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DIGITAL TRANSFORMATION OF BUSINESS IN THE HOTEL INDUSTRY AND ITS IMPACT ON SUSTAINABLE DEVELOPMENT

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Abstract

The aim of this paper is to investigate the role of digital transformation (DT) and how it helps companies to face the challenges of a competitive dynamic market. Digital business transformation is a necessity for companies that want to survive in the modern world. Contemporary conditions of market competition are characterized by the digitization of economies and its current progress, as well as all related consequential changes in that process. Digital transformation changes the business organization in all segments and affects not only companies, but also society, the environment and institutions. In this paper, we discuss the hotel sector and listed some of the examples used to shed light on how digital transformation has affected business and contributed to sustainable development. The goal of the research was to point out the need for rapid digital transformation in the hotel industry, and to emphasize the importance of sustainable development in tourism using the benefits that digital transformation provides. In its initial part, the paper will provide an overview of the current literature on digital transformation and a definition of the mentioned terminology. The second section of the paper discusses the status of digital transformation in the hotel industry and its positive impact on sustainable development. In the latter section of the paper limitations are provided, and implications for future research are considered.

Keywords: digital transformation, hotel industry, sustainable development

1. INTRODUCTION

It has become clear in recent decades that globalization imposes new business regulations that many organizations must comply with. Effective corporate integration is both a requirement and a precondition for survival in hostile circumstances. Effective integration can only result from new digital tools and solutions that are suited for cooperation (White, 2012). With the quantifiable results of its growth contribution in multiple domains, the significance of digital transformation is continuously rising. Recent studies have shown that digital transformations should be considered from a business viewpoint since they have a considerably larger impact than only technological

improvements and influence practically all industries and enterprises (Bouncken, Kraus & Roig-Tierno, 2021). Using technology and learning about its significance and what it offers to create organizational agility is the key to successful business transformation (Hess, Matt, Benlian & Wiesböck, 2016). Digital transformation is a leading change worldwide and involves changing business at all levels.

By persuading potential users of the utility and value added that come from using platforms built on distinctive architecture, which also serves the interests of both market poles, extra benefits are produced (Sun & Zhang, 2006).

The basic operating model will change into a flexible digital one, with chances for sharing that will be targeted or diverted to understand business goals - "soft social" fulfillment of obligations in line with trends. According to all economic norms, these factors would ensure long-term profitability and success.

True digital transformation is produced in many settings by disruptive advancements in digital technology, taking changes in the organization and its business environment into consideration. However, perhaps outmoded corporate operating procedures serve as a catalyst for change (Parviainen, Tihinen, Kääriäinen & Teppola, 2017). High degrees of uncertainty are produced by the development and changes that follow. In order to preserve their positions in fiercely competitive marketplaces, companies and industries attempt to adapt to these changing environmental conditions in a variety of ways. Organizations that are innovative and agile include transformation requirements in their strategy. Contributions from several academics from various domains were incorporated in the examination of digital transformation and its potential and concerns. Beyond altering business, digital revolution also affects society. As a result, there are also rising expectations for digital transformation as its significance becomes more clear.

Without a doubt, the digital revolution, which also inspired theoretical and empirical inquiry, is to blame for the notable increase in publications. In addition, many questions about its conceptualization and theorization remain unresolved because it is socially formed on the basis of many different fields of knowledge. Fundamental structural barriers may prevent collaboration between disciplines and ruin the coherence of research operations if the fundamental components of digital transformation and the logic linking those components are not thoroughly understood.

The terms "digital transformation", "digitalization" or "digitization" are often used as synonyms in existing research because there is a lack of consistency in the evolutionist approach to the definition of the meaning of these terms (Hausberg, Liere-Netheler, Packmohr, Pakura & Vogelsang, 2019; Demlehner & Laumer, 2019; Legner, Eymann, Hess, Matt, Böhmman, Drews & Ahlemann, 2017; Mertens & Wiener, 2018; Riedl, Benlian, Hess, Stelzer & Sikora, 2017; Mergel, Edelmann & Haug, 2019).

From a theoretical perspective, it is almost impossible to create a sound theory of digital transformation until all concepts have comprehensive definitions and valid constructs, and until the theory of digital transformation is sufficiently different from other theories. A unified definition of the word would greatly aid the work of scholars trying to investigate the phenomena of digital transformation in order to achieve these goals. Practitioners would be able to better understand the scope and limitations of the term, while scholars would be able to more fully and accurately construct new theories about it.

