POLITECNICO DI MILANO

SCUOLA DEL DESIGN

Corso di Laurea Magistrale in Interior and Spatial Design

DESIGN FOR CULTURAL SUSTAINABILITY IN INTERIOR DESIGN PROJECT

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A.A. 2018-2019

ACKNOWLEDGMENTS

TABLE OF CONTENT

LIST OF FIGURE

LIST OF TABLES

ABSTRACT

During all history culture is always intertwined with built and interior environment. Till now not enough attention is paid to the sustainability issues in interior design discipline. It has been seen more as a set of criteria and process of choosing materials and finishing, what is still superficial.

Traditionally the sustainability (sustainable development), as a global umbrella term, has been divided into three large dimensions: environmental, economical and social. Meanwhile there is another dimension of sustainability that was underestimated and overlooked in all design discipline including interior design, namely **cultural dimension**. As a result, the essence of culture in sustainable development research and policies tends to remain ignored.

With this research we open a discussion on the new design approach - **Design for cultural sustainability (DfCS)**. In this research we focus on sustainability as a cultural problem in interior and spatial design context. We pose the question of how cultural sustainability could be considered in the design process in broader context of global environmental problem.

The value of the research for interior design is that it is the first attempts to summarize the different design approaches through the lens of cultural sustainability that could be applied in interior design project. From the other hand we seek to bridge the gap between cultural theories and design practice. As a result of the research we suggest new criteria in form of insightful guideline (checklist and questionnaire) to introduce new design approach in interior and spatial design curriculum to help interior design students integrate this approach in their design tools. In research we investigate the following questions:

- What is the role of cultural sustainability as new dimension of sustainable development ?
- How different design approaches could be integrated in design for cultural sustainability's framework?
- How to apply design for cultural sustainability in interior and spatial design project?

Key words. Sustainability, cultural sustainability, design for cultural sustainability, sustainable design criteria, sustainable development, sustainability in interior design.

INTRODUCTION

This is the best reason to learn history: not in order to predict the future, but to free yourself of the past and imagine alternative destinies.

Yuval Noah Harari, Homo Deus: A Brief History of Tomorrow

During working on communal market Monza design project, situated in NoLo[1], where 33 % of population are foreigners who represent 40 nationalities, the author of this research experienced significant difficulties with identification of users (beneficiaries). Indeed, with large groups of stakeholders, diversity of value perspectives, derived from different life experiences and cultural histories, it is not easy to reach any consensus on the criteria for design solution.

As a result of long pondering the author have found the topic of cultural sustainability in interior design as highly relevant to context of NoLo project. Studying literature on topic has brought more questions than answers since the cultural sustainability concept is relatively new and remain unclear and ill-defined. Thus, theoretical framework for cultural sustainability is needed to be developed.

According to Whitemyer (2007), many have felt that sustainable design was for hippies and rebel architects building geodesic domes with solar panels and straw-bale houses. This created a lack of interest within the general population in seeking sustainable solutions. The lack of interested stakeholders in sustainable design was one reason interior designers and architects did not actively pursue sustainable design and when they did they were concerned mostly with finishes and aesthetics. McDonough and Braungart (2002) explained: 'Even as architects and industrial designers began to embrace recycled or sustainable materials, they still dealt primarily with surfaces, with what looked good, what was easy to get, and what they could afford'.

0. This thesis was elaborated during coronavirus quarantine of spring 2020. This new shocked reality and consequences of COVID-19 is steel need to be examined. Pandemic among other negative outcomes has changed view on interiors and private spaces.[2] Indeed, Coronavirus brought new agenda for all humankind, including architecture and interior

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[1] Acronym of Nord of Loreto - district of Milan.
[2] For example, balcony suddenly became the main protagonist. Balconies provide something that digital technologies cannot: a sense of community and an authentic feeling of standing for each other. http://www.bbc.com/travel/story/20200409-the-history-of-balconies

design realm. It clearly illustrates how rigorous country-wide control measures have different effect in different countries. 'Whilst we have seen in Wuhan that such intensive social distancing can bring the epidemic under control, it is far from clear how long this may need to be maintained in the Italian context'[3].

1. During 20th century culture was underestimated in sustainable development context. Culture describes society's understanding and appreciation of the natural resources and therefore plays an essential role in the promotion of economic progress in a fair society. In '*Domus for Design! A manifesto against the coronavirus and for design*' says: 'Design is one of the fundamental elements of Italy's cultural identity, and of the construction of a global society'[4].

The incorporation of culture into sustainability debates seems to remain a great challenge, both scientifically and politically. Conventional sustainability discourses consider sustainable development as three-pillar model (economic sustainability, environment sustainability, social sustainability). Until now the cultural aspects of sustainable development have mainly been discussed as a part of the social pillar, combined with social sustainability (socio-cultural sustainability).

Hawkes (2001) recognises that the three dimensions of sustainable development (economic growth, social inclusion and environmental balance) are no longer reflect all the dimensions of our global societies. The 'three-pillar' model of sustainability is proving to be fundamentally defective by the absence of culture. The integration of culture as a fourth pillar (dimensions) of sustainability along with the social, environmental, and economic dimensions are vital in delivering a more holistic approach to sustainable development. Nonetheless, the essence of culture in sustainable development research and policies therefore tends to remain ignored (UCLG, 2010).

Recently, there is recognition that culture is different from social dimension. Several transnational and international organisations like UNESCO, United Cities and Local Government (UCLG) and the Council of Europe have lately advocated culture as an explicit aspect of sustainability. UNESCO declares that no development is sustainable without including the culture and full integration of culture into sustainable development policies. In Third Resolution on Culture and Sustainable Development adopted by the UN

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[3]   https://www.reuters.com/article/us-health-coronavirus-italy-experts/italys-coronavirus-lockdown-likely-unsustainable-ineffective-idUSKBN20X15D
[4]   https://www.domusweb.it/en/speciali/domusfordesign/2020/domus-for-design-a-manifesto-against-the-coronavirus-and-for-design.html

General Assembly in December 2013 (A/RES/68/223) acknowledged the role of culture as an enabler and a driver of sustainable development and which requested that culture be given due consideration in the post-2015 development agenda.

2. Due to interconnectedness of buildings, people and community in the creation of an environmentally responsible built environment, the interior design discipline more than other design discipline is connected with architecture.

The development of sustainable approach during XX-XXI centuries was also as a part of architecture and building environment and subject of architectural standard and regulations. Until now most information on sustainable design focuses on architecture. Similarly, the legislation that government have brought to combat climate changes and environment deterioration focus targets architects. Even assessment tool (AT) has been typically developed with whole buildings in mind. Although many of these resources are partly applicable to interior design, there is a need for development of specific work tools for interior designers.

Until recently interior design was seen as a secondary part of architectural project. As an in-between discipline—hovering between architecture and everyday decorating —interior profession remains in a difficult position. Unlike architect who could design building from 'zero' within volumetric and urban plan, interior designer has more limitations in solving issues presented by given building. Architects are in a greater position to contribute to improving the quality of environments by initiating the revision of the building standards and by incorporating some of the already existing knowledge in their practice.

Interiors are often intended to be short-lived, whereas buildings intended to last many years. The project duration influences the decision about sustainable design, partly determining whether particular material or construction method is a sustainable choice.

In recent years interior design practice has seen a dramatic shift with design strategies that now focus on providing healthy and sustainable environments. Currently, a new agenda is required that bridges the theories and practices of sustainability with theory, education and practice of design. From the cultural sustainability point of view the 'thing layer' of interior design that wraps up the more robust architectural structures is ideal field of application of the former.

We argue that interior designers can effectively contribute to the sustainability effort not only by specifying durable local materials, selecting rapidly renewable materials, and using

energy-efficient lighting and plumbing systems, but also applying culturally based design approaches to facilitate implementation of sustainable behaviour of user.

Until now the concept of cultural sustainability, being not enough studied, is considered in isolation from goals in environment improvement. In context of architecture the cultural sustainability is seen mostly as a mean and method of conservation and preservation of building environment. We argue that the approach of conservation of historic buildings is not adequate for the sustained continuity of cultural practices (Postalcı & Atay, 2019).

3. The research would be incomplete without considering different design approach which help better understand how to achieve holistic approach in cultural sustainability with other aspects of sustainable development. During last three decades sustainability-related design researches were significantly intensified. Designers seek to challenge the status quo and mainstream applications of product design. Cultural sustainability being a part of holistic approach should be interconnected with other design approaches.

Among plethora of different design approaches and ideas we try to select and analyze those approaches that focus on values of both culture and nature, among them: *critical design, biophilic design, human oriented design, emotionally durable design (EDD)*, and other design approaches in combination with cultural theories what will lead to more interdisciplinary and overarching *design for cultural sustainability* approach.

4. Another significant problem is that there are currently no developed assessment tools (AT) or guidelines for assessing the cultural impact and sustainability of cultural development. While well-established economic and environmental impact assessments exist, especially dedicated to building environment, in the domain of culture there are no more than a series of beginnings in the fields of heritage and indigenous studies. Started in 1990 when the first formal assessment tool appears, nowadays there are more than 50 different of them. Only few AT deal with the interior design discipline and provide independent part of assessment. Almost none of them include socio-cultural part in assessment. It means that the building industry lacks essential component of assessment, which at global scale diminish potential capacity of culture as an enabler to positive changes due to difficulties to quantify the every aspect of cultural impact in particular project. Especially if we consider culture as local and indigenous practice that cannot be applied universally.

5. We argue that cultural practice (from local to global level) also need to be considered as important part of design project. To adopt the ethic for living sustainably, people must re-

examine their values and alter their behavior. Society must promote values that support the new ethic and discourage those that are incompatible with a sustainable way of life (IUCN, 1991).

An ethic is important because what people do, depends on what they believe. Widely (and local) shared beliefs are often more powerful than government edicts. The transition to sustainable societies will require changes in how people perceive each other, other life and the Earth; how they evaluate their needs and priorities; and how they behave. Designer also must take into consideration the current system of beliefs which dominates in particular society/ community/ group where the design project due to take place. It should be noted that sometimes beliefs (non-rational fears, destructive rituals etc.) pose an obvious risk to sustainable way of living and serve as impeding factor in design project. In this case the design's task is to reinterpret practice in more culturally acceptable and sustainable way.

6. Awareness[5] has been considered to be an important accelerator for change towards sustainability, referred to as 'change from the inside out', which is linked to people's values, world-views and motivations. Sustainability education stimulates greater awareness and informed practices.

Design practice cannot be separated from cultural contexts, and designers inevitably have to design in a multicultural environment. Designers who are short of knowledge about the targeted multicultural context, may experience many challenges in their design processes, or even mislead these design processes.

Interior design students need to have awareness about how to address cultural sustainability issues in everyday practice. It is hard to achieve this goal without training sensibility towards environment and culture of others. They need guidance and toolkit to develop cultural sustainable design project. Students need not only long lists of criteria for culturally sustainable spatial design, but also non-orthodox case studies, which could stimulate design thinking process to explore new insights on sustainability. The research aims to provide interior design students with an investigative instrument that can be applied to the design of various places in various countries around the world.

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[5] UN General Assembly Resolution on the 2030 Agenda for Sustainable Development, provides that to achieve Goal 12 (Ensure sustainable consumption and production patterns) it is necessary by 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature.

All above-mentioned topics as the ultimate aim serve to integrate findings into spatial design students curriculum to influence students' behaviors by changing their attitudes toward cultural sustainability.

