

About the DMSC

Digital Metrology
Standards Consortium



- Who is the DMSC?
 - A **group of metrologists, software developers, and innovators worldwide**
- What is the DMSC doing?
 - Defining quality measurement **information exchange standards** like the QIF and DMIS
- How will DMSC membership benefit your company?
 - The DMSC is working on important **manufacturing, quality, and measurement standards** besides DMIS
 - Member companies have an **equal voice** in the definition and direction of each standard
 - Membership ensures worldwide implementation of the standards, which is critical to realizing **cost savings**

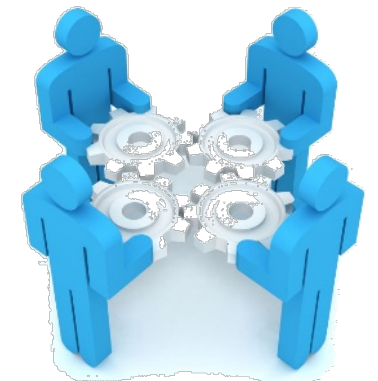
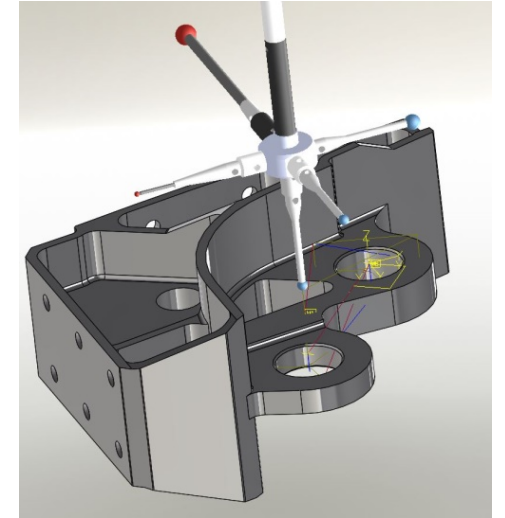
Who is the DMSC?

Digital Metrology
Standards Consortium **DMSC**



Digital Metrology Standards Consortium

- A **non profit**, cooperative sponsorship, **consortium** organization. Founded & sponsored in 1983; Separate legal entity 2005
- Dedicated to identifying, promoting, fostering, and encouraging the **development** and **interoperability** of standards that benefit the digital metrology community
- Preparing standards that **impact** digital **model-based quality** enterprise
- A professional **group** of manufacturing metrologists, software developers, and innovators worldwide. Note: 500+ years of experience contributed to the QIF
- Maintainers of Dimensional Measuring Interface Standard (DMIS) standard
- Developers & maintainers of Quality Information Framework (QIF) standard
- **ANSI accredited** standards making organization
- **A-Liaison** member of **ISO / TC 184 / SC 4**



DMSC Objective . . .

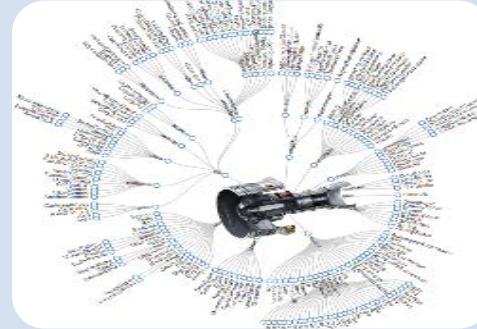
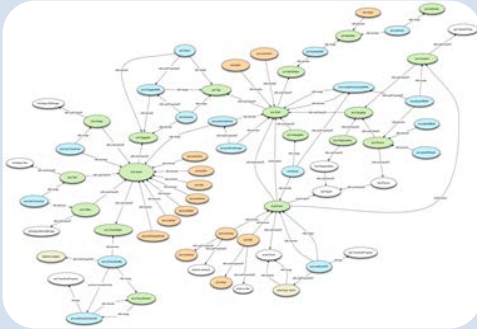
Digital Metrology
Standards Consortium



- To **reduce** the cost of quality
- To **enable trusted digital** information
- To **impact** digital metrology within a MBE
- To gain the **freedom to choose** best in class / best in value solutions