The main question that is at the core of our research is to what extent and in what way does the digitalization of business contribute to sustainability in the hotel sector. In this paper, we used a descriptive qualitative method based on a review of existing literature and information obtained from hotel websites.

Every business organization is individual and the development path of digital transformation is different, therefore the process is not the same for every organization due to different factors (financial, technological, but also due to ignorance and fear of change among employees). Consumers as users of services, and thus drivers of the offer, show new habits and motivations, creating new services. All this, thanks to digital technologies, has created a more

flexible business model. Strong and important aspects of digital transformation are: simple and effective system management, absolute guest comfort, efficiency, energy saving and sustainable development.

In tourism, the Booking.com and Airbnb.com platforms have completely and irreversibly changed the way of booking accommodation. A hotel that invests in innovation and understands the need to proactively respond to the demands of an ever-changing market will grow faster and generate more profit.

2. LITERATURE REVIEW

Initially, traditional conceptions of digitalization were referred to by the term "digital transformation" which was actually misused on purpose. One perplexing shortcoming of the available literature is the challenge of correctly differentiating between digital transformation and related terms given their mutual interchangeability.

Advances in digital technology and the ensuing digitalization of various societal sectors have influenced the terminology's richness, which uses terms like "digitalization," "digitalization," and "digital transformation," which served as a catalyst for the final "digital transformation" (Spremić, 2017; Henriette, Feki & Boughzala, 2015; Goran, LaBerge & Srinivasan, 2017; Trcek, 2019). "Digitalization" refers to both the automation of operations using information technology and the translation of information from analog to digital form. While digitalization describes changes brought about by digital technologies (Hess et al., 2016), the application of digital technology, often known as the "digital transformation," is a crucial element in raising an organization's productivity and value.

According to the fourth industrial revolution, digitization has been credited with being the greatest creative force in the previous 15 years for altering the conventional ways of thinking and behaving, achieving a greater instance of preparedness and so laying the groundwork for digital transformation. The digitalization phase, which takes place between the third and fourth revolutions, might occasionally be perplexing. Beyond the simple digitalization of resources, the term "digital transformation" refers to higher-level socio-technical reforms that enhance performance and broaden the scope of an organization.

Digitalization is the "technological process that turns an analog signal into its digital version," according to Bloomberg (2018). Another way to define digitization is as the process of "taking analog information and transferring it, i.e. encoding it into zeros and ones so that computers can store it, then analyze it, and finally convey such information to those to whom the information is intended essential" (Legner et al., 2017). The term "digitalization," according to McAfee (2009), implies and denotes a "sociotechnical process in which the digitalization approach is applied to all social and institutional contexts that utilize digital technology to varying degrees and are, as a result, infrastructural." The advancement of digital technologies has been a major force behind the changes that are occurring in society. They have the responsibility to develop the upcoming new technologies because they are at various stages of maturity (Tilson, Lyytinen & Sørensen, 2010).

It has been demonstrated that the effectiveness of digital technologies and the ensuing convergence of time and space benefits time savings. The businesses will evaluate the complementary resources they need and form strategic alliances in order to ensure the availability of the resources required for survival and the reduction of environmental concerns. Just by working together, they can develop a long-lasting competitive edge (Yu-hsin, 2020). Resources and materials are now networked, and they are also becoming more intelligent and information-intensive. This creates the framework for the creation of digital business models.

In today's scientific papers, the issue of defining the word "digital transformation" is a real one. There are several ways to define this concept, according to research investigations (Westerman, Bonnet & McAfee, 2014; Uvarov, 2018; Dannikov & Sichkarenko, 2017; Vyshnevskiy, Harkushenko, Kniaziev, Lypnytskyi & Chekina, 2000; Brennen & Kreiss, 2014; Pawlowski, 2019;

Owen, 2007; Savi, 2019; Castells, 2010; Knickrehm, Berthon & Daugherty, 2016). Our calculations show that there is little to no major contradiction between the methodologies. However, in our opinion, these definitions are not comprehensive enough. Digital transformation entails significant changes in the organizational structure of businesses, production, ecosystems, and the whole industry as a result of the growing usage of digital technology at all levels.