Designers must work in a range of scales with the ability to incorporate local and global cultural visions, they must incorporate technology while remaining conscious of its effect on cultural diversity, and they will need to accomplish this in a manner appropriate for each particular project. This kind of person can be compared to the '*comprehensive designer*' who incorporates fundamental knowledge from all disciplines into his work (Fuller, 1950).
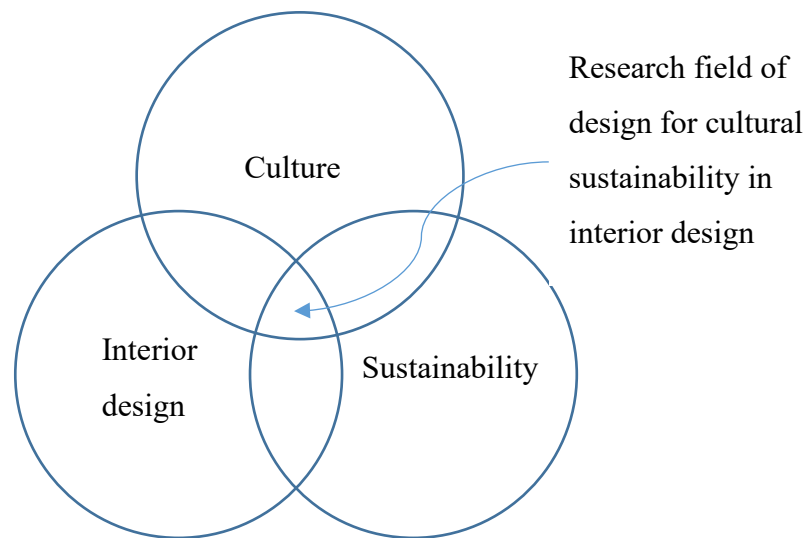
Figure 1. Diagram of research field. Source: author elaboration.

7. The ultimate aim of cultural sustainability in broader context of sustainability is to move to a society in which we are able to live better by consuming much less, avoiding the over-use of natural systems, and therefore the depletion of natural capital, and developing the economy by reducing the current inputs of energy and raw materials (Bologna, 2009). Briefly speaking, the aim is to live happier consuming less in culturally acceptable way. Only these three parameters taken together can improve the environmental situation on the planet[6].

This research is based on a few main hypotheses, which will be examined through the study, the most important ones represent as the following:

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[6] But the problem is in the culture itself. The concepts of growth and development have now taken on Western culture. Historically colonialism, industrial revolutions, the free market economy and, in the end, technological innovation, all these processes were intrinsically linked to the quantitative growth of available goods and resources, in a progressive and virtually unlimited trend.

- The culture of any society is formed though many inputs, the most importance ones are nature, ecological systems, religious and ideological beliefs, and it is affected by many variables such as history, customs, traditions, and popular customs.

- Sustainability and different design approaches cannot be seen as true sustainable without fourth dimension – culture.

- Cultural sustainability is one of underestimated aspect of any interior design project that is key factor in multicultural society context. Only culturally acceptable design constitutes cultural sustainability of project.

- Cultural sustainability must be inscribed into interior design students curriculum, thus checklist and questionnaire for cultural sustainability would be useful and insightful tool to apply during divergence phase of design thinking process.

Study Significance

This research suggests new approach - **Design for cultural sustainability** as overarching approach which embodies the other design approaches, as well as cultural studies and traditional cultural practices of sustainable way of living from different cultures that usually are underestimated by scholars.

This project demonstrates the role that national cultural practice and philosophy can play key role in design process, that without cultural acceptance of design output by users with different cultural background it is difficult to achieve economical, social and environmental sustainability.

Structure of research

Chapter 1 proposes a general definition of sustainability and sustainable development, different 'avenue of thoughts' and reviews the different theoretical concept of sustainability, how the sustainability evolved in architecture and design during last century, and finally how culture was introduced as 4th pillar in sustainability.

Chapter 2 addresses the important discussions of culture and cultural dimensions, cultural levels and cultural layers and attempt to bridge sustainability issues with different national cultures.

Chapter 3 introduces the review of problematic agenda that interior design should deal with, different design approaches that effectively explore the problem of user's behaviour and designer's role. Finally, from findings a series of culturally significant and culturally

independent factors we propose the guidelines that can help designers to build empathy with users in a given context and boost creative thinking for more sustainable solutions.

In conclusion, we believe this research is rather invitation to begin broader discussion on the topic of *Design for cultural sustainability* not only in interior and spatial design but in design discipline in general.

CHAPTER 1. SUSTAINABILITY: HISTORY AND DEFINITION

1.1.   Sustainability: a question of definition

The body of literature related to the topic of sustainable development is both voluminous and dissonant. Amid the diversity of approaches to sustainable development there are, of course, some recurrent elements that provide some degree of internal consistency to the body of literature (Gallopín, 2003).

Since its introduction in the late 1970s the concept of sustainable development has suggested a synthesis between economic development and environmental preservation (Bergh and Jeroen, 1996). The need for this type of synthesis derives in large part from the fact that permanently decreasing environmental stocks cannot support increasing or perhaps even constant levels of material economic throughputs for an indefinite period of time (Drummond and Marsden, 1999).[7]

Sustainable development is now abundantly abused in every context, especially in the political and economic sphere (Bologna, 2009). Notions of 'sustainability' and 'sustainable development' persist in policy and research despite of the criticism and the skepticism they have faced due to vagueness and ambiguity since the term 'sustainability' was first introduced.

The sustainability concept comes from the verb '*sostenere*' which means to support, endure, maintain, maintain the weight of, give strength to etc. It is a seemingly very clear concert: it seems intuitive that every action or activity must be compatible with the dynamic balances of the system in which we operate, act, intervene, and it seems equally easy to know or calculate that capacity.

In fact, what is very difficult to clarify, due to the objective lack of our knowledge and the concrete complexity of the mechanisms of operation of natural systems. Sustainability is not and can never be an *a priori* certainty, because the term *sustainability* refers to a potential that exercises its effects in the future, which means the need for mandatory verification in progress.

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[7] The ethical foundations of sustainable development often referred as intergenerational justice, closely related to the 'equitization' paradigm of sustainable development (Costanza, 1991, Vercelli, 1998). It is sometimes in tension with Intragenerational equity is concerned with the reduction of resource disparities among those presently living today.

The term '*sustainability*' can be seen as a multilayered concept with a plethora of synonyms that are used interchangeably, with different meanings proposed by designers, politics and scholars:

- Philosophical discourse;
- paradigm;
- metaphor;
- design approach;
- way of living;
- assessment tool (AT).

Often the term 'sustainability' is used as synonym to 'sustainable development'[8]. Although both terms are used in literature and official documents as synonyms, the difference between sustainable development and sustainability was defined by UNESCO. '*Sustainability*' is often thought of as a long-term goal (i.e. a more sustainable world), while '*sustainable development*' refers to the many processes and pathways to achieve it (e.g. sustainable agriculture and forestry, sustainable production and consumption, good government, research and technology transfer, education and training, etc.).

Development has been described, in the UN Development Programme (UNDP) first *Human Development Report* in 1990 as a process ('the enlargement of relevant human choices') as well as an achievement ('the compared extent to which, in given societies, those relevant choices are actually attained').

Before the Industrial Revolution cultures and ecosystems were fundamentally co-evolved. Then the two paths were spread and with the shift to the general use of fossil fuels a new vision of development has been emerged, which for about a century has deceived our species to have freed itself from the limits of natural ecosystems, breaking co-evolved constraints (Norgaard, 2006).

Today the distinction between two key concepts of our culture is clear, one is *growth* and another one is *development*. Growing up means increasing in size through simulation or with increasing materials, while developing means expanding or realizing the potential of someone or something or to lead to a fuller or better state (Bologna, 2009).

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[8] The concept of *sustainable development* is quite different from that of *sustainability* (which can be applied to the maintenance of an existing situation or system state). The word '*development*' clearly points to the idea of change, of directional and progressive change (Gallopín, 2003).

One of the first world-known classic definition of sustainability was described by the 1987 Bruntland Report '*Our Common Future*' as 'meets the needs of the present without compromising the ability of future generations to meet their own needs,' is still in use today by UN and other governments bodies. The concept of sustainable development is often criticized of being in favor of growth, efficiency, and the increase of technology, although development can also be considered in a qualitative way.

The Brundtland Report sought to specify two norms of reference-the '*bounds of the ecologically possible*' and to the '*needs*' of present and future generations-in *bio-physical* rather than aesthetic, moral, or cultural terms (Blühdorn, 2016).

This definition, based primarily on ecological concerns related to development, has proved difficult to apply. Yet at the same time the concepts continue to be criticized by scholars and policymakers for their anthropocentrism, vagueness and ambiguity. Each word in this definition rises a lot of questions.

First of all, the term '*generation*' presumes including in that category all humans from all countries. But we cannot confront needs of people living in developed countries[9] with needs of developing world. Who of them must level up own needs? Developing countries or developed? Should they equilibrate their needs somewhere in the middle? Notably, rapid growth in developing countries has led to consumers following the West's model of over-consumption[10].

Besides, the problem how we can forecast the needs of future generations or their capabilities is another aspect that cast doubts on the correctness of the definition. It does not take into consideration the fact that population of the Earth is constantly growing (in 1987 there were 5,04 billion comparing with 7,8 billion in 2020). Assuming some level of satisfaction of needs in 1987 as a starting point, today we must increase resources needed to additional 3 billion people.

We argue that the size of humankind is crucial parameter for sustainability, i.e. we need stationary population. According to J.S. Mill a *constant population* is part of the classical view of the *stationary state* comes from the demographers' model of a stationary

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[9] Surveys such as Greendex (2010), commissioned by National Geographic, are solely quantitative, make no clear definition of developed or developing countries, and do not account for external factors such as geography, religion, or politics.
[10] One interesting theory related to progress towards sustainable development is *leapfrogging*; skipping the 'dirty', fossil-fuel intensive stage of development straight to clean technology and sustainable consumption. (Ger et al., 1999).

population, one in which birth rates and death rates are equal and both the total population size and its age structure are constant. This model is both an analytical fiction and also for some is a normative goal. A constant population requires only that the birth rate equals the death rate, and that could be the case at either high or low levels. [11]

A modernized classical view of the steady-state economy as a subsystem of a finite, non-growing, and entropic biosphere, as foreseen by Mill, must now replace the growth economy— even if the latter is misleadingly re-baptized as 'steady-state growth economy.'

Next, the definition is also contradicting itself as it presumes the current (at that time) level of satisfaction of **needs** as a canon or desirable norm. But it is not enough simply sustaining the <u>economic status quo</u> which was and still is based upon an unsupportable principle of <u>unlimited growth</u>. For example, Ceschin (2012) argues that sustainability can only be achieved by drastically reducing consumption of environmental resources, at least by 90%, compared to the average consumption by mature industrialised contexts, and by equally distributing them.

The core question in Bruntland definition is how we can estimate what people do **need** (in what particular country), given that the particular needs must be based on some objective evaluation. The undefined 'needs' are not on the whole consistent across the globe, through all levels of society, or at different stages of life, or even when filtered through ideology or faith. <u>One person's need is another person's excess or dearth</u>; when one set of 'needs' is fulfilled, another (often someone else's) is denied (Dessein at al, 2015).

The current politics of unsustainability focus on managing the inevitable consequences, social and ecological, of the resolve to sustain the established value preferences and the related socio-economic order. Rather than attempting to suspend or even reverse the prevailing logic of unsustainability, its main objective is to promote <u>societal adaptation and resilience</u> <u>to sustained unsustainability</u>.

We should admit that 'sustainability' is a term with a more reaching set of objectives and values, one that can support de-growth and no growth agendas as well as growth, one that might have social equity and justice not economic prosperity as its goal.

Going forward, it should be noted that '*culture*' was not especially accentuated in the Bruntland report, by stating that 'To successfully advance in solving global problems, we

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[11] In 2017, more than 15 thousand scientists signed World Scientists' *Warning to Humanity: A Second Notice* came to the same conclusion (among others) to limiting our own reproduction (ideally to replacement level at most) (Ripple et al. 2017).

need to develop new methods of thinking, to elaborate new moral and value criteria, and, no doubt, new patterns of behaviour'.

Anyway, some scholars think it less a problem to define sustainability than to find ways to achieve it. Along with Bruntland definition in scholar literature and official documents following terms of sustainable development (sustainability) could be found.