What is the QIF? ISO 23952-2020



Feature-Based
Ontology of
Manufacturing
Quality
Metadata

XML
Technology:
Simple
Implementation
and Built-In
Code Validation

Information
Semantically
Linked to
Model for Full
Data
Traceability to
MBD



Approved ANSI
Interoperability
Standard

Harvesting by
ISO / TC 184/SC
4 as ISO/QIF

(Structured Data)

(Modern Approach)

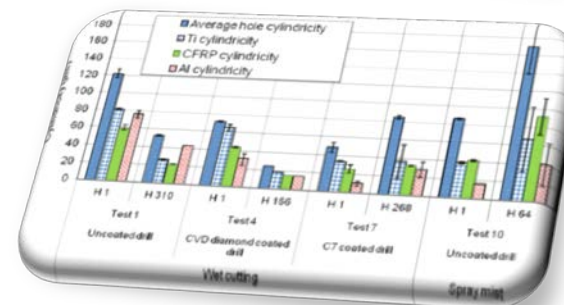
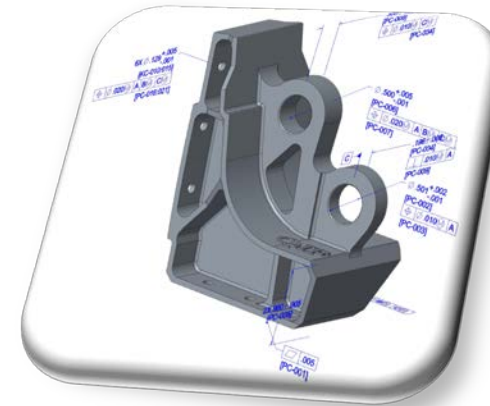
(Connected Data)

(Standard Data)

The QIF Standard




- *Quality Information Framework (QIF): ISO 23952-2020*
- *An Integrated Model for Manufacturing Quality Information*
- Defines, Constrains, and Exchanges:
 - *Model-Based Definition*
 - *Feature-Based (Metrology/Measurement)*
 - *Semantic PMI (Characteristics)*
 - *Quality Planning*
 - *Whats: Bill of Characteristics (BoC)*
 - *Hows: Inspection Plan*
 - *Measurement Execution*
 - *DMIS 5.3 w/QPIs*
 - *Measurement Results*
 - *Piece Part*
 - *Statistical*
 - *Enterprise Connectivity for Quality Feedback*
 - *Quality Persistent ID (QPID) (i.e., Universal Unique ID (UUID))*
 - 651aded1-ff04-498a-968e-044147a2506d

A sample Manufacturing Quality Plan (MQP) table, titled 'Sample Manufacturing Quality Plan'. The table is organized into columns for various quality attributes, including 'Process Step', 'Inspection Point', 'Inspection Method', 'Inspection Frequency', 'Inspection Results', and 'Inspection Status'. The table is filled with data for various process steps and inspection points, providing a detailed overview of the manufacturing quality plan.

