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DIDACTECH



SUSTAINABILITY FOR TECHNOLOGY COMPANIES

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Introduction

In recent years, the ecological transition and sustainable development have become one of the fundamental pillars. The European Union is promoting measures and initiatives that contribute to the ecological transition and the implementation of sustainable practices. In this context, as explained in the Council's Recommendation on Learning for Environmental Sustainability: "As in all other sectors, action must also be taken in the field of education and training to respond to the climate emergency and the planetary crisis – in terms of its own activities and, especially in terms of how they prepare students for the future.[1]"

It highlights the importance of having short-term measures that support technology companies to implement green practices in their day-to-day operations.

In this context, within the framework of the Erasmus Plus project "Didactech" [2024-1-ES01-KA220-SCH-000247893], we have developed a dossier that brings together a set of green measures and practices for technology companies, designed to be implemented progressively without requiring large investments of time.





European framework

The European Union has placed environmental sustainability as one of the main axes of its growth and competitiveness strategy. Through the European Green Deal, the EU aims to achieve climate neutrality by 2050, promoting an economic model based on energy efficiency, the circular economy and the reduction of emissions.

Although many small and medium-sized technology companies are not legally obliged to comply with all environmental regulations applicable to large corporations, this regulatory framework serves as a reference for implementing good practices that improve their environmental impact and prepare them for future market demands.

The main European initiatives are:



EUROPEAN GREEN DEAL

Presented by the European Commission in 2019, it constitutes the roadmap to make Europe the first climate-neutral continent by 2050 [2].

Its objectives include:

- increase energy efficiency;
- promoting renewable energies;
- promoting the circular economy;
- reduce waste generation;
- protect biodiversity;
- promote sustainable production and consumption models.

[2] European Commission. (2019). Communication from the Commission: The European Green Deal (COM(2019) 640 final). Brussels.



ENERGY EFFICIENCY DIRECTIVE (EU) 2023/1791

This Directive lays down measures aimed at reducing energy consumption in all economic sectors. [3]
Among other aspects, it promotes:

- energy saving in buildings;
- the efficient use of electrical equipment;
- the reduction of consumption during business activity;
- the continuous improvement of energy management.

[3] European Parliament and Council of the European Union. (2023). Directive (EU) 2023/1791 on energy efficiency.



WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE) DIRECTIVE (2012/19/EU)

It regulates the collection, reuse and recycling of electrical and electronic equipment at the end of its useful life. [4]

For companies, it means the need to:

- properly manage e-waste;
- to promote reuse before recycling;
- Deliver the equipment to authorized managers.

[4] European Parliament and Council. (2012). Directive 2012/19/EU on waste electrical and electronic equipment (WEEE). Official Journal of the European Union.



ACTION PLAN FOR THE CIRCULAR ECONOMY

The circular economy is one of the pillars of the European Green Deal and seeks to reduce the consumption of raw materials and extend the shelf life of products. [5]
Its priorities include:

- waste reduction;
- reuse of materials;
- product recycling;
- sustainable design;
- responsible consumption.

[5] Comisión Europea. (2020). A new Circular Economy Action Plan. For a cleaner and more competitive Europe (COM(2020) 98 final).



Green Practices

- Energy efficiency
- Paper reduction and digitalization
- Waste management and recycling
- Sustainable Materials
- Plastic reduction
- Sustainable mobilty
- Sustainibility training





ENERGY EFFICIENCY



Air conditioning and temperature

Adjust the heating and cooling temperature to the recommended limits: maximum 19 °C in winter and minimum 27 °C in summer.[6]

- Check the insulation of doors and windows to avoid thermal leakage.
- Program the air conditioning to turn off outside working hours.



The energy consumption of a technological company – air conditioning, lighting, servers, equipment – is usually the easiest environmental item to reduce with low-cost changes.

Lighting & Equipment

- Replace conventional lighting with energy-saving LED bulbs.
- Install presence sensors in transit areas (corridors, bathrooms, meeting rooms).
- Set computer equipment to low-power mode and turn it off completely at the end of the day.
- Prioritise household appliances and office equipment with energy labelling A or higher.

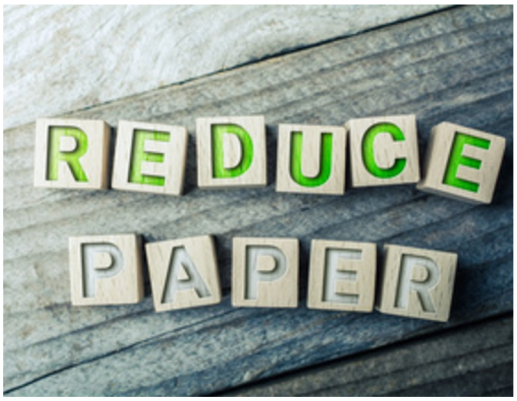
Renewable energy

- Contract electricity from 100% renewable sources with the supply company.
- To study the feasibility of self-consumption using solar panels, especially in southern European climates with high irradiation.