Author/s	Year	Definition
World Commission for Environment and Development	1987	Sustainable development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
IUCN, UNEP, WWF	1991	Sustainable development is improving the quality of human life while living within the carrying capacity of supporting ecosystems.
Van Der Ryn & Cowan	1996	Design that minimizes environmental impact by using methods, products and processes that are respectful to the earth's life cycles, reflects a collaborative interaction between people and the earth, and conserves natural resources for current and future generations.
Williamson et al.	2003	Sustainability is incontestable development of society and economy on a long-term basis within the framework of the carrying inclusion of the earth's ecosystems.
Tukker and Tischner	2006	Sustainable design that causing minimum negative environmental impact while maximizing social well-being and maximizing economic added value.
Newman & Mizia	2006	Design create better communities, allowing economic development while maintaining a connection to the life cycle system in a nondamaging way.
Kossoff	2011	Sustainability is a wholes of everyday life and counts self- organization, participation, emergence, multiplicity in unity, intrinsic relatedness, and meaningfulness in the everyday life of specific places as indicators of sustainability.
MacMillan Dictionary		Sustainability is resource efficient and has minimal or neutral environmental impact.
Ann Thorpe	2007	Development that cultivates environmental and social conditions that will support human well-being indefinitely.
Opoku and Ahmed	2013	The adjustment of human behaviour to address the needs of the present, without compromising the ability of future generations to meet their own needs.
UNESCO		Sustainability is a paradigm for thinking about the future in which environmental, societal and economic considerations are balanced in the pursuit of an improved quality of life.

Table 1. Definitions of sustainability. Source: author's elaboration.

Another approach to sustainable development, which is often linked in some manner with the sustainability limits approach, is the 'competing objectives' approach, which focuses on integration social, economic and ecological goals (Peterson, 1997). Some sustainability indicators are: reducing the impact that human activities have on the environment (particularly the rates at which renewable and nonrenewable resources are used); not exceeding the carrying capacity of natural resources and ecosystems; integrating long-term economic, social and environmental goals, and preserving biological, cultural and economic diversity (Bergh and Jeroen, 1996).

Bergh and Jeroen (1996) proposed to analyse different theories of sustainable development by grouping them in following order.

Theory	Characterization of sustainable development
Equilibrium-Neoclassical	Welfare non-decreasing (anthropocentric); sustainable growth based on technology and substitution; optimizing environmental externalities; maintaining the aggregate stock of natural and economic capital; individual objectives prevail over social goals; policy needed when individual objectives conflict; long-run policy based on market solutions.
Neo-Austrian-Temporal	Teleological sequence of conscious and goal-oriented adaptation; preventing irreversible patterns; maintaining organization level (negentropy) in economic system; optimizing dynamic processes of extraction, production, consumption, recycling and waste treatment.
Ecological-Evolutionary	Maintaining resilience of natural systems, allowing for fluctuation and cycles (regular destruction); learning from uncertainty in natural processes; no domination of food chains by humans; fostering genetic/biotic/ecosystem diversity; balanced nutrient flows in ecosystems.
Evolutionary-Technological	Maintaining co-evolutionary adaptive capacity in terms of knowledge and technology to react to uncertainties; fostering economic diversity of actors, sectors and technologies.
Physico-Economic	Restrictions on materials and energy flows in/out the economy; industrial metabolism based on materials – product chain policy: integrated waste treatment, abatement, recycling and product development.
Biophysical-Energy	A steady state with minimum materials and energy throughput; maintaining physical and biological stocks and biodiversity; transition to energy systems with minimum pollutive effects.
Systems-Ecological	Controlling direct and indirect human effects on ecosystems; balance between material inputs and outputs to human systems; minimum stress factors on ecosystems, both local and global.
Ecological Engineering	Integration of human benefits and environmental quality and functions by manipulation of ecosystems; design and improvement of engineering solutions on the boundary of economics, technology and ecosystems; utilizing resilience, self-organization, self-regulation and functions of natural systems for human purposes.
Human Ecology	Remain within the carrying capacity (logistic growth); limited scale of economy and population; consumption oriented toward basic needs; occupy a modest place within the ecosystem food web and biosphere; always consider multiplier effects of human actions, in space and time.
Socio-Biological	Maintain cultural and social system of interactions with ecosystems; respect for nature integrated in culture; survival of group important.
Historical-Institutional	Equal attention to interests of nature, sectors and future generations; integrating institutional arrangements for economic and environmental policy; creating institutional long-run support for nature's interests; holistic instead of partial solutions, based on a hierarchy of values.
Ethical-Utopian	New individual value systems (respect for nature and future generations, basic needs fulfillment) and new social objectives (steady state); balance attention for efficiency, distribution and scale; strive for small-scale activities and control of 'side effects' ('small is beautiful'); long-run policy based on changing values and encouraging citizen (altruistic) as opposed to individual (egoistic) behavior.

Table 2. Theories of sustainable development. Source: Bergh and Jeroen (1996)

While Bergh and Jeroen develop idea of sustainability by different approaches the others criticize them proposing paradigm shift from sustainable design to *regenerative design* claiming that the term 'sustainability' has far too often been about just mitigating negatives. As M. Pawlyn (2019) argued: 'We all thought we were making things better, and it's painful to accept that most of that time we were just making things slightly less bad.' Another author maintains this pessimism by saying: 'There's something inherently problematic in the framing of sustainability that implies the best you can seek to is neutrality'(Crook, 2019).

We should agree that sustainability is not an absolute property; it can only be established relative to the nominal lifespan of the system to be sustained. There is no single definition of sustainable development or sustainability that works for all circumstances, and it is necessary to acknowledge the diversity of these meanings.

We hold opinion that transition towards achieving sustainable development, first of all, require changes <u>in human behavior</u>, <u>values and attitudes</u> that will meet human needs. To reach real sustainability is required to change the way in which needs are fulfilled, or better, what needs with what satisfiers should be fulfilled. Humanity must develop consumption patterns and promote lifestyles based on the consumption of far less material resources (external), more focusing on inner ways of satisfaction. In our opinion, that confirm the importance of <u>culture as crucial factor</u> in this discourse. This topic will be discussed in more detail Chapter 2.

1.2.   Brief historical overview of sustainability in interior's related environment

The concept of sustainability has been a topic in architectural circles since the 1990s[12]. Some authors (Postalcı, Güldehan, 2019) consider the definition of the term 'sustainability' in architectural context narrowly as 'the quality of being able to continue over a period of time'.

In the past centuries, the level of development of society, science and technology allowed man to enjoy natural goods without causing significant harm to nature, and all created by man and principles of interaction with nature were harmonious, did not cause significant harm damage, i.e. they were, in fact, environmentally friendly. In pre-industrial society, man was '*inscribed*' in the natural environment.

Natural external factors, such as rain, snow, temperature changes, protection from animals and insects, determined the shape and design of the dwelling. Changing the time of day, seasonal cycles set algorithms of human existence in the natural environment.

Household items and architecture were created from renewable (plant, skins and animal bones) and recycled materials (from biosphere), which without structural change only changed the shape and location in space.

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[12] The worldwide resource use in 2017 was around 85 billion tons of materials. On a European level this corresponds to around 20 tones/person/ year (International Resource Panel 2017). The building sector is responsible for around 40% of material resource use (by mass) and 40% of waste production (by volume) (UNEP 2016).

At that time sustainability was inherent part of design. Buildings were generally built out of necessary using materials and skills that were readily available, construction methods that were easy to implement passive design methods that would assist survival. The result was sustainable practical design with a simple beauty and regional character. While interior design was clearly not a primary concern, many of the principles are valid for interior design projects.

It could be distinguished five main historical periods of development of sustainability's discourse with particular focus on architectural and building environment.

1 period (1860-1910)[13] - Environmental issues[14] are raised in the theoretical studies of Morris and Reskin, that was a response to the rapid development of industry in large cities. At that time interior design was neglected by most part of modern architects and was seen as just inner part of architecture with no particular program of usage. Charles Rennie Mackintosh took nature as inspiration for its decoration though simply depicting nature is rather superficial approach to sustainable design. At the same time the interior shows economy of design, getting the most out of component to avoid waste. For example high-backed chairs served two-function: seating and space divider.

The first part of household where sustainable approach in interior design was applied by architect was a kitchen. That happened due to use of scientific management principles known as Taylorism, borrowed directly from manufacturing and factory processes, extending into the domestic realm to rationalize workflow in the kitchen and other areas of home management. The first user and beneficiaries of such 'sustainable approach' was a middle-class woman who had no more servants.

2 period (1920-1950s) - the development of functionalism, utilitarianism, economic expediency and universality, which is connected with the adoption of the industrial development of society as inevitable, the search for ways to adapt the new subject world to people's needs.

At that period Frank Lloyd Wright (1867–1959) creates functional buildings, where interiors and furniture were designed in a single concept, offering a holistic approach to

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[13] Before 1860 the classical economists were concerned with adapting the economy to the dictates of physical reality, while the neoclassicals want to adapt physical reality to the dictates of the economy. Consequently, and paradoxically, it is the older classical view of the steady state, Mill's version, that is more relevant today, even though the neoclassical view dominates the thinking of empty-world economists.

[14] Notably, the word '*ecology*' first appeared in the English language only in 1873 (White, 1967).

project, borrowing from nature its elements and harmony of its system. 'Waterfall house' and other objects are called organic architecture, organic design, associated with natural images. He also believed that 'form and function are the same.'

In 1930s Alvar Aalto (1898–1976) organically inscribed his buildings in the landscape. His works are characterized by flexible and free volume-spatial composition, the use of wood, the picturesque landscape layout, a combination of national traditions, principles of functionalism and organic architecture.

Richard Buckminster Fuller (1895-1983) was one of the first pioneer of environmental design. In 1927, he proposed a project of the house, '*Dimaxion*', the term was created to refer to products that gave maximum benefits to persons with minimal use of energy and materials.

Charles and Ray Eames develop the Bauhaus approach, using mass-produced materials in a simple way as in prefabricated Eames house (1949). Mies van der Rohe interiors were driven by minimalistic aesthetic that could be applied to sustainable design too.

In 1955 the industrial design pioneer Henry Dreyfuss advocated for what would eventually become known as a human centered design in his seminal book '*Designing for people*'. Dreyfuss was largely responsible for significant shift in thinking from the fitting of men to machine to fitting machines to men or products to people.

3 period (1960-1970s) - the emergence of social environmental movements, the creation of various utopian, radical and 'green' concepts and design solutions. This time can be described as a socially environmental coup. It is possible to divide that movements into two main categories. The first called for the abandonment of technological progress, urbanization and sought a transition to production using 'simple' materials and renewable energy, as well as primitive forms of agriculture. The second considered industrial development as logical and sought solutions to environmental problems in the development of scientific knowledge and technologies.

'Pollution control' and 'end-of-pipe' solutions dominated the research landscape. These approaches tried to control the pollution after it has occurred. In other words that were interventions focused on fixing the environmental effects caused by human activities (e.g. clean up a water polluted by an industrial plant); they focused on environmental problems without questioning on the real causes of the problems.

The seminal work introducing environmental considerations into the world of designers is considered to be Victor Papanek's book '*Design for the Real World: Human Ecology and Social Change*' (Papanek, 1985)[15]. In this book, Papanek provided an in-depth critique of the design profession, pointing out its <u>role in encouraging consumption and therefore contributing to ecological and social degradation</u>. His work reflected a sophisticated response, focusing not only on improving the outputs of design activity but also on promoting the transformation of the design profession.

The basic principles of environmental approach in design have actualized only the problems of economy, without any consideration of cultural sustainability issues. That means designers' proposals were universal for all human beings and all economies:

- Minimizing the consumption of natural materials and energy;
- Use of refilled energy resources;
- Minimizing waste or waste-free production;
- Achieving the durability of the product;
- Use of environmentally friendly materials;
- Standardization and interchangeability of elements;
- Modularity of objects.

The earliest concerns about resource limits and the impact of our material production on the environment are often traced back to Buckminster Fuller's teachings and work (Fuller, 1969). Fuller coined the concept of '*Spaceship Earth*', drawing attention to the physically bounded limits of our planet. Fuller also argued that unless humans take responsibility to care for and maintain the Earth, the Earth's functions will be compromised or even collapse. Fuller was the first to frame these concerns in an engineering and design context.

