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**ISO TC 133 - Size designation, size measurement methods  
and digital fittings.**

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**Business Plan**



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**ISO/TC133, Size designation, size measurement methods and digital fittings**

**BUSINESS PLAN**

**EXECUTIVE SUMMARY**

The primary objective of a TC 133 (Clothing sizing, size measurement and digital fitting) is to respond to the increasing requirements of a dynamic consumer/retail and manufacturing environment worldwide, thereby proliferating customer satisfaction and in the long term to reduce costly customer returns due to poor clothing fit. The secondary objective is to eliminate trade barriers by harmonizing the practices of size labelling worldwide for a normative terms of reference in the clothing sector. This will facilitate a common understanding between the different key role-players for e.g. the manufacturers, retailers, consumers, etc. thereby increasing the quality of the production and fit of clothing irrespective of whether this is through customers physically going into the store to shop for clothing or when purchasing clothing online.

Globalization of the marketplace, has now necessitates the need for ISO/TC 133 to contribute greatly to facilitate the above objectives, this to encourage world trade and commercial exchanges in the clothing sector, that are aligned to international best practices through the publication of standards that are used and understood worldwide. Sustainable development goals covers various aspects example, no poverty, good health and well-being, quality education, gender equality, affordable and clean energy, decent work and economic growth, industry, innovation and infrastructure, responsible consumption and production and peace, justice and strong institutions are just a few.

## **Background**

Advancements of technologies in the clothing retail and manufacturing sectors necessitates a collective focus towards addressing clothing sizing and fit” The primary objective of ISO/TC 133 is to increase customer satisfaction and reduce costly returns as a result of poor fitting clothing. The secondary objective is to eliminate trade barriers by harmonizing the practices of size labelling worldwide and the terms of reference in the clothing sector. This will facilitate a common understanding between the different key role-players for e.g. the manufacturers, retailers, consumers, etc. thereby increasing the quality of the production and fit of clothing in the retail sector. Owing to the globalization of the marketplace, the ISO/TC 133 is expected to contribute significantly to facilitate world trade and commercial exchanges in the clothing sector, through the development of current and relevant standards that address the needs of the world-wide trading markets. What this means for the buying customer? is that worldwide standisation of garment sizes and labeling will ensure that the confusion resulting from the information currently on garment labels will be simplified and is made easier to read and understood by shoppers, both nationally and internationally. Body measurements taken using ISO 8559-1 based on the primary and secondary measurements as given in ISO 8559-2 is more recommended practice for consumer awareness. This is further complicated by vanity sizing, where a retailer will use a size 10 labels on what used to be a size 14 garments. Primary and secondary measurements with metric measurements are more consumer friendly.

Hence the need and relevance of ISO/TC 133, in addition to extracting body landmark measurements using traditional anthropometric tools such as calipers and tape measures, to explore standarisation using new and emerging technologies to provide updated and current information for international standardization purposes in the fields of clothing sizing, size measurement and digital fitting.

## **1 INTRODUCTION**

### **1.1 ISO technical committees and business planning**

The aim of the every ISO Technical Committee is to develop a business plan that is aligned to the ISO work programs that articulates the business environmental needs and trends hence allowing the ISO/TCs to prioritize needs among the different projects. This will enable the ISO/TC, to identify the benefits expected from and the availability of International Standards to ensure that adequate resources are available for the implementation on identified projects throughout the planning and development stages. The committee must consider the sustainable goals when developing standards.

### **1.2 International standardization and the role of ISO**

The foremost aim of international standardization is to respond to the requirements of the marketplace and in the case of ISO/TC133, to facilitate the exchange of goods and services through the elimination of technical barriers to trade through the development of standards together with interested organisation/standardisation bodies/industries and research institutes worldwide by addressing specific business needs in the industries in which these standards are disseminated.

The standardisation bodies responsible for the planning, development and adoption of International Standards: ISO (International Organization for Standardization) is responsible for all sector standards, excluding the Electrotechnical, which is the responsibility of IEC (International Electrotechnical Committee), and majority of the Telecommunications Technologies, which are largely the responsibility of ITU (International Telecommunication Union).