A model of digital transformation is the translation of a company's operations to the new digital environment by using digital technology and all the benefits that e-business provides. Social objectives must be incorporated into business models in addition to financial ones due to improvements in life quality, the promotion of economic growth, and environmental protection. Stakeholder policies must be consistent and they must coordinate their actions in order to achieve digital transformation and spread innovation in services, government, business, and the entire society (Haberli Junior, Oliveira, Yanaze & Spers, 2019).

The impact of the digital transformation process is most easily visible at the beginning of the organization's operations. The results of the impact of digital transformation on company performance are added to the current data set, making it a more valuable data set. The collection of data refined in this way becomes better over time. By using an iterative approach and backward-looking feedback, we can improve the usefulness and applicability of the insights we have already gained. Additionally, it raises the value of the data. The interpersonal capabilities needed to create a strong synergy between people and new technology must also be strengthened and improved during the process of increasing the value of data (Chamorro-Premuzic, 2021), as is well known, the lack of resources vital to activity constraints the development of necessary abilities (Bunak, Prokhorova, Zhuravsky, Volodin & Frolov, 2022).

According to Brown, Fishenden and Thompson (2014), in order to enable significant improvements, such as boosting user services, optimizing processes, or developing wholly new services, digital transformation encompasses everything from the cultural and organizational changes that must take place to the corresponding usage of new digital technology. Horlacher & Hess (2016) state that the application of cutting-edge digital technology, such as social media, mobile, analytics, or embedded devices, to major business advances like improving customer experience, optimizing processes, or developing new business models. McDonald & Rowsell-Jones (2012) said that DT goes beyond merely digitizing resources and results in value and revenues being created from digital assets.

The cornerstone of the digital transformation is digital technology. The utilization of digital transformation has become easier and more accessible. The replacement of earlier forms of communication in recent years is evidence of this. Digital technology cannot be leveraged by enterprises to gain a competitive edge due to its greater accessibility, but it can be used by them to strengthen their brand and provide value through quicker and more efficient consumer and business communications (Spremić, 2017).

Digital transformation plays an important role in the modern business world. Companies that want to be competitive on the market must be up to date with the progress of digitization of economies, and change their business organization accordingly. The research conducted in this paper aims to shed light on the impact of digital transformation on business in the hotel sector through examples of digital adaptation of hotel companies to maintain competitiveness in a challenging and dynamic market.

3. THE CONCEPT OF DIGITAL TRANSFORMATION AND SUSTAINABLE DEVELOPMENT

Analyzing the literature, we can determine three key phases of the process: digitization, digitalization and digital transformation.

Digitization is the basic and initial phase of computerization, the transfer from analog to digital (Verhoef, Broekhuizen, Bart, Bhattacharya, Dong, Fabian & Haenlein, 2021). Information input, interchange, processing, and storage are all made simpler by the process of Informatization, which uses information and communication technologies. With informatization, every company can save time, reduce costs, analyze operations and, based on these results, devise a future course of action. All of this brings better functionality, more efficient operations, better quality work and, ultimately, higher profits. Digitization is the use of digital technologies to improve business processes and create an environment for digital business in which information plays a central role (Spremić, 2017). Digitization is an effective way to reach millions of people anywhere in the world, with technological tools you can transmit essential information to thousands of people at the same time and make them users of your services or products.

Digital transformation of business according to M. Spremić (2017b): refers to the ongoing transformation of digital technologies with the goal of creating disruptive business models, innovative business strategies, and new ways of leading and managing to provide customers with better products, services, and most importantly, user experiences.

