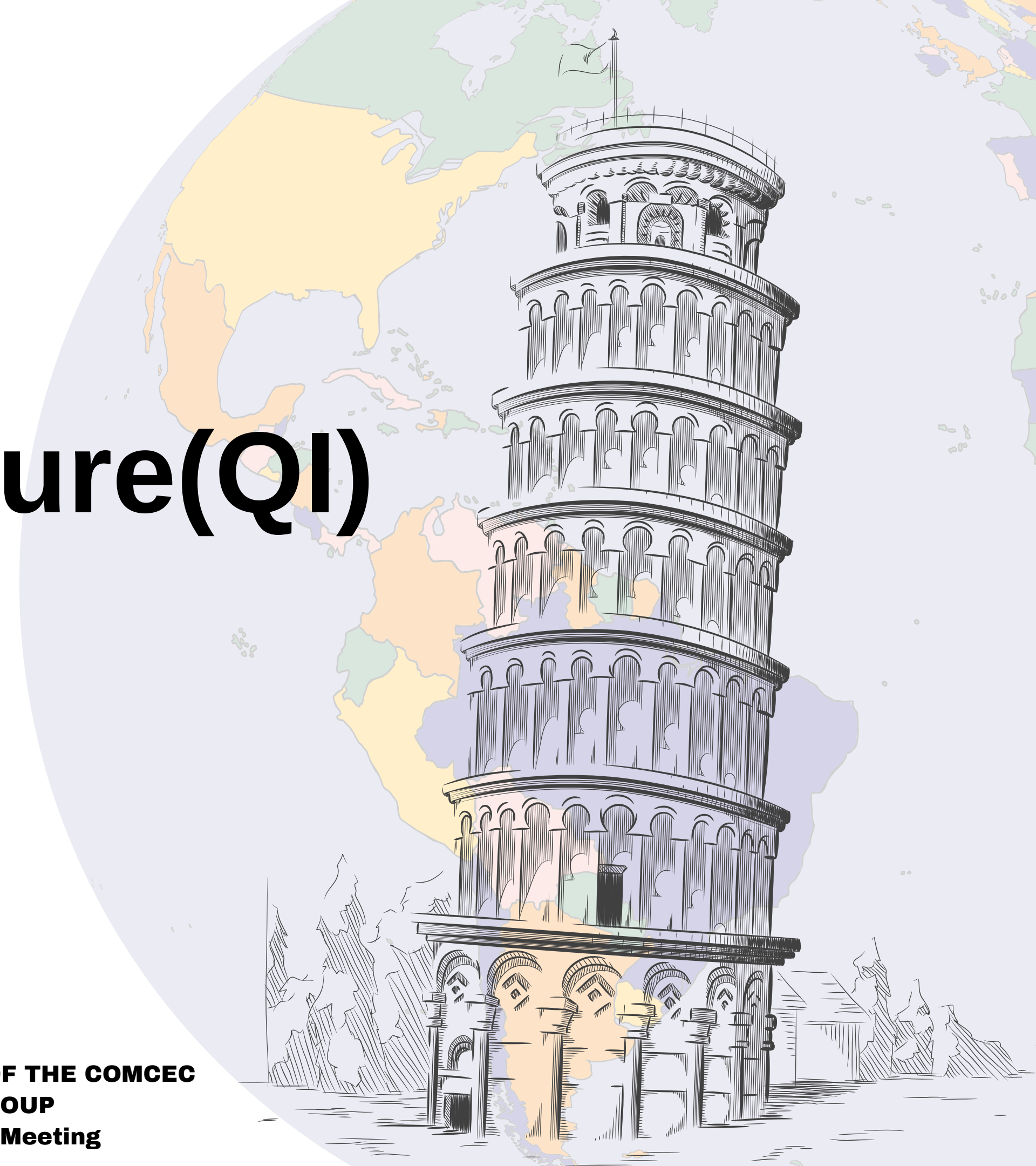




Quality Infrastructure(QI) and Metrology in **Italy**

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www.ibtteam.com

**THE 22nd MEETING OF THE COMCEC
TRADE WORKING GROUP
May 06, 2024, Virtual Meeting**



Introduction

- **Italy's Quality Infrastructure (QI):** A Foundation of Excellence
- **Metrology Systems in Italy:** Precision at its Core
- **Supporting Diverse Industries:** From Craftsmanship to High-Tech Manufacturing
- **Interconnected Systems:** The Backbone of Economic Resilience
- **Global Reputation:** Italy's Commitment to Excellence
- **Quality Assurance Across Industries:** Maintaining Standards
- **Innovation and Tradition:** A Unique Blend in Italian Manufacturing
- **Adaptability in a Changing World:** Italy's Strength in Diversity
- **The Role of Technology:** Driving Efficiency and Precision
- **Future Prospects:** Sustaining Italy's Legacy of Quality



What is on the Agenda for QI and Metrology in the World?