ISO is a legal association, the members of which are the National Standards Bodies (NSBs) of some 140 countries (organizations representing social and economic interests at the international level), supported by a Central Secretariat based in Geneva, Switzerland. An International Standard embodies the essential principles of global openness and transparency, consensus and technical coherence. These are safeguarded through its development in an ISO Technical Committee (ISO/TC), representative of all interested parties, supported by a public comment phase (the ISO Technical Enquiry). ISO and its Technical Committees are also able to offer the ISO Technical Specification (ISO/TS), the ISO Public Available Specification (ISO/PAS) and the ISO Technical Report (ISO/TR) as solutions to market needs. These ISO products represent lower levels of consensus and therefore do not possess the same status as an International Standard. The principal deliverable of ISO is International Standardisation.

## **2. THE BUSINESS ENVIRONMENT OF THE ISO/TC 133**

### **2.1 *Description of the Business Environment***

The ISO/TC133 (Clothing size, size measurement and digital fitting) business scope and work environment is primarily concerned with consumer products namely that of clothing sold worldwide. Due to the globalization of the clothing market and the movement of clothing production to countries where the role of clothing standards is less clear, the leadership provided by the ISO/TC133 is through active stakeholder engagement i.e. manufacturers, resourcing companies, retailers and consumers worldwide. Globally body dimensions taken using ISO 8559-1 in relation to the primary and secondary landmarks of ISO 8559-2 will be clear and understandable by all consumers. Pictograms make the labelling even more easy to understand without confusion and language interpretations. This guideline is perceived as an essential tool for improving communications and trade between and within countries, both nationally and internationally, suppliers to the consumer. Hence the ISO/TC133 is ideally positioned to facilitate this process globally, as the clothing size conversion guidelines is targeted at clothing manufacturers, designers, retailers, small business owners of CMT's, educational institutions and the consumer in general. The standards developed is vital from body measurements, database, virtual mannequin, virtual garment, digital fitting, analyzing body shape, size ratio grouping and size labelling indicators. Due to the increasing online shopping market, consumers during such pandemic can purchase customized or ready-to-wear clothing from comfort of their homes and fit as required.

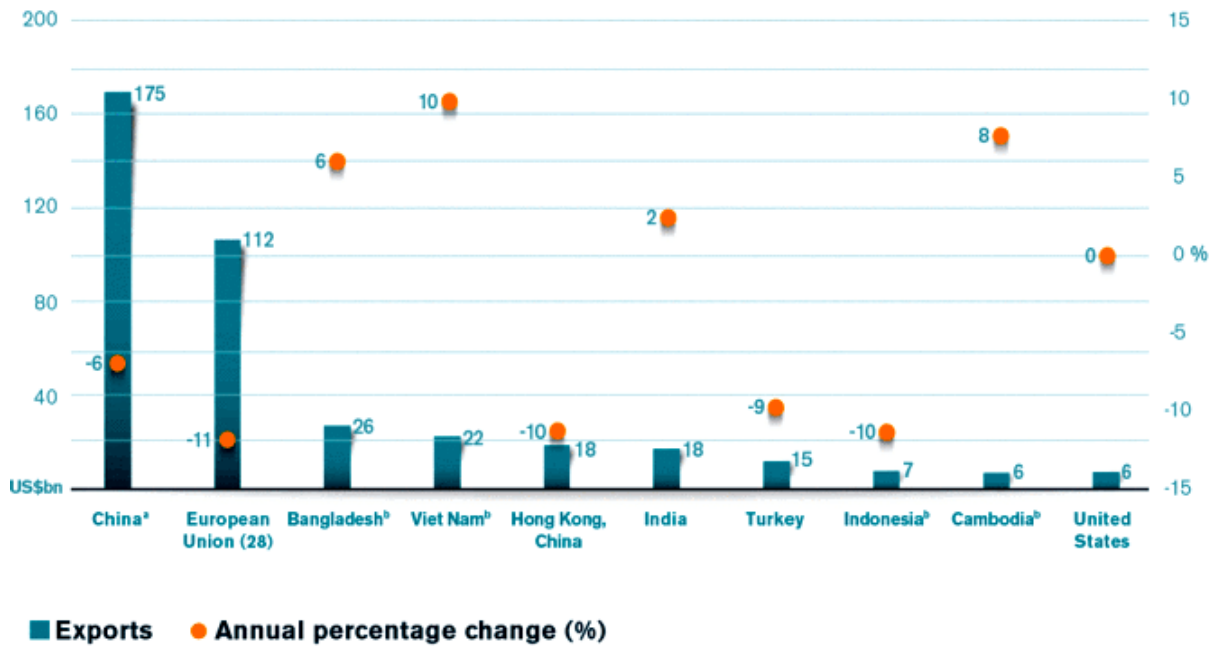
### **2.2 *Quantitative Indicators of the Business Environment***