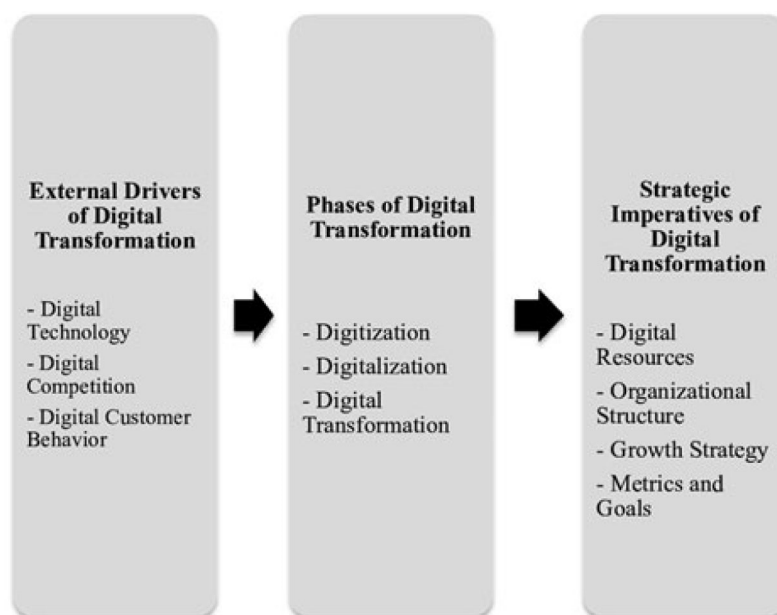


Figure 1 Phases of Digital Transformation, P. Verhoef, 2020.

In the hotel industry, digital transformation implies a complex set of creating new values based on collected information inside and outside the hotel, interaction with service users, collection, processing and storage of data based on which analyzes are performed and new services adapted to the wishes, needs and habits of tourists are created, and internal communication with staff and administration automation (Youssef & Zeqiri, 2020). With digital transformation, hotels can take advantage of all the advantages of digital technology for the purpose of improving the guest experience and creating personalized service, creating a successful marketing campaign based on collected data and easy accessibility of potential customers, and within the hotel staff satisfaction and simplification of daily administration (Herbert, 2017).

A problem that arises is the lack of professional staff in the hotel industry. A set of data alone is not enough to bring profit, knowledge, technology and human interaction are required. It is necessary to implement data into information, information into knowledge and knowledge into business decisions. When the set of collected data becomes knowledge, it leads to business decisions in the future and the adjustment of products and services based on the collected information. It is believed that a new hybrid function, the so-called data scientist, will begin to gain

importance (Tussyadiah, 2020). The skill set that these professionals will need to bring will range from connecting data that typically exists in hotel environments, interpreting it to identify trends and enable optimization in all phases of operations.

According to Prof. Spremić (2017b), there are primary and secondary digital technologies. Under primary are considered: mobile technologies, social networks, computing in the cloud (Cloud), the concept of big data (Big data), Internet of things (IoT). By secondary digital technologies we consider: 3D printers, robots, drones, wearable technology, virtual and augmented reality. In the hotel industry, it is thus possible to carry out a series of actions without the interference of the human factor. The most widespread configuration is the TAG RFID card reader (transponder). When the guest presses the key card against the reader it compares the data with the control unit opening the door via an electrical contact. NFC (near field communications technology) stands for data transfer without physical contact. This is the most common trend in the hotel industry. Contactless payment is the most widespread system due to its simplicity and time saving. Nowadays, all better hotels have built-in primary digital technologies, and the most innovative and luxurious ones also use secondary digital technologies such as robotics and artificial intelligence (AI).

Sustainable development in tourism means the ability of a tourist destination to remain in balance with its environment. Hotels and users of their services represent an important link in the process of achieving sustainable development in tourism. Environmental protection is a global problem and therefore requires global solutions. Applying processes for environment protection which hinder is not viable however working on maintaining sustainable environment is. The term sustainable development indicates the connection between development and environmental protection, and was definitely accepted at the conference in Rio de Janeiro in 1992. According to Stojanović (2021.), development that is ecologically sustainable means utilizing an ecosystem's carrying capacity. The most luxurious and innovative hotels in their business policy have the goal of sustainable development, they actively work to preserve the environment and reduce the emission of harmful gases. They are designed to promote sustainable development and build such a marketing brand for the benefit of the environment and the local community.