PAPER REDUCTION & DIGITIZATION

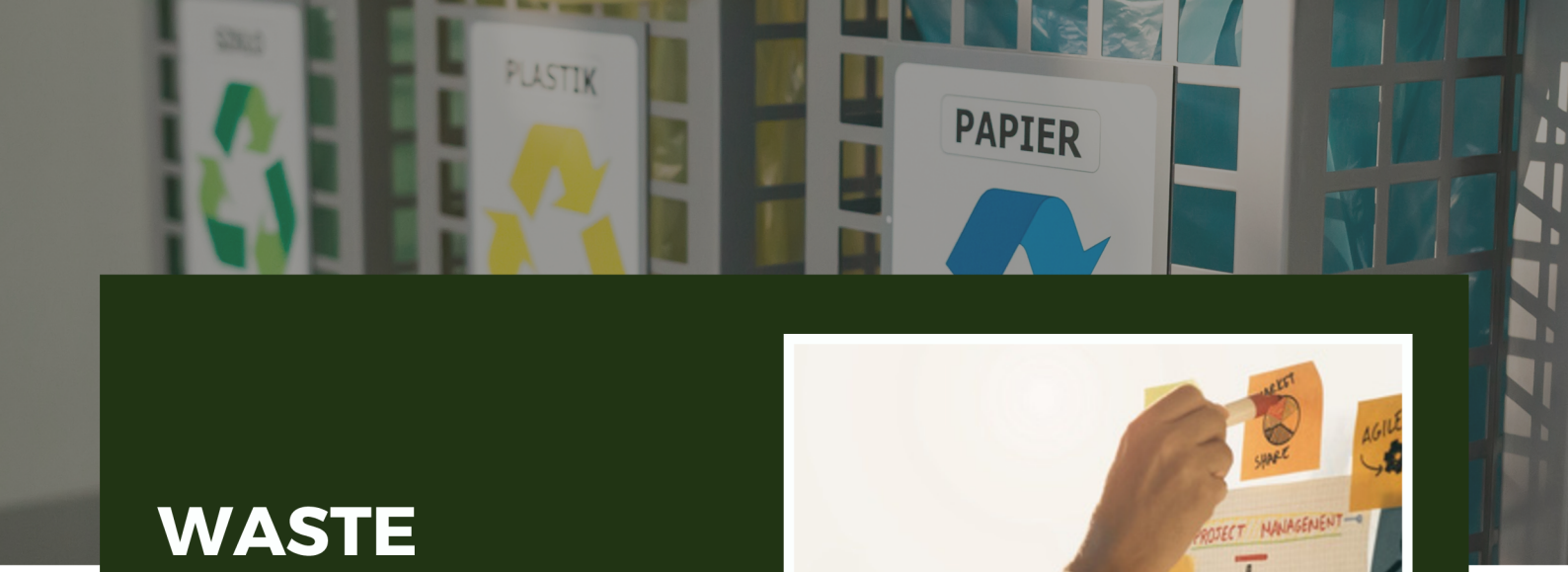




Digitizing processes not only reduces paper consumption: it streamlines daily work and facilitates remote collaboration.

Best practices

- Prioritize digital files over printed documents whenever possible.
- Share documentation and meeting materials in digital format, avoiding hard copies for each attendee.
- Adopt electronic signatures for contracts and administrative documentation.
- Establish a responsible printing policy: double-sided printing by default, in black and white unless there is a real need for colour.
- Centralize document storage in the cloud to avoid physical duplicates.



WASTE MANAGEMENT AND RECYCLING



Recycling points in the office

- Have differentiated bins for paper, plastic/packaging and organic matter.
- Clearly mark each container.
- Designate an internal collection point for batteries and small electronic waste.



Good waste management begins in the office itself, but is completed with the collaboration of the territory's selective collection services.

Electronic waste (WEEE)

European regulations on waste electrical and electronic equipment require the separate collection of this type of waste [7]:

- Take unused computers, monitors and peripherals to WEEE collection points instead of disposing of them with general garbage.
- Assess the donation or refurbishment of equipment that is still functional before recycling it.

Ecoparks and municipal collection points

Most European metropolitan areas have separate collection points – fixed or mobile – for waste that should not go into the conventional container: ink cartridges, small electronic devices, control boards, motors, etc.

Recycling of specific digital manufacturing materials

Companies with digital fabrication or 3D printing workshops generate particular plastic waste—exhausted filament spools, print scraps—that can be channeled into specialized recycling initiatives.

