A Call to Action: Best Sustainability Practices at Work

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Abstract

Best practices are described below for organizations, entities, and institutions to move towards sustainability. Among them, the implementation of "Green IT" reduces the environmental impact of information technologies through the efficient use of devices and the reduction of data traffic. In terms of mobility, key measures include car-sharing and optimizing business travel. Additionally, incorporating ecological criteria into public procurement can help reducing carbon footprints. Integrating green infrastructure, such as green roofs and biophilic design, not only improves the work environment but also benefits the employee's well-being. These actions offer a practical and direct pathway towards sustainability in various settings.

1 Introduction

In 2022, the Sustainability Project at GRANTECAN was initiated, and the Sustainability Committee was established, consisting of 10 members from all functional groups at the organization. A specialist in sustainability and environmental issues was also hired with full dedication to the project. Additionally, a collaboration agreement was signed with the University of La Laguna for the "Design and Implementation of the Sustainability Plan of the Gran Telescopio Canarias" This action plan will guide GRANTECAN on its path towards becoming a more sustainable organization.

The project aims to improve sustainability across the company's activities, processes, and projects. The scope includes not only the operational and organizational boundaries of the telescope but also aims to influence key stakeholders in La Palma and the astronomical sector to promote sustainable change.

One of the team's initial challenges was conducting a sustainability study of a unique infrastructure, unprecedented worldwide. Many of the proposed solutions proved applicability

to any technical office. Identifying opportunities for improvement or best practices that could be easily implemented to drive significant change was key.

This presentation outlines the best practices to address several challenges affecting institutions like the Gran Telescopio de Canarias (GRANTECAN), with a focus on their applicability to academics and astrophysicists attending the XVI Congress of the Spanish Society of Astronomy (SEA) in Granada.

2   Green IT and Digital Sobriety

Nowadays, information and communication technologies (ICTs) serve as primary tools for any organization. In the late 1980s and early 1990s, as technology became more widespread, the concept of "Green IT" emerged, advocating for the design, manufacture, use, and disposal of IT devices and digital content in an efficient and environmentally friendly way [13].

This sector is responsible for between 1.8% and 2.8% of global greenhouse gas (GHG) emissions—more than the total emissions of countries like Australia or France [11]. These figures include data centers, data transmission networks, and end-user devices. The most significant environmental impacts occur during earlier stages of the lifecycle—material extraction, manufacturing, distribution, and disposal.

Energy consumption of devices varies depending on location and the local energy mix. The way we consume digital content, though less impactful, also has consequences. For instance, video streaming accounts for 40-52% of total ICT-related impacts due to its higher data traffic demand and the use of high-energy-intensity devices.

To reduce the environmental impact of ICT in the workplace, organizations can adopt several best practices. For instance, OLED screens and default dark-mode settings can reduce device energy consumption by up to 63% [5]. Minimizing video conferencing and turning off cameras when not necessary can reduce the environmental impact of video calls by up to 96% [5]. Additionally, purchasing refurbished devices or opting for brands that promote a circular economy and maintain devices can significantly reduce ICT-related environmental impacts.

3   Mobility

Another area with potential for improvement in reducing environmental impacts is mobility. Business and daily commutes contribute significantly to CO2 emissions, with road transportation being responsible for 45.1% of global transport emissions [10].

Around half of CO2 emissions from transportation are due to daily commutes and business trips. Shifting to sustainable mobility presents a major opportunity to reduce emissions. However, long-distance trips are often less conducive to change [2]. In Europe, the average citizen travels 27 kilometers daily, mostly by car (54%) due to speed, flexibility, comfort, or the lack of public transport alternatives [6]. At GRANTECAN, 88% of trips are made by car (Internal Mobility Survey, 2021).

Proposed solutions can be divided into active travel and shared mobility options. Car-

sharing, safe bicycle parking, solar canopies, and electric vehicle (EV) chargers are some initiatives that could encourage a shift to more sustainable mobility. Lastly, adjusting business travel procedures to promote sustainable options based on flexibility and transport alternatives is key.

4 Green Public Procurement

In the European Union, public contracts account for 10% of the total carbon footprint [3]. To address the impact linked to the value chain, Europe has developed the "Green Public Procurement", a tool that helps shape production and consumption trends, and creates substantial demand for "greener" products by public authorities. The goal is to create markets for products and services with lower environmental impacts.