The World Trade Organisation<sup>4</sup> states that the volume of the world production of clothing is increasing yearly. The major exporters are mainly located in the Far East, in South East Asia, Europe and in the United States of America (cf. table below). The production of clothing is varied with a few niche markets that are either fully mechanized or handcrafted. The global digital marketing software market size was valued at \$43.8 billion in 2019 and is expected to register an increase of almost 20% by 2027. E-Commerce sales are predicted to reach a high of \$6.5 trillion by 2023.

## Major exporters of Clothing, 2015

(Million dollars and percentages)

**Chart 4.10:**  
Top ten exporters of clothing, 2015



\* Includes significant shipments through processing zones. <sup>b</sup> Includes Secretariat estimates.  
Source: WTO Secretariat.

<https://shenglufashion.wordpress.com/2016/07/27/wto-reports-world-textile-and-apparel-trade-in-2015/>

Year	\$ billion	€ billion	% Growth
2014	1,317.3	991.2	3.0%
2015	1,377.5	1,036.5	4.6%
2016	1,440.4	1,083.8	4.6%
2017	1,507.2	1,134.1	4.6%
2018	1,577.3	1,186.9	4.7%
2019	1,651.6	1,242.7	4.7%
CAGR: 2014–19			4.6%

SOURCE: MARKETLINE MARKETLINE



<https://unctad.org/news/covid-19-has-changed-online-shopping-forever-survey-shows>

### 2.3 Major factors which may have an impact on the development of the markets

Undoubtedly the major factor impacting the development of the market for clothing is the shift of manufacturing from the West (Europe and the USA) to the low labour cost regions of the East. This is driven largely by the resourcing companies and the major clothing brands. Retailers and suppliers must consider the carbon footprint when purchasing and manufacturing garments. Most countries are sourcing local produced products to enhance national economy and local job creation. This ultimately reduces the carbon footprint.

The current sales patterns (to the end consumer) vary from region to region for example, in the UK and USA clothing is sold predominantly through multiple retail outlets whilst in some EU countries, sales are conducted largely through independent retail stores. However, a growing worldwide trend' is for clothing to be sold via the internet and in some countries/regions, through conventional mail order that is becoming very popular. Hence the appropriate sizing and subsequent better fitting clothing is of paramount importance. Research suggests that most returns are due to internet sales purchases of poor fitting garments and/or incorrect size marking on the garment labels, resulting in a significant cost in lost sales to retailers. Correct labelling reduces returns, even the carbon footprint. The industry must ensure the creation of decent jobs, no child labour. The inks used to print the labels must be environmental acceptable. The colour fastness of the inks are critical not to fade and must outlast the garments. Inks can contaminate water ways, rivers, and our water supply. The second-

hand market trade is growing, reuse and recycling of textile and made-up products. Labelling is vital as second hand goods are sent to other countries, the labelling can still be relevant, clear and understandable. The industry is being digitally enhanced, innovation as to the way business is carried out is being transformed to ensure greater profit margins and stable economic environment by improving the online platforms, virtual fittings and more functions to ensure customer satisfaction from the comfort of your home.

### **3. OBJECTIVES OF THE ISO/TC AND STRATEGIES FOR THEIR ACHIEVEMENT**

#### **3.1 Defined objectives of the ISO/TC**

Elaboration of International Standards on:

- ISO standard for body and garment measurements
- ISO standard for size designation indicators
- ISO standard for body shapes and sized ratio grouping
- ISO standard for virtual garment and fitting

#### **3.2 Identified strategies to achieve the ISO/TC's defined objectives**

The member countries strategy is to develop a sizing system and designations for clothes based on ISO 8559 part 1 and 2 that can be used globally. This will be used as the basis for a unified method of measurement for size designation of clothing. It is expected that initially, multiple size labelling will continue until the new standards are developed and retail and manufacturer confidence is established for implementation.

