

**ISO/IEC JTC 1 "Information technology"**

Secretariat: **ANSI**

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## **JTC 1/WG 12 Business Plan 2023**

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### **Description**

This document is circulated for review and consideration at the November 2023 JTC 1 Plenary in Berlin.



**ISO/IEC JTC 1/WG 12 "3D Printing and scanning"**

Convenorship: KATS

Convenor: LEE Byoung Nam Mr



## **JTC 1/WG 12 Business Plan 2023**

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| General / Other |                 | 2023-08-31    | <b>INFO</b>     |

### **Description**

As per the 11th WG 12 F2F Meeting Recommendation 3, this document will be submitted to the JTC 1 Secretariat.

# **(Draft) ISO/IEC JTC 1/WG 12 Strategic Business Plan**

**Period Covered:** November 2022 – September 2023

**Source:** Yaeseul Park (WG 12 Secretary), Kyu-Won Shim (KR expert)

## **1.0 Executive summary**

The purpose of JTC 1 Working Group 12 (Systems Integration entity) is to develop ICT standards specifically relevant to digitally enabling the prototyping and manufacturing of physical objects. As necessary and when not covered elsewhere, this will include nomenclature, frameworks, interface and protocol specifications, and format specifications required for facilitating the digital control of the production and supply of physical objects including but not limited to additive and subtractive fabrication and automated assembly and distribution.

## **2.0 Convenor's Remarks**

### **2.1 Market Requirements, Innovation**

3D printing and 3D scanning are two distinct industries with close interaction and significant overlap. These industries are growing rapidly, are being utilized in an increasing array of applications, and are facing many significant challenges. Some of these challenges may be addressed by creating and adopting strategically developed industry standards. Many of these standard opportunities are ICT related in whole or in part. The creation of new standards will improve the necessary confidence and trust to shift non-users of 3D scanning and/or 3D printing to become users. That is, the end customers, designers, and manufacturers need a common foundation and language to enable the sharing of information with clarity and assurance. The shift to the fourth industrial revolution will require the right amount of oversight and commonality to enable broad adoption and usage to reduce areas of uncertainty on the part offer the manufacturer and the end customer.

### **2.2 Accomplishments**

#### **2.2.1 Projects**

##### **International Standard Published (1)**

- **ISO/IEC 3532-1:2023** has been published as an International Standard in June 2023.

##### **Under development (4)**

- **ISO/IEC DIS 3532-2**, Information technology — Medical image-based modelling for 3D printing — Part 2: Segmentation
- **ISO/IEC AWI 8801**, Information Technology — 3D Printing and Scanning- - 3D scanned and labeled data Standard Operating Procedure (SOP) for evaluation of modelling from 3D scanned data
- **ISO/IEC AWI 8803**, Information Technology — 3D Printing and Scanning — accuracy and precision evaluation process for modeling from 3D scanned data
- **ISO/IEC AWI 16466**, Information Technology — 3D Printing and scanning — Assessment methods of 3D scanned data for 3D printing model

#### **2.2.2 Meetings**

WG 12 held F2F meeting twice during the period.

- 10th WG 12 F2F Meeting: March 2023 in Tel Aviv, Israel

- 11th WG 12 F2F Meeting: August 2023 in Seoul, Korea

## 2.3 Resources

### 2.3.1 Officers

- WG 12 Convenor: Dr. Byoung Nam Lee
- WG 12 Secretary: Ms. Yaeseul Park

### 2.3.2 Members

- 71 members from 16 NBs
- 3 Liaisons
- 1 SIF facilitator

### 2.3.3 Subgroups

- **AHG 1: 4D Printing**
  - Convenor: Mr. Adin Stern (IS)
- **AHG 3: 3D scanning for 3D printing**
  - Co-Convenors: Prof. Kyu won Shim (KR) and Dr. Jason Dowling (AU)

## 2.4 Competition and Cooperation (including consortia)

There are several SDOs and consortia active in the area of 3D printing standardization. WG 12's focus is on the ICT foundational aspects of 3D printing standardization, and, in developing its work programme and deliverables, WG 12 strives to ensure synergy with other standardizing organizations thereby avoiding duplication of effort.

The table shows the current Liaison status.

| Organization/Committee | Description                                                                                             |
|------------------------|---------------------------------------------------------------------------------------------------------|
| ISO/TC 106             | Dentistry                                                                                               |
| ISO/TC 150             | AM in surgical implant applications                                                                     |
| ISO/TC 171/SC 2        | Document file formats, EDMS systems and authenticity of information                                     |
| ISO/TC 215             | Health informatics                                                                                      |
| ISO/TC 261             | Additive Manufacturing                                                                                  |
| ISO/TC 184/SC 1        | Automation systems and integration – physical device control                                            |
| ISO/TC 184/SC 4        | Automation systems and integration – industrial data                                                    |
| ISO/IEC JTC 1/SC 24    | Computer graphics, image processing and environmental data representation                               |
| ISO/IEC JTC 1/SC 29    | Coding of audio, picture, multimedia and hypermedia information                                         |
| ISO/IEC JTC 1/SC 42    | Artificial intelligence                                                                                 |
| Khronos Group          | 3D graphics, Virtual and Augmented Reality, Parallel Computing, Machine Learning, and Vision Processing |

## **2.5 WG 12 strategies/risks/opportunities/lessons learned**

### **Strategy**

3D Printing and 3D Scanning are inherently cyber-physical systems. As such, many standardization opportunities cannot be addressed from a strictly ICT point-of-view. Collaboration with other standards bodies with complementary areas of expertise will be required in many cases. For each opportunity, the following approaches will be considered:

1. If the standardization opportunity is clearly a foundational ICT enabler for 3D printing or 3D scanning, then WG 12 will take the initiative and lead in developing that standard. Examples include but are not limited to underlying broadly applicable file formats, protocols, or cyber-security mechanisms.
2. If the standardization opportunity requires both ICT expertise and domain expertise in another area, then WG 12 will investigate collaborative development opportunities with other entities within ISO and/or IEC, and externally with other appropriate standards bodies. Examples include but are not limited to, specific applications of file formats and protocols, information management policies, data quality standards.

For those 3D printing and scanning related standardization activities with significant ICT concerns currently underway, WG 12 will seek a collaborative arrangement with the standards bodies responsible for the work.

### **Risks**

There is a risk that a large number of collaborator/partners in the same industry can act as a competitor in some situation. It is necessary to communicate and discuss closely at all times so that the cooperative relationship is maintained well.

### **Opportunities**

Many existing groups are already working on underlying technologies and standards, which will provide an opportunity to work closely together to accomplish the needs of the industry and the start-up.

## **2.6 Future meetings**

- 12<sup>th</sup> WG 12 Meeting: March 2024, Australia
- 13<sup>th</sup> WG 12 Meeting: August 2024, China