Toolkit to support digital technologies for sustainability in MSMEs

A stakeholder input to the G7 digital track 2022. Compiled by PwC on behalf of the BMDV

Toolkit to support digital technologies for sustainability in MSMEs
Foreword

Dear Ladies and Gentlemen,

esteemed participants,

Micro, Small and Medium-sized Enterprises (MSMEs) are essential to the achievement of the ambitious climate-related targets set out in the Paris Agreement. They are important drivers of technological change and developers of new green business models and practices to reduce their environmental footprint. Digital technologies and technical innovation are another key to achieve the set sustainability targets. Hence, it is becoming increasingly important to connect digital strategy with sustainability.

In the Ministerial declaration of May 2022, the G7 emphasized the potential of digitalization for the environment and climate. To harness this potential, the G7 committed to bring together our stakeholders to gather expertise on the potential of digitalization and policy measures to help the private sector, MSMEs in particular, to better use digital technologies to reduce their environmental footprint, including via digitally enabled business models. Exemplary policy measures are compiled in 11 fields of action in order to show political decision-makers at all levels how they can support MSMEs in the three aspects of information, financing and regulatory framework conditions.

As part of this initiative, the BMDV commissioned PwC to compile input, best practices, insights, data and stakeholder needs in order to develop a toolkit based on stakeholder expertise. Based on two online surveys with G7 stakeholders, interviews and complementary desk research, this input was outlined for discussion and finalization through the stakeholder discussion in the final stakeholder event on 31 November 2022.

Through this workshop, we had the opportunity to discuss the toolkit and to receive your feedback.

Federal Ministry for Digital and Transport

Table of Contents

1

Significance of MSMEs in the G7 – The need for decisive action on climate protection

Ministerial Declaration of the G7 digital ministers

"

We will bring together our experts and stakeholders under the German G7 Presidency, including for an event in the second half of 2022 with an aim to:

develop a toolkit that identifies:

- **the potential of digitalization** *and policy measures to help the private sector, MSMEs in particular [...] for* **reducing their environmental footprint**

By sharing approaches and suggestions for:

- *enhancing transparency and creating incentives to increase energy and resource efficiency [...];*

- *promoting energy-and resource-efficient production, use, reuse, and disposal of hardware and software, including new digital technologies [...]"*

11 May 2022,
[Link to Declaration](#)*

November 2022

Toolkit to support digital technologies for sustainability in MSMEs   *Source: Ministerial Declaration of the G7 digital ministers (2022)   5

Seven categories serve as contextual framework

Environmental Footprint is *"the effect that a person, company, activity, etc. has on the environment, for example the amount of natural resources that they use and the amount of harmful gases that they produce"* (Cambridge Business English Dictionary)

In the context of this toolkit, **we focus on 7 categories** aimed at reducing the environmental footprint. The categories are the primary impact areas and serve as a contextual framework for the research and the development of policy measures. The categories were developed in light of a Questionnaire with experts from the G7 administrations and are consequently used for this toolkit.

1. Climate Neutrality

2. Resource Consumption

3. Energy Efficiency through Digital Tech

4. Energy Efficiency of Digital Tech

5. Renewable Energy

6. Circular Economy

7. Innovation Promotion

G7 digital experts confirm the importance of the categories

G7 Questionnaire considers "Circular Economy" and "Energy Efficiency through Digital Tech" most important to reduce environmental footprint in MSMEs

Rating Scale

- Rating scale reached from 1 - „not relevant" to 5 - „extremely relevant"

	1	2	3	4	5	
not relevant	○	○	○	○	○	extremely relevant

Average evaluations of factors

Climate Neutrality	4.6
Resource Consumption	4.4
Energy Efficiency through Digital Tech	4.7
Energy Efficiency of Digital Tech	4.5
Renewable Energy	4.6
Circular Economy	4.9
Innovation Promotion	4.3

Average evaluations and first insights

- „Circular Economy" valued with the highest average evaluation
- High rating of all factors, average evaluation over 4.5
- „Energy Efficiency through Digital Tech" and "Renewable Energy" valued above average evaluation of all factors
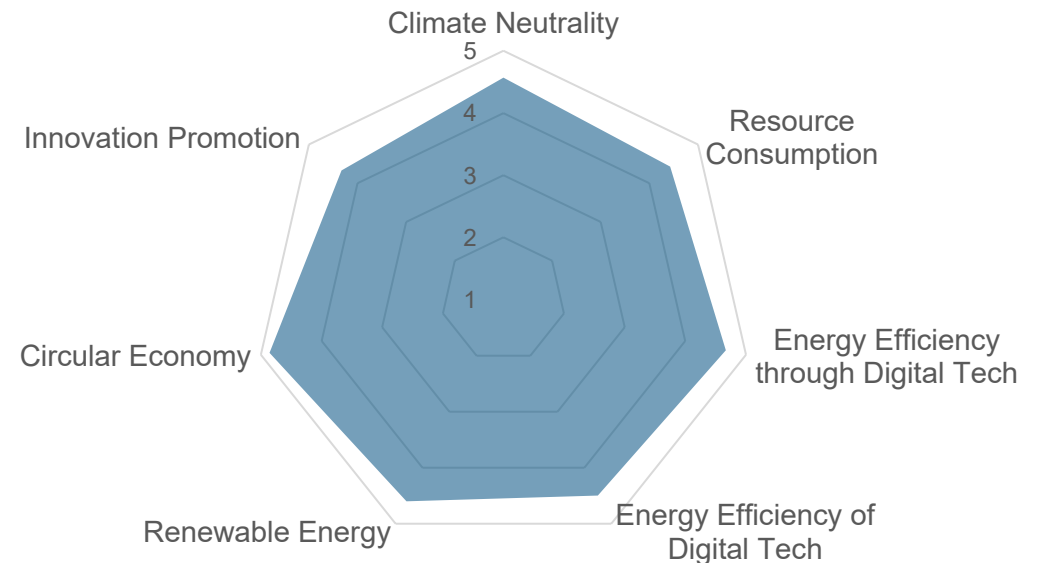
MSMEs play a major role in the G7 economies

MSMEs add value in every sector of the economy and are an important provider of employment