### 3.3 Number of published standards in ISO/TC133

#### 3.3.1 Published standards

<https://www.iso.org/committee/52374/x/catalogue/p/1/u/0/w/0/d/0>

<b>1. ISO 18163:2016</b>	Clothing -- Digital fittings -- Vocabulary and terminology used for the virtual garment
<b>2. ISO 18825-1:2016</b>	Clothing -- Digital fittings -- Part 1: Vocabulary and terminology used for the virtual human body
<b>3. ISO 18825-2:2016</b>	Clothing -- Digital fittings -- Part 2: Vocabulary and terminology used for attributes of the virtual human body
<b>4. ISO 18831:2016</b>	Clothing -- Digital fittings -- Attributes of virtual garments
<b>5. ISO 5971:1981</b>	Size designation of clothes -- Tights
<b>6. ISO 8559-1:2017</b>	Size designation of clothes -- Part 1: Anthropometric definitions for body measurement
<b>7. ISO 8559-2:2017 (TO REVISE)</b>	Size designation of clothes -- Part 2: Primary and secondary dimension indicators
<b>8. ISO 18890:2018</b>	Clothing - Standard method of garment measurement
<b>9. ISO 8559-3:2018</b>	Size designation of clothes — Part 3: Methodology for the creation of body measurement tables and intervals

#### 3.3.2 Programme of work

<https://www.iso.org/committee/52374/x/catalogue/p/0/u/1/w/0/d/0>

Some of the projects that are currently active at the time of publication of the business plan (17/11/2020).

PWI – *Preliminary work item*

NP – *New project*

CD - *Committee draft*

DIS - *Draft international standard*

FDIS - *Final draft international standard*

#### WG1 – Body measurement

PW1 23752, Size and shape designations for clothes: methodology for analyzing 3D body shapes

#### WG2 – Digital fitting

ISO/DIS 20947-1, Performance evaluation protocol for digital fitting systems — Part 1: Accuracy of virtual human body representation

ISO/DIS 20947-2, Performance evaluation protocol for digital fitting systems — Part 2: Virtual garment (DIS approved for registration as FDIS ballot)

ISO/AWI 20947-3, Performance evaluation protocol for digital fitting systems — Part 3: Digital fitting performance (CD registration)

ISO/NP TS 3736-1, Digital fitting — Service procedure — Part 1: Part 1: Ready-to-wear clothing online and off-line (NP)

ISO/NP TS 3736-2, Digital fitting — Service procedure — Part 2: Part 2: Customized clothing online and off-line (NP)

### **WG3 – Measurement indicators**

Size designation of clothes – Gloves (PWI)

ISO 8559-2, Size designation of clothes — Part 2: Primary and secondary dimension indicators (Revision)

ISO/NP 8559-4, Size designation of clothes — — Part 4: Determination of the coverage ratios of body measurement tables (NP)

## **4. BENEFITS EXPECTED FROM THE WORK OF ISO/TC 133**

As mentioned, previously, the ISO/TC133 work contributes largely towards the development of standards in clothing size, size measurement and digital fitting, that will facilitate trade and commercial exchanges in the clothing sector. This contribution is in developing effective collaborative guidelines for clothing size conversion and eventually an ISO Standard/s for size labelling of clothing. This, in turn will hopefully lead to:

Improved fit and specification for garments developed through international collaborations and data that can be accessed by clothing manufacturers, retailers, academic institutions and also small business owners. The resulting benefit is in fewer returns, in the correct customs and exercise container labelling and in garment labelling

## **5. REPRESENTATION BY COUNTRIES**

### **Participating Members (24)**

<https://www.iso.org/committee/52374.html?view=participation>

Australia	SA
Belgium	NBN
China	SAC
Denmark	DS

Ethiopia	ESA	
Finland	SFS	
France	AFNOR	
Germany	DIN	
India	BIS	
Iran, Islamic Republic of	ISIRI	
Italy	UNI	
Japan	JISC	
Kenya	KEBS	
Korea, Republic of	KATS	
Netherlands	NEN	
Poland	PKN	
Portugal	IPQ	
Russian Federation	GOST R	
South Africa	SABS	
Spain	UNE	
Sweden	SIS	
Switzerland	SNV	
Turkey	TSE	
United Kingdom	BSI	