Another attempt to formulate some basic principles on sustainability was made by Barry Commoner, in his book '*The Closing Circle*' (1971), where he recommended five *Laws of Ecology:*

1) Everything is connected to everything else;
2) Everything has to go somewhere or there is no such place as 'away';
3) Everything is always changing;
4) There is no such thing as a 'free lunch';
5) Everything has limits.

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[15] The first edition of this book was published in Sweden in 1970 and in the USA in 1971).

The first simple guide for design and construction of ecological green shelter (*Wilderness-Based Checklist for Design and Construction*) was presented by architect Malcolm Wells in 1969 (we analyse it in Chapter 3).

During that period of time there was no homogeneous movement towards sustainability. In different parts of the world, some particular logic prevailed, depending on the culture and level of economic development. Nonetheless all of them had a mutual influence on each other.

At that period of time Scandinavian design and architecture have traditionally been ascetic and inspired by nature. In Finland and Sweden, they worked on a new type of home that met the demand: a minimum of space with maximum operational amenities in accordance with the ideas of functionalism. At the same time, all social and household functions were preserved, the compact layout was supplemented with multifunctional, transformable and stored furniture and equipment. The rationality and functionality of housing was to achieve maximum effect at minimal cost, which corresponds to the natural principle of least effort (creating maximum diversity with minimal tools)[16].

Japanese design had most organically absorbed traditional crafts, attitude to space and worldview, based on harmony of coexistence with nature. Harmony, poise, restraint, balance of old and new, traditional and innovative, natural and technical, natural and artificial, care and friendliness to nature were features of Japanese design.

Italian designers offered two fundamentally different design approaches. The first ('strong design' of modernism) was that the whole manmade environment must be designed almost anew and at the same time, in a single stylistic way, in a strict subordination of elements, which is justified in the design of new cities, districts, transport and communication systems. The second approach ('soft design') involved a cautious, gradual, often minimal impact on time-developing substantive and spatial situations at the level of individual parts and objects, rather than global change, showing that in real life is impossible to organize all once and for all. This approach allowed the equality of styles, cultures, contexts, times. Both approaches complemented each other, used according to the specific situation. The postmodern design culture is characterized by the weakening of project authoritarianism, the semantics of forms, the desire to create a thing 'close' to man.

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[16] Nowadays Scandinavian counties have the toughest building regulations in terms of fabrics and energy performance requirements.

Design in Italy at that period of time was rather understood as a part of art, not as a rational component of production or a market mechanism. Designers relied on cultural experience, functionality, technology combined with imagery and metaphor. The emphasis was on form-giving aspects of design – the appearance of the objects themselves.

Ettore Sottsass discovered whole new meaning for the object, associated with ritual and spirituality. *Superstudio* was at heart of Italian critical design (we analyze this design approach in more detail in paragraph 3.3.). Pessimistic about politics the group developed visionary scenarios in which everyone is given artifact sparse, but functional space to live free from unessential objects. Ultimately, mainstream design culture consumed the provocative designs.

At the same time, the re-emergence of mass unemployment in the industrialized North, the persistence of deep poverty in the global South, and the threat of new mega-technologies such as nuclear technology (civil and military) raised profound doubts about the underlying logic of industrial capitalism (Marcuse 1972; Kelly 1984). All this added up to a diagnosis that Ulrich Beck later captured with his concept of the *risk society* (Beck 1992) and gave rise to a novel blend of concerns, to which neither traditional style conservationism nor the new environmental protection programs which some progressive national governments were launching at the time, could offer an adequate response. Thus, radical ecologism (Dobson 2007) emerged as a new brand of eco-political thinking that took a much more holistic approach than any of its predecessors. It diagnosed a profound crisis not only in the natural environment but in the social, economic, and cultural dimensions of modern society, too (Blühdorn, 2016).

4 period (1980-2000) - the development of public programs of sustainable development, the formation of a modern view and a holistic approach to the problems of ecology in the world, understanding the need for new design tasks for the preservation of nature.

In the 1980s the term '*Anthropocene*' has been coined by biologist Eugene Stoermer and later adopted by Nobel Prize winner Paul Crutzen. In his book '*Welcome to the Anthropocene*' the author indicates a period where the invasive impact of human civilization on the planet is such as to cause irreversible transformations[17].

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[17] There is still disagreement between scholars as to when the Anthropocene era has begun. Two dominated opinions are that it starts after beginning of mass fossil extraction (mid 19 century) or after first nuclear bomb explosion (1945).

The early applications of **green design** practice (Burall, 1991; Mackenzie, 1997) primarily focused on lowering environmental impact through redesigning the individual qualities of individual products (optimising the amount of material used in a product, using recyclable materials, replacing virgin materials with recycled materials and replacing hazardous/ toxic materials with non- hazardous ones).

The publication of the book '*Green Design*' by the Design Council in the UK (Burall, 1991) could perhaps be seen as the beginning of a wider and more systematic interest in design with regard to sustainability. **Green design** focused on reducing environmental impacts and increasing the efficiency of individual products. This was accompanied in the second half of the 1990s by a focus on the entire life cycle of a product. The most commonly used are **eco-design** (Brezet and van Hemel 1997), **Design For Environment (DFE),** and **Life Cycle Design (LCD)** (Manzini and Vezzoli 1998). We analyse similar design approaches in Chapter 3.

The strategies included in the first three generations of approaches have one common characteristic: they do not modify the structures of production and consumption but they only optimise them. However, although these kinds of intervention (on a process and product level) are fundamental and necessary, they are not alone sufficient to obtain the radical shift required to achieve sustainability conditions (the previously mentioned reduction of 90% of resources consumption).

In fact, these improvements are often negatively counterbalanced by an increase in consumption levels. In other words, these approaches refer in general to the process but not to the quantity of output. For instance, the energy-efficient household appliances, which become more and more efficient per unit of volume, but the increase in the appliances volume and in the number of sold appliances lead to increases in aggregate energy consumptions (Mont 2004a). As a result all these last 3 generations approaches constitute symptomatic solutions which do not go to the root of the problem[18].

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[18] In 1992, the Union of Concerned Scientists and more than 1700 independent scientists, including the majority of living Nobel laureates in the sciences, penned the 1992 '*World Scientists' Warning to Humani*ty'. These concerned professionals called on humankind to curtail environmental destruction and cautioned that 'a great change in our stewardship of the Earth and the life on it is required, if vast human misery is to be avoided.' In their manifesto, they showed that humans were on a collision course with the natural world. They expressed concern about current, impending, or potential damage on planet Earth involving ozone depletion, freshwater availability, marine life depletion, ocean dead zones, forest loss, biodiversity destruction, climate change, and continued human population growth (Ripple et al. 2017).
Since 1992, with the exception of stabilizing the stratospheric ozone layer, humanity has failed to make sufficient progress in generally solving these foreseen environmental challenges, and alarmingly, most of them are getting far worse.

5 period. 2000-present

This period could be characterised as period when **ecodesign** (being taken along) was criticized as demonstrated its limitless approach and the main focus of sustainable design turned to research of consumers' behaviour, which has deep <u>roots in culture</u>.

The overall goal of **ecodesign** is to minimise the environmental impact of the different product life-cycle stages while maximising the benefits for the product's users. In ecodesign, the environment is given the same status as more traditional industrial values such as profit, functionality, aesthetics, ergonomics, image and overall quality (Brezet & van Hemel, 1997).

Lacking complexity like green design, **ecodesign** <u>focuses solely on environmental performance</u> (Gaziulusoy, 2015) and therefore disregards the social dimensions of sustainability, which cover issues that relate to the <u>distribution of resources and the products' social impacts</u>.

More generally, **ecodesign** shows a narrow understanding of design problems in the sense that (similarly to LCA) it basically deals with the <u>utilitarian function of a product</u>. All other types of <u>product functions (e.g. aesthetic, symbolic and spiritual)</u> are barely addressed by ecodesign, despite playing a fundamental role in orienting customer choices and behaviours. Finally, it can be argued that although ecodesign can be used to effectively support incremental innovation, it does not offer appropriate guidance on how to develop radically new product concepts. In other words, it is excellent <u>for optimising/ improving existing products,</u> but it is less effective for generating radically alternative ideas.

One of the promising design approach of 2000s is product–service systems (PSS), developed by Carlo Vezzoli. The focus on **sustainable product–service systems** (S.PSS) represents a shift from product design thinking to <u>system design thinking</u>, as products, services and networks of actors need to be designed simultaneously, giving way to new organisational models through which needs are met.

Nevertheless, S.PSS is still problematic approach. Sociological studies underline <u>the role of habits in</u> influencing consumption behaviour, arguing that consumption choices are dependent on prior consumption patterns. In relation to eco-efficient PSS, the problem is that solutions based on sharing and access contradict the dominant and well-established norm of ownership (Behrendt et al. 2003), making consumers hesitant to accept <u>ownerless-based solutions</u> (Goedkoop et al. 1999; Manzini et al. 2001; UNEP 2002).

Moreover, as underlined by Wong (2004) the diffusion of a PSS in the consumer market is highly dependent on being sensitive to the culture in which it will operate; in fact he observes that PSSs have been more readily accepted in communal societies like Scandinavia, the Netherlands, and Switzerland. As it will be demonstrated further any sustainable and innovative design must be seen via lens of cultural acceptability of particular societal group.

Another aspect that should be further investigated is the influence of symbolic value and user identity in PSS acceptance (Catulli, Cook, & Potter, 2017), with potential synergies with emotionally durable design that we analyze in paragraph 3.3.1.

1.2.1. Contemporary sustainability's 'avenues of thought' in architecture

Interior design is considered as internecinal part of building environment. Architecture as practice and scientific discipline has long tradition of dealing with sustainability issues. For the purpose of our research and better understanding of the role of cultural sustainability in more global landscape of theories we must consider some valuable classification of views on sustainable development that exist among architects. Guy and Farmer in article *'Reinterpreting Sustainable Architecture: The Place for Technology'* propose 6 logic of sustainable architecture and explain that there is no definitive description of what it means to build sustainable environment. They defined '*logic*' as a specific ensemble of ideas, concept and categorizations that are produced and transform in particular set of practices. They illustrate this by analyzing six different ways to categorize sustainable architecture (Simon & Farmer, 2001).

Sustainable design falling broadly into two streams—one primarily technical and engineering based (technological sustainability meta approach), and the other based in ecology and living systems principles (ecological sustainability meta-approach).

These logics or 'avenues of thought' *(eco-centric, eco-cultural, ecotechnic, eco-aesthetic, eco-medical, and ecosocial)* focus on the driving forces of sustainable design whether they are technological, are culturally responsive, prioritize human health and welfare, or highlight localized materials. Each logic is unique in how it addresses sustainable architecture and planning. All six logics solve different yet equally important problems within sustainability. It should be noted that proposed logics are contradict and overlapped, but authors explain that this is 'competing' logics. For better understanding all these logic could be briefly structured in the following table.

