



**NSAI**

# ANNUAL REPORT 2022

NSAI CONSULTATIVE COMMITTEE  
NSAI/TC 49 – MANUFACTURING &  
MACHINERY

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## 1 Committee Chair

In 2020 NSAI invited Dr Matt Cotterell to take up the position of Chair.

Dr Matt Cotterell is Head of the Munster Technological University (MTU) School of Mechanical, Process & Electrical Engineering. Dr Cotterell is involved in the development and management of programmes and research within the constituent Departments in the School: Mechanical, Biomedical & Manufacturing Engineering; Process, Energy & Transport Engineering; Electrical & Electronic Engineering and the Centre of Craft Studies.

## 2 Introduction

The Manufacturing and Machinery Standards Consultative Committee has been established by the board of NSAI to facilitate and manage this sector of industry. This Consultative Committee's purpose is to provide strategic direction on new opportunities and challenges arising from Industry 4.0 for standardization, including priority areas for NSAI national mirror committees to focus on for maximum national impact. In 2019, as part of the Future Jobs Ireland initiative, the Department of Enterprise, Trade & Employment acknowledged these opportunities and challenges, by publishing *Ireland's Industry 4.0 Strategy 2020-2025* the Government's economic pathway to ensure that Ireland is well placed to prosper in a rapidly changing global economy. This Consultative Committee advises and provides guidance on the key strategic actions assigned to NSAI in this National Strategy.



Standards contribute greatly to urgently addressing global emissions

Industry 4.0 is critical to developing Ireland's manufacturing sector while helping to maintain its competitiveness. Standards are a key enabler for the manufacturing industry, including its digitalisation. Ensuring that Ireland is at the forefront of emerging technologies, standards development activities help provide indigenous companies and academia with a voice on the European and International Standardization Platforms. As manufacturing processes are now increasingly being digitalised, there is a significant opportunity for Ireland and NSAI to help shape the future of the sector which is heavily dependent on standards.

According to the Central Statistics Office figures, in 2019 the industrial economy in Ireland contributed more than one third of Gross Value Added (GVA) 34.9% vs. the EU average of 19.7% while the previous year performance shows a continuation of 35.1% vs. EU average of 19.5%. The top 10 industrial enterprises accounted for 51.7% of all production in Ireland in 2019. While the top 50 industrial enterprises in Ireland represented 75.4% of the overall NSV with a value of €101.5 billion<sup>1</sup>.

This Consultative Committee can propose the establishment of a Technical Committee or Sub-Committee where it deems it necessary to track the standardization activities in a specific area.

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<sup>1</sup> Irish Industrial Production by Sector 2019 - CSO - Central Statistics Office

### 3 Scope of SCC

The Manufacturing & Machinery Standards Consultative Committee focuses on supporting Irish business through optimising a standards vision to provide the Irish manufacturing community with relevant standards related-information and information on current and future standardization activities.

The Committee is dedicated to providing NSAI with expert advice on general strategy, Industry trends relating to Manufacturing and Industry 4.0 and how standards can support the Irish manufacturing industry. This will create a strategic framework for prioritizing standards development work.

The Committee is not focussed on producing indigenous Irish Standards, instead as a Consultative Committee, it gives guidance on the development of a coherent NSAI standards development strategy in Advanced Manufacturing and Industry 4.0 by advising on alignment and linkages with other relevant national policy initiatives and academic and enterprise developments. The Consultative Committee is tasked with the following:

- ✓ understanding the landscape of International and European standardization in 'Advanced Manufacturing', including Smart / Digital Manufacturing (aka 'Industry 4.0'), IIoT, Robotics, Additive Manufacturing and enabling technologies such as Cloud Computing and Distributed Platforms and Artificial Intelligence;
- ✓ considering European and international advanced manufacturing technology standardization programmes and driving national participation in such programmes;
- ✓ advising and supporting NSAI on matters relevant to Manufacturing and Industry 4.0 standardization;
- ✓ advising NSAI on the dissemination of information to the Irish manufacturing industry and relevant stakeholders; and
- ✓ assisting NSAI in supporting joint ventures and collaborations that support the Irish manufacturing industry.