Micro, Small and Medium-sized Enterprises (MSMEs) are the backbone of the G7 economies. They represent over 99% of all businesses in all G7 countries and play a key role in adding value in every sector of the economy. Additionally, MSMEs are major job creators, providing the majority of employment in almost all G7 economies.
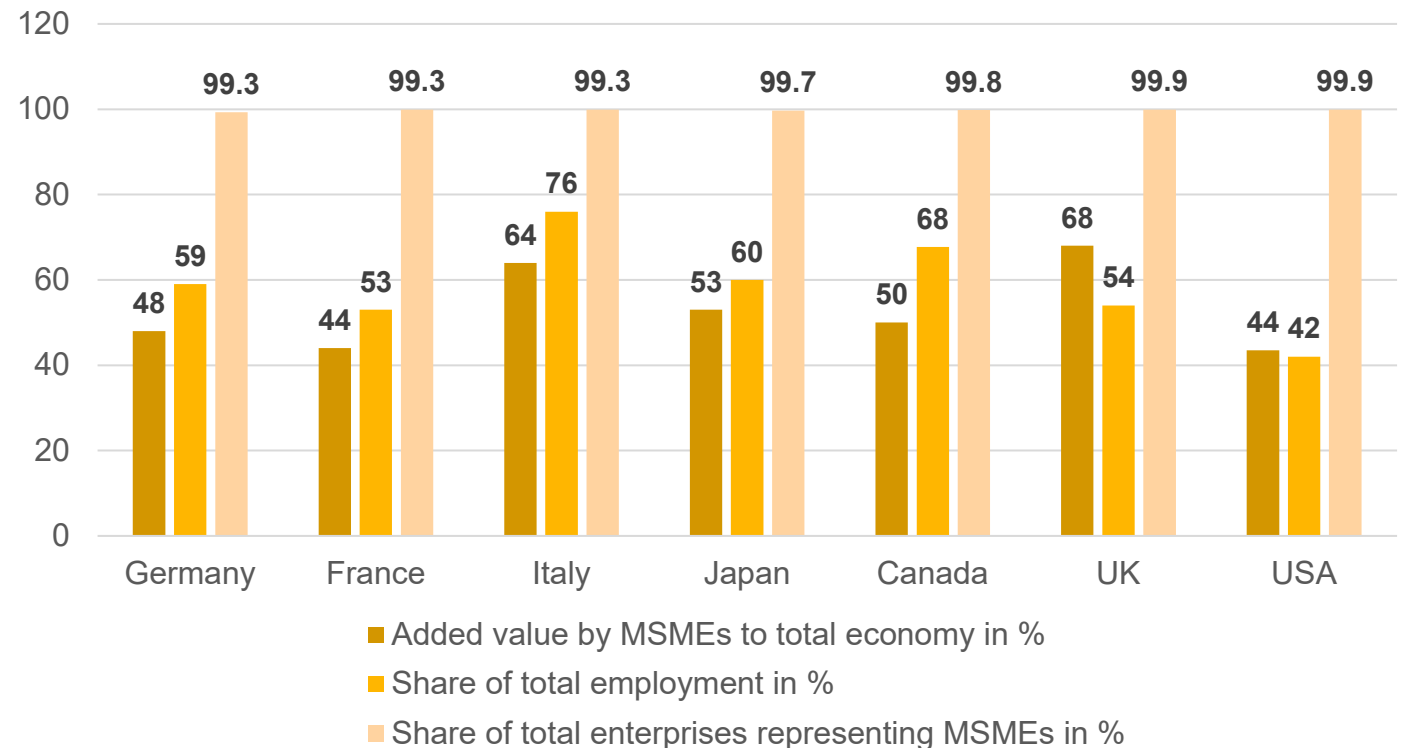
Traditional crafts companies, start-ups, family-owned companies, self-employed people, freelancers, pioneering high-tech firms, regional suppliers, and global manufacturers: all these different types of businesses can be considered a MSME, making diversity an essential hallmark of the MSME sector.

MSMEs are drivers of innovation. As such they are a key partners in developing solutions to challenges such as climate change, resource efficiency and social cohesion. Through their strong local ties and direct communication with customers, MSMEs are often particularly responsive to changes in the market.*

These traits make MSME important partners in the digital transformation of the G7 economies and in the struggle against climate change.

*Source: German Federal Ministry for Economic Affairs and Energy (2019)

Share of economic output and employment**

Bar chart legend:
- Added value by MSMEs to total economy in %
- Share of total employment in %
- Share of total enterprises representing MSMEs in %

Germany: 48, 59, 99.3
France: 44, 53, 99.3
Italy: 64, 76, 99.3
Japan: 53, 60, 99.7
Canada: 50, 68, 99.8
UK: 68, 54, 99.9
USA: 44, 42, 99.9

November 2022

Toolkit to support digital technologies for sustainability in MSMEs   **Source: OECD (2020), OECD (2021), SBA (2019), fsb (2022), EU Commission (2018), IFM (2021), METI (2019), ISED Canada (2021)   8

Definition of MSMSEs in the G7 and their commonalities

MSMEs are defined by size, number of employees and economic parameters

Enterprise Size

- In the EU, companies with fewer than 250 employees are classified as MSMEs. However, the EU definition is applied differently in some EU member states

- In Japan, a distinction is made between industries: in the retail industry 50 employees or fewer/ in the manufacturing industry 300 or fewer

- In Canada companies up to 499 employees are defined as MSME

- The United States are a statistical outlier: MSMEs are defined according to industry affiliation: Max. 100 employees in the furniture trade / up to 1500 employees in the semiconductor industry

- Summary findings: with the exception of the USA, MSMEs are limited to a maximum of 500 employees

Economic Parameters

- EU: Maximum turnover of 50 million euros per year or a maximum balance sheet total of 43 million Euros

- In Japan, capital is measured: retail up to 363,000 Euros / manufacturing industry max. 2.1 million Euros

- In Canada, financial parameters are not considered for the definition of MSMEs

- USA: Average annual revenue of max. 1.9 million euros for Soybean Farming Industry / up to 40 million euros annual revenue for oil and gas enterprises

- In Japan and the USA, industry-specific maximum values are sometimes lower

- Summary findings: MSMEs are limited to a turnover or balance sheet total of max. 50 million euros

Commonalities

- MSMEs are the backbone of the G7 economies. They represent the vast majority of enterprises and add value in every sector of the economy

- MSMEs are an engine of innovation. An iea study showed, that the in the United States and the European Union, MSMEs are responsible for almost 20% of research and development