Logic	Context/ level	Material/ technology	Building /environment vision	Approach	Main expertise of architect (examples)
Eco-technic (go further into modernization and industrialisation)	macro-physical	high tech	com-mercial, modern, future oriented	quantitative, integrated globalization intelligent efficiency	tecno-rational (N.Foster, R.Rogers, N. Grimshaw, M.Hopkings, R.Piano)
Eco-centric (protection of ecosystem and natural capital, better not to build at all or radically reduce ecological footprint)	Gaia (non-living objects and ecological system) +	renewable natural or recycled materials/ low and intermediate tech	negative /polluter/parasite	holistic, small scale and decentralized,	systemic ecology (Brenda and Robert Vale, Mike Reynold)
Eco-aesthetic (romantic view of nature and architecture, rejection of utilitarism in favor of aesthetic sensualism).		advanced structural engineering, computer modelling, automated production	'organi-tech' archi-tecture	individual non-utilitarian creativity based on sensual learn of world	F. Gehry, S. Calatrava, Future System, A. Isosaki, SITE
Eco-cultural (preservation of diversity of existing culture and genius loci, protect landscape, against globalism).	bioregional / small-scale, bounded physical and consciousness terrain	local materials/ traditional building forms, reuse traditional techniques	authentic	echosophical development, personal responses to particular places	Glenn Murcutt, Charles Correa, Geoffrey Bawa
Eco-medical (Humanistic and social concern for individual health conditioned by external environment)	building and surrounding (indoor/outdoor)	passive non-toxic/ natural materials, organic treatment and finishes, natural light and ventilation, colors	healthy living, healing environ-ment	decrease risk of stress and illness, attention to interiors, avoid sick building syndrome,	medical ecology Oliver Heath, Peter Schmid Floyd Stein, Gaia group, Elbe and Sambeth
Eco-social (democracy as the key to aware of impact on environment, problem: social pattern of domination and hierarchy, human domination, political issue of control over technology).	(micro) community level	intermediate eco-friendly technologies / renewable natural recycle local material	embodiment of social and ecological cooperative communities, building as home,	decentralization, self-relient societyes, social participation and control, local economy, min level of material goods and max human resources, organic formation of society with link to natural locality	social ecology Lucien Kroll, Ralph Ersline Peter Hubner Segal Method

Table 3. Avenues of thoughts of sustainability in architecture, proposed by Guy and Farmer. Source: author's elaboration.

As a compass to what approach to use in particular project could be an inner desire of individual or society or user. Anyway the combination depends on other significant parameters of design project. Guy and Farmer conclude that it is far more beneficial to understand sustainability as a complex system, with its parts and varying perspectives being essential to its success as a whole. For the purpose of our research we analyze Eco-cultural Logic, proposed by Guy and Farmer, as we consider it more relevant.

1.2.1.1. *The Eco-cultural Logic-Buildings and the Authentic Place*

The eco-cultural logic emphasizes a fundamental reorientation of values to engage with both environmental and cultural concerns. Here, it is not the development of a new universal culture which is promoted, but rather the preservation of a diversity of existing cultures. The emblematic issue is authenticity and the notion that truly sustainable buildings need to more fully relate to the concept of locality and place. The emphasis on place, or genius loci, is intended to counteract the deficiencies of abstract modernist space and is a reaction against the globalism of the International Style. Our ethical responsibilities are to resist the phenomena of universalization prevalent in modern culture, as, according to Frampton, 'sustaining any kind of authentic culture in the future will depend ultimately on our capacity to generate vital forms of regional culture'(Frampton,1985).

We should aim to conserve the richness and diversity of life on earth and that includes human cultural diversity (Naess, 1988). This requires artifact further step from ecologically sustainable development to long-range 'ecosophical' development: 'Any model of ecologically sustainable development must contain answers, however tentative, as to how to avoid contributing to thoughtless destruction of cultures, and to the dissemination of the belief in a glorious, meaningless life.'(Naess, 1994).

The eco-cultural logic draws inspiration from a phenomeno-logical account of the environment and revives Heideggers concept of dwelling with an emphasis on reinhabiting or relearning a sense of place. This unique sense of identity evolves subjectively from within nature and there is a concern for the continuity of meaning between tradition and the individual combined with the cultivation of an ecological consciousness. It implies both the development of a sense of being indigenous to a place and a responsibility for protecting landscape and ecosystems from disturbance. The approach stresses decentralization and is concerned with the characteristics of regions or bioregions, which are conceived as the basic geographical unit of a small-scale ecological society. Here a bioregion is defined by a combination of natural, biological, and ecological characteristics and by a cultural context, it is both a bounded physical terrain and a 'terrain of consciousness'(Talbot 1996).

Sustainability, according this logic, means living within the constraints and possibilities imposed by these characteristics, and as a design strategy, bioregionalism draws inspiration from indigenous and vernacular building approaches. These traditional building forms are seen as indicative of the way in which rooted cultures have naturally evolved appropriate lifestyles adapted to their particular physical environment.

Within this logic it is suggested that sustainable architectural approaches should move away from universal and technologically based design methodologies as these often fail to coincide with the cultural values of a particular place or people. According to Ujam and Stevenson this means 'refuting the concern of certain 'Green' architects with 'Green' but culturally unsustainable technical fixes situated within existing building typologies. Adding insulation made from synthetic materials or 'Arabic-wind' towers as objects to an office block does not integrate a 'green' solution in terms of cultural considerations and sustainable design. Contemporary architecture should therefore 'recognize very deeply structured personal responses to particular places' if it is to be sustainable'(Ujam & Stevenson, 1996).

The eco-cultural logic emphasizes both the preservation and conservation of the variety of built cultural archetypes that already exist, combined with a concern for cultural continuity expressed through the transformation and re-use of traditional construction techniques, building typologies, and settlement patterns, each with a history of local evolution and use. This emphasis on the peculiarities of place, the use of local materials, and an appropriate response to climatic and microclimatic conditions.

Concluding the review of avenue of thoughts we argue that *eco-cultural logic* is more promising in further research of cultural sustainability. Perhaps best expressed in the regionalist approaches of architects like Glenn Murcutt in Australia, Charles Correa in India, Geoffrey Bawa in Sri Lanka, and Hassan Fathy in Egypt that should be subject for additional research.

1.3. Introduction of culture as 4th pillars of sustainable development

Sustainable development is often considered to consist of ecological, economic, and social dimensions, or '*pillars*' approach. These three pillars approach was established in the Sustainable Development Congress in Johannesburg (2002) and have been developed further by scholars. Early attempts to bring the cultural into mainstream consideration used the term 'fourth pillar' rather than 'fourth domain' (Hawkes 2001). It can be assumed that

introducing culture in sustainability as a 'fourth pillar' or in some other specific role would change the status quo in sustainability research and policy (Soini and Dessein, 2016).

A recent analysis of the scientific discourses on 'cultural sustainability' (Soini, Birkeland, 2014) revealed that although 'cultural sustainability' is used in a number of meanings and contexts, there are only <u>very few attempts to bring 'culture' and 'sustainability' together in an analytical and systematic way</u>.

In the policy field, culture has been mentioned as an aspect of social sustainability and occasionally even as an aspect or dimension of its own. In particular, during the UNESCO Decade of Culture and Development (1988–1997), the interrelationship between culture and development was discussed, resulting in the WCCD Report 'Our Creative Diversity' (WCCD, 1995). Since this time, the connection between sustainable development and culture has been discussed in other international policy documents and conventions, such as 'In From the Margins' (European Council, 1997), 'Convention for the Safeguarding of the Intangible Heritage' (UNESCO, 2001), and 'Convention on the Protection and Promotion of Diversity of Cultural Expressions' (UNESCO, 2005). However, the relationship between culture and sustainable development or culture and the environment has not been thoroughly explored in these documents (Soini, Birkeland 2014).

The alternative approach recommended is to use term '*circles*' or '*roles*` instead of '*pillars*'. For the purpose of our research though we will use the mainstream term '*pillars*' along with term '*roles*'.

The network '*Investigating Cultural Sustainability*' during its four-year period (2011-2015) highlight European research across its members' countries in order to provide policy makers with instruments for integrating <u>culture as a key element of the sustainable development</u>. The network was comprised of researchers from multiple disciplines ranging from social and humanistic sciences, to geography and environmental planning. The network built a comprehensive analytical framework that recognises <u>three 'roles'</u> of culture in sustainable development, which were named as: 'culture **in** sustainability', 'culture **for** sustainability' and 'culture **as** sustainability'.

 This allows the study and application of '<u>culture and sustainable development</u>' in a structured way and proposed to consider culture in sustainable development from three viewpoint within sustainable development discourse (four-pillar approach) (Dessein, J. et al, 2015). In this research we will call it 'In-for-as' cultural sustainability approach.

| | First: Culture *in* Sustainability | Second: Culture *for* Sustainability | Third: Culture *As* Sustainability |
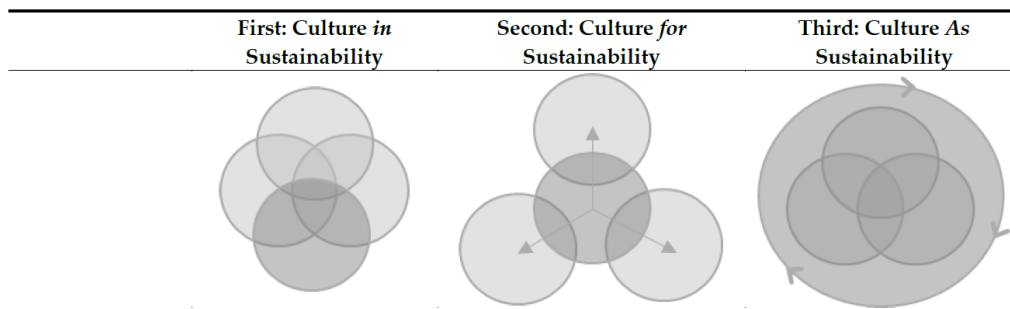
Figure 2. Diagram 'Four-pillar approach'. Source: Soini and Dessein (2016).

Cultural geographer Katriina Soini, a lead author of the report, continues to publish on culture as a fundamental precondition to realize sustainable development (Soini and Dessein 2016), based on 'In-for-as' cultural sustainability approach, proposed more sophisticated conceptual framework (the combination of above-mentioned roles of culture and added eight more 'dimensions' for conceptual 'sorting'), including:

- **Definition of culture,**
- **Culture and development** (as a process as well as an achievement). Development involves intentional as well as unintentional processes of change and evolution towards a new situation which is considered as 'more developed' than before.
- **Value of culture** (value intrinsic, or for its own sake; or a value is instrumental, meaning it is a means to acquire something else);
- **Culture and society** (how culture and society are different from, or constitutive of, each other);
- **Culture and nature** (how nature is defined, perceived, and experienced by humans);
- **Policy sectors** (policy domains, scale and use of various instruments);
- **Modes of Governance** (a process of interaction between different societal and political actors);
- **Research approach,** i.e. the relevance of particular research approaches (mono-, multi-, inter-, or transdisciplinary).

According to Soini and Dessein (2016) this constitutes a kind of 'kaleidoscope' to analyze the complexity of the relationship between culture and sustainability at meta level. In this research we will call it '8-dimentions sorting' approach. Admitting the importance of the research undertaking by the above-mentioned authors it should be noted that this 'sorting' does not entirely correspond to principles of formal logic classification. Nevertheless, it does not mean that it is completely unconvincing, so the findings can be regarded as a base

for further studies. Combining together these two approaches ('In-for-as' and 8-dimentions sorting) in more synthetical way we could give the following analyses of cultural sustainability roles in sustainable development.

1.3.1. Culture <u>IN</u> sustainability (autonomous 4th pillar).

In this case the authors of the network expand sustainable development discourse by adding culture as a more or less <u>self-standing</u> or freestanding 4th pillar. Culture here is the results of intellectual and artistic work, which can also be called 'cultural capital' in the Bourdieusian sense. Here the importance of conservation, maintenance and preservation of cultural capital in different forms as arts, heritage, knowledge, and cultural diversity for the next generations, as well as culture as an independent pillar from social sustainability, are recognized.

But it should be noted that with this approach there is a risk to narrow definition of culture as the arts and creative-cultural sector, (for example, protecting assets deemed cultural and because of it are valued). In this case, culture, being understood only as art and creative activities, thus, can devalue its connections to broader societal issues and to nature. In this case culture becomes less important and marginal pillar, not the equal of the other three pillars. At the same time it contradicts to holistic approach unless we understand art and creative activities in terms of particular qualities, within the arts and culture sector. These qualities can be introduced for example through <u>the setting of criteria</u> for judgments about sustainability of particular interior design project.