QPIDs – Persistent UUID within the QIF

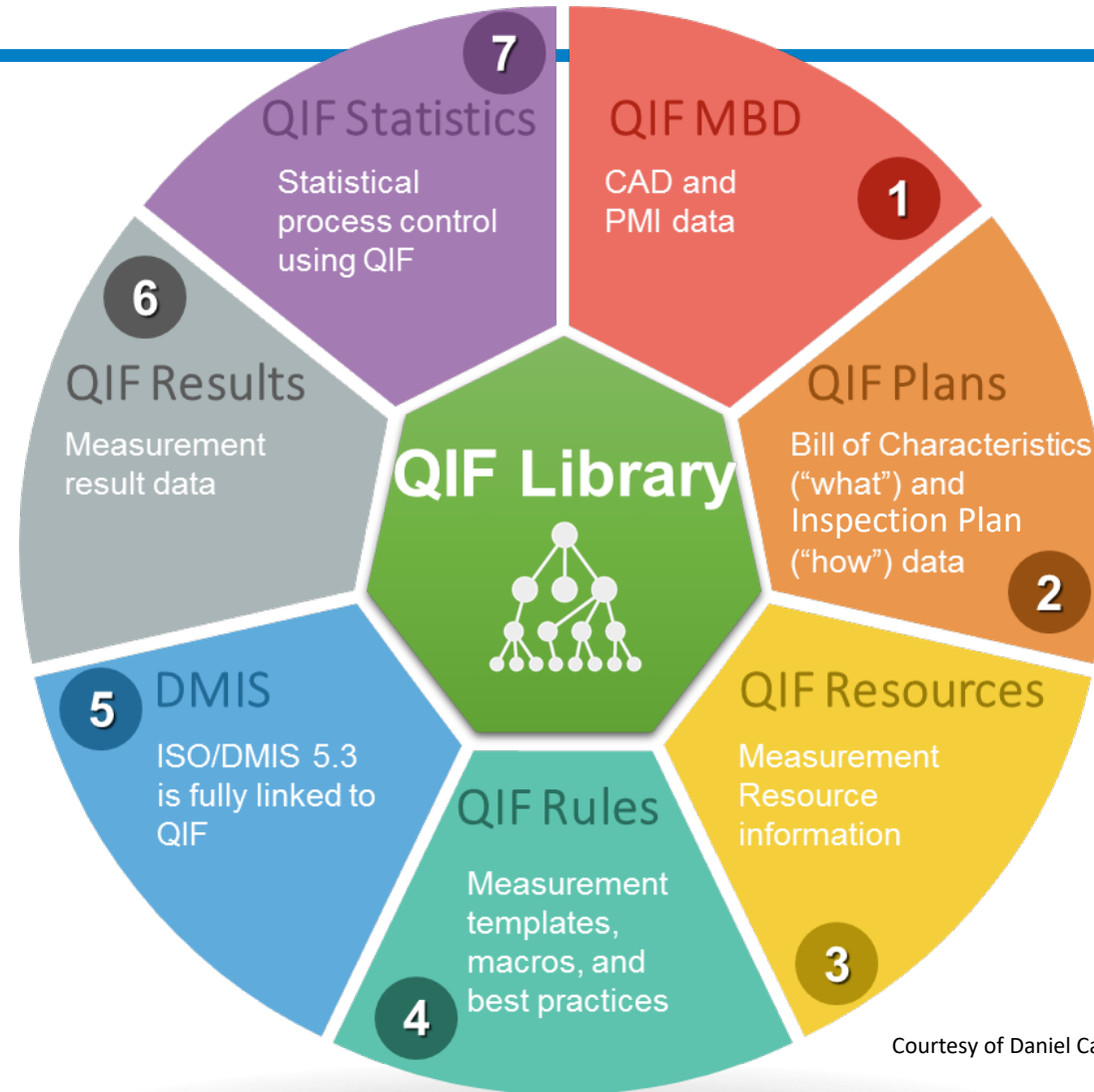


QIF Persistent Identifier (QPId) *noun* Cu·pid \'kyü-pəd\

- Universally Unique Identifier (UUID) (adopted by Microsoft as GUID)
 - ISO/IEC 9834-8
 - 550e8400-e29b-41d4-a716-446655440000
- Chances of generating two that are the same within the universe are practically nil.
 - 3400 (3.4x10³⁸) possible UUIDs
- **Allows information to be combined later without resolving identifier conflicts**
- Many software development libraries generate UUIDs
- QPIDs uniquely identify
 - QIF Document
 - QIF Plan
 - QIF Result
 - QIF Rule Set
 - Feature Item
 - Characteristic Item 
 - Product Item
 - Resource Item

