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A Study on Design Expansion of Sustainable Space and Approaches

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Abstract

These days where urbanization and global warming have become the mega trends, there has been a need for constant, far-reaching and impactful design. The purpose of this study is to develop the design strategy model for sustainable space based on the concept of TBLD and Sustainable2.0 in order to construct social network where company-wide role of sustainable company applying and practicing sustainable material and designer and social responsibility.

In addition, we intend to look into specific design strategies through the success cases of corporations implementing the sustainable design, and furthermore, to present suggestions for promotion of sustainable design among domestic corporations in order to propose the recommendations for practical application of evolved sustainable design. From the standpoint of TBLD, 2012Architecten has the basic characteristics of eco-friendly entrepreneurial spirit and identity and the advantage of being design-oriented. 2012Architecten is also considered to play a social role significantly by prompting the shift in the awareness of users through online exchanges and promotions. In addition, 2012Architecten is taking on a significant role socially in the reuse and production and is also highly productive economically.

Keywords: *Sustainable Space, Design Expansion, TBLD, Sustainable2.0*

1. Introduction

This study was conducted through the literature study and case study on sustainable corporations to establish the extended concept of sustainable design. Particularly, the analyses were performed in light of the concept model of corporate strategies(TBLD/Sustainable2.0) by selecting the '2012Architecten' Group of the Netherlands which had set an example by integrating environmental, social and economic value based on design organizations' research and investment transcending the concept of simple eco-friendly design.

Previously, sustainability was themed primarily around environmental protection, energy conservation, and global warming. Currently, sustainability has expanded its reach into various areas such as society, global economy, corporate management strategy, energy development, technology, policy, as well as environment, as a concept of sustainable development. For that, designers, who feel responsible socially for environmental destruction and energy depletion, are pursuing the sustainable design as an alternative, while many researches and actions have been pushed forward vigorously. However, there has been a lack of study that aims to apply the sustainable design strategically in order to promote it [1].

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In the design industry, therefore, it is essential to secure alterative resources necessary to develop and spread the sustainable design and to map out the measures to adopt the sustainable design actively.

2. Expansion of Sustainable Design

2.1. Paradigm of Sustainable Design

Chapter 1 of the Brundtland Report, published by the United Nations World Commission for Environment and Development in 1987, is known to have drawn the first-ever definition of sustainable development, stating that sustainable development represented the endeavor to meet the needs and desire of current generation while preserving the ability to satisfy the needs and desire of the future. The complete definition was formulated when the concept of sustainable development' was adopted as a global perspective at the Rio Earth Summit held in 1992 [2].

In 1997, environmental issues began to emerge as global concern in each country when an agreement was reached among major developed countries to mitigate the greenhouse (GHG) gas emissions under the Kyoto Convention. Moreover, Triple Bottom Line (TBL) was introduced as a concept of sustainability [3].

Table 1. The Three Waves of sustainability

The First Wave: The Green Revolution	It was within the framework of the Cold War, the hippie movement and the May Revolt in France that the first ecological organizations, such as Greenpeace, emerged. It was also during this period that the first environmentally aware companies – Patagonia and Natura– came onto the market.
The Second Wave: Market Economy Comes to the Forefront	The Berlin Wall comes down and democratic systems take a foothold in Latin America. The Exxon Valdez oil tanker spill makes people start taking the ecological movement seriously. Marketing begins to adopt "green" messages on a massive scale.
The Third Wave: Toward Responsible Globalization	Globalization bursts onto the scene, and anti-globalization with it. The Internet grows at a swift pace, bringing the birth of participative media, and ad agencies begin to study on-line advertising. Companies like Shell and Nike face complaints regarding their production processes and must account for their actions before society.

After all, discussion would need to focus on design process and corporate production activities if the sustainable development is to be understood from a holistic standpoint and is pursued in such a way that the changes in the modes of life of the human beings are stimulated. Furthermore, it would be necessary to reconsider the basic course of development for sustainable design [4].