### **Observing Members (26)**

<https://www.iso.org/committee/52374.html?view=participation>

Argentina	IRAM	
Austria	ASI	
Bulgaria	BDS	
Chile	INN	
Colombia	ICONTEC	
Cuba	NC	
Czech Republic	UNMZ	
Egypt	EOS	
Greece	NQIS ELOT	
Hong Kong Special Administrative Region of China	ITCHKSAR	
Hungary	MSZT	
Indonesia	BSN	
Ireland	NSAI	
Mauritius	MSB	
Mongolia	MASM	
Peru	INACAL	
Philippines	BPS	
Romania	ASRO	
Serbia	ISS	
Slovakia	UNMS SR	

Sri Lanka	SLSI
Thailand	TISI
Trinidad and Tobago	TTBS
Tunisia	INNORPI
Uzbekistan	UZSTANDARD
Viet Nam	STAMEQ

### 5.1 Analysis of the participation

ISO/TC133 comprises of 50 members of whom 24 are P-Members and 26 O-Members.

The geographical distribution of the P and O members is as follows:

Participation is mainly from Europe and Asia. The committee is lacking participation of countries from the American continent that represent a large component of the clothing sales and research markets.

## 6. STRUCTURE

### 6.1 Structure of the ISO committee

Working Group	Convenor/Twinned Convenor	Term Date
ISO/TC 133/WG 1, Body measurements	Professor Young Suk Lee, <a href="mailto:ysl@chonnam.ac.kr">ysl@chonnam.ac.kr</a>	2017-12-31 – 2020-12-31
ISO/TC 133/WG 2, Digital fittings	Dr Chang Kyu Park, <a href="mailto:cezar@konkuk.ac.kr">cezar@konkuk.ac.kr</a>	2017-12-31 – 2020-12-31
ISO/TC 133/WG 3, Measurement indicators	Mr Laurent Houillon, <a href="mailto:LHOUILLON@ifth.org">LHOUILLON@ifth.org</a>	2017-12-31 – 2020-12-31

### 6.2 Liaisons

#### 6.2.1 Liaison Committees from ISO/TC 133

Reference	Title	ISO/IEC
ISO/TC 38	Textiles	ISO
ISO/TC 137	Footwear sizing designations and marking systems	ISO
ISO/TC 159	Ergonomics	ISO
ISO/TC 159/SC 1	General ergonomics principles	ISO

Reference	Title	ISO/IEC
ISO/TC 159/SC 3	Anthropometry and biomechanics	ISO

### 6.2.2 Liaison Committees to ISO/TC 133

Reference	Title	ISO/IEC
ISO/TC 38	Textiles	ISO
ISO/TC 137	Footwear sizing designations and marking systems	ISO
ISO/TC 159/SC 3	Anthropometry and biomechanics	ISO

### 6.2.3 Organizations in liaison

Acronym	Title	Liaison type
EURATEX	European Apparel and Textile Confederation	A

## 7. FACTORS AFFECTING COMPLETION AND IMPLEMENTATION OF THE ISO/TC WORK PROGRAMME

**7.1** Not all countries around the world have conducted national sizing surveys. Hence the standard will initially be limited to those countries that have populated body measurement data either using manual tape measure or 3D body scan data. This data is critical for the establishment of a realistic and unified clothing size and digital fitting standard;

**7.2** The dominance of the ISO TC-133 has rendered some standards as being outdated and there is no statistically valid body measurement data available for updating the outdated standards. Hence the data has to be collected within the different member countries and populated incrementally as new data becomes available from the member countries.

## 8. REFERENCES

1. Anon. Glossary of terms and abbreviations used in ISO/TC Business Plans.
2. Anon. General information on the principals of ISO's technical work
3. Anon. International Trade Statistics. World Trade Organization.  
[www.wto.org/statistics](http://www.wto.org/statistics)