JWG16 - Formats for visualization and other derived forms of product data

Joint ISO/TC 184/SC 4 - ISO/IEC JTC 1/SC 24 - ISO/TC 171/SC 2 WG

https://isotc.iso.org/livelink/livelink?func=ll&objId=19599172&objAction=browse&viewType=1

2018-11-09

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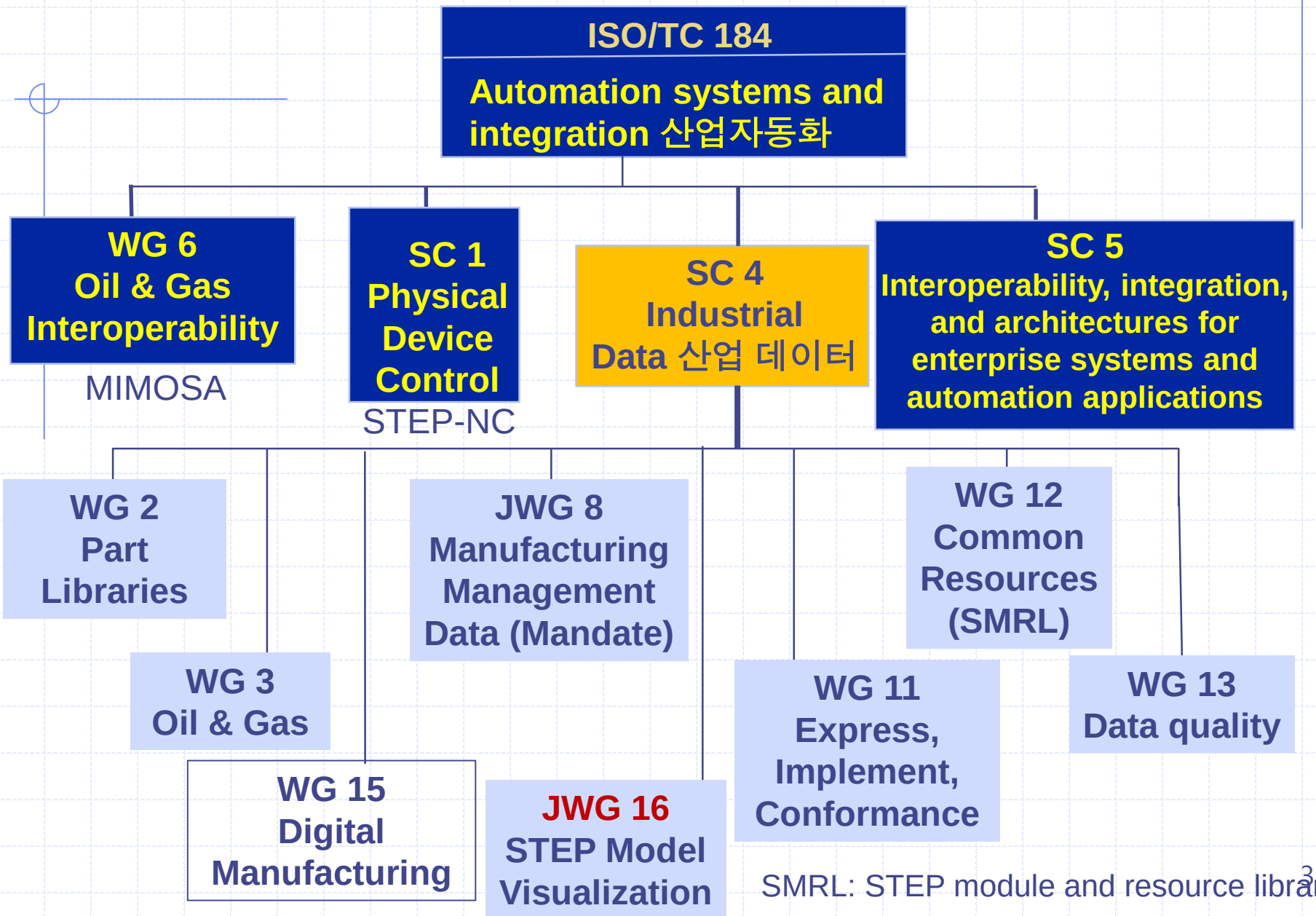
Contents