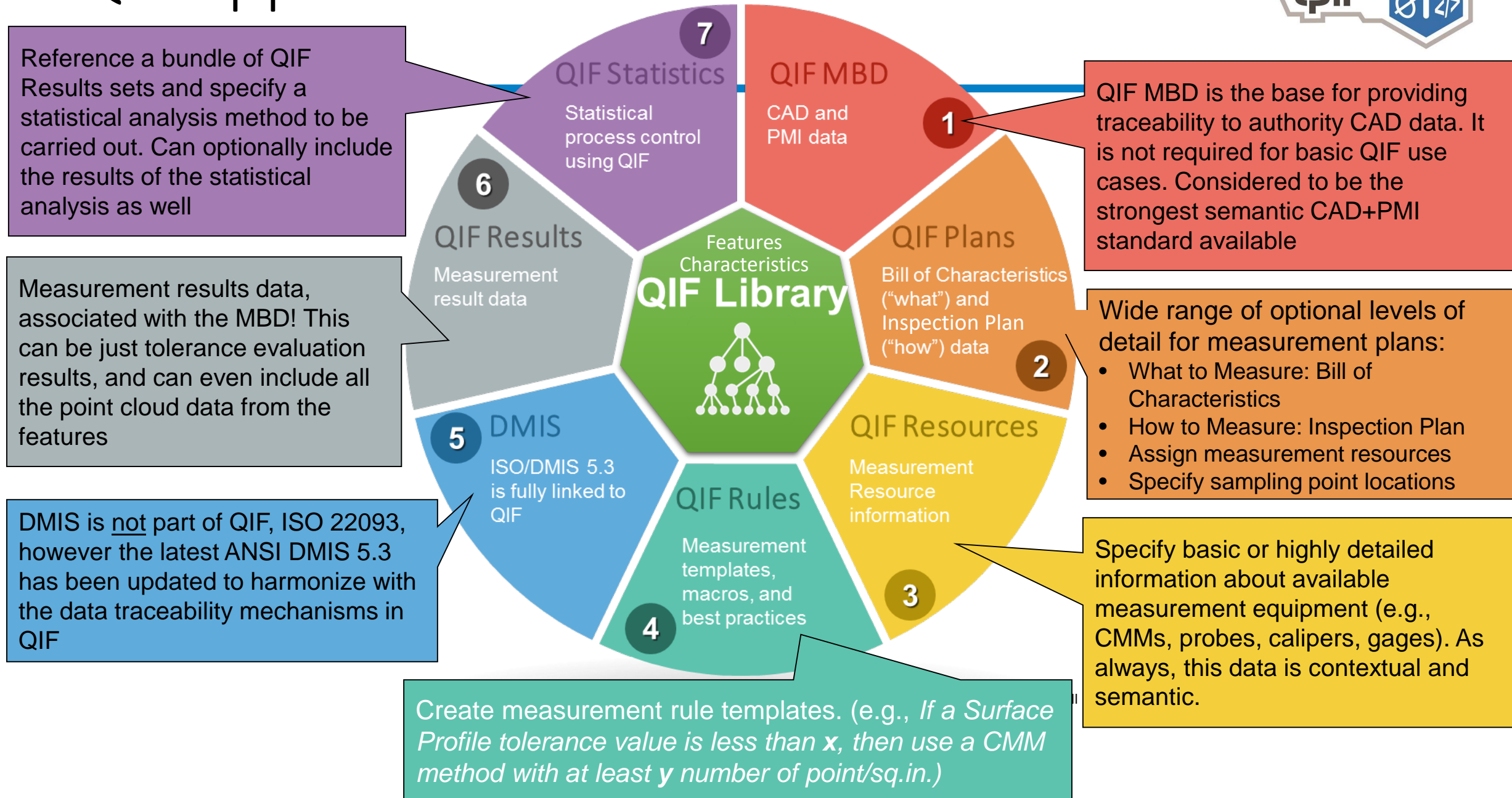
An Important Mechanism that facilitates Lifecycle Connectivity w/ Traceability

QIF Application Areas



Courtesy of Daniel Campbell

QIF Application Areas



Manufacturing Perspective

- Reduce Cost
 - More **common interfaces**
 - **Freedom of choice** in selection of value and performance based metrology solutions.
 - **Interoperability** allows for Best-In-Class / Best-in-Value (hybrid solution)
 - **Persistent traceability** between disciplines and back to the Model
 - Quality solutions that **communicate** inspections **results back to design** & manufacturing
 - **Impact quality** within a Model-Based Enterprise
- An official ISO standard: ISO 23952-2020