Applying '8-dimentions sorting' approach, proposed by Soini and Dessein (2016), we can give more detailed characteristic to enrich the notion of <u>culture-IN-sustainability</u> approach:

- Development processes contribute to the achievement of establishing and recognizing culture and cultural diversity;
- Here culture has essentially an intrinsic value, an all-encompassing way in human existence. It can be experienced in aesthetics, historical sites, heritage, scientific knowledge or artistic creation and, therefore, their sustainability is seen as important for example in the work of culture and art organizations, but also by many researchers;
- culture has a <u>complementary role</u> in the society: it is recognized as an important sphere of life besides the ecological, economic, and social aspects, and a sustainable society cannot be treated without taking cultural aspects into account;

- culture is the general process of intellectual, spiritual, or aesthetic development leading to a human perspective on nature, and different ways of 'knowing' nature. Consequently, culture includes the accumulated knowledges and experiences of nature;

- culture clearly linked with the cultural policy, which is the area of public policy-making that governs activities related to cultural activities and arts. Generally, this involves fostering processes and institutions that promote e.g. cultural diversity and access to cultural works and experiences, but it also involves enhancing and promulgating the expressions of all people, especially those of indigenous, or broadly representative cultural heritage;

- culture mainly concerns the hierarchical governance, e.g., a governmental cultural policy in the field of heritage conservation or arts. This does not necessarily exclude other forms of governance and/or involvement of various stakeholders including other policy sectors and citizens;

- disciplines within the social sciences and humanities (such as cultural policy, archeology, education, art and cultural history, and aesthetics) become specialized and advanced research fields in relation to sustainability, either alone (monodisciplinary) or together (multidisciplinary). Inter- and transdisciplinary approaches are increasingly found within arts and humanities that aim for sustainability as well.

1.3.2. Culture <u>FOR</u> sustainability (as connector and <u>mediator</u> between other three pillars).

Here the role of culture from communication point of view is seen as to give <u>a meaning</u> to human beings and communities (that could be in state of conflict between each other) for sustainable development. This approach suggests that both material and immaterial culture are seen as an essential resource for local and regional economic development. Here culture-mediator considers the differences in culture and between cultures in a positive way, without making judgments about quality of art and culture. In this case culture act through narratives that connect the past with the future, and the local with the global. It also implies that cultural values and perceptions need to be considered when aiming for ecological or social sustainability.

Applying '8-dimentions sorting' approach, proposed by Soini and Dessein, we can give more characteristic to enrich the notion of culture-FOR-sustainability approach:

- This role highlights culture as a <u>way of life</u>, referring to Williams' second meaning of culture: culture regulates all spheres of life, and reflects and gives meaning to the environment as well.
- Here culture is seen as a resource for development and a means to conceptualize, regulate, and shape development processes. By attaching development activities onto the cultural contexts, they are translated in a culture-specific way to local conditions, for example spatial planning.
- The intrinsic value is considered as a necessary resource to achieve objectives such as those related to education, human well-being, economic development or environment. Therefore, in this representation when culture is facilitating development processes, it becomes instrumental as well. In other words, the intrinsic values and instrumental values of culture are interlinked. For example, a heritage site has both aesthetic and historical, hence intrinsic, values because it has been standing in its location for hundreds of years, but it also has an <u>instrumental</u> value for creating a sense of identity for people living close to that site or for raising economic well-being through tourism.
- Culture is engine of the functions of society and affords sustainable society to keep running and evolve.
- <u>Culture and nature interact in everyday life</u> processes and nature is a contributor to and the result of all human practices. This dimension also denotes the differences between various cultural contexts and their respective interactions with nature.
- all policy fields covering different spheres of human life become relevant, as they are all inspired by culture.
- the ideal situation would be a governance structure that stimulates the role of culture in sustainable development, a second order governing.
- the selection of disciplines is expanded to include all natural, economic, and social sciences to enable them to tackle all the dimensions of sustainability. Here, the need for interdisciplinary approaches that combine approaches and methodologies across the disciplines and participatory approaches becomes particularly important.

The fact that the potential of culture's mediating role has rarely been exploited perhaps explains why sustainable development has proved to be so elusive.

1.3.3. Culture <u>AS</u> sustainability (holistic paradigm for all pillars).

In this view culture allows to see more profound level of society. Culture thus becomes the <u>paradigm for particular ways of life</u>. Culture gives <u>new understanding of the human place</u>

in the world, and recognising that humans are an inseparable part of the more-than-human world. This representation encloses the other pillars of sustainability and becomes an overarching dimension of sustainability. In other words, sustainability becomes embedded in culture and leads to eco-cultural civilization. It is extending to semiosis and significations and their various influences both on intentional and unconscious behavior and functions over actions in human social life. In this approach, ecoculture is deeply related to social learning by working with place-conscious and place-responsive teaching. Culture refers here not to particular types of knowledge, but to fundamental new processes of social learning that are nourishing, healing, and restorative.

- In this way, sustainability is no longer seen as a set of options that can be chosen or denied, or which can be integrated or not, but rather it becomes an inseparable part of a culturally embedded development paradigm that is largely shared among policy-makers, citizens, public and private institutions, and so on.
- The intrinsic and instrumental values of culture become both embedded in, and constitutive of, the cultural change.
- Culture is a change factor that may transform society. Thus, culture can be considered not only as a structural component, but as a necessary agency in the transformation towards a more sustainable society.
- Nature is a constituent of culture, in parallel with the economy and the social, and is (re)shaped by different meanings and symbols.
- Culture calls for cross-sectoral or totally new policies that intrinsically accommodate sustainability principles.
- Culture refers to modes of governance which can be associated with self-governance, but also totally new ones, implying the mode of meta-governance.

Soini and Dessein offers the follow graph (below) to illustrate the idea how all three approaches are interconnected. When moving from the first representation to the second towards the third, the ecological emphasis, but also the integration of cultural, social, and ecological aspects, as well as the overall dynamics, diversity, and openness of the representation, all increase.

In the first representation, the aim is to give adequate and equal attention to the cultural aspects (such as cultural rights, cultural capital, etc.) within the prevailing sustainability research and policies.
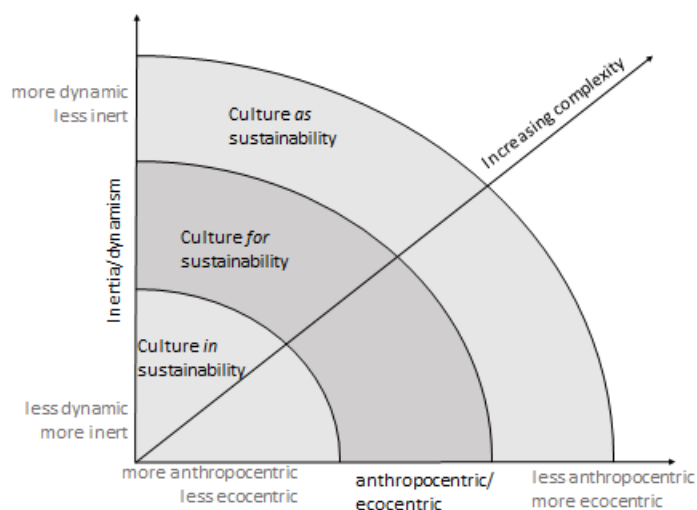
The Y-axis represent the inertia/dynamics of the system, and X-axis represent the human/nature interface (from more anthropocentric to more ecocentric). The figure shows the relationships between the various representations (they are not mutually exclusive) and the increased complexity as distance from the origin increases.

To conclude, the framework presented shows remarkable differences in the way culture can be understood within the context of sustainability. Consequently, when working on culture in the context of sustainability, we should be aware of the way culture is addressed. However, we argue that the network *'Investigating Cultural Sustainability's* findings represent only first step, rather purely theorical, and answer only question how important to include culture in sustainability approach. But many practical questions related to how bridge the gap between theoretical findings and implementation of them in multicultural reality remain unanswered.

1.4. The concept of cultural sustainability in Italy

Through a broad literature review we found that in Italy the cultural sustainability approach tends to be focused on cultural policy with preoccupation of preservation of cultural patrimony and cultural rights (*diritti culturali*). Human development, to which cultural rights are closely related and consequently the concept of cultural sustainability, and a specific project for every human being. Acquiring spaces of freedom and an identified goal.

M. Amari states that public cultural policies, understood as a coordinated action plan capable of building intangible infrastructure, or bridges, according to Amartya Sen, have become an important tool for human development.

Cultural sustainability, in fact, is the result of recognition of the importance that cultural rights have in the development of contemporary society. According to M. Amari the concept of cultural sustainability should be seen as 'the need for a social system to preserve or generate those conditions considered indispensable to the reproduction of cultural processes which can be considered as expression of cultural rights themselves'. With this in mind, cultural sustainability becomes an expression rather than the 'static' aspects of standardization (identification of fields where prohibitions, limitations can be made), 'dynamic' aspects, which imply positive action by the powers interest groups and which can be included in what are generally referred to as 'cultural policies'. M. Amari compares the concept of cultural sustainability to the concept of a 'cultural field' which, by analogy to a physical field, can be said to be composed of a set of forces and effects, the result of cultural policy and cultural policy actions, measurable quality and quantity indicators.

This suggests that specific skills, such as cultural sustainability and, specifically, cultural policies and the methodology of integrated and shared territory cultural planning (cultural planning) should be considered as a training tool within public policy and strategic planning of the territories.

Cultural sustainability, i.e. the need for a system of preserving or fostering the creation of those conditions considered strategic to the production of processes related to the dimension of the symbolic, and function of two interdependent variables: a) cultural policies, and cultural processes that can be defined as b)cultural politics that interact with each other.

Cultural policies are asked not only to be concerned about greater protection and enhancement of cultural heritage, tangible and intangible (cultural heritage policies), but also to identify those activities capable of fostership a development path, creating those conditions necessary for the production and reproduction of identity, reciprocity and trust of each individual, well-being, paying attention and vigilance to the cultural context within which others policies operate (cultural adequacy policies).

In relation to cultural design activity, M. Amari focus attention to topics as the object (cultural heritage) ; space of action (the territory); actors (public and private legal entities); the six types of action (protection, conservation, enhancement, management, promotion, use) within which a cultural design activity can be designed and implemented.

However, the conservation of historic buildings is not adequate for the sustained continuity of cultural practices[19]. The spatial qualities of build environments are questions of where the cultural practices take place and the contribution of design strategies to cultural sustainability (Postalcı & Atay, 2019). It means that this discourse does not directly contribute to sustainability discourses.

While arguing the importance of making culture more explicit in sustainability policies, we also acknowledge the danger of this kind of representations to become binding and reducing the complexity of the reality, considering the special character of culture—not as a fixed object or category. Instead of creating and developing self-directed activity aimed at promoting and implementing values of sustainability and sustainable life-styles within community, to our opinion, it creates situation where members of community become privileged consumers of cultural heritage of the territory. In other words, political activism and struggle for cultural rights as a main mean for achieving cultural sustainability does not mean that it is more effective than positive and direct design-driven action. We argue that culture or cultural identity of particular region or territory should not be considered as sustainable if it exploits natural resources of less developed countries[20].

Conclusion of Chapter 1.

In chapter 1 we explored the complexity of definition 'sustainability' and 'sustainable development', and conclude that dominate concept based on maintains of economic status -quo with deficit attention to culture. We analyzed evolution of conceptual frameworks of sustainability in architectural and design context and found *eco-cultural logic* as more promising in further research of cultural sustainability. Also we reviewed new four-pillar approach (*in-for-as approach* of cultural sustainability) which is important step towards creation of comprehensive model of sustainable development with culture-oriented scenarios. Nonetheless, culture is still seen not as vivid reality but rather as homogenous and sterilized, abstract and vague notion when it applied in political agenda of international organizations. We argue that in order to be effective instrument in daily design practice we

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[19] *Heritage urbanism* (term and approach were first introduced in 2015) considers the revitalization and enhancement of cultural heritage in spatial, urban, and landscape contexts, and it explores models for its inclusion in contemporary life. Heritage is not viewed as isolated objects but rather as part of the immediate and wider environment.

[20] For example, L'Università degli studi di Padova with Università degli Studi di Milano e Università degli Studi di Torino, organised seminar "Deforestation made in Italy', where the main topic was about the responsibilities of Italian businesses and consumers in the deforestation of the tropic countries' with aim how to promote deforestation-free consumption. The documentary is available at https://www.deforestazionemadeinitaly.it/.

need to explore phenomenon of national cultures as plural and multivocal 'ocean' of ideas, practice and lifestyles of humankind. We address these topics in Chapter 2.