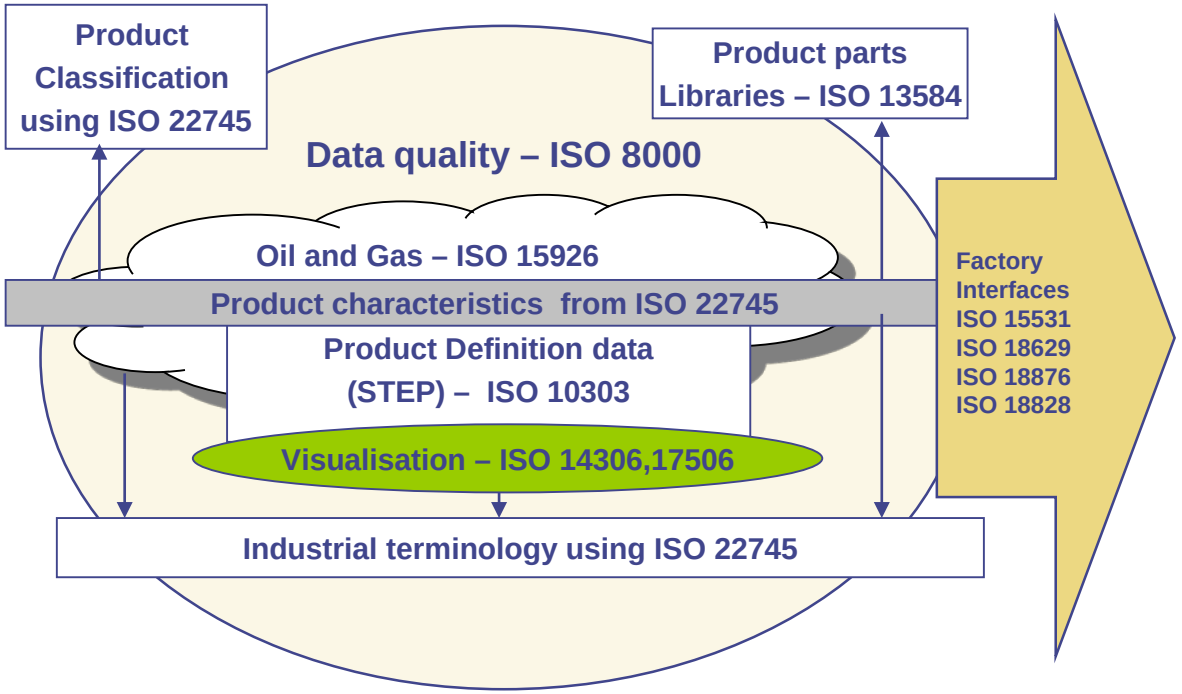
- SC4 and JWG 16
- Standard projects
- Liaison
- JWG 16 members
- Long term projects
- Chicago meeting Nov. 2018

ISO TC184/SC4 organization



SMRL: STEP module and resource library

Scope of industrial data



752
Published ISO Standards

216
ISO Standards under development

9
Direct Working Groups

3
Joint Working Groups

3
Internal Committees

15
Participating members

15
Observing members

JWG16 Established at Jeju 2017-11

Resolution:
SC 4 requests its Secretariat to create WG 16 with the following title and scope

Title: ***Formats for Visualization and other derived forms of product data***

Scope:

- Develop and maintain format and interface standards for 3D visualization of product models, including visualization of different classes of derived information such as geometry, product structure and others.
- Develop and maintain standards for consumption of data derived from and associated with product models.
- Develop and maintain standards for interfaces from SC 4 product definition standards.
- Establish liaison with other standards activities working on information models for 3D visualization.

SC 4 requests its Secretariat to assign any NP within scope to WG 16. SC 4 appoints Soonhung Han as Convenor and Christophe Mouton as Deputy Convenor each for a three year term, with appreciation for this offer to serve in that capacity.

JWG16 Work scope

from SC4 resolution 2017-11

- Develop and maintain format and interface standards for 3D visualization of product models, including visualization of different classes of derived information such as geometry, product structure and others.
- Develop and maintain standards for consumption of data derived from and associated with product models.
- Develop and maintain standards for interfaces from SC 4 product definition standards.
- Establish liaison with other standards activities working on information models for 3D visualization.

