR123 v1 Par.12

Data that is
unambiguously
encoded

Step 2

ISO 8000

Upon completion a

Data Requirement Template

is produced for future use

Data Requirement (Template) of BATTERY, DRY CELL

Go

Actions ▾

1 - 11 of 11

Property Name	Definition	Required	Sequence	Data Type	Language
TYPE	A subdivision into a particular classification.	Mandatory	1	String Type	English US
POTENTIAL	The rated voltage of the item.	Mandatory	2	String Type	English US
CURRENT CAPACITY	The amp hour rating.	Mandatory	3	String Type	English US
COMMERCIAL SIZE	The size of the item as it is commercially known.	Optional	4	String Type	English US

Data that is
unambiguously
encoded

Step 2

ISO 8000

REQUIREMENTS

HOW TO: Example of Item Entry Control for Master Data

(2) ISO 8000 Standard Requirement:

1. The quality of the data capture process
2. Data that meets requirements
3. Data that is unambiguously encoded
4. Data that is application independent

(2) See PiLog MDRM Compliance

Data that is
application
independent

Step 3



EXCHANGE OF DATA

according to
ISO 8000 22745

Data that is
application
independent

Step 3

ISO 8000

The **Data Requirement** is stored in the database in **XML format**

ISO 22745 is a specific implementation of **ISO 8000 Part 110** for parts cataloguing based on **XML**

USER

APPLICATION

OPERATING
SYSTEM

HARDWARE

ISO 22745

ISO 8000
PORTABLE DATA

The **ISO 8000 Part 110** implementation adopted by NATO defines all of the components necessary to meet ISO Part 110 Standards

ISO 8000

XML provides a robust and durable **format** for information storage and transmission

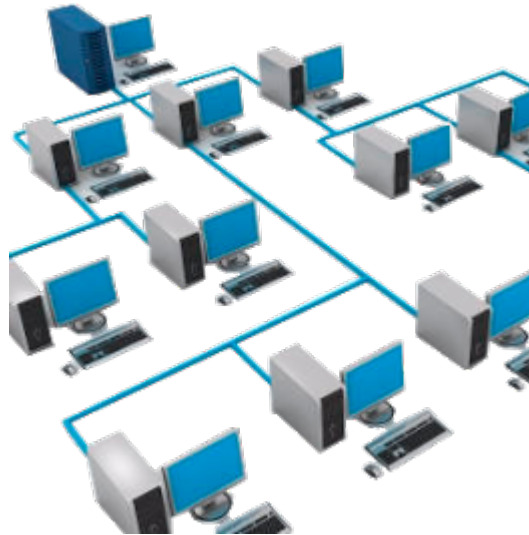
```
<?xml version="1.0"?>
<html>
<head>
  <title>Service Subscription </title>
</head>
<body>
  <h1>Service Subscription</h1>
  <form action="http://URI_of_subscription_servlet">
    <table class="subscription_info" width="350">
      <tr class="name"><td>
        Service Name:
      </td>
      <td>
        <input name="service_name"/>
      </td></tr>
      <tr class="method"><td>
        Payment Method: &#160; &#160; &#160;
      </td>
      <td>
        VISA <input type="radio" name="payment_method"
                                checked="checked"/>
      </td></tr>
    </table>
  </form>
</body>
</html>
```

Data that is
application
independent

Step 3

ISO 8000

XML provides a common syntax for messaging systems
for **exchange of information between applications**



Data that is
application
independent

Step 3

ISO 8000



Data Portability is the ability to move data among different application programs, computing environments and cloud services



Data should be **independent** with respect to any and all **software applications** that access it at the current time, or might access it at a later time

Data that is
application
independent

Step 3

ISO 8000

Data that is independent from any

licensed software application

is referred to as

Portable Data



Data that is dependent on any

licensed software application

is in actual fact also

licensed data



DataPortability

ISO 8000 DATA is portable data independent of any software application

Data that is
application
independent

Step 3

ISO 8000

REQUIREMENTS

HOW TO: Example of Data Exchange

About ISO 8000 -110 and Data Exchange ISO 22745

(3) ISO 8000 Standard Requirement:

To be able to create clear and unambiguous requests for:

1. Characteristic data
2. Reference data
3. The validation of characteristic and reference data



(3) See PiLog MDRM Compliance

Data Requester

About ISO 8000 -110 and Data Exchange ISO 22745

(4) ISO 8000 Standard Requirement:

Automate generation and distribution of requests for data:

1. In a simple format that can be automated by the recipient
2. To create an integrated data exchange system



(4) See PiLog MDRM Compliance

Data Provider

CONCLUSION

ISO 8000

ACTIONABLE INFORMATION



is achieved through the combination of

Provenance, Accuracy and Completeness

ISO 8000

REQUIREMENTS

HOW TO: Measure ACTIONABLE INFORMATION

Provenance determine the Accuracy
to which
results are produced

(7) ISO 8000 Standard Requirement:

Provenance

Provenance is the history of ownership:

1. At the data element level
2. When was it extracted from the database
3. Who is the owner of the database

ISO 8000 - Part 120

(9) See PiLog MDRM Compliance



(8) ISO 8000 Standard Requirement:

Accuracy

Accuracy is measured as follows:

1. At the data element level
2. Who makes the claim to accuracy (Business Identifier)
3. If the accuracy is covered by a warranty

ISO 8000 - Part 130

Complete
with the following elements in place

(9) ISO 8000 Standard Requirement:

Completeness

Completeness is measured as follows:

1. At the data element level
2. Who makes the claim to completeness

ISO 8000 - Part 140



“If you are working on something exciting that you really care about, you don’t have to be pushed. The vision pulls you.” ~ Steve Jobs