QIF Business Value



Vendors Perspective

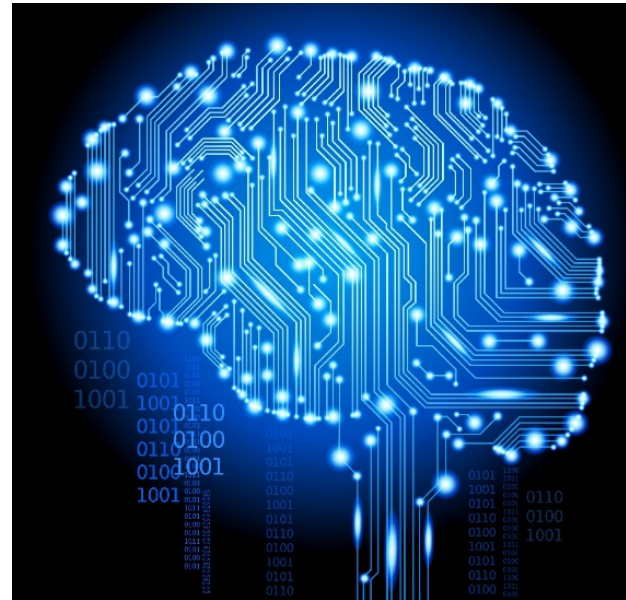
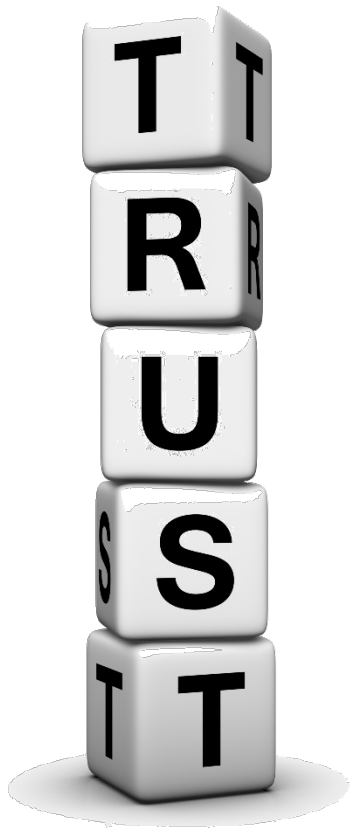
- Reduce Cost
- Concentrate on Core Competency
- **Inherent validations** for data correctness
- **Easy of (XML Schema Based) Implementation**
- **Cost efficient** to implement and use
- Minimize software development
- Avoid non-value (proprietary systems) development
- Complete but **extensible**
- Expanded **market opportunities** (penetrate proprietary systems)
- An official standard, and if it is a world-wide standard the better