- **Digital Transformation and Industry 4.0**
- **Sustainability and Environmental Metrology**
- **Healthcare and Biomedical Metrology**
- **Global Trade and Regulatory Compliance**
- **Education and Capacity Building**
- **International Collaboration and Aid**

IMPORTANT COUNTRIES IN QI and Metrology



GQII 2023: Global Ranking and Subrankings by QI area (185 Economies)

Economy Name	Economy Code	GQII Rank 2023	Rank Metrology 2023	Rank Standardization 2023	Rank Accreditation 2023
Germany	DEU	1	2	2	2
China	CHN	2	3	1	6
United States	USA	3	1	7	1
United Kingdom	GBR	4	5	3	9
Japan	JPN	5	4	5	16
Italy	ITA	6	15	4	3
Spain	ESP	7	13	9	8
Korea, Republic of	KOR	8	6	6	36
France	FRA	9	7	26	11
India	IND	10	20	8	5
Australia	AUS	11	9	13	18
Poland	POL	12	18	16	7
Canada	CAN	13	8	23	17
Czech Republic	CZE	14	17	12	13
Mexico	MEX	15	11	40	4
Switzerland	CHE	16	14	11	22
Brazil	BRA	17	10	18	24
Türkiye	TUR	18	16	24	12
Netherlands	NLD	19	19	10	14

Source: GQII <https://gqii.org/>

- **Germany**
- **China**
- **United States**
- **United Kingdom**
- **Japan**
- **Italy**
- **Spain**
- **Korea, Republic of**
- **France**
- **India**
- **Australia**
- **Poland**
- **Canada**
- **Czech Republic**
- **Mexico**
- **Switzerland**
- **Brazil**
- **Türkiye**
- **Netherlands**
- **South Africa**

Importance of QI and Metrology in Italy



Economic Benefits

- Enhancing Product Competitiveness
- Supporting Export Markets
- Attracting Foreign Investment

Social and Health Benefits

- Ensuring Public Health and Safety
- Environmental Monitoring and Protection

Technological and Scientific Innovation

- Advancing Scientific Research
- Promoting Technological Development

Regulatory Compliance and Standardization

- Meeting International Standards
- Consumer Protection

Education and Skill Development

- Building Expertise
- Continuing Professional Development

Historical Perspective of QI and Metrology in Italy



Ancient and Medieval Periods

- Roman Standards
- Medieval Measures

Renaissance to the 19th Century

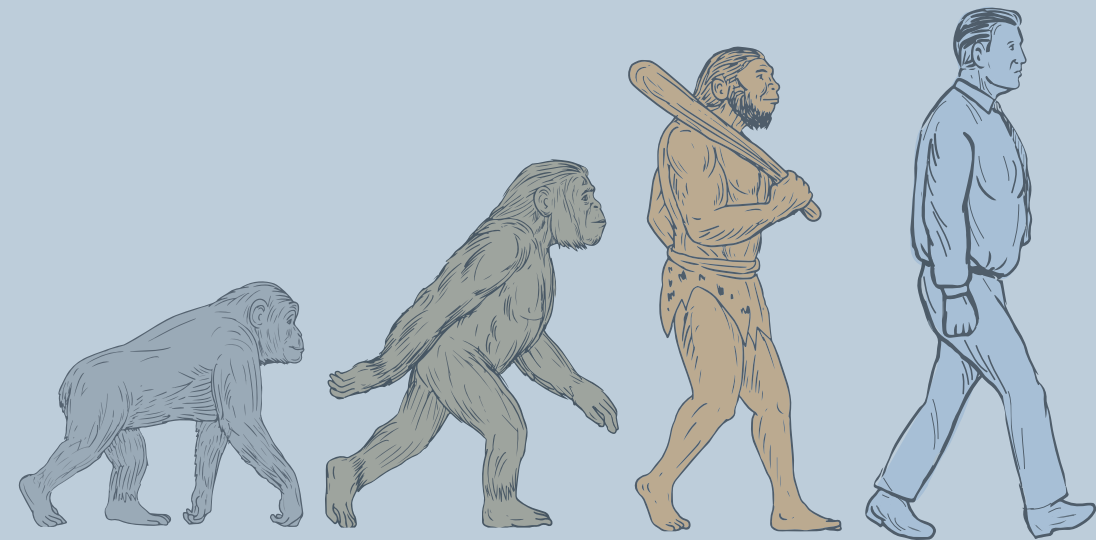
- Renaissance Advances
- Metric System Adoptionn