ISO/TC 184/SC 4 /JWG 16

- Summary:
  - Visualization of product models including factories and plants
- Scope:
  - Consumption of product models with ISO/AWI 23301 STEP Geometry Services
  - Joint WG with other 3D viz. standards:
    - ISO/IEC JTC1/SC24 (X3D)
    - ISO/ TC171/SC2 (3D PDF)
    - Format for 3D viz. of product models with ISO 14306 (JT)
- Active work:
  - NWI of STEP geometry Services
  - Connection to smart manufacturing: Digital twin visualization

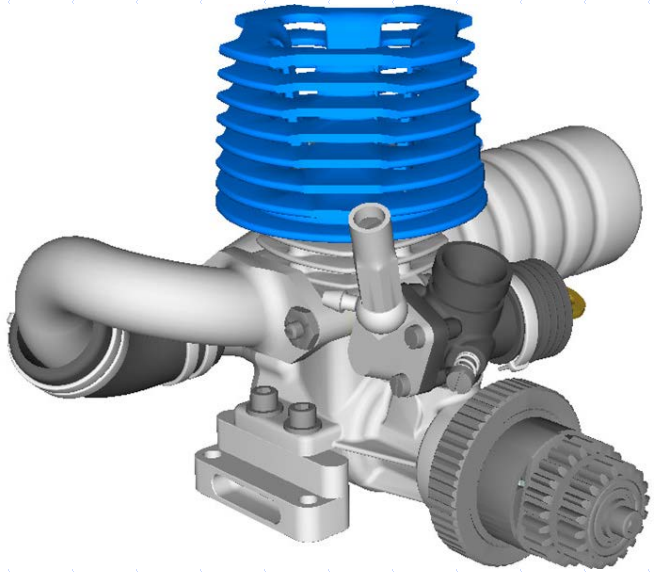
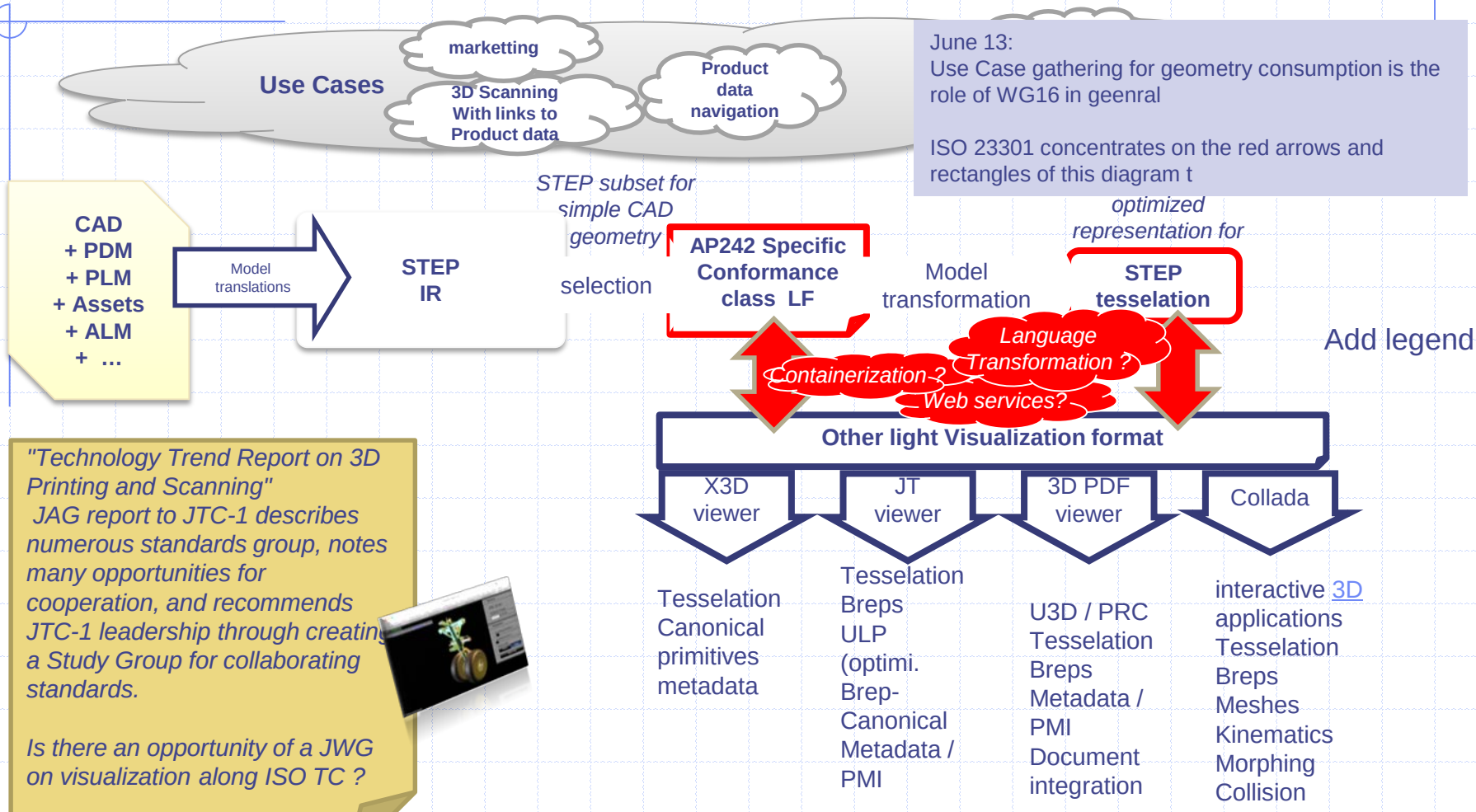