4. POSITIVE EXAMPLES OF DIGITAL TRANSFORMATION IN HOTELS

Most hotels successfully apply the advantages of primary digital technologies in their operations, and the most innovative ones have also integrated part of secondary digital technologies (Olofsson, Lindberg, Fransson & Hauge, 2015). In addition to reducing harmful emissions, saving energy, and reducing waste, innovative hotels (Deloitte, 2016) mainly use organic cotton bedding, natural organic cosmetics, fresh food from eco and local cultivation, energy supply with their own solar panels, they offer car-sharing electric cars and their own charging stations, e-bikes, etc. In their operations, they are oriented towards sustainable development (Waas, Verbruggen & Wright, 2010) for the benefit of the local environment. Thinking "green" and ecologically is not new, it is often a fad, but it requires planning and the support of the local community, as well as politics at a higher level. Addressing these complex challenges requires collaboration and coordination between multiple stakeholders, including governments, civil society and businesses. Hotel companies strive to simplify operations at all levels as possible by taking advantage of artificial intelligence (Nam, Dutt, Chathoth, Daghfous & Khan, 2021). Hotels have a lot of data with which they can achieve simpler decision-making and save time. Determining what data is worth the cost is the first step.

Tourist locations can now use IoT and AI to monitor, analyze and optimize the use of resources, which, thanks to digital transformation, benefits the tourism ecosystem in several ways (Waas, Verbruggen & Wright, 2010). Tourism companies must be managed taking into account economic, social and environmental dimensions. Digital transformation use a large amount of collected data in a smart way, which brings benefits to all users (Nam et al., 2021). Through digital platforms, users buy, sell, communicate for free, and the system in turn asks users for data that it

stores and uses for the development of algorithm and artificial intelligence. "Data is fuel for AI" (Spremić, 2017). The application of digital transformation in business requires technical prerequisites, employee education, but also the willingness to adopt new ways of manage business. Digital transformation is the leading change of the new era worldwide (Gong, Ribiere, 2020).

Modern technology with all the devices that accompany it and the possibilities offered by smartphones, mobile applications, social networks, AI and AR, blogs, vlogs and others provide the possibility for the tourist activity to be innovative and to adapt to the needs and wishes of tourists, in some way and to influence the behavior of tourists. Tourists measure the value of a service based on their personal experience of the value they get compared to what they lose by using that service. Prema Busseru, perceived value is the ratio of what is gained and what is lost (Busser and Shulga, 2018). Digital technology attracts tourists in an innovative way, guided by their preferences and wishes. Awareness of sustainability is key to gaining a competitive advantage.

The Hilton Group is a positive example of a hotel company that understands the importance of sustainable development in its business. In their strategic planning until 2030, they committed to reduce the harmful impact on the environment, facilitating sustainable and responsible travel for customers. Using digital keys via smartphones to open rooms, instead of using plastic cards, has reduced 125 tons of plastic waste since its launch in 2015. Achieving the set goals includes also reducing the emission of harmful gases and reducing the global temperature. The goal of all hotels should be helping tourist destinations to be preserved for future generations of guests. (Xie, 2018.).

Until recently, robots were only used in production facilities. However, within the hotel industry AI robots, which are more like humans, are one of the new trends and such robots can perform a number of tasks (Nam et al., 2021). The Henn-na Hotel in Nagasaki is "the first hotel with robots in the world". It contains an informative robot that provides tourist information and reception services. On their website (<https://www.h-n-h.jp/en/>), they emphasize that they value the understanding and cooperation of guests on 5 points in order to provide the guest with a pleasant stay at a reasonable price, thereby maximizing efficiency and reducing costs:

1. Energy efficiency - sensors turn off the light and air conditioning when the room is empty
2. Radiant technology - using electromagnetic waves, the panels transfer the temperature from object to object without heating or cooling the air between them
3. Reduction of waste - they offer only what is necessary and do not keep unnecessary things
4. Robotics – in order to increase efficiency and minimize errors, most of the staff are robots
5. Stay without a key - they use a top facial recognition system

In an effort to preserve the environment, the hotel actively works to reduce energy consumption and reduce waste, and to this end they ask for their understanding and cooperation. They are also asked to leave impressions and suggestions, thereby gathering information that they will later use in analyzing and making business decisions. Such an approach drives the entire hotel business. Most of the most technologically advanced and innovative hotels are also eco-friendly hotels.

The Whitepod Hotel in Switzerland (<https://www.whitepod.com/en/>) is proof that luxury digitally transformed hotels and sustainable development can create positive change in society and reduce the harmful impact on the climate and environment. Through innovation and smart technologies, and LEED design (leadership in energy and environmental energy), Hotel Whitepod integrates luxury and innovation to meet sustainability goals and provide the guest with a unique experience. The use of water and energy is controlled, waste is recycled, food is exclusively from local producers, staff live nearby and walk to work, motorized traffic is limited. On their website, they advertise under the slogan: "By choosing Whitepod, you actively participate in ecological thinking." Discover a unique experience where nature is luxury."