- In the United States, more than 35% of cross-border patents are filed by MSMEs

There is high energy consumption in all G7 countries

The G7 countries have a significant share of global energy consumption, considerably above the average on a per capita basis
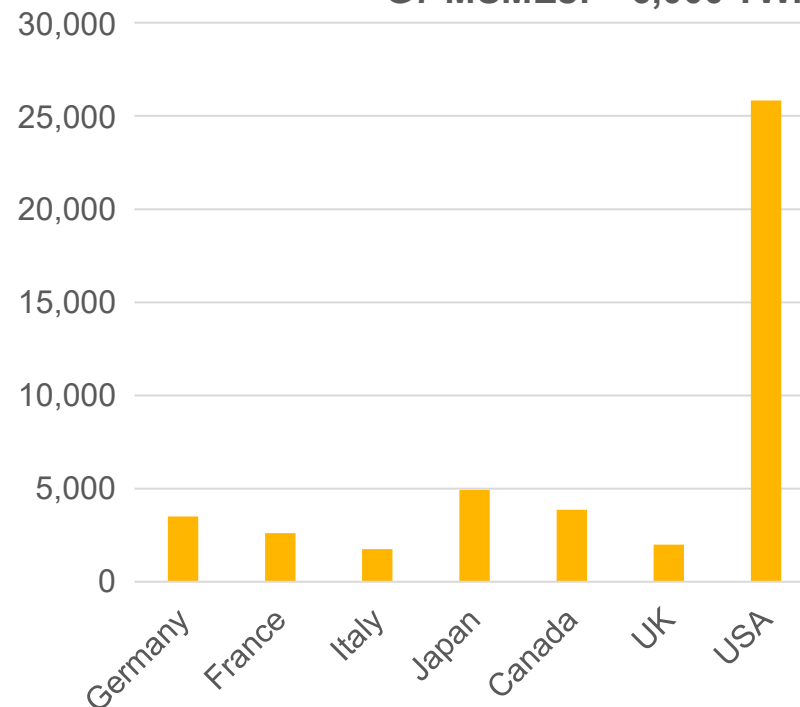
13%

of the global energy consumption is caused by MSMEs* (estimate of IEA, 2015)

*The current data situation is incomplete. Other estimations range from 11% (UK) to 20% (Italy)
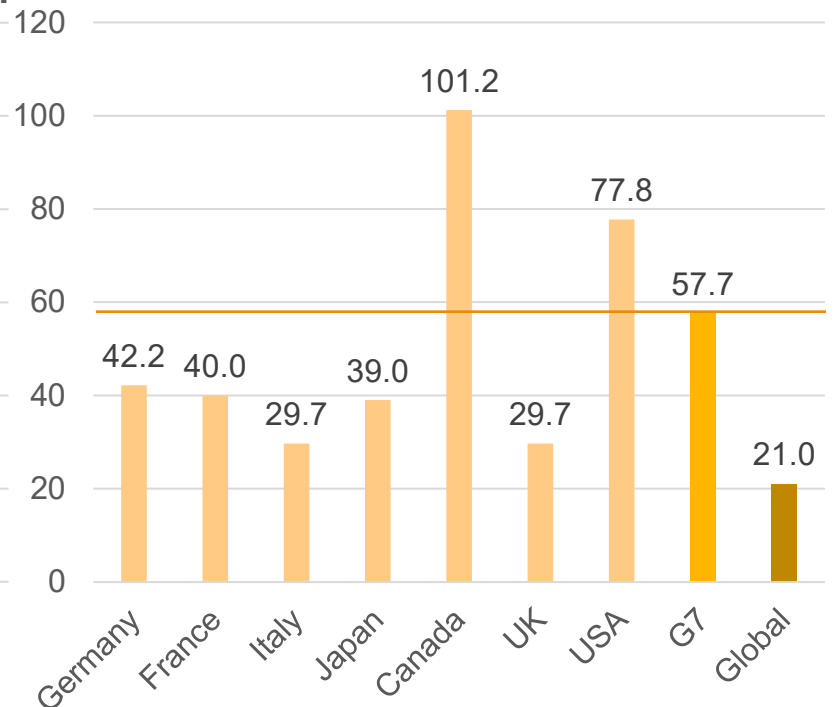
Total Energy consumption (in TWh)

Total G7: ≈ 44,500 TWh
G7 MSMEs: ≈ 6,000 TWh

Germany | France | Italy | Japan | Canada | UK | USA

Source: bp (2022)

Energy consumption per Capita (in MWh)

Country	Value
Germany	42.2
France	40.0
Italy	29.7
Japan	39.0
Canada	101.2
UK	29.7
USA	77.8
G7	57.7
Global	21.0

Source: bp (2022)
November 2022

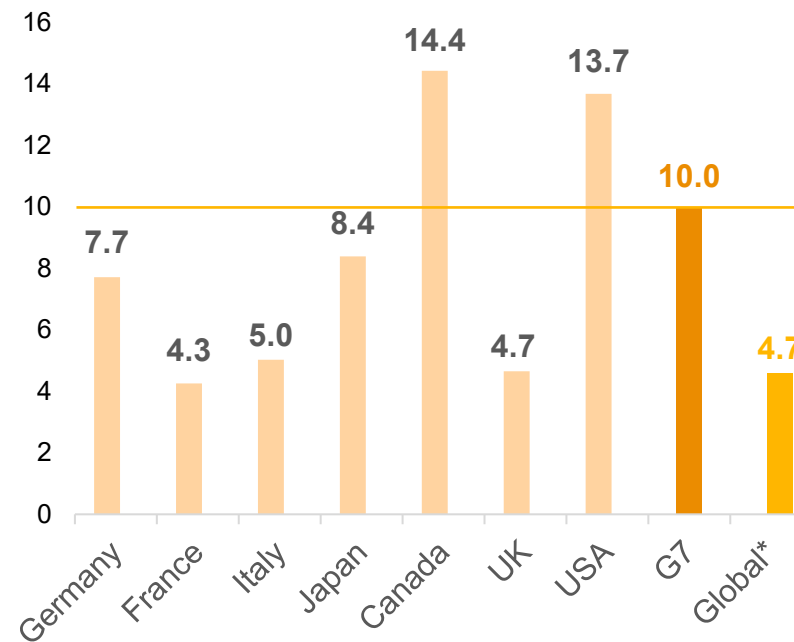# The G7 carbon emission levels remain at a high level

While the G7 emissions per capita exceed the global average, its emissions in relation to GDP is lower than the global average

The data indicates that the G7 carbon emission levels remain at a high level and exceed the global average on a per capita basis. Due to the strong G7 economies, the annual CO_2-Emissions in relation to GDP are lower than the global average.