20th Century to Present

- Establishment of National Bodies
- Expansion into Quality Infrastructure
- European and Global Integration
- Technological Innovations and Digital Metrology

Evolution of QI and Metrology in Italy Through the Centuries

- **Ancient Foundations and Roman Empire**
- **Medieval Disparities**
- **Renaissance Reforms**
- **Unification and the Metric System**
- **20th Century Developments**
- **Modern Advances and Global Integration**
- **Current Focus**



Current Metrological Infrastructure in Italy

National Metrology Institutes

- Istituto Nazionale di Ricerca Metrologica (INRIM)

Governmental and Regulatory Bodies

- Istituto Italiano del Marchio di Qualità (IMQ)
- Agenzia delle Dogane e dei Monopoli (ADM)

Standardization and Accreditation Organizations

- Ente Nazionale Italiano di Unificazione (UNI)
- Accredia

Regional and Local Bodies

Academic and Research Collaboration

International Collaboration



Key Organizations and Institutes

- **Istituto Nazionale di Ricerca Metrologica (INRIM)**
- **Agenzia Nazionale per le Nuove Tecnologie, l'Energia e lo Sviluppo Economico Sostenibile (ENEA)**
- **Istituto Italiano del Marchio di Qualità (IMQ)**
- **Società Italiana di Metrologia (SIM)**
- **Politecnico di Milano and Other Academic Institutions**



Italian Government Role in Metrology



Legislative and Regulatory Framework

- Establishing Laws and Regulations
- Compliance and Enforcement

Support and Funding for Metrological Institutions

- Istituto Nazionale di Ricerca Metrologica (INRIM)
- Agenzia delle Dogane e dei Monopoli (ADM)

Standardization and Accreditation

- Ente Nazionale Italiano di Unificazione (UNI)
- Accredia

International Collaboration

- International Agreements and Membership
- European Cooperation

Education and Public Awareness

Major Metrology Projects and Innovations

- **Quantum Metrology at INRIM**
- **Digital Metrology for Industry 4.0**
- **Environmental Metrology for Climate Monitoring**
- **Health Metrology for Medical Applications**
- **Metrology in Food Safety and Quality**



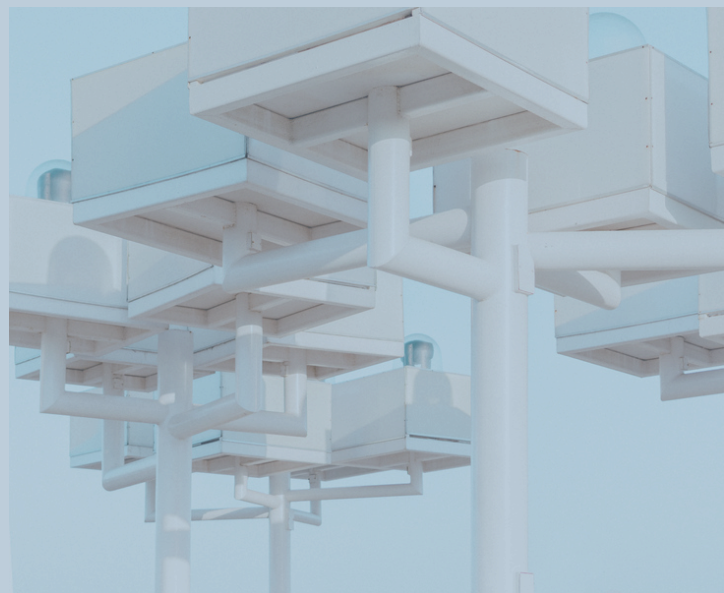
Recent Developments in Italian Metrology

- **Quantum Metrology**
- **Digital and Smart Metrology for Industry 4.0**
- **Environmental Metrology**
- **Metrology in Cultural Heritage**
- **Collaboration and International Partnerships**
- **Health and Biomedical Metrology**