Image from Google

Standard projects

- ISO/AWI 23301 STEP geometry Services
  - Started in March, 9 2018
- New project: Update and publish the 'Industrial requirements for product data visualisation" (Oscar Rocha, 2008)' document as a Technical Report
  - Product data visualization use cases from industries
  - Review of ISO10303 STEP parts related to visualization

Role of STEP in a Product Data visualization framework



Status of Document

Reference :	Visualisation ad hoc group report Industrial requirements for product data visualisation
Date :	2008-06-12
Author :	**Oscar ROCHA** RENAULT SAS oscar.rocha@renault.com
Type :	Report
Doc-ID :	
Revision :	3.0
Status :	**Final Version**

Joint 3 Technical committees

- Initiated and hosted by ISO/TC 184/SC 4 industrial data
- Officially joint by:
  - ISO/IEC JTC 1/SC 24 - Computer graphics, image processing and environmental data representation
    - Co-convenor : Christophe MOUTON
    - WG 6 - Augmented reality continuum presentation and interchange
  - ISO/TC 171/SC 2 - Document file formats, EDMS systems and authenticity of information
    - WG 8 – PDF specification

Liaisons of JWG 16 ….

- Web3D consortium: VRML and X3D
  - Web3D conference (June 2018 in Poland)
  - Design Printing and Scanning WG
- 3D PDF Consortium
  - PDF-STEP integration (Liaison report to ISO/TC 171/SC 2)
- Chronos Group: Collada, glTF
- ISO TC 261 Additive Manufacturing
- Scan > Modify(CAD) > 3D Print ?
  - Joint with JTC 1/WG 12 ?

ISO/IEC JTC 1/SC 24 & Web3D consortium liaison report
75th ISO/TC 184/SC 4 plenary