Focusing on MSME carbon energy emission could have significant effects. An iea study estimates, that MSMEs take up around 13% of the global energy demand. The findings suggest that through cost-effective energy efficiency measures MSMEs could save up to 22 EJ per year.* The improvements in energy efficiency can be of considerable value to the G7 economies, societies, and MSMEs themselves.
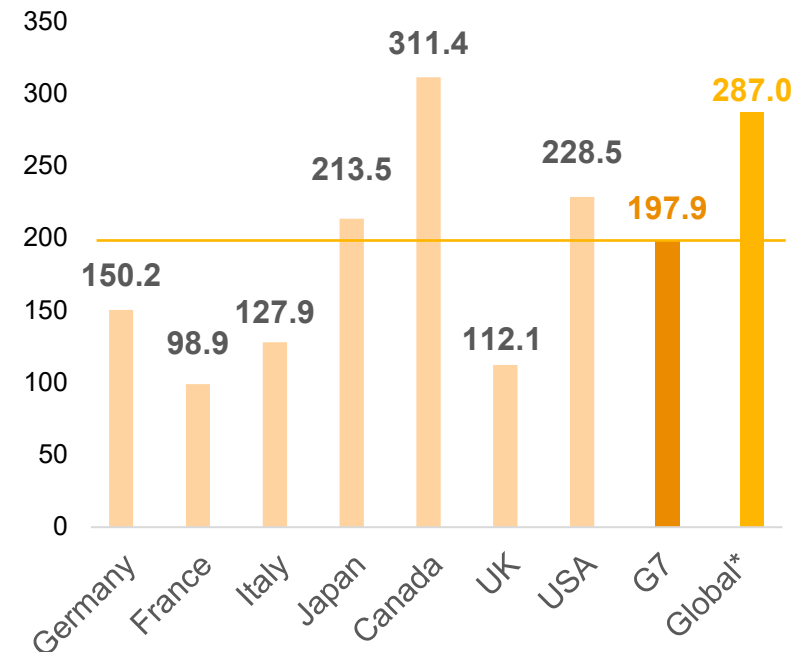
Annual CO2-Emissions per Capita (in tCO₂e)

- Germany: 7.7
- France: 4.3
- Italy: 5.0
- Japan: 8.4
- Canada: 14.4
- UK: 4.7
- USA: 13.7
- G7: 10.0
- Global*: 4.7

Annual CO2-Emissions in relation to GDP (in tCO₂e / million $ GDP)

- Germany: 150.2
- France: 98.9
- Italy: 127.9
- Japan: 213.5
- Canada: 311.4
- UK: 112.1
- USA: 228.5
- G7: 197.9
- Global*: 287.0

*Source: iea (2015)

Source: EDGAR Emissions Database (2020)
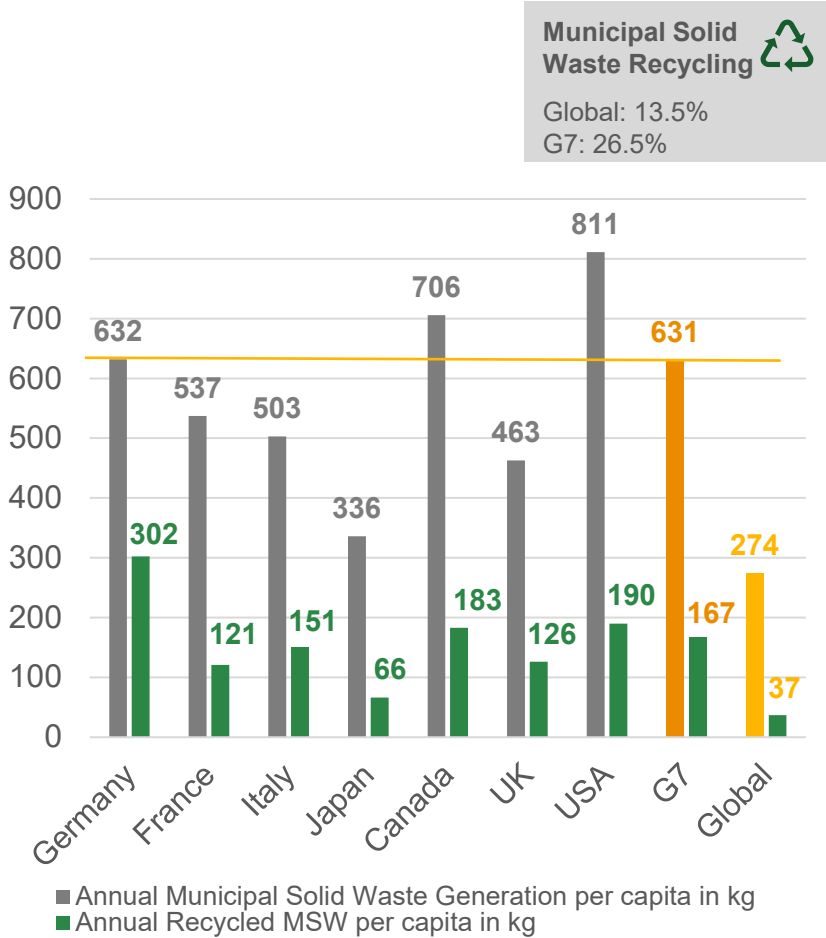
Source: EDGAR Emissions Database (2020)

(E-) Waste generation is a significant environmental factor

Waste generation and electronic waste in G7 at a similarly high level and well above the global average