Hotel Carpe Diem Resort, in Santorini, went one step further (<https://www.carpediem.santorini.com/responsible-hospitality/>). It became one of the first climate-positive hotels in the

world because it recovers more oxygen than it consumes in its operations. Some of the measures they take to achieve this include planting 80 trees each year for each of their employees in reforestation projects in Madagascar and planting 10 trees for every booking they receive through their website. From this, it is evident that if the hotel management sets priorities correctly and promotes the idea of environmental protection, includes the goal of sustainability in its operations, it helps a wide range of key business areas: staff retention, guest loyalty, cost reduction. The strong ethic of sustainable development gives the marketing team fertile ground on which to build the eco-hotel brand.

5. CONCLUSION AND LIMITATIONS

Digital transformation has become essential for the successful operation of most companies. The term "digital transformation" is so widespread that, from an interdisciplinary perspective, it covers a wide range of areas with similar traces but different effects. As a result, it is essential to approach the categorization of words and ideas required by digital transformation and use standards that specify certain requirements and definitional domains. The word "transformation" rather than "digital" is the main component of digital transformation. Our world has experienced significant change over the past 20 years, and businesses now more than ever need to comprehend and respond to these developments. By acquiring new technology ideas or even boosting data collecting, this cannot be accomplished all at once. The new agenda is to analyze, produce, share, and offer additional value as a distinctive experience better (faster) than others.

Digital transformation has mainly led to the growth of new marketable goods, services, the environment and digital society as a whole. It is certain that all aspects of human existence will undergo a digital transformation, which will make the difficulties of the future more understandable and easier to adapt to. In all corporate sectors, new technology does not play a substitute role. This is especially true for labor-intensive tasks. Before fully accepting and designing the ideal model of digital transformation, it is necessary to evaluate IT knowledge and abilities in adopting new skills required by the market.

There is dispute among theorists over the fundamental definitions of digital transformation that will embrace all changes in business practices, which is understandable given the existence of multiple drawbacks of this phenomenon. The construction of a special description for a certain field that would present a quantifiable issue, serve as a clearer means of communication between academics and practitioners, and provide better recommendations for comprehending and creating digital transformation might be considered as the answer. Like every studies, this one has certain drawbacks. This paper focuses solely on how the digital transition has affected the hotel industry.

Numerous research on digitization have been published in recent works of literature. More research is required in order to get the knowledge and skills necessary for quick adaptation to the disruptive changes in business brought about by digital transformation and so lessen its negative effects in the public or private sector. For a general explanation of digital transformation and the precise effects it has on various business sectors, further research and critical evaluations are required. The digital transformation of lagging sectors may potentially be a future emphasis, as many well-established businesses have already undergone this change. The framework for organizational digital transformation might be enhanced by utilizing numerous case studies and contrasting various examples. Overall, research on cost management for the digital revolution will be important moving ahead.

In subsequent works and future research, we will try to search more deeply and study in more detail more scientific works on the topic of digital transformation in the hotel industry. In future research, it would be necessary to measure and analyze how much an individual guest affects the sustainability of the destination in a certain time. Digital transformation in the hotel industry is inevitable and in order to survive on the market, it needs to be quickly integrated into

the business. Although it is an obligation, it is also an opportunity because if it is successfully implemented, it brings competitiveness, efficiency and profit. A smart strategy of digital transformation of as much of the business as possible and investment in more sophisticated systems based on modern technologies saves time, reduces costs and more energy is invested in the guest experience than in working at a computer.

By integrating digital transformation, hotels provide their guests with maximum comfort, ease of booking and stay. By implementing digital innovations, every hotel has the opportunity to reduce harmful gases, behave responsibly towards the environment and become more environmentally friendly. It is extremely important for the hotel to be fully up to date with the latest sustainability strategies, but also with increasing awareness and changing consumer preferences.

Marketing also plays an important role in raising awareness of care for the environment. When promoting and selling hotel facilities, it is necessary to instruct potential guests on acceptable behavior in the destination they are traveling to. Everything that is achieved before for conservation has no effect if the end user does not take care of the destination.

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