2.2. Strategic Concept Model of Sustainable Corporations

The term, Triple Bottom Line(TBL), the model representing the sustainable design, was coined for the first time by John Elkington in 1994. John Elkington, called the 'father of sustainable development', is the sociologist and psychologist of the U.K. and was born in 1949. He is a co-founder of the first-ever independent consulting company fully dedicated to sustainability. In 1998, he created the term, 'Triple Bottom Line(TBL)', a business model focusing on 3 axes of environmental,, social, and economic values that he claimed would form the achievements and value of corporations. The TBLD theory of Mary McBride set the direction as the design management strategy which could be the alternative for corporate social responsibility (CSR) and sustainable development(SD) [5]. After all, the main pillars of society,

environment, and economy, as suggested by the Triple Bottom Line (TBL), would be the basic platform that should be taken into consideration for sustainable and balanced development.

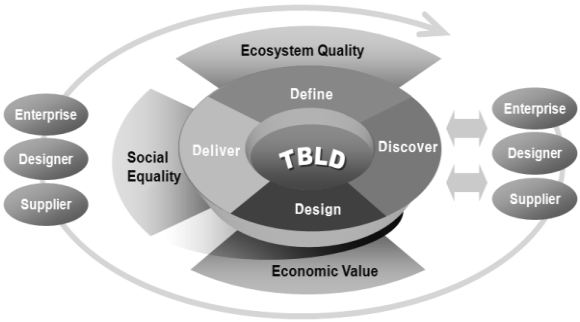

Figure 1. TBLD theory model

Sustainable 2.0 may be the concept of development into a sustainable brand based on convergence between corporate social responsibility and social media. That represents the strategic concept model that encourages involvement of users and regards the users as the foundation for communication and growth. In other words, corporations that fulfill the CSR(Corporate Social Responsibility) more actively and communicate more widely with consumers via the social media would see more communication being generated and more positive image being driven into the consciousness of consumers, and furthermore, would be more likely to see their brands evolve into sustainable brands. In that way, it will create the virtuous circle which induces the users to consume concerned brands and have greater loyalty, thus conveying the brands' sustainability, ethical value, etc., as well as facilitating basic information to be made available with respect to brand, sustainability activities and services, such as the manufacture, design, life cycle, materials of products, via the social media.

Figure 2. Sustainable2.0 theory model

3. Analysis Based on the Concept Model of Sustainable Corporations

As mentioned above, the TBLD and Sustainability2.0 have slight difference in the area of their applications in terms of design strategy and brand strategy. However, TBLD and Sustainability2.0 can be applied strategically when they are based on sustainable design, and in that regard, we intended to examine their strategic applicability by putting both concept models into relevant case.

2021 Architecten found a way of transformation into innovative design using old or discarded materials and developed the differentiated design strategies that could strengthen the

local exchanges and production capability by utilizing the resources that were eventually limited. The 3R system(Re-Search, Re-Design, Re-Build) is formed through differentiated strategies. In the first place, the research team facilitates the design team to carry out its works without disruption by precisely pinpointing the regions and locations where materials are potentially distributed, and performs the works corresponding to the initial stage of works. Such researches are used experimentally in the project of design team. At this time, the research team provides assistance in the production through the map showing the location of materials in regions adjacent to the site and displaying distance between the site and materials [6]. The design tam uses this map to reduce the time and energy taken to collect the materials by using this map, and at the same time, precisely find the location of buildings to be dismantled or various wastes and pick them up directly. The materials, collected subsequently, undergo primary processing which involves only simple physical processing of raw materials, such as cutting, grinding, assembly, disassembly, cleaning, so that they can be transformed into new materials [7].

Additionally, the rebuild team provides assistance to the design team in resolving technical difficulties based on aforesaid process and also facilitates architectural perfection.