Case Studies of Metrology Applications in Italy

- **Ferrari's Use of Metrology in Car Production**
- **Healthcare: Metrology in Sorin Group's Cardiac Devices**
- **Use of Metrology in Italy's Air Quality Monitoring Stations**
- **Metrology in Olive Oil Production**
- **Metrology in Gucci's Production Line**



Applications of Metrology in Various Sectors



Manufacturing

- Precision Engineering and Automotive
- Aerospace

Healthcare

- Medical Devices
- Pharmaceuticals

Information and Communication Technology (ICT)

- Electronics

Food and Agriculture

- Food Quality and Safety
- Agricultural Metrics

Environmental Science

- Climate Monitoring

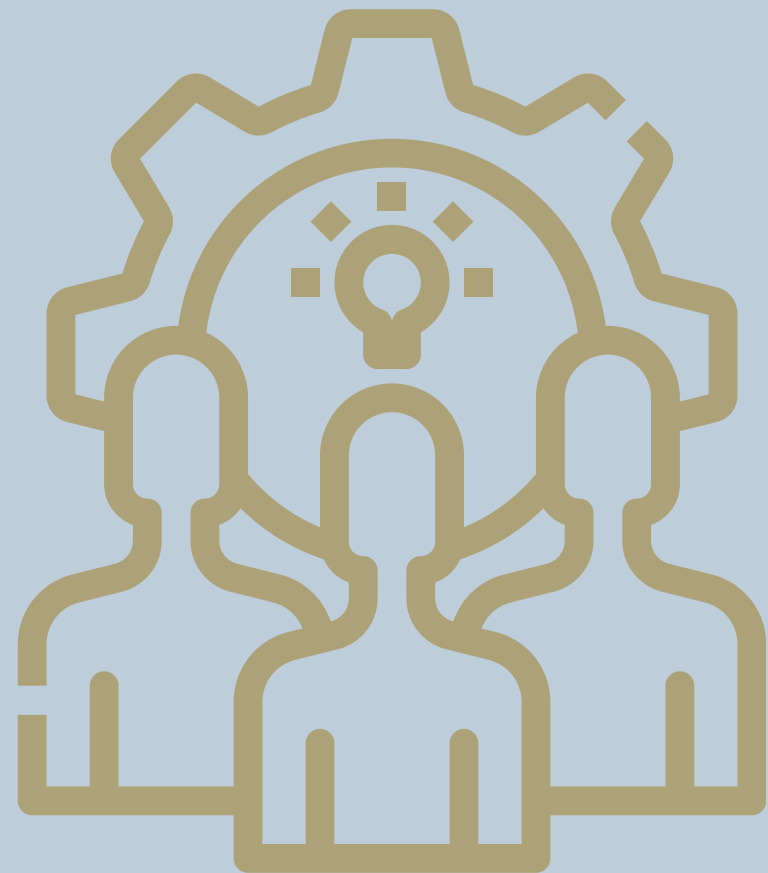
Science and Research

- Fundamental Physics
- Materials Science

Cultural Heritage

- Art Conservation and Archaeology

Impact of Metrology on Other Key Industries

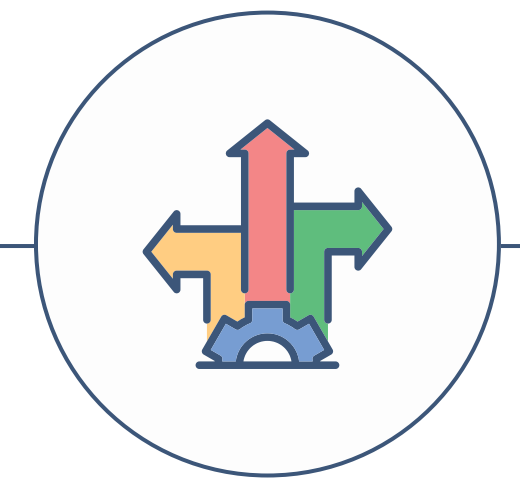


- **Automotive Industry**
- **Aerospace and Defense**
- **Healthcare**
- **Food and Beverage**
- **Construction and Infrastructure**
- **Environmental Monitoring**
- **Fashion and Luxury Goods**

Education and Training in Metrology



**Academic
Programs and
Specializations**



**Professional
Development
and
Certifications**

International Collaborations in Metrology



- **European Association of National Metrology Institutes (EURAMET)**
- **Asia-Pacific Metrology Programme (APMP)**
- **Africa Metrology (AFRIMETS)**