CHAPTER 2. CULTURE IN CONTEXT OF SUSTAINABILITY

2.1. Culture: question of definition

> *Studying culture today is like studying snow in the middle of the avalanche.*
>
> *Michael H. Agar*

In Chapter 2 we focus not on theoretical research of what *culture* means, but rather on more practical studying of national cultural varieties, viewed at different angles (layers, levels and dimensions) including questions of cultural identity and globalization.

Nowadays, trying to define the roles of culture in sustainable development opens up questions about what we mean by culture, how it is related to various types of development and how to integrate it with diverse interpretations of sustainability.

UNESCO defines culture as the set of distinctive spiritual, material, intellectual and emotional features of society or a social group, that encompasses, not only art and literature, but lifestyles, ways of living together, value systems, traditions and beliefs (UNESCO, 2001). Consequently the key ideas and values of sustainable development, inter- and intra-generational equity, justice, participation and gender equality, and ecological quality vary from culture to culture, and within them[21].

It has been argued that culture is one of the two or three most complicated words, because culture has become an important concept in several distinct, and often incompatible, intellectual disciplines and systems of thought (Williams, 1985).

In their *Critical Review of Concepts and Definitions*, U.S. anthropologists A.L. Kroeber and C. Kluckhohn (1952) cited 164 definitions of culture (found in English literature only between 1871 and 1951) and distilled the following definition: 'Culture consists of patterns, explicit and implicit, of and for behavior acquired and transmitted by symbols,

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[21] Apart the UNESCO resolution In the 2030 UN Agenda for Sustainable Development*, cultural heritage* is explicitly mentioned only once in goal 11 (one out of 17 goals) that referred to the cities, in particular to the need of making cities and human settlements 'inclusive, safe, resilient and sustainable'. Unfortunately, it has a marginal role in the document, being mentioning in particular only in target 11.4 ('strengthen efforts to protect and safeguard the world's cultural and natural heritage'), one out of 169 targets. Furthermore, this specific target is referred only to the protection and safeguard of cultural heritage, and not to its valorization and regeneration.

constituting the distinctive achievements of human groups, including their embodiment in artifacts, the essential core of culture consists of traditional (i.e., historically derived and selected) ideas and especially their attached values; culture systems may, on the one hand, be considered as products of action, on the other, as conditioning elements of future action'[22].

More recently, Triandis and Suh (2002) argued that 'culture is a shared meaning system found among those who speak a particular language dialect, during a specific historic period, and in a definable geographic region'. They focused on the importance of language, a specific historical period, and a definable geographical region allows us to theorize clearly how and why specific cultures develop.

Paul James (2014) offered quite simple definition. Culture is '*how and why we do things around here*'. The '*how*' is how we practice materially, the '*why*' emphasizes the meanings, the '*we*' refers to the specificity of a life held-in-common, and '*around here*' specifies the spatial, and also by implication the temporal particularity of culture.

However, we argue that the James's definition looks superficial and limited because in essence it refers to the visible part of culture, which is only a top of cultural iceberg. Most of it is hidden from culture bearers. Though culture informs how we behave but all this can happen outside of our awareness (Madzima, 2018). It corresponds to the notion of Bourdieu's *habitus*. This is the reason that nowadays Anthropology is seen as a discipline aimed at the cultural criticism of our self (Ugo Fabietti et all, 2000).
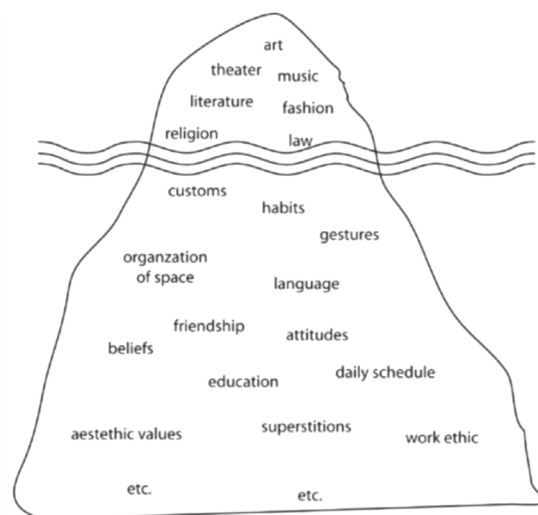
Figure 4. Iceberg model of culture. Source: French & Bell (1995).

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[22] In the early 21st century, the number of definitions of culture is now well in excess of 500 (Kravchenko, 2000).

Geert Hofstede (1991), a seminal Dutch writer and researcher in the area of cross-cultural studies, developed a conceptual framework which identifies culture as one of three elements in the human mind responsible for a person's 'patterns of thinking, feeling and potential acting'. Hofstede called this framework a '*mental program.*' The term '*mental program*' is a construct, meaning that it is has been created to allow for better interpretation and understanding of people's thoughts and behavior, but does not exist in actuality. Hofstede uses the analogy of a computer to describe how the '*program*' functions within a person's mind. Like a computer, the human mind is the 'hardware' from which programs operate. The 'programming' of this 'hardware' determines the way in which it functions.

We share the opinion that human culture is as natural as human being himself, how much his biological principle determines the parameters of his social and intellectual being. And this means that it is not the opposition of nature to culture, but, on the contrary, a systematic comparative analysis of the traits of their relationship and the properties of culture as part of nature can lead us to new scientific discoveries (Flier, 2012).

The phenomenon of culture is inseparably linked with the attitude of man to nature and fixes the way of interaction with it. It is significant that even the etymologically the word and the concept of '*culture*' (Latin. *cultura*, from the verb *colo*, *colere* - cultivation) in the era of Roman antiquity, was associated with agriculture, the processing of the land and a special fearful attitude to it, the cooperation of man with nature, aimed at mutual benefit, therefore had an ecological semantic subtext.

Man took from nature raw materials, learned from it rationality, expediency and harmony. In return, man inspired, deified, animated, personified, fetishized or created anthropomorphic images, trying to know and explain natural phenomena, glorified and enriched nature with the products of his work and creativity. Later in the content of the concept of 'culture' were included education, development, veneration as a means of 'cultivation' and 'cultivation' of human nature and reason.

The concept of 'culture' in a broad sense became understood as 'second nature', began to be opposed to the concept of 'nature', i.e. nature, and spread to everything created by man. Towards the modern era, the concept of culture was used to express cultivation of the mind, and later on the cultivation of humankind (Williams, 1985). As it will be demonstrated further in this research culture and nature could be examined in some particular design approaches (for example biophilic design approach) as indispensable holistic system, where each part cannot be ignored or examined separately.

Some researchers confidently consider culture as a <u>biological mechanism</u>. According to Cavalli Sforza (2016) culture is the knowledge we acquire and behaviors that we develop during our lives; based on the combined action of our <u>biological heritage</u>, that is, the genetic program of instructions represented by the DNA that directs our development. But it is a mechanism with great flexibility, which allows us to apply whatever useful idea comes to mind and develop solutions for the problems that arise from time to time.

Descriptive definitions of culture, where the term 'culture' is defined as a '*complex whole*'[23] with listing the features of culture is not quite appropriate for analyse of culture in context of cultural sustainability. As our concern is not to discuss the preciseness of definition of culture as those matters belong to cultural anthropology and cultural science, but to determine how cultural aspect is inscribed in sustainability, we will try to divide 'monolithic' concept of culture into more analytical components to narrow focus of research, exploring relevant approaches and scholars' findings.

Using binary terms we also can basically distinct between two another dimensions of culture:

- material culture - physical objects 'artifacts', such as cars, mobile phones and books, a society produces and which reflect cultural knowledge, skills, interests and preoccupations;
- non-material culture - knowledge and beliefs that influence people's behaviors. (Livesey and Lawson, 2006).

This approach is worth to study because simplified solutions based on ideologies about only development or only conservation of material culture (cultural heritage) should be scrutinized with regard to each particular case, issue and cultural-ecological context. At the same time realm of design deal with knowledge and beliefs of stakeholders that effect on the design output. This topic will be discussed later.

For example, R. Williams came up with three main meanings of culture that have become popular both in research and policy:

1. culture as <u>the general process</u> of intellectual, spiritual or aesthetic development;
2. culture as a particular <u>way of life</u>, whether of people, period or group;
3. culture as works and intellectual <u>artistic activity</u>.

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[23] Group A according to Kroeber and Kluckhohn culture classification.

Many cultural studies use approaches dividing cultural phenomenon into binary terms or through a range of relevant scales and cross-cultural differences and similarities.

Often two definitions of culture are distinguished: a 'broad', way-of-life based concept referring to all domains of human life, and a 'narrow', art-based culture referring to both the general process of intellectual and spiritual or aesthetic development and its results (Williams, 1985).

Traditionally, within western society, there were two different cultures: high culture, which embodied the ideals of the nation (associated with high art, philosophy, and education) and low culture (or mass culture), which is what the bulk of the population consumed. This distinction between high and low culture was then used to make a moral judgment of the people that consumed them. As a consequences of selected meaning of culture we make no different between high and low culture considering them both important for cultural sustainability.

For the purpose of our cultural sustainability research the term *'culture'* could be formulated as lifestyles based on patterns of thinking, value systems, determined by biological system of human being and territory, featured by local traditions and beliefs, that expressed in cultural heritage (material and non-material).

2.2. Cultural identity

> *Culture hides more than it reveals and strangely enough, what it hides, it hides most effectively from its own participants.*
>
> *Edward T. Hall (Silent Language)*

In this paragraph we explore the importance of cultural identity as one of element of cultural sustainability of interior design project. Notably, the Brundtland's notion of sustainability explicitly aiming to render policy <u>independent</u> from categories like <u>culture</u>, subjectivity, <u>and identity</u>. But we do believe that before suggesting any design solution to particular community or to individual we have to recognize, at least in broad terms, the cultural identity of that group/ individual.

From our point of view conducting cultural probes and investigating personal cultural identity should be essential part of any persona design thinking instrument and methodological approach that is represent archetype of users throughout the design process. Personas are a powerful tool for communication in design teams (Cooper, 1999), as the

technique forces designers to consider not only social and political aspects of design but also cultural identity that otherwise often go unexamined.

Studies about identity are distributed between various fields such as Sociology, Anthropology, Philosophy and Political science. Identity came into anthropology relatively lately from the fields of philosophy and psychology. Anthropology has often linked identity to terms such as 'ethics', 'world view' and 'values' (Vesajoki, 2002).

The term identity comes from the French word *identitè* which finds its linguistic roots in the Latin noun *identitas, - tatis*, itself a derivation of the Latin adjective idem meaning 't*he same*'. The term is thus essentially comparative in nature, as it emphasizes the sharing of a degree of sameness or oneness with others in a particular area or on a given point[24].

Identity may be defined as the distinctive character belonging to any given individual, or shared by all members of artifact particular social category or group. Kidd (2002) defined identity as '… the characteristics of thinking, reflecting and self-perception that are held by people in society'. Kidd identified three main forms of identity:

- Personal identity (the unique sense of personhood held by each person in their own right);
- Social identity (a collective sense of belonging to a group, identifying themselves as having something in common with other group members);
- Cultural identity (a sense of belonging to a distinct ethnic, cultural or subcultural group) (Kelly, 2010).

Cultural identity in general terms could be described as the feeling of being included in a group of people, specific culture or of an individual as far as she/he is influenced by her/his belonging to a group or culture. Culture is defined by attitudes and beliefs and what a person from each culture believes is normal for that group. Since there are many cultures in society, each culture contributes to cultural diversity, creating a 'melting pot of cultures'. In other words, we feel that we belong to a group, this group defines itself as a group, by noticing and highlighting differences with other groups and cultures. Any culture defines itself in relation or rather in opposition to other cultures. People who feel that they belong to the same culture have this idea because they rely partially on a common set of norms and ideas. The awareness of such common issues is possible only via the confrontation

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[24] '*Identity*' may be distinguished from '*identification*'. The former is a label whereas the latter refers to the classifying act itself. Identity is thus best construed as being both relational and contextual, while the act of identification is best viewed as inherently processive (Rummens, 2001).

with their absence, namely, with other cultures. This awareness in addition to the confrontation builds a sense of identity.