TC 171 SC 2 WG 8
STEP Ad Hoc

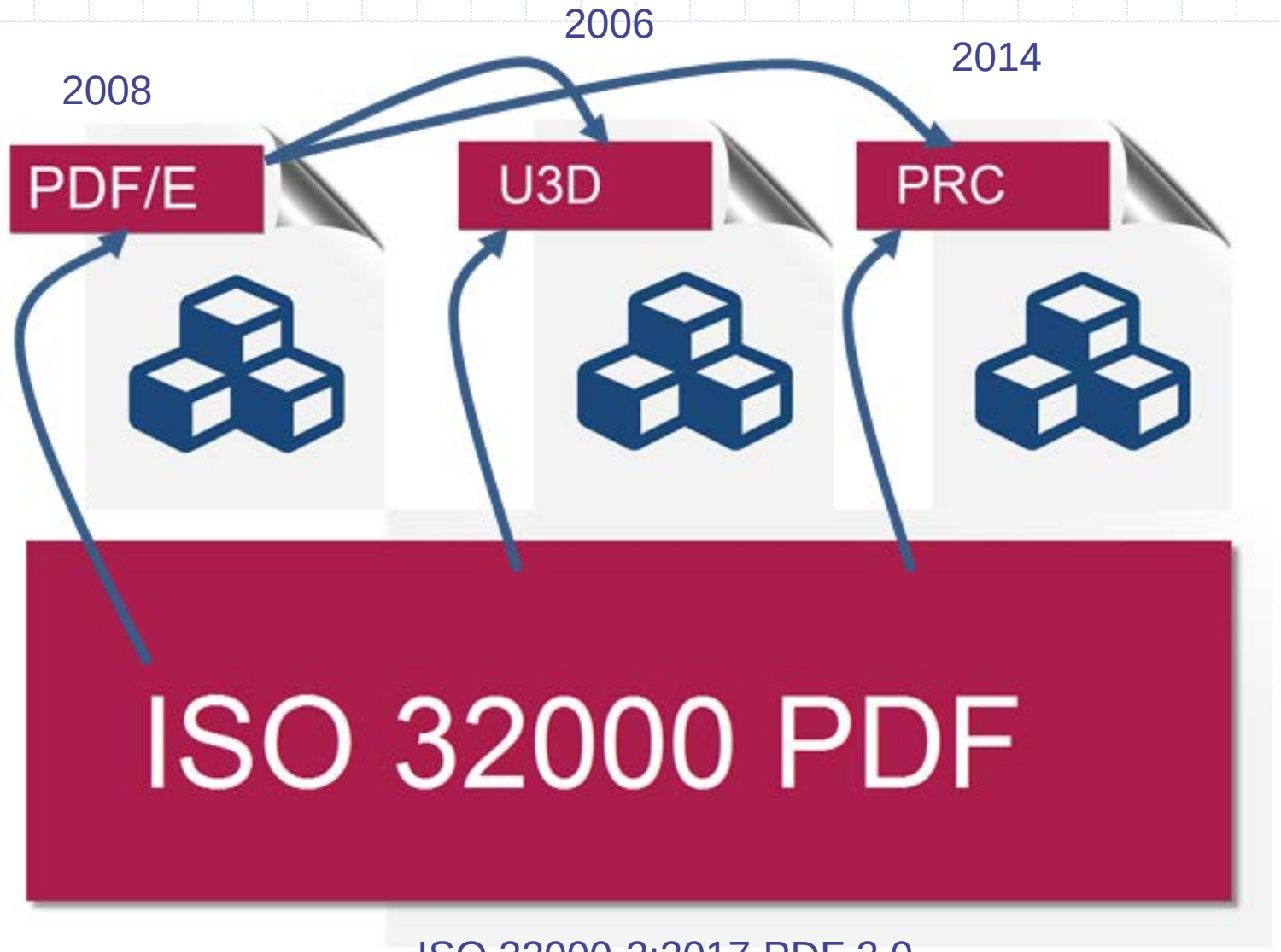
Report, 3/6/18

1 The STEP Ad Hoc

During the December 2018 ISO/TC171/SC2 meetings in San Jose, WG8 resolved to form an Ad Hoc Group with TC184/SC4 to draft a proposal for including ISO 10303 (STEP) as a valid 3D stream. Members of the ad hoc are:

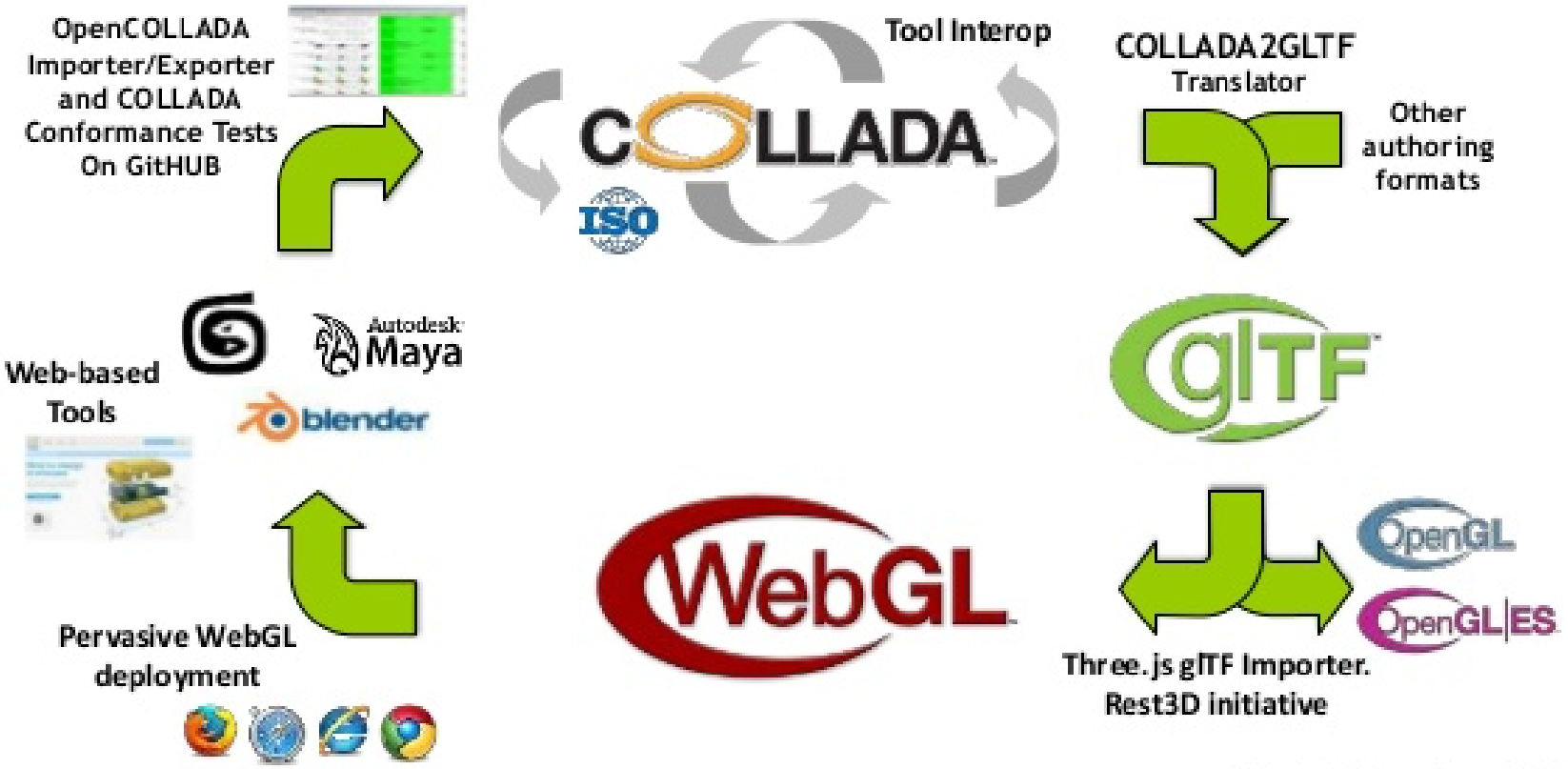
Name	Role
Phil Spreier	TC 171 SC 2 US TAG Chairperson / STEP Ad Hoc Chairperson
Leonard Rosenthol	TC 171 SC 2 Chairperson
Stuart Galt	TC 171 SC 2 SME
Peter Noyes	TC 171 SC 2 SME
Kenneth Swope	TC 184 SC 4 Chairperson
Soonhung Han	TC 184 SC 4 WG 16 Convener
Christophe Mounton	TC 184 SC 4 WG 16 Deputy Convener
Jean Brange	TC 184 SC 4 SME

2 STEP: ISO 10303



ISO 32000-2:2017 PDF 2.0

COLLADA and glTF Ecosystem



https://www.slideshare.net/Khronos_Group/collada-gl-tfbofaug14

Organisation Internationale de Normalisation | https://www.iso.org/committee/45020.html

ISO/IEC JTC 1/JAG		JTC 1 Advisory Group
ISO/IEC JTC 1/SG 3		3D Printing and scanning
ISO/IEC JTC 1/SWG 7		JTC 1 JAG Group on Emerging Technologies and Innovations (JETI)
ISO/IEC JTC 1/WG 11		Smart cities
ISO/IEC JTC 1/WG 12		3D Printing and scanning
ISO/IEC JTC 1/SC 2		Coded character sets
ISO/IEC JTC 1/SC 6		Telecommunications and information exchange between systems
ISO/IEC JTC 1/SC 7		Software and systems engineering
ISO/IEC JTC 1/SC 17		Cards and security devices for personal identification
ISO/IEC JTC 1/SC 22		Programming languages, their environments and system software interfaces
ISO/IEC JTC 1/SC 23		Digitally Recorded Media for Information Interchange and Storage
ISO/IEC JTC 1/SC 24		Computer graphics, image processing and environmental data representation

Possible projects

- JT ed.3
  - ISO 14306:2017 - JT file format specification for 3D visualization
- ISO/PAS 17506:2012 - COLLADA digital asset schema specification for 3D visualization of industrial data; glTF

Viz. of big data

- BIM, IFC, ISO/TC 59/SC 13/JWG 12
- IOGP (international oil & gas producer)
  - www.iogp.org
- ISO 15926-3 Reference data for geometry and topology