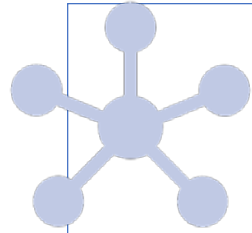
QIF is Digital



And It can be Trusted to Connect your Enterprise



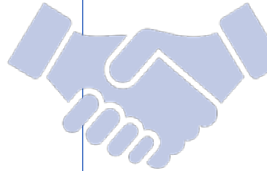
QIF Roadmap for Success



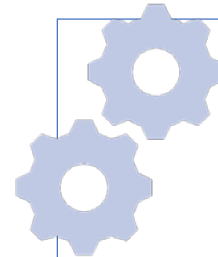
Active Schema
Development



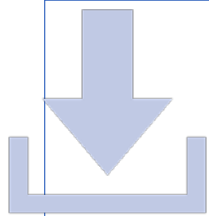
Data Integrity



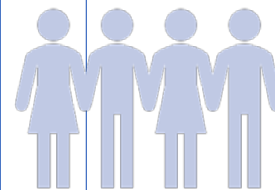
Standardization
Efforts



Facilitate Software
Development



Free Open Source
Tools

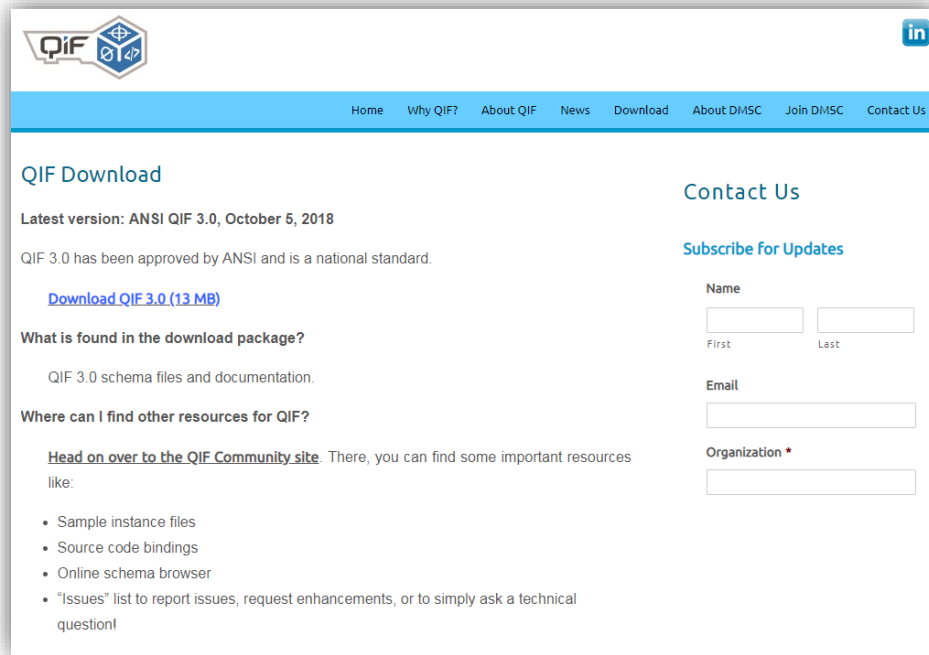


QIF Community

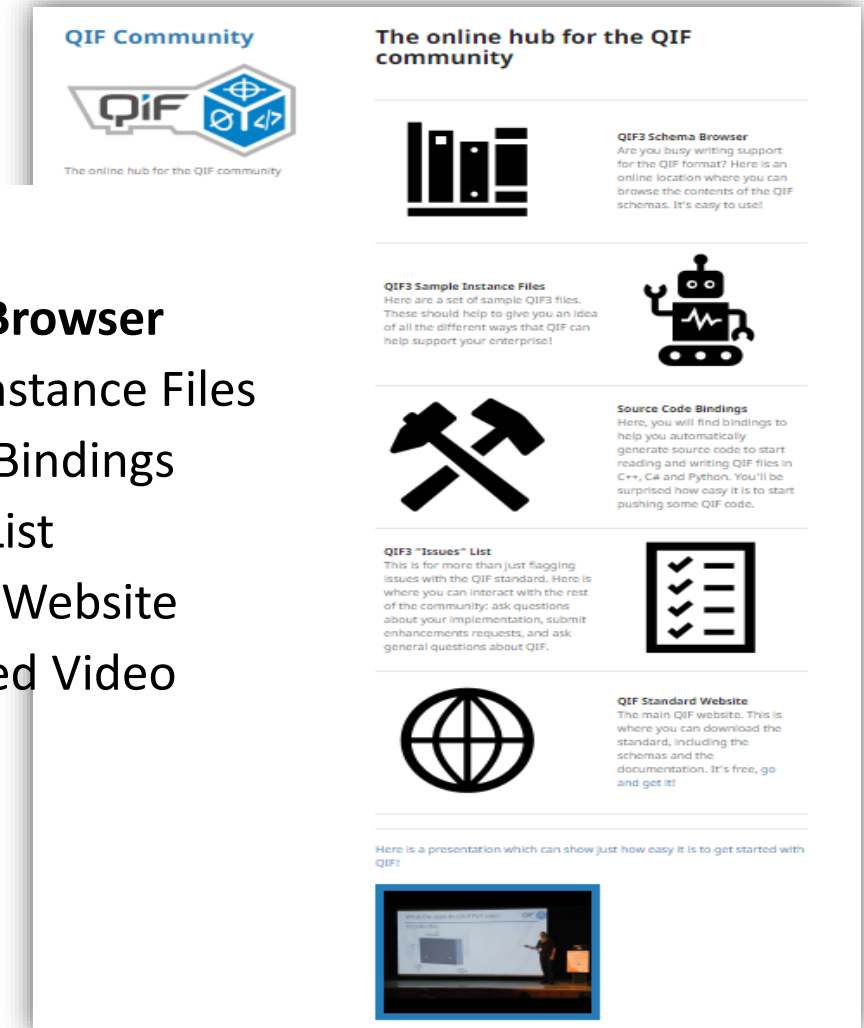
QIF on the Web



- QIFStandards.org
 - QIF Download



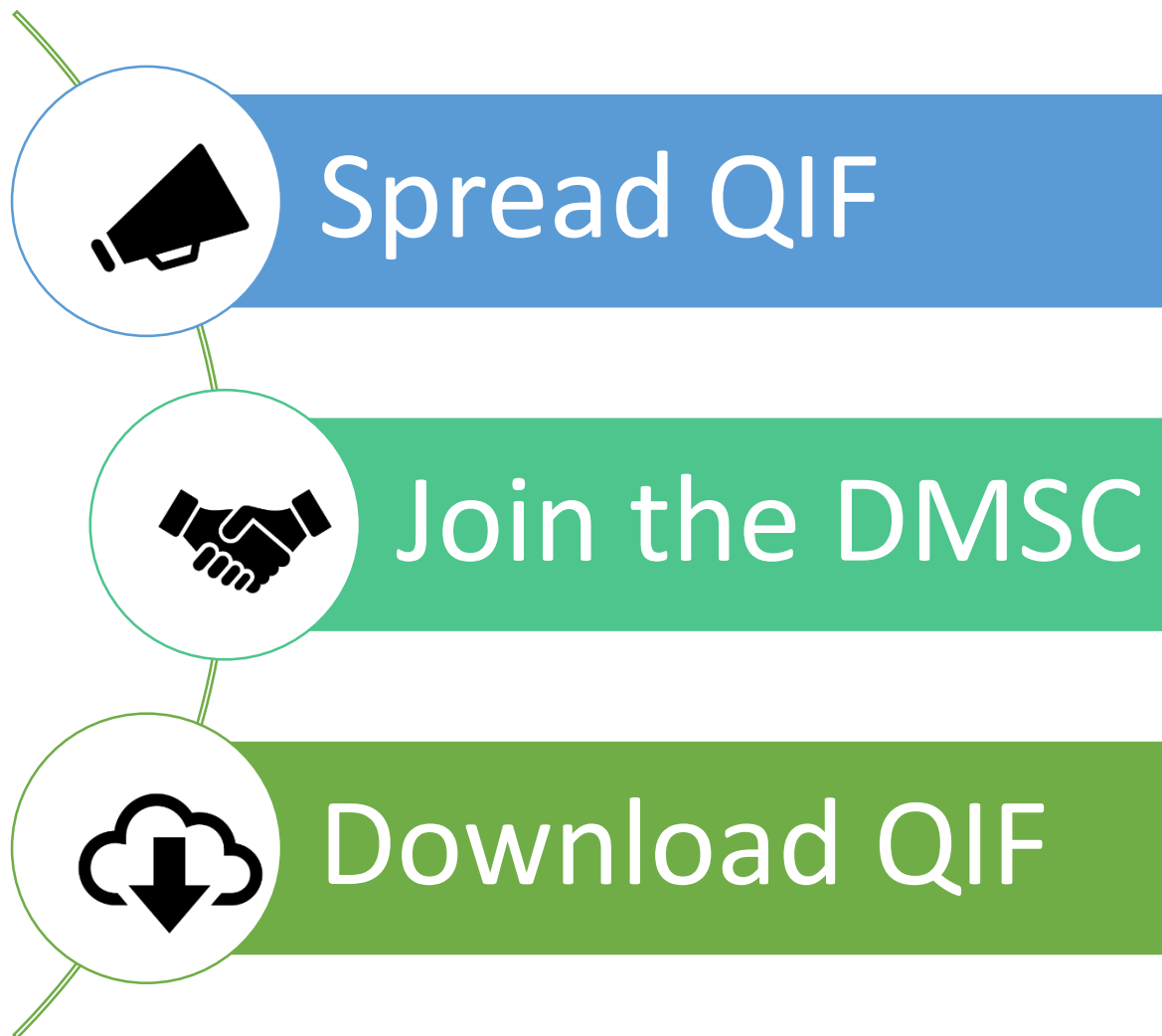
- QIF Community - GitHub



- QIF Schema Browser
- QIF Sample Instance Files
- Source Code Bindings
- QIF “Issues” List
- QIF Standard Website
- Getting Started Video

Take Action!

Digital Metrology
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Visit us at:


www.qifstandards.org

Why Join the DMSC?

Digital Metrology
Standards Consortium



1. Your membership directly supports QIF adoption
2. Contribute to data interoperability
3. Network – Be part of the digital movement



**Encourage your favorite
CAD Software vendor
to support QIF**

Visit www.qifstandards.org for more information.