The Consultative Committee monitor the activities of NSAI Standards Committees within the Manufacturing Sector. Recommendations can be made to NSAI highlighting specific areas of standardization that may be strategic beneficial for the Irish Manufacturing Sector.

The Consultative Committee advise NSAI in implementing the strategic actions from applicable Irish Government Strategies and Ireland's Industry 4.0 Strategy 2020-2025, see Annex A.

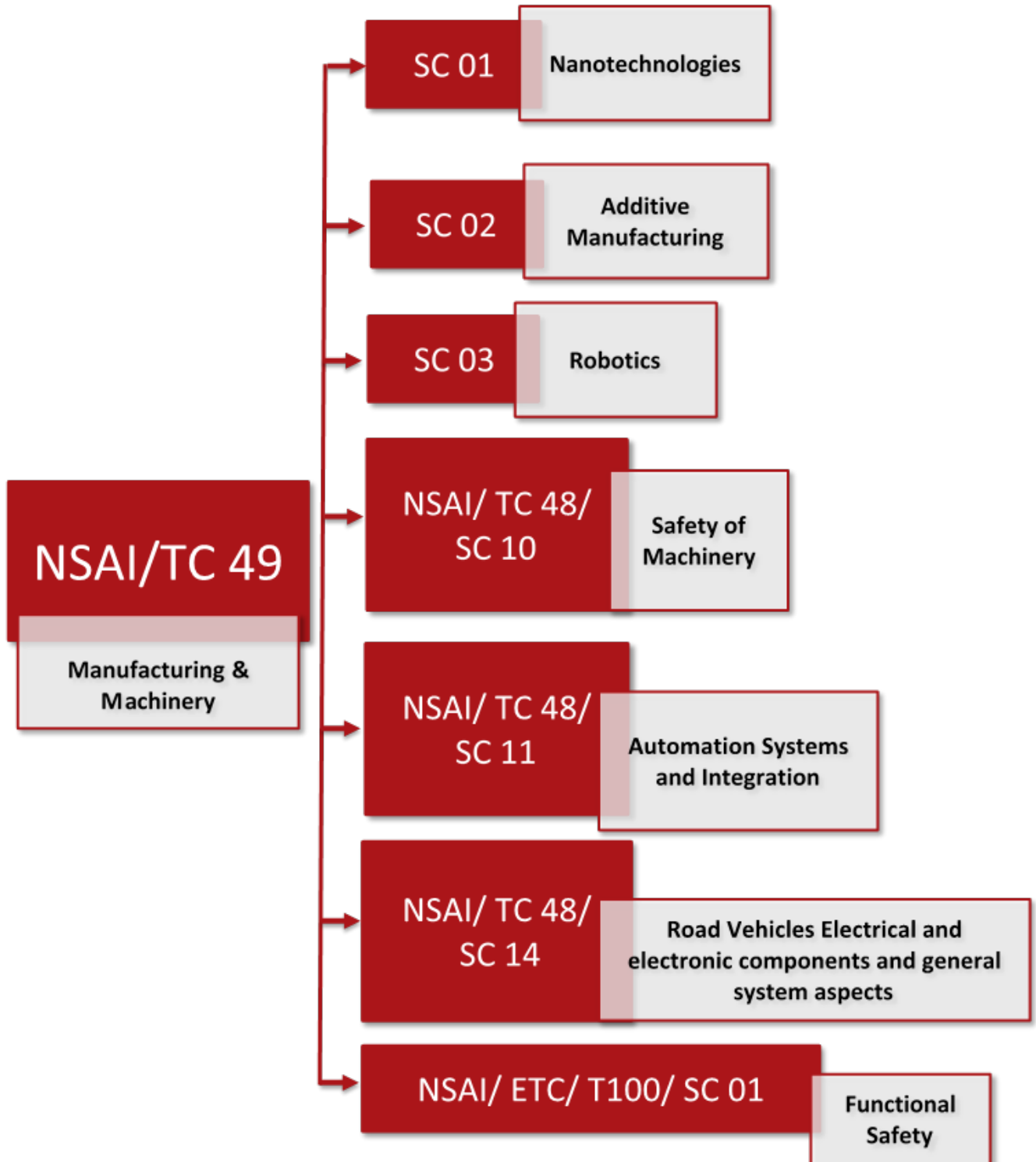
The Consultative Committee play an advisory role to NSAI providing standards related information that will increase Irish manufacturing companies and SME readiness for future production, while seeking to take full advantage of the evolving transformation opportunities for Industry 4.0 and adopting new manufacturing advancements.