Municipal Solid Waste Recycling ♻
Global: 13.5%
G7: 26.5%

E-Waste Recycling ♻
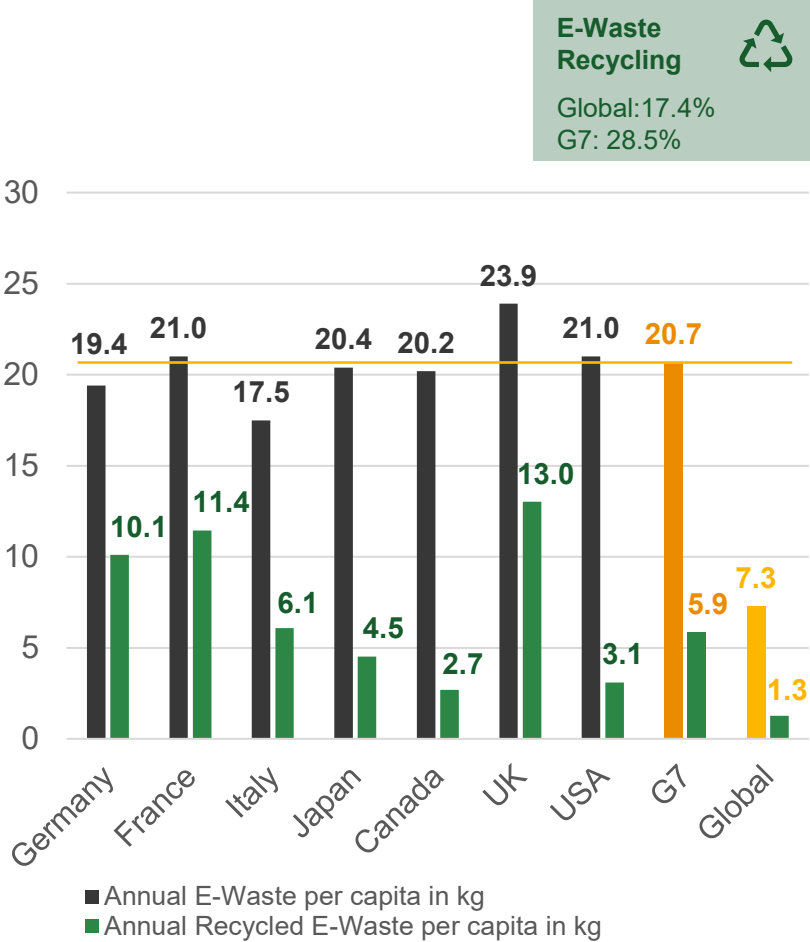Global: 17.4%
G7: 28.5%

High waste levels in G7 require efforts around recycling and waste avoidance

In terms of recycling, the G7 are above the global average, but given the high volumes of waste, there is clear potential here

*Global: Recycling rates based on industrialized countries, actual average likely to be significantly lower

Germany 632 / 302
France 537 / 121
Italy 503 / 151
Japan 336 / 66
Canada 706 / 183
UK 463 / 126
USA 811 / 190
G7 631 / 167
Global 274 / 37

■ Annual Municipal Solid Waste Generation per capita in kg
■ Annual Recycled MSW per capita in kg

Germany 19.4 / 10.1
France 21.0 / 11.4
Italy 17.5 / 6.1
Japan 20.4 / 4.5
Canada 20.2 / 2.7
UK 23.9 / 13.0
USA 21.0 / 3.1
G7 20.7 / 5.9
Global 7.3 / 1.3

■ Annual E-Waste per capita in kg
■ Annual Recycled E-Waste per capita in kg

Source: Kaza et. al (2020), Sensoneo (2022)

Source: Forti, Baldé. Kuehr & Bel (2021)

ICT have a considerable resource demand but also offer innovative digital solution to increase energy efficiency

Harnessing digital technologies and promoting energy efficient digital infrastructure could significantly reduce the environmental footprint

4-6%

of global electricity consumption was accounted for by ICT*
(estimate of UK Parliament Post, 2022)

*Evidence on the energy use of ICT is limited, and existing estimates are uncertain

Despite the fact that digital technologies can reduce and optimize energy use across sectors, ICT infrastructure and devices themselves consume considerable amounts of energy (mostly electricity). An estimated 4-6% of global electricity consumption was accounted for by data centers, communication networks, and user devices in 2020.*

Improvements in energy efficiency allowed ICT tasks to be performed with less energy consumption. As a result, despite the growth in demand, ICT energy usage has remained relatively flat over the past decade. Due to the high electricity use in the ICT sector, ICT energy demand has a strong correlation with the global electricity mix. Decarbonizing the electrical grid has therefore an immediate effect on the environmental footprint of ICT. Through the implementation of energy efficient digital infrastructure such as Fiber Networks and 5G, the energy efficiency of ICT could be further improved.

Simultaneously, by providing innovative solutions digital technologies offer enormous potential to cut global emissions. A GeSi study estimates, that by 2050, digital technologies could reduce global emissions in three of the most polluting sectors: energy, materials, and mobility by 20%.**

Climate protection is already institutionally anchored

G7 countries have installed overarching institutions for energy and infrastructure, which provide support for climate protection measures for MSMEs

All G7 countries established institutions supporting the implementation of climate protection and energy efficiency policies. The different backgrounds and scopes of the institutions illustrate the diversity of the matter and how a range of stakeholders are already involved.

| Germany |
| France |
| Italy |
| Japan |
| Canada |
| UK |
| USA |

Bundesnetzagentur

COMMISSION DE RÉGULATION DE L'ÉNERGIE

ENEA
AGENZIA NAZIONALE PER LE NUOVE TECNOLOGIE, L'ENERGIA E LO SVILUPPO ECONOMICO SOSTENIBILE

経済産業省
資源エネルギー庁
Agency for Natural Resources and Energy

Canada Energy Regulator   Régie de l'énergie du Canada

ofgem   Making a positive difference for energy consumers

eia   Independent Statistics & Analysis
U.S. Energy Information Administration

*List is not exhaustive

2

Objectives, overview and structure of the toolkit

Toolkit entails measures to reduce the environmental footprint

The G7 administrations receive concrete measures to support MSMEs in interlinking digitalization and sustainability

The Toolkit…

… shows **the potential of digital technologies and political measures** to support the private sector, especially MSMEs, to make better use of digital technologies to **reduce their environmental footprint**

… contributes to **improve environmental protection** and achieve climate neutrality

… provides **use cases** and presents model projects

… highlights economic incentives for MSMEs

… takes into account national and contextual differences

The main factors are:

- **Broad Impact:** The measures reflect the diversity of sectors and the different types of MSMEs

- **Low-threshold:** The implementation of the measures requires minimal effort, are as unbureaucratic as possible and easily understood

- **Cost-benefit factor:** Lowest possible costs for administration and MSMEs while simultaneously providing great practical advantages.

A step by step approach defines 11 fields of action

A list of measures and problem areas were compiled by collecting input from multiple sources. These findings are the foundation for the development of the fields of action