So far, green public procurement has been a voluntary instrument, allowing member states the freedom to determine which policies and criteria are applied. However, some studies highlight the benefits of a potential European Sustainable Public Procurement Law, which would include concrete criteria to accelerate the transition to a low-carbon economy. Climate-related benefits are estimated to yield a 9% reduction in the total carbon footprint of public procurement across the EU and a 7% reduction in Spain [3].

Among the best practices that can be implemented are the application of GPP (Green Public Procurement), voluntary criteria, and requirements, at least for the most developed product groups. For this purpose, it is recommended to follow practical guidance, such as that developed by certain entities within Autonomous Communities, like IHOBE, which could serve as a starting point for considering sustainability aspects. Additionally, the use of eco-labels or standards is recommended to provide more information on the product's environmental performance during the market research and decision-making phases for the best purchasing option. Finally, it is useful to start introducing the concept of a product's life cycle to apply this knowledge in decision-making processes, contributing to better, more sustainability-aware choices.

5 Re-connecting with Nature

Contact with nature is beneficial for people as it can, for instance, reduce stress levels ([15];[18]), and provides us with ecosystem services, such as temperature reduction and buffering against wind impact, among others.

The integration of natural elements and small components of green infrastructure both inside and outside buildings benefits the health of their occupants and the environment [14]. In the workplace, these elements can enhance employee productivity and creativity [4]. For example, a window that provides views of a green space and natural light would significantly impact cognitive abilities, resulting in improved worker performance. One of the most notable environmental benefits, particularly useful for city offices, is green roofs. These structures can reduce energy demand by 0-11% in warm climates and by 1-7% in colder ones [7]. Additionally, some studies suggest a reduction in roof surface temperatures

by up to 20°C when ambient temperatures exceed 40°C. Green roofs can contribute to the much-needed cooling of urban areas, alleviating overheating and costs associated with the urban heat island effect.

To achieve this, we can apply biophilic design and incorporate small natural elements into offices and workplaces. Some options include adding green spaces both outside and inside buildings through courtyards, rooftops, balconies, or green walls, and incorporating other elements that promote natural light and interaction with nature (e.g., windows with views of natural landscapes).

6 Sustainability Culture

Ultimately, the intrinsic goal that each of these "best practices" aims to achieve beyond reducing energy consumption or minimizing impacts—is to create a culture of sustainability within the organization.

Culture, in short, is the aggregate of beliefs, values, customs, and norms held by individuals that collectively influence behavior within an organization. Engaging in "green" practices at work is a key component of environmental sustainability. This involvement serves as an impetus for green projects, sustainable practices, and the development of a sustainability culture within the business [19].

The process of shifting deeply rooted beliefs and assumptions that drive actions occurs slowly, and is achieved by adjusting visible factors. In other words, an organizational culture of sustainability is something that develops over time due to actions applied at the "visible" layer, and is likely to manifest differently within various subcultures. Therefore, action is required to cultivate this culture [1]. Some qualities shared by the world's most sustainable companies are deeply ingrained values, support from top management, and commitment from stakeholders (customers, suppliers, and employees) [16]. This makes creating a sustainability culture particularly important, as it is key to transforming into a sustainable organization.

To achieve this, it is recommended to begin by clearly defining the organization's sustainability policy, as a perceived strong organizational commitment to sustainability will encourage participation in sustainable behaviors. Structural changes, such as establishing a sustainability department or commission and even creating a new position like "Sustainability Officer," are also advisable. Additionally, aligning personal traits in recruitment and development is essential. Organizations should seek individuals whose values align with those of the organization and are also motivated by sustainability issues [12] The new sustainability policy should aim to reach and include all employees, and the tools necessary to implement it should be provided. Finally, rewarding and recognizing employees' achievements in meeting sustainability goals or positive sustainability performance is crucial for fostering a "green climate".

7 Conclusions

The adoption of these practices should not be viewed merely as a set of standards to follow but as a path toward the cultural transformation of organizations. A sustainability culture is built through commitment and participation at all levels of the organization, from top management to each employee. It is essential for organizations to define clear policies, implement structural changes, promote education and training in sustainability, and recognize the efforts of those who contribute to these goals.

Ultimately, success in creating a sustainable culture depends on our ability to inspire people to believe in the importance of these actions, collaborate effectively, and act with conviction in facing environmental challenges. Only through collective and consistent commitment we can aspire to a more sustainable future for all.

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