SUSTAINABLE MATERIALS



Office Consumables

- Replace conventional inks and toner with eco-friendly water- or vegetable-based alternatives, with lower volatile organic compound (VOC) content.
- Opt for refillable or recycled cartridges over single-use ones.
- Prioritise recycled or forest-certified (FSC/PEFC) paper when its use is unavoidable.
- Choose office supplies (notebooks, pens, filing cabinets) made from recycled or renewable materials.



Beyond waste, the origin of the materials purchased has a direct impact on the company's environmental footprint.

Materials for digital fabrication (where applicable)

Companies working with 3D printing or additive manufacturing can take their material purchases a step further:

- Bio-sustainable 3D filaments, developed from renewable materials (such as plant-based PLA) or biodegradable.
- Recycled filaments or filaments with natural pigments, as an alternative to virgin materials.

PLASTICS REDUCTION





Single-use items – cups, cutlery, disposable cups – are easy to avoid with reusable alternatives, and are usually among the most visible and valued measures by teams.

Best practices

- Replace disposable cups and cups with reusable cups, ideally personalized for each team member.
- Eliminate single-use plastic cutlery, plates and cups in kitchens and common areas.
- Favor water dispensers over individual plastic bottles.
- Avoid individual packaging in snacks or cafeteria products when bulk alternatives are available.



SUSTAINABLE MOBILITY





Transport accounts for a significant part of the emissions associated with business activity, both in daily commutes and on business trips.

Business trips

- Minimise air travel wherever possible, prioritising the train for short and medium-haul journeys within Europe.
- Replace face-to-face meetings that require long journeys by videoconference when the nature of the meeting allows it.
- Group several meetings or procedures in the same trip to reduce the number of trips.

Mobility to work

- Encourage the use of bicycles, public transport or carpooling for daily journeys to the workplace.
- Enable secure parking for bicycles on the company's premises.
- Facilitate partial teleworking when compatible with the position, thus reducing unnecessary travel.



SUSTAINABILITY TRAINING





No environmental measure works in a lasting way if it is not part of the company's culture. Training and involving the team is just as important as technical measures.

Best practices

- Organise regular training days in environmental sustainability for the whole team.
- Communicate the company's green practices clearly and visibly: signage, reminders and internal channels.
- Appoint ambassadors or a small sustainability committee to promote and review the measures adopted.
- Celebrate the progress made, no matter how small, and include sustainability in the welcome of new hires.



Check list

Energy Consumption

□ LED lighting is used throughout the office.
□ Computers and office equipment are completely switched off at the end of the working day.
□ Heating and air conditioning systems are programmed for energy-efficient operation.
□ Electricity from renewable energy sources is used whenever possible.

Digitalization

□ Digital documentation is prioritised over printed documents.
□ Printers are configured to print double-sided by default.
□ Electronic signatures are used whenever possible.

Waste Management

□ Clearly labelled recycling bins are available in the workplace.
□ Waste Electrical and Electronic Equipment (WEEE) is disposed of through authorised collection systems.
□ Electronic equipment is reused, refurbished or donated before being recycled.

Sustainable Procurement

□ Recycled or FSC/PEFC-certified paper is used whenever possible.
□ Recycled or reusable office materials are purchased.
□ Refillable or recycled toner and ink cartridges are used.

Plastic Reduction

□ Single-use plastics have been eliminated or significantly reduced.
□ Reusable mugs, cups and water bottles are encouraged in the workplace.

Sustainable Mobility

□ Remote or hybrid working is encouraged whenever possible.
□ Train travel is prioritised over air travel for business trips whenever feasible.
□ Employees are encouraged to use bicycles, public transport or car-sharing.

Sustainability Awareness

□ Employees receive regular sustainability training.
□ The company regularly communicates its environmental policies and green practices.
□ A sustainability officer, committee or Green Team has been appointed.



References

[1] European Commission. (2022). Proposal for a Council Recommendation on learning for environmental sustainability (COM(2022) 11 final). Brussels: European Commission. Available in: https://eur-lex.europa.eu/legal-content/ES/TXT/?uri=CELEX%3A52022DC0011

[2] European Commission. (2019). Communication from the Commission: The European Green Deal (COM(2019) 640 final). Brussels.

[3] European Parliament and Council of the European Union. (2023). Directive (EU) 2023/1791 on energy efficiency.

[4] European Parliament and Council. (2012). Directive 2012/19/EU on waste electrical and electronic equipment (WEEE). Official Journal of the European Union.

[5] Comisión Europea. (2020). A new Circular Economy Action Plan. For a cleaner and more competitive Europe (COM(2020) 98 final).

[6] Royal Decree-Law 14/2022, of 1 August, on economic sustainability measures in the field of transport, in terms of scholarships and study grants, as well as measures for saving, energy efficiency and reducing energy dependence on natural gas (Spain).

[7]Directive 2012/19/EU on waste electrical and electronic equipment (WEEE/WEEE). Source: European Commission — environment.ec.europa.eu

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