Desk Research

G7 Expert-Questionnaire

Interviews with technical experts and MSME stakeholders

List of existing measures for Toolkit

Problem Areas

11 Fields of action
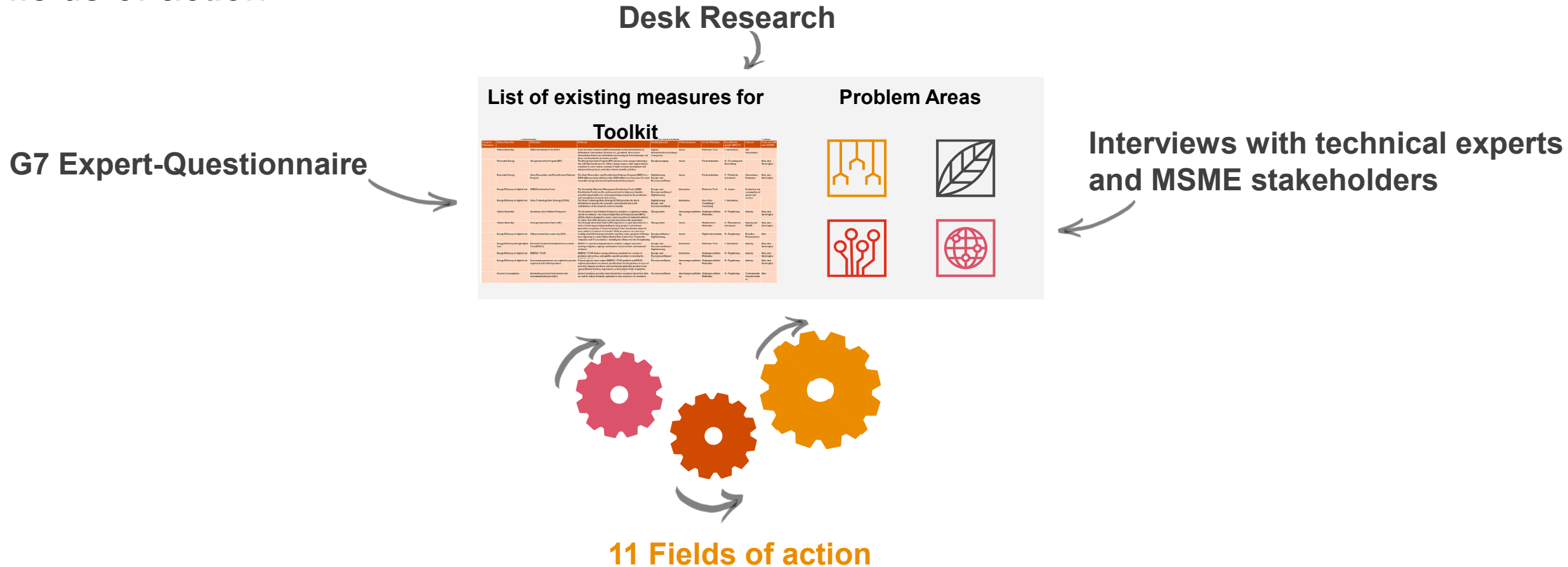
A list of measures was compiled from research and surveys

The list collects a range of information and serves as foundation for the toolkit

G7 Expert-Questionnaire

- Provides insights from an administrative perspective
- Illustrates national policy preferences
- Highlights existing policies and approaches
- Further policy requirements are identified

Top-Down
Status quo and needs

Desk Research

- Additional measures are identified
- Creation of a data set to identify strengths and areas of need
- Policy measures are categorized for commonalities and differences

List of existing measures for Toolkit

Interviews with technical experts and MSME stakeholders

- Interviews with experts and MSME stakeholders
- Highlights the needs of the private sector, especially MSMEs
- Displays existing practices and technical solutions
- Evaluation of opportunities and risks

Bottom-Up
Status quo and needs

The list of measures is the foundation for 11 fields of action

By drawing on existing G7 policy measures, the fields of action recognize established practices

Categories

Through the lens of **the 7 conceptual categories**, desk research, surveys with MSME-Stakeholders and experts from the G7 administrations were conducted.

1. Climate Neutrality
2. Resource Consumption
3. Energy Efficiency through Digital Tech
4. Energy Efficiency of Digital Tech
5. Renewable Energy
6. Circular Economy
7. Innovation Promotion

Fields of action

11 fields of actions are identified, drawing on G7 policies collected in the list of measures.
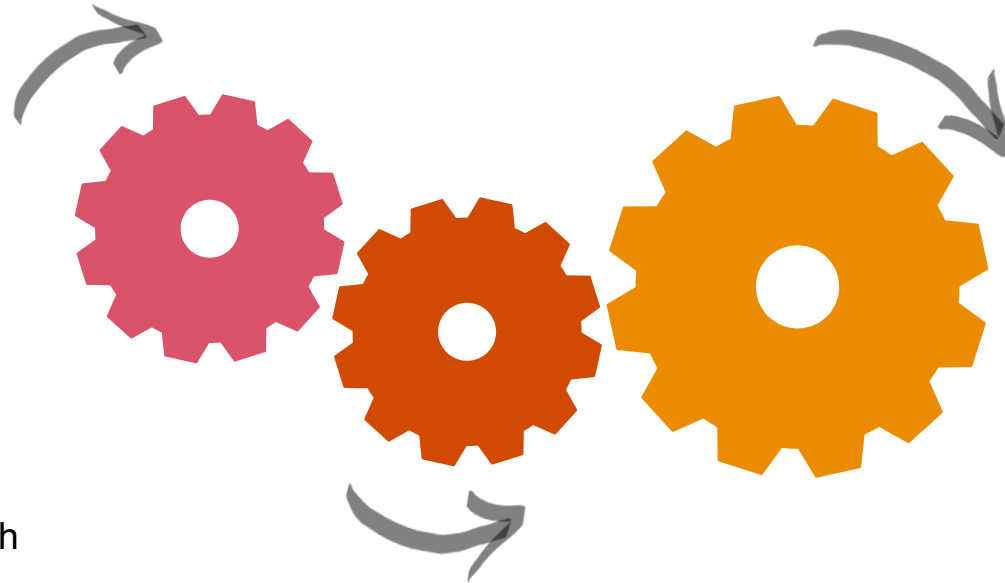
Measures

A list consisting of **112 measures** aiming to reduce the environmental footprint through digital means from the different G7 countries was compiled.

The fields of action address the identified problem areas

Areas of need and potential for effective measures are highlighted through the research

Potential to cut MSMEs energy consumption

MSMEs absorb a significant share of the global energy consumption. The toolkit proposes **practical tools to increase the energy efficiency of MSMEs.**

The G7 have high emissions levels

The annual carbon emissions and the waste production of the G7 countries exceed the global average. Measures **boosting the circular economy and renewable energies** can leverage the potential.

Fields of Action

MSMEs are drivers of innovation

MSMEs are the backbone of the G7 economies and a main source for innovation. MSMEs are key to developing new digital solutions. **The fields of action provide sandboxes for experimentation**, where innovative ideas can blossom.