The Consultative Committee also liaises with other NSAI Consultative Committees and Technical Committees.

## 4 Structure and Membership

### 4.1 Structure

The Figure below illustrates the structure of the National Committee:



## 4.2 Members

The list below are the member organisations for the year 2022:

Organisation	Role
<b>NSAI</b>	Secretary
<b>Munster Technological University</b>	Chairman
<b>IDA</b>	Committee member
<b>Pilz</b>	Committee member
<b>Irish Manufacturing Research</b>	Committee member
<b>Dromone Engineering Limited</b>	Committee member
<b>SFI Confirm</b>	Committee member
<b>NUI Galway</b>	Committee member
<b>Analog Devices</b>	Committee member
<b>Johnson &amp; Johnson</b>	Committee member
<b>Dept of Enterprise, Trade &amp; Employment</b>	Committee member

## 5 Summary of 2022 Activities

### 5.1 National

#### 5.1.1 Meetings

The meeting was conducted via web-conferencing meeting facilities following on from the COVID-19 Pandemic.

Meeting No.	Date	Location
2	02 <sup>nd</sup> February 2022	Online

#### 5.1.2 National Work

In terms of national work, the Consultative Committee's role is focussed on providing NSAI with expert advice on general strategy, Industry trends relating to Manufacturing and Industry 4.0 and how standards can support the Irish manufacturing industry rather than drafting national standards. This approach provides a strategic framework for prioritizing standards development work.

### 5.2 International/Regional

#### 5.2.1 Meetings

The Standards Committee is not a National Mirror Committee for any ISO, CEN or IEC Committee. This Committee is a Standards Consultative Committee and is dedicated in providing NSAI with expert advice on general strategy, Industry trends relating to Manufacturing and Industry 4.0 and how standards can support the Irish manufacturing industry.

### 5.2.2 International/Regional Work

The Secretary produced a *Sectoral Study of Standards in Manufacturing*<sup>2</sup> to assist the Consultative Committee that provides an overview of the Industry 4.0 from a standards perspective, following the structure of 15 areas of focus.

The Sectoral Study provides a summary on what the "fourth industrial revolution" is, an overview of the manufacturing sector in Ireland in 2019, and information on Ireland's digital transformation. It highlights European policies and national strategies and their potential impact on the industry as well as enabling changes to the current landscape.

The Study highlights the importance of standards by emphasizing the linkages and benefits achievable through standards and innovation that can positively impact standardization. It also mentions some of the current funding mechanisms that are available to support this action. The German Standardization Roadmap is referred to in the Study as it contains a useful overview of standards and specifications relevant to Industry 4.0 with some strategic recommendations to address gaps and normative inconsistencies.

The Study also sets out the relationship between standards and regulations, exploring how standards can support organizations' objectives. Specific attention is given to the Machinery Directive 2006/42/EC, where a comprehensive view into the latest ICT and emerging technologies from the "Impact assessment study on the revision of Directive 2006/42/EC on machinery" is listed along with the Directive's areas for revision, as discussed through the recommendations of the Machinery Working Group published in November 2020. (See section 5.3 below for an update regarding the new EU Proposal for a Regulation updating the Machinery Directive).

The current standards and standardization process is then comprehensively examined and eleven enabling technologies are listed. The current and future applications of these technologies are investigated and linked to standards committees. The key relationships between emerging technologies and standardization are addressed and links are provided to published standards and current standardization activities.

Finally, this document maps the standardization activities of the European standards setting organizations, the International Organization for Standardization, and the International Electrotechnical Commission with respect to NSAI's National Mirror Committees.

This document is publicly available from NSAI's website at the following link [Sectoral Study of Standards in Manufacturing](#).

### 5.2.3 International/Regional Standards Reviewed

The Manufacturing & Machinery Consultative Committee is not a National Mirror Committee for any ISO, CEN or IEC Committee, instead its role is to provide NSAI with expert advice on general strategy, Industry trends relating to Manufacturing and Industry 4.0 and how standards can support the Irish manufacturing industry.