JWG16 members

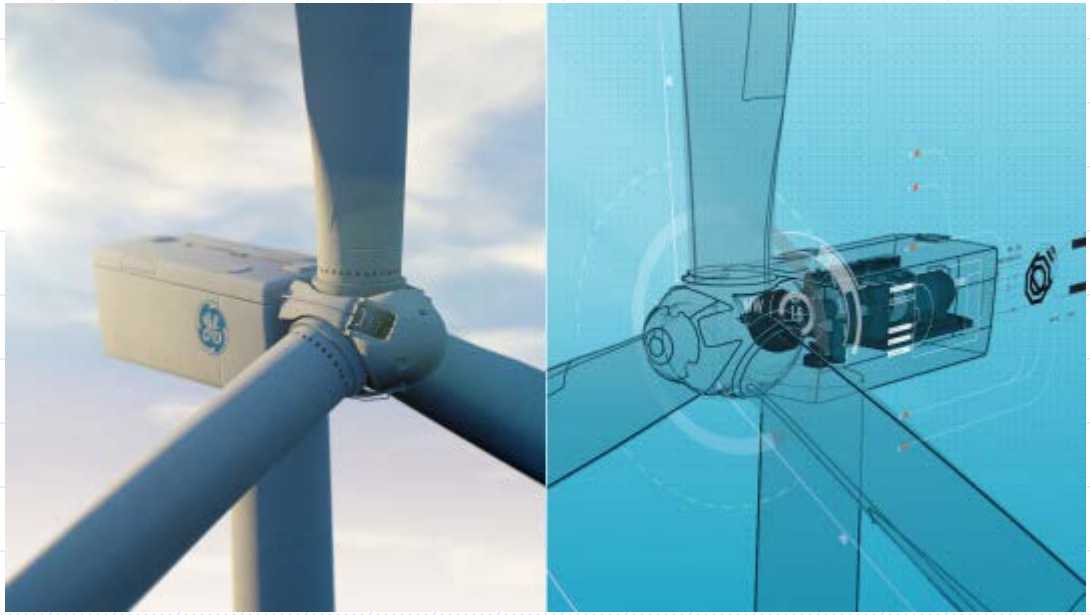
Additional viz. items

- Digital twin
- Viz. requirements from industry
- PMI product manufacturing information, annotation
- Massive but less detailed geometry: Building (IFC Industry Foundation Class liaison), plant
- Liaison with BIM viz.
- 3D printing, scanning

Smart manufacturing

- Digital twin visualization
- Mapping between physical and digital
- Digital twin needs more engineering simulation
- ISO 10303 STEP standards are candidates to support the digital twin design.

Digital twins



Chicago meeting 4-8 Nov. 2018


ROADMAP TO STANDARDIZATION

New project: Resolutions

- Establish Ballot Duration for NP ISO 14306 ed3 JT
  - GM, GE Aviation, Siemens
  - Teleconference schedule
- Establish PWI for “Industrial Requirements for Product Data Visualization”
  - EDF, Elysium

Resolution: "J"

Title: Establish Ballot Duration of a future New Work Item Proposal for 14306ed3

From:

JWG 16

Introduction:

None

Objective:

To establish reduced ballot period for New Proposal

Resolution:

SC 4 requests its Secretariat to apply the 8 week ballot duration to the future NP for 14306ed3, JT file format specification for 3D visualization following a successful review by JWG 16 for scope per action item 195 from the Secretariat.

Attached documents: Yes ☐ None ☒

Voting –

ISO/TC 184/SC 4 Plenary Meeting #: 76th
Meeting Date: 2018-11-09
Meeting Location: Chicago, IL USA
SC 4 Resolutions: Final

Resolution: "L"

Title: Establish PWI for "Industrial Requirements for Product Data Visualization"

From:

JWG 16

Introduction:

The original report outlining visualization requirements for industrial data was published in 2008 and there have since been developments in visualization technology and formats. The report was published as an SC 4 numbered document only.