ICTs have a high energy consumption

Measures support the ongoing improvements in the energy efficiency of ICT. Simultaneously, by 2050, **digital technologies could reduce emissions** in three of the most polluting sectors: energy, materials, and mobility **by 20%.***

*Source: World Economic Forum (2022)
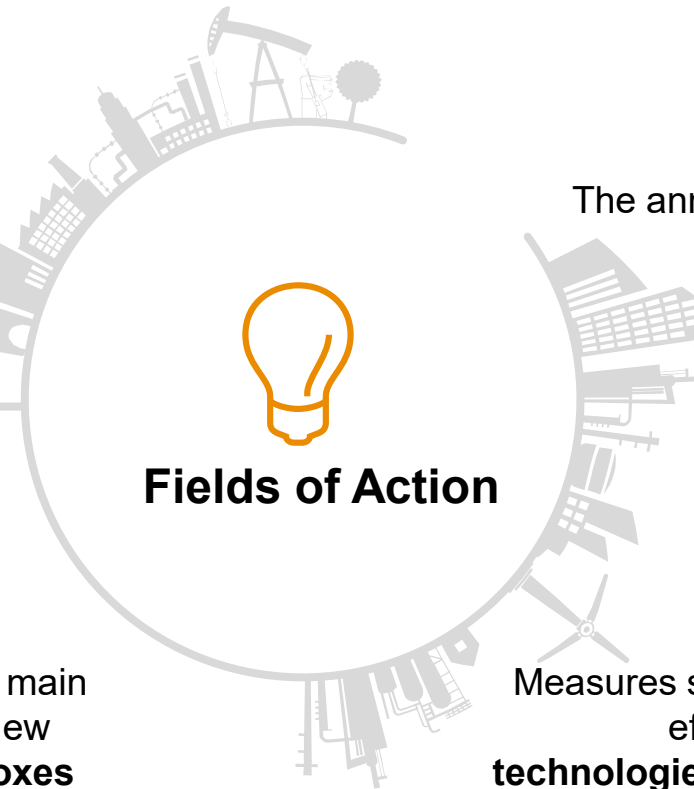
The fields of action consist of a wide array of digital solutions applied throughout the G7

Digital technologies present a multitude of solutions to reduce the environmental footprint

Fields of action

1. Support **decarbonization** and carbon free business models
2. Increase **data transparency**
3. Harmonize **data sharing**
4. Promote the sustainable use of **AI**
5. Implement energy efficient **digital infrastructure**
6. Increase energy efficiency of **clouds and data centers**

7. Promotion of **Eco-Design** in digital services and products
8. Promote a **circular economy** through digital tools
9. Increasing energy efficiency in the **workplace**
10. Digitization of the **energy grid**
11. Bring **innovation** into MSMEs

Each field of action is supported through three mechanism and implementation examples from the G7

The toolkit acknowledges country-specific differences

Each field of action is structured into three implementation mechanisms, which reflect the multitude of policy options in the G7

1

Information

Consulting

Support Tools

Databases

Networks

Know-how transfer

...

2

Financial

Innovation programs

Energy and climate funds

Support of climate protection initiatives

Lending

…

3

Regulation

Implementation obligations

Energy label and standards

Eco-Design guidelines

Establishing energy and efficiency standards for products

Emissions Trading

Taxation of climate-damaging substances

3

Measures to improve the environmental footprint of MSMEs through digital technologies

Preliminary note

The following measures showcase examples from the G7 countries of how MSME can be supported in terms of information, finance and regulatory measures in the 11 fields of action identified as most relevant for MSME.

The scope is to highlight the 11 fields of action in three different layers as laid out on pages 20 to 22.

For simplicity, only one example for each level is given. This does not mean that there could not be equivalent legislation or campaigning in other G7 countries, nor does it mean that policies can or must be adapted or incorporated into the overall policy framework of each G7 country.

Field of action 1: Support decarbonization and carbon free business models

Information ⓘ

Provide **tools for identification** environmentally friendly products and services

✔ **Example of implementation**

USA: Sustainable Materials Management Prioritization Tools

Financial 💰

Strategic funds aimed at large emitters to **scale-up clean technologies** in their business practices

✔ **Example of implementation**

CAN: Net Zero Accelerator

Regulation ⚖

Mandatory carbon pollution pricing

✔ **Example of implementation**

CAN: The Greenhouse Gas Pollution Pricing Act

Through a price on carbon Canada alone **could cut carbon pollution by 80 to 90 million tones a year**, once all provinces and territories implement systems that meet the federal standard.* From this, concrete internal measures can be derived to **improve energy efficiency** in the company, which also bring economic competitive advantages.

Field of action 2: Increase data transparency

Information ⓘ

Training and **workshops** on the subject of operational data collection

✓ **Example of implementation**

EU: Digital SME – ICT Sustainability

Financial

Funding for **measurement** and **control technology**, sensor technology and **energy management software**

✓ **Example of implementation**

GER: Federal funding for energy and resource efficiency in the economy

Regulation ⚖

Transparency obligations regarding energy and data consumption

✓ **Example of implementation**

FRA: Obligation of French telecommunications operators to inform their customers about data usage and the respective carbon footprint

Through digital technologies data can be collected and analyzed automatically. An automated data collection process captures measurements from a physical system and stores or displays them without manual intervention. This process allows companies to make **strategic decisions in real time**. **Deep insights are gained from data**, opening up a range **of innovative opportunities** to support sustainable practices.*

Field of action 3: Harmonize data sharing

Information ⓘ

Sharing of public sector data with the public through **platforms** or **competence centers**

✓ **Example of implementation**

GER: Kompetenzzentrum Open Data (CCOD)

Financial 💵

Promotion of **competence centers** and **platforms** for data exchange

✓ **Example of implementation**

UK: Open Data Institute (ODI)

Regulation ⚖

Creation of **legal frameworks** for data ecosystems

✓ **Example of implementation**

EU: Project Gaia X

Reliable and trustworthy technical infrastructure, data architecture, rules for data access and use **facilitate sustainable data exchange among companies**. Digital technologies such as artificial intelligence can harness the wealth of data to achieve significant advances in energy and resource efficiency. *

Field of action 4: Promote the sustainable use of AI

Information ⓘ

Platforms to show **use cases** and best practice examples for the identification of **suitable AI solution** to companies

✓ **Example of implementation**

GER "What can AI do for me" (WCAIDFM)

Financial

Government investment to accelerate the **responsible adoption** and **commercialization of AI**

✓ **Example of implementation**

CAN: The Pan-Canadian AI Strategy

Regulation ⚖

Establishment of an **open data policy** for the implementation of AI applications and the pooling of assets

✓ **Example of implementation**

FRA: French AI strategy – "AI for humanity"