### 5.2.4 International/Regional Voting Results

The Committee is an advisory Committee and does not vote on international standards.

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<sup>2</sup> NSAI, "Sectoral Study of Standards in Manufacturing", 2021 [Online] Available on: <https://www.n Sai.ie/about/news/sectoral-study-of-standards-in-manufacturing-published/> [Accessed 8<sup>th</sup> February 2023]

## 5.3 Regulatory Development/Update

Over the last year there have been significant developments at EU level, impacting the Manufacturing & Machinery sector particularly at EU level. These include:

### ***EU Proposal for a Regulation on Machinery Products***

In April 2021, the European Commission presented its proposal for a new Regulation on Machinery Products. The main legal changes are the transformation of the Directive into a Regulation, with alignment to the New Legislative Framework. The Regulation, when adopted, will facilitate the homogenous application throughout the EU and an alignment with the horizontal rules on the responsibilities of economic operators, market surveillance, accreditation, as well as the role of notified bodies and the conformity assessment procedure.

This new Machinery Regulation will ensure that the new generation of machinery guarantees the safety of users and consumers, and encourages innovation. This is achieved by adapting the essential requirements of the legislation to the latest developments in technology, including the collaboration between human and robots and AI.

On 15 December 2022, negotiators from the European Parliament and Council of the EU reached a provisional political agreement on a new Machinery Regulation, adapting the rules to new market developments and risks originating from emerging technologies. It is expected that it will be adopted in the near future.

The new Regulation envisages that six categories of machinery will be included, as per Annex I of the Regulation, thereby subject to third party conformity assessment, supported by strong procedures for updating the Annex with additional categories. The new Regulation will apply from 42 months after entry force, thus giving companies time to adjust to the new requirements.

### ***EU Coordinated Plan on Artificial Intelligence & Proposal for a Regulation on AI***

Furthermore, the European Commission has recognised the importance of AI to the manufacturing sector in the 2021 review of the Coordinated Plan on AI<sup>3</sup> stating that it "help[s] SMEs to deploy sustainable AI solutions in manufacturing with the Innovation for Manufacturing Sustainability in SMEs ". Therefore, The EU AI Act<sup>4</sup> will be of interest as it will provide a uniform legal framework for the development, marketing and use of AI systems in robotics through a risk-based approach, in combination with the Machinery Regulation.

### ***EU Data Act***

The EU Data Act<sup>5</sup> is also relevant. It is part of the overall European strategy for data and complements the EU Data Governance Regulation of November 2020, by clarifying who can create value from data and under which conditions. When adopted, it will provide clarity with

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<sup>3</sup> European Commission, "Coordinated Plan on artificial Intelligence", 2022 [Online] Available on: <https://digital-strategy.ec.europa.eu/en/policies/plan-ai#:~:text=The%20Coordinated%20Plan%20on%20Artificial,to%20avoid%20fragmentation%20in%20Europe.> [Accessed 8th February 2023]

<sup>4</sup> European Commission, "Artificial intelligence Act", 2021 [Online]. Available on: <https://eur-lex.europa.eu/legal-content/FR/TXT/PDF/?uri=CELEX:52021PC0206&from=EN> [Accessed 08th February 2023]

<sup>5</sup> European Commission, " Data Act", 2022 [Online]. Available on: [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_22\\_1113](https://ec.europa.eu/commission/presscorner/detail/en/ip_22_1113) [Accessed 08th February 2023]



regards who can access data generated by connected products such as robotics through Internet of Things (IoT) devices, which will impact on Irish manufactures using this technology.

### ***EU Circular Economy Action Plan & Proposal for a Regulation on Ecodesign for Sustainable Products***

As announced in the Circular Economy Action Plan, the Commission is proposing new rules to make almost all physical goods on the EU market more friendly to the environment, circular, and energy efficient throughout their whole lifecycle from the design phase through to daily use, repurposing and end-of-life.