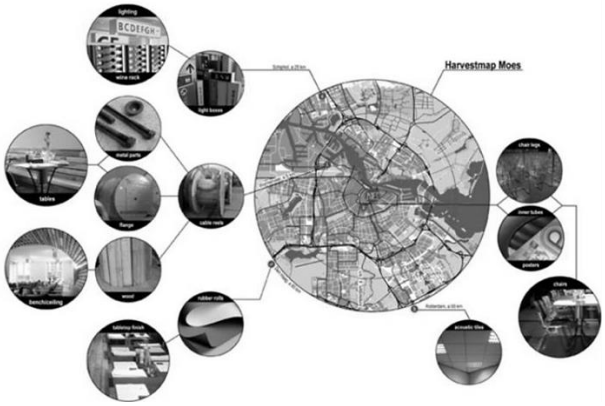

Figure 3. Design Map (process of collecting and sorting out the materials)

The works, completed as explained above, are shared by consumers, enterprises, and designers through the ‘Superuse’ website, expanding their boundaries and realms. Eventually, ‘2021Architecten’ are drastically changing and evolving to realize broader significance and value than those of environment-friendly design. In other words, it aims to approach the design issues in a more multi-faceted ways socially and economically. Their boundary of applications is not confined to architecture and interior fields, and rather, has been expanded into the areas such as lighting and furniture. Recycled materials and products exist in the constant cycle of formation and re-creation, rather than ceasing to exist, and provide potential value for creation of new space and products. Therefore, the design strategy which stimulates transition to sustainable society would be needed [8].

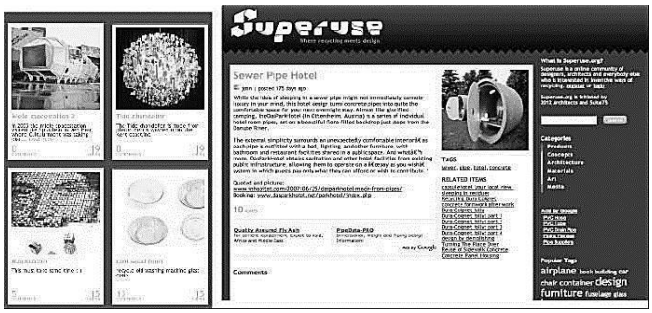

Figure 4. Sharing via the 'Superuse' website (sharing the design process and practical cases)

Figure 5. Practical cases of recycle design

Table 2. Success factors of '2012Architecten'

Factors
Acquisition of various types of waste materials based on close cooperation with countries worldwide
Stable support for materials under the agreement entered into by companies
Formation of social network among consumers, organizations, and ordinary companies
Constant network-based cooperation on the webs
Establishment of differentiated online community programs
Establishment of the support system enabling easy collection and storage of materials
Application at various locations

4. Conclusions

From the standpoint of TBLD, 2012Architecten has the basic characteristics of eco-friendly entrepreneurial spirit and identity and the advantage of being design-oriented. 2012Architecten is also considered to play a social role significantly by prompting the shift in the awareness of users through online exchanges and promotions. In addition, 2012Architecten is taking on a significant role socially in the reuse and production and is also highly productive economically. Moreover, Sustainability2.0 has the strength that it enables close management of social media, such as sharing and promotion, the point of contact with users, due to the nature of design.

Meanwhile, the agenda of TBL still remains at the inchoate stage in its form that most people understand as it currently is, and there is uncertainty over the system of social network. However, TBL model is highly useful as it determines the value of current assets possessed by corporations and specifies current tasks that they have to come to grips with. Meanwhile,

Sustainability2.0 will be able to be turned into a design strategy that can be accommodated to the social changes and contexts and keep pace with users over both short-term and long-term so as to increase the brand value. Thus, a model was intended to be developed for sustainable spatial design which would emerge as key governance task of governments in the 21st century, and more importantly, present major challenges in the market.

This study presented the follows on the basis of study results.

Firstly, when re-use design is approached from the general view, the wasted material can change the spaces into innovative and unique space and can offer the potential value by discriminating and systematizing design process and strategies.

Secondly, this study will allow the systematized work structure. In other words, in work process, systematic and smooth methods will be available through step-wise structure.

Finally, through integrated design strategy measures, this study would solve the problem of storage and supply of re-used material by figuring out the way to build social network and web sites to fuse old and new things, to save energy and resources and to ease accessibility to new ways of combination of parts.

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