Italy's Contributions to Global Metrology Standards



- **Leadership in Quantum Metrology**
- **Advancements in Time and Frequency Standards**
- **Participation in International Metrology Bodies**
- **Contributions to the Redefinition of the SI Units**
- **Metrology in Environmental and Climate Science**
- **Standards for Cultural Heritage Preservation**
- **Education and Training**

International Partnerships and Agreements



European Union (EU) Collaborations

- Research and Innovation:
- Cultural and Educational Exchange

NATO and Defense Agreements

United Nations (UN) Partnerships

- UNESCO
- Food and Agriculture Organization (FAO)

Bilateral Science and Technology Agreements

- Joint Research Projects
- Technology Transfer

Trade Agreements

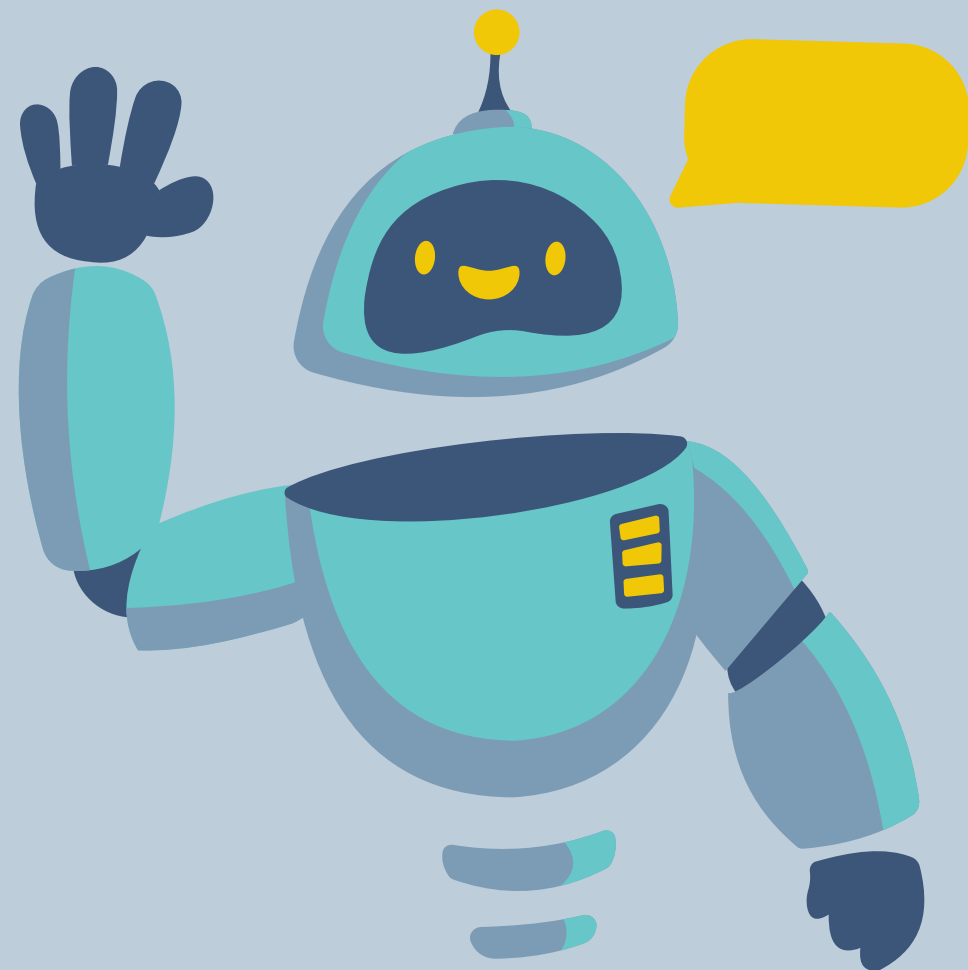
- EU-Canada Comprehensive Economic and Trade Agreement (CETA)
- Agreements with Emerging Markets

Environmental and Climate Partnerships

- Mediterranean Action Plan
- Energy Partnerships

Health and Pandemic Response

The Future of Metrology in Italy



- **Integration with Digital and Advanced Technologies**
- **Emphasis on Sustainability and Environmental Metrology**
- **Advancements in Healthcare Metrology**
- **Strengthening International Collaborations**
- **Focus on Education and Skill Development**