With its ability to offer detailed insights into multiple aspects of a company's carbon footprint and quick cost-saving opportunities, AI represents a **promising avenue to accelerating sustainable transformation and reducing expenses**. A BCG study estimates, that AI could **reduce greenhouse gas emissions by 5% to 10% globally by 2030.***

Field of action 5: Implement energy efficient digital infrastructure

Information ⓘ

Promotion of R&D on 5G and broadband

✓ **Example of implementation**

UK: 5G Testbeds and Trials Programme

Financial

Funding for the **conversion from copper to glass-fiber networks**

✓ **Example of implementation**

FRA: Incentive for efficient digital infrastructure – Le Plan France très haut débit

Regulation ⚖

Setting **technical standards** for 5G expansion

✓ **Example of implementation**

EU: Regulation on specifying the characteristics of small-area wireless access points

Advanced digital technologies such as fiber and 5G networks are significantly more energy efficient and contribute to achieving sustainability on a large scale. Pure fiber-to-the-home (FTTH) networks are shown to use **up to 3 times less power than copper-based** vectoring/super-vectoring networks and up to 6 times less power than cable TV networks when in operation.* Using 5G technology could bring down carbon emissions **by nearly 80%.****

*Source: BREKO (2022)   **Source: Vyas (2022)

Field of action 6: Increase energy efficiency of clouds and data centers

Information ⓘ

Publish **guides and information** through government channels

Example of implementation

USA: Energy Star Website – 16 More Ways to Cut Energy Waste in the Data Center

Financial 💵

Financial support for increasing energy efficiency in cloud and data centers

Example of implementation

FRA: STRATÉGIE D'ACCÉLÉRATION CLOUD

Regulation ⚖️

Energy efficiency **standards** for infrastructure used in cloud and data centers

Example of implementation

EU: COMMISSION REGULATION 2019/424 – Laying down ecodesign requirements for servers and data storage products

Efficiency improvements of cloud and data centers can counteract the rising demand for data center services and the resulting increase in energy demand. For example, the Eco-Design requirements for servers and data storage products set out by the European Commission is estimated to result in **annual energy savings of approximately 9 TWh**.*

*Source: European Commission (2019)

Field of action 7: Promotion of Eco-Design in digital services and products

Information (i)

Research promotion to support **technological innovation for high value retention** at the end of product life cycles

✔ **Example of implementation**

UK: NICER – National Circular Economy Research Programme

Financial

Financial support for enterprises, which **Eco-Design their digital services**

✔ **Example of implementation**

FRA: Investments for the Future Programme (PIA)

Regulation

Extended **producer responsibility programs** for electronics

✔ **Example of implementation**

CAN: Extended producer responsibility programs for electronics and electronic waste

The European Environment Agency defines Eco-Design as "the integration of environmental aspects into the product development process, by balancing ecological and economic requirements. Eco-Design considers environmental aspects at all stages of the product development process."* Eco-Design principles can help with reducing the amount of processing needed and increase device longevity, lowering the impact on resources and energy usage.

Field of action 8: Promote a circular economy through digital tools

Information ⓘ

Establish **platforms to highlight best practice examples**, share guides and information on circular economy

✔ **Example of implementation**

EU: European Circular Economy Stakeholder Platform

Financial

Funding for **digital B2B services,** which link supply and demand of waste materials

✔ **Example of implementation**

ITA: Italian circular economy stakeholder platform

Regulation ⚖

Highlight products with low environmental impact throughout their entire life cycle by implementing **eco labels**

✔ **Example of implementation**

JAP: Eco Mark

Emerging digital technologies such artificial intelligence (AI), blockchains, and the Internet of things (IoT) can play a key role in the transformation towards a circular economy. They provide the foundation for innovative business models, which promote sustainable consumption patterns and recycling and recovery of materials.*

*Source: Chauhan, Parida & Dhir (2022)

Field of action 9: Increasing energy efficiency in the workplace

Information ⓘ

Consultation on **energy efficiency audits**

Example of implementation

UK: SME Energy Efficiency Scheme (SMEES)

Financial

Support for the implementation of digital technologies (e.g. LoRaWAN) in MSMEs for **automizing resource-efficient production**

Example of implementation

GER: "DigiRess" support Programme

Regulation

Implementation / **Strengthening** of norms and standards

Example of implementation

USA: ENERGY STAR certification for commercial buildings and industrial plants

Cost-effective energy efficiency measures can raise the considerable energy savings potential at MSMEs. In Germany, for example, MSMEs can generate **savings of up to 30% in a short time with the help of energy efficiency advice**.*

November 2022

*Source: Energieberatung Mittelstand (2022)

Field of action 10: Digitization of the energy grid

Information ⓘ

Promotion of R&D on **advanced clean energy technologies**

Example of implementation

CAN: Energy Innovation Program (EIP)

Financial 💰

Investment into a **digitized energy grid** to enable a flexible and energy efficient grid

Example of implementation

UK: Smart meter transition and the Data Communications Company (DCC)

Regulation ⚖

Mandatory smart meter use by meter operators

Example of implementation

GER: Smart Meter Roll-Out: Law on the digitalization of the energy transition

Digital technologies have the potential to make energy systems **more connected, intelligent, efficient, reliable and sustainable**. The EU countries achieved estimated energy savings of **between 5.4% and 7.8% per year** through the widespread use of smart meters.*

Field of action 11: Bring innovation into MSMEs

Information ⓘ

Provide **access to technical expertise and testing**, as well as the possibility to 'test before invest'

✓ **Example of implementation**

EU: European Digital Innovation Hubs

Financial

Funding **collaborative R&D and innovation projects** bringing together stakeholders from different backgrounds

✓ **Example of implementation**

USA: Small Business Innovation Research (SBIR), Small Business Technology Transfer (STTR)

Regulation

Streamline, simplify and implement a more cost-efficient **patent application** process

✓ **Example of implementation**

EU: The unitary patent system

MSMEs are very active innovators. According to the European Patent Office (EPO**), around 21% of patent applications filed come from small or medium-sized enterprises**.*

4

List of abbreviations and references

List of abbreviations

AI	Artificial Intelligence
BMDV	Federal Ministry for Digital and Transport
MSMEs	Micro, Small and Medium-sized Enterprises
EEA	European Environment Agency
EJ	Exajoule
GeSI	Global e- sustainability Initiative
GDP	MSMEs
ICT	Information and communications technology
IoT	Internet of Things
IEA	International Energy Agency
kg	Kilogram
MWh	Megawatt hour
R&D	Research and Developern
tCO2e	Tonnes (t) of carbon dioxide (CO2) equivalent (e)
TWh	Terawatt hour

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