Objective:

To update the original report and publish as a Technical Report

Resolution:

SC 4 launches a PWI to update its requirements for visualization and to create a Technical Report on "Industrial Requirements for Product Data Visualization". SC 4 requests its Secretariat to invite member bodies to nominate experts to JWG 16 to undertake this preliminary work.


thank you
danke
謝謝
merci
gracias
obrigado
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bedankt
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teşekkür ederim
ngiyabonga
спасибо
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Баярлалаа
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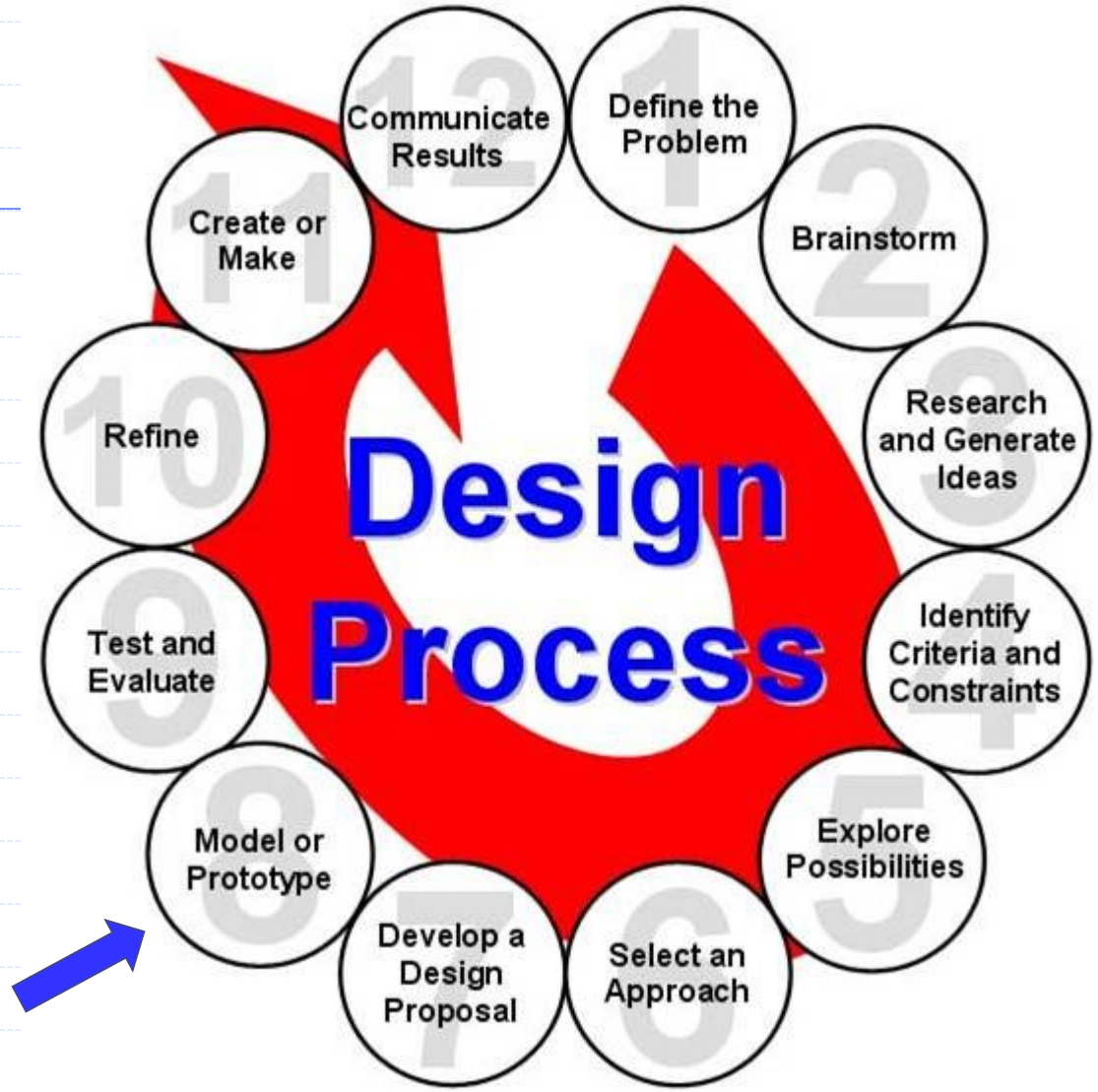
https://www.additivemanufacturing.media/blog/post/reverse-engineering-and-3d-printing-a-practical-solution


Design Process
1
Define the Problem
2
Brainstorm
3
Research and Generate Ideas
4
Identify Criteria and Constraints
5
Explore Possibilities
6
Select an Approach
7
Develop a Design Proposal
8
Model or Prototype
9
Test and Evaluate
10
Refine
11
Create or Make
12
Communicate Results