Some Sustainable QI and Metrology Practices In Italy



Environmental Metrology

- Greenhouse Gas Measurements
- Renewable Energy Development

Resource Efficiency and Waste Reduction

- Material Conservation
- Energy Efficiency in Production

Sustainable Agriculture

- Soil and Water Monitoring
- Food and Agriculture Organization (FAO)

Sustainable Food Production and Safety

- Food Quality Control
- Waste Management

Eco-Friendly Construction and Infrastructure

- Building Materials Testing)
- Infrastructure Monitoring

Education, Training, and Awareness

- Educational Programs
- Public Engagement

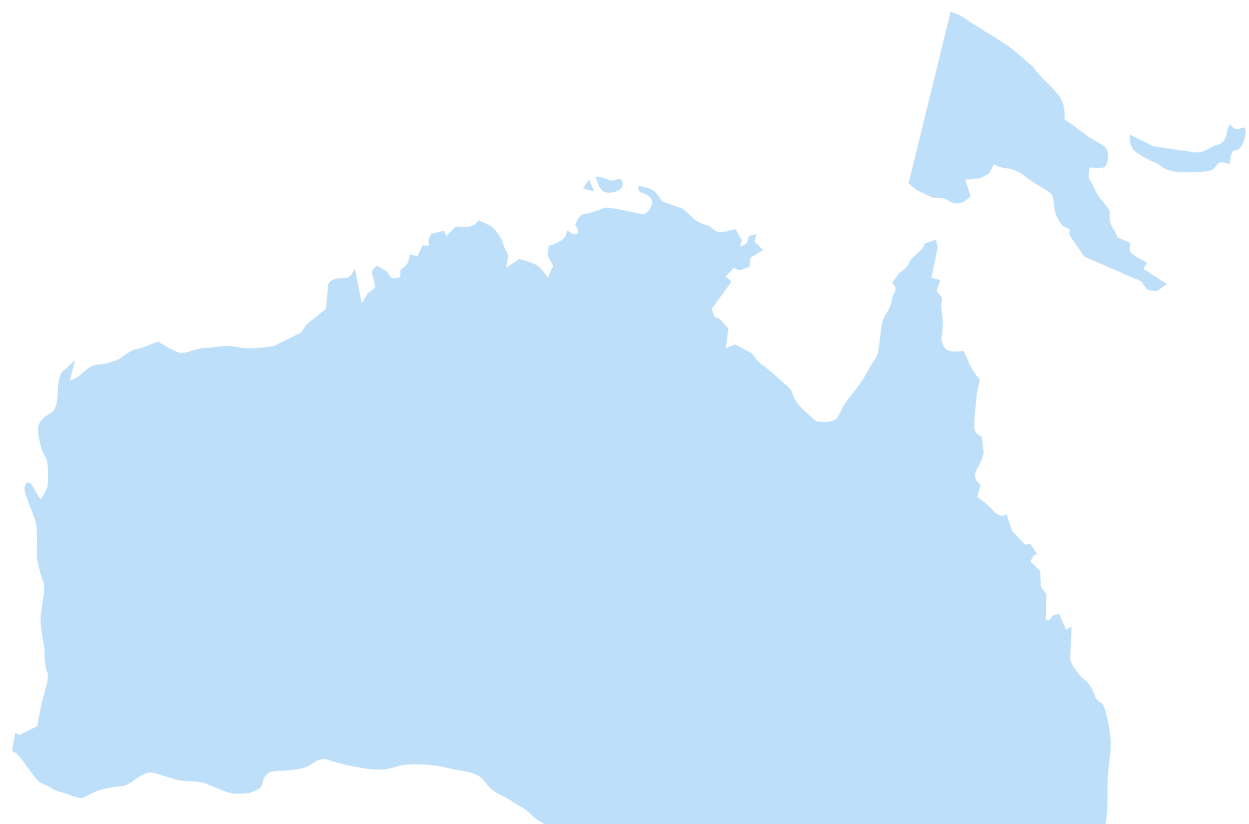
Halal Field In Italy



- **Halal Certification and Standards**
- **Halal Food Industry**
- **Halal Cosmetics**
- **Fashion and Leather Goods**
- **Challenges and Opportunities**
- **Community Engagement and Economic Impact**



Questions about Metrology in Italy



Thanks for your participation

COMCEC COORDINATION OFFICE
Ankara, Türkiye

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