The Proposal for a Regulation on Ecodesign for Sustainable Products<sup>6</sup> addresses product design, which determines up to 80% of a product's lifecycle environmental impact. It sets new requirements to make products more durable, reliable, reusable, upgradable, repairable, easier to maintain, refurbish and recycle, and energy and resource efficient. All regulated products will have Digital Product Passports. This will make it easier to repair or recycle products and facilitate tracking substances of concern along the supply chain. Labelling can be introduced as well. The Proposal also contains measures to end the destruction of unsold consumer goods, as well as expand green public procurement and provide incentives for sustainable products.

### ***Proposal for a Regulation on Cybersecurity requirements for Products with digital elements (Cyber Resilience Act)***

The EU Cyber Resilience Act<sup>7</sup> is a first ever EU-wide legislation of its kind, introducing common cybersecurity rules for manufacturers and developers of products with digital elements, covering both hardware and software. It was published by the EU Commission in September 2022.

It will ensure that wired and wireless products that are connected to the internet and software placed on the EU market are more secure and that manufacturers remain responsible for cybersecurity throughout a product's life cycle. It will also allow the customers of these products to be properly informed about the cybersecurity of the products they buy and use.

## **6 Irish Publications/Reviews**

### **6.1 Publications**

National Standards are not produced by this Committee as the International Standards will be published as European Standards adopted as Irish Standards.

### **6.2 Reviews**

The Committee reviews the standardization activities of each of the Technical Committees as outlined in the reporting structure of the Committee in 4.1.

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<sup>6</sup>European Commission "EcoDesign for sustainable products, 2022 [Online] Available on: [https://commission.europa.eu/energy-climate-change-environment/standards-tools-and-labels/products-labelling-rules-and-requirements/sustainable-products/ecodesign-sustainable-products\\_en](https://commission.europa.eu/energy-climate-change-environment/standards-tools-and-labels/products-labelling-rules-and-requirements/sustainable-products/ecodesign-sustainable-products_en) [Accessed 8<sup>th</sup> February 2023]

<sup>7</sup> European Commission "Cyber Resilience Act", 2022 [Online] Available on: <https://digital-strategy.ec.europa.eu/en/library/cyber-resilience-act> [Accessed 8<sup>th</sup> February 2023]

## 7 Work programme for 2023 onwards

The Consultative Committee's work programme is to understand the landscape of International and European standardization in 'Advanced Manufacturing', including Smart / Digital Manufacturing (aka 'Industry 4.0'), IIoT, Robotics, Additive Manufacturing and enabling technologies such as Cloud Computing and Distributed Platforms and Artificial Intelligence. The Committee is achieving this through:

- ✓ considering European and international advanced manufacturing technology standardization programmes and national participation in such programmes;
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## 8 Additional Information

The CEN-CENELEC-ETSI Coordination Group on Smart Manufacturing (SMa-CG) was created to coordinate the European standardization activities relating to new technologies in the field of manufacturing. It is a joint group of CEN, CENELEC and ETSI which advises the CEN-CENELEC Technical Boards and the ETSI Board.

At the 8<sup>th</sup> meeting of the CEN-CENELEC-ETSI Coordination Group, the Secretary gave a detailed presentation on NSAI's Sectoral Study of Standards in Manufacturing.

In July 2022 the CEN-CENELEC-ETSI Coordination Group on Smart Manufacturing (SMa-CG) made recommendations to the rolling plan for ICT standardisation, the group reviewed section 3.4.6 "Digitisation of European Industry" and submitted a proposal to update these actions. As part of the submission a reference to Ireland's Industry strategy 2020 – 2025 was suggested.

Furthermore, in July 2022, NSAI made a submission to the Department of Enterprise, Trade and Employment on the development of a White Paper on Enterprise. On December 7<sup>th</sup> 2022 this white paper was published and the importance of standards was recognised as follows:

***"Some of the most important enterprise policy priorities, including climate action and sustainability, digital transformation, and such innovative sectors as medical devices and construction are strongly supported by a modern, internationally recognised standards and certification regime."<sup>8</sup>***

NSAI continues to work to build recognition of the importance and contribution of standards to Irish industrial and enterprise policy through engagement with Government policy.

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<sup>8</sup>Department of Enterprise, Trade and Employment , " White Paper on Enterprise2022 - 2030".[Online]. Available on: <https://enterprise.gov.ie/en/publications/publication-files/white-paper-on-enterprise-2022-2030.pdf> [Accessed on: 09th January,2023]