Ethnicity is linked to cultural identity, because in order to categorize people, one must often refer to some of their cultural, linguistic or religious specificities. But it is also fundamentally different. Ethnic classifications may be based totally upon language, non-cultural criteria (such as physical appearance (or 'race') or place of origin) (Abdelrazik, 2015).

Speaking about personal identity, Zygmunt Bauman has sought to capture this socio-cultural shift with his paradigm of liquid modernity (Bauman 2000). He suggests that individual identity, which had once been conceived of as unitary, consistent, and solid, is becoming increasingly fragmented, volatile, and liquid. It means that modernist tradition had understood identity formation as a steady and life-long process of maturation culminating in a rounded and stable personality defined by firm moral principles, consistent tastes and interests, and reliable features of character[25].

Yet, as contemporary societies are becoming ever more differentiated and subject to accelerated change; as the life-worlds of modern individuals are becoming ever more extended, complex, information-rich, and virtualized, this traditional notion of identity is giving way to multiple, fragmented, and flexible forms of identity. The qualities in demand today are versatility, mobility, and openness to change. Accordingly, the more progressive parts of contemporary societies, in particular, are adapting their understanding of their Self and their norms of identity. Such value change may be seen as an 'evolutionary process in which those values that are best suited to cope with life under given existential conditions have a selective advantage' (Blühdorn, 2016).

Summing up, for design research it is important to highlight that now it is difficult to speak about one specific culture, or about one isolated identity. That means that project in order to be culturally sustainable should aim at not only at specific ethnicity or physical appearance, but more 'liquid' cultural identity. To achieve better understanding of particular persona (in persona design tool) more profound cultural probes are needed,

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[25] We argue the main difference between society and culture is that the former is more stable and connected with territory with greater control by government, whereas the latter is more 'liquid' and can be transferred, borrowed etc. For example, a person who lives in Europe can easily adopt some eastern practice in organizing interior design according to Feng-Shui, but not necessary become a part of Chinese society led by Communist party of China. So cultural 'intervention' could be small or combination of contradicted societies (Jewish and Arab, for example). So cultural sustainability from our point of view has more flexible toolset and greater potential to unite divided societies.

including such aspects as history, dynamic and interrelations inside and outside of particular group.

2.3. Dimensions of culture

Dimension of culture – is a conceptual framework that use a cross-cultural comparison to find differences between cultures. Only comparing one (national) culture with another we can obtain valuable information about what we are. Without external culture to compare we perceive all our behaviour as a norm without giving much reflection. It shows the effects of a society's culture on the values of its members, and how these values relate to behaviour, using a structure derived from factor analysis (Adeoye & Tomei, 2014).

The cross-cultural design analysis has become increasingly important for developing Interior design project in multicultural environments. Like all humans, designers are members of cultural groups, so they are constrained by their own cultural backgrounds. Especially when designing in the multi-cultural context, designers usually are from one of the cultures involved, or may not belong to any, meaning no one can have an omniscient understanding of all the cultures involved (Cross, 1982, 2001). However, designer must strive to distinguish as much cultural variables as possible and implement some crucial parameters into design project.

Research based literature identified four promising contributions to cultural research in this area that could be used for cultural sustainability research:

1) Edward T. Hall's (1959, 1976) 'cross-cultural communication' concepts;
2) Florence R. Kluckholn and Fred L. Strodtbeck's (1961) 'cultural value orientations';
3) Geert Hofstede's (1980) 'six cultural dimensions';
4) Fons Trompenaars and Charles Hampden-Turner's (1997) ' seven dimensions of culture';
5) Leung et al. (2002) social axioms approach.

Each of these research contributions outline a number of key differences across the national cultures of different countries.[26]

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[26] Hofstede and Trompenaars and Hampden-Turner's country rankings must be updated according to the changes that occur within cultures. Bachynski L. (2009) suggests that this should occur at approximately ten year intervals, as this would be a feasible amount of time to conduct research while remaining attentive to this cultural change. Further, these updates would provide a record of cultural change within countries, which could potentially enable future changes in the culture to be predicted more easily. This ten year increment is

Edward T. Hall's cross-cultural communication concepts include:

1) high and low context culture (how information is communicated and understood in different cultures);

2) proxemics (how different cultures use space);

3) polychronic and monochronic time orientation (how different cultures perceive and organize time).

Kluckhohn and Strodtbeck's five value orientations are each accompanied by three potential variations, and include the following:

1) human nature orientation (evil, mixture of good-and-evil, good);

2) man-nature orientation (subjugation, harmony, mastery);

3) time orientation (past, present, future);

4) activity orientation (being, being-and-becoming, doing);

5) the relational orientation (lineality, collaterality, individualism).

Hofstede (1991) 'cultural dimensions' as programming code ap of individuals' approach include:

1) individualism vs. collectivism (individualism to collectivism) (IDV);

2) power distance (low to high) (PDI);

3) uncertainty avoidance (low to high) (UAI);

4) masculinity vs. femininity (masculine to feminine) (MAS);

5) long-term vs. short-term orientation (long to short term) (LTO);

6) indulgence versus restraint[27].

These six dimensions are widely accepted and have been the foremost research paradigm since they were published.

Fons Trompenaars and Charles Hampden-Turner's approach culture as 'the way in which a group of people solve problems and reconcile dilemmas' (1997). They found seven dimensions of culture that include;

1) individualism vs. communitarianism (the individual vs the group)

2) universalism vs. particularism (rules vs relationships);

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also consistent with the suggested life span of an interior space, as workplace interiors are generally recommended to be refurbished every eight to ten years.

[27] *Indulgence* stands for a society that allows relatively free gratification of basic and natural human drives related to enjoying life and having fun. Restraint stands for a society that suppresses gratification of needs and regulates it by means of strict social norms.

3) achievement vs. ascription (how people view status);

4) neutral vs. affective (how people express emotions);

5) specific vs. diffuse (how far people get involved);

6) sequential vs. synchronic time (how people manage time);

7) <u>internal vs. external control (how people relate to their environment).</u>

Leung et al. (2002) **social axioms approach** (generalized beliefs about oneself, the social and physical environment, or the spiritual world, and are in the form of an assertion about the relationship between two entities or concepts)[28]. They identified five generalized 'dimensions' of this concept:

1) <u>Cynicism </u>(refers to a negative view of human nature, a view that life produces unhappiness and a mistrust of social institutions);

2) Social Complexity (belief of achieving a given outcome and agreement that human behavior is variable across situations);

3) Reward for Application (belief that effort, knowledge, and careful planning will lead to positive results);

4) <u>Spirituality </u>(refers to a belief in the reality of a supreme being and the positive functions of religious practice, cosmological order and individual meaning in the world);

5) <u>Fate Control</u> (refers to a belief that life events are predetermined and that there are ways for people to influence these fated outcomes).

These five, orthogonal dimensions of social axioms have been confirmed, and their constituent and defining items established in 41 national groups (Leung & Bond, 2004).

Additionally, we would analyse dynamic dimension of cultural processes (cultural continuity), as all above-mentioned dimensions more aimed at static. In the social sciences, cultural continuity is the transmission of meanings and value characteristics of culture, across time and generations. Cultural continuity is the spread of cultural heritage from one generation to another and includes the means by which that transmission is done (Eggan, 1956).

We define two different types of cultural continuity:

- Continuity of cultural material heritage (spatial conservation);

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[28] Social axioms differ from values, which assume the form, *A* is good/desirable/important. Social axioms are also different from normative beliefs or assertions, which are prescriptive in nature. 'We should help the poor' is a normative assertion, not a social axiom (Kwok Leung et al., 2002).

- Continuity of nonmaterial culture (transmission of practice);

Historically studies on cultural sustainability considered material <u>continuity</u> as cultural heritage in terms of manmade objects, landscapes, and combined man and nature systems, while today it is considered as cultural heritage in terms of the practices, representations, expressions, knowledge, skills, instruments, objects, artifacts, and cultural spaces associated with cultural practices, including tradition, identity, values, cultural diversity, spirituality, and aesthetics (Axelsson et al, 2013).

Through this comparison, a number of cultural values are examined. Following analyses of these different cultural values, twelve promising cultural dimension were identified based on a description of equivalent concepts. The set of dimensions and level of relativeness depends on in what sphere Interior design project to be implemented. For example, in case of office space design the Hofstede's dimension 'power distance' (PDI) would be useful to apply.

These themes include the following:

1) High Context vs. Low Context Cultures (Hall);
2) Man-nature orientation (Kluckhohn and Strodtbeck's);
3) Individualism vs. Collectivism (Hofstede);
4) Uncertainty Avoidance (Hofstede);
5) Long-term vs. short-term orientation (long to short term) (LTO);
6) Universalist vs. Particularist (Trompenaars and Hampden-Turner);
7) Internal vs. External Control (Trompenaars and Hampden-Turner);
8) Societal Cynicism (Leung et al.);
9) Spirituality (Leung et al.);
10) Fate control (Leung et al.);
11) Free vs compulsory culture change (Turhan);
12) Vertical vs horizontal cultural transmission (Feldman).

Last two dimensions does not represent part of any system of dimensions, but they related to dynamic of cultural changes and could be relevant to include in cultural sustainability checklist.

1st dimension. High Context vs. Low Context Cultures (Hall)

Edward T. Hall (1976) introduced the concept of 'high and low context cultures' in his book *Beyond Culture*. He described culture as people's way of life—the total value of their

understood behavioral patterns, perceptions, and material practices. Context, meanwhile, can be characterized as the knowledge that encircles an occurrence, inextricably linked to the significance of that occurrence. He suggested that the way a person communicates and understands information within a given context is largely determined by their culture. He defined the concept as follows: A high context (HC) communication or message is one in which most of the information is already in the person, while very little is coded, explicit, transmitted part of the message. A low context (LC) communication is just the opposite; i.e., the mass of the information is vested in the explicit code.

In high context cultures less information is required, as much of the information is embedded within the person and context itself, for instance the environment, atmosphere, participant's status, body language, facial gestures, and intuitive understandings. In low context cultures more information is communicated through explicit forms of communication, as less is derived from the surrounding context.[29]

Though the Hall's theory mostly serves to better comprehend differences in communication styles, it also could be used in design research as well as to better understand cultural sustainability of projects since any cultural sustainability issue includes element of communication, that design manifest to others.

For example, if in HC cultures silence, nuances, sensitivity to subtle indications of underlying thoughts, and intuitive understandings are highly valued, then interior design must provide conditions to facilitate such communication, using improved acoustic solutions and more face-to-face meetings and discussions.

2nd dimension. Man-nature orientation (Kluckhohn and Strodtbeck's);

According to Kluckhohn and Strodtbeck's human's relationship to nature provides several options: subjugation to nature, harmony with nature, and mastery over nature.

- Subjugation-to-nature: living in a total submission way with the natural/ super-natural forces;
- Harmony-with-nature: living in a partial control or compromising with the natural/super-natural forces;

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[29] Some of higher-context culture are: China, Korea, Japan, other Asian countries, Iran, India, Latin America, France, Greece, Ireland, Italy, and Russia. Lower-context culture: United States, Germany, Norway, Denmark, Switzerland, Sweden, Finland, Canada. (retrieved from http://sk.sagepub.com/video/high-context-vs-low-context-cultures).

- Mastery-over-nature: living in a total control over or in the natural/supernatural Forces.

The idea of active reorganization of the world inherent in the Western mentality (mastery over nature) is in opposition to Japanese propensity to perceive Man-Nature unity/harmony.[30]

For interior design project it means that (in context of cultural sustainability) designer must consider specific attitude of stakeholders towards nature and how sensitive users in terms of control of nature and natural forces. For example, microclimate control would be less valued in 'harmony-with-nature' society than in 'mastery-over-nature' society.

3rd dimension. Individualism vs. Collectivism (Hofstede)

Individualism according to Hofstede (1991) pertains to societies in which the ties between individuals are loose: everyone is expected to look after himself or herself and his or her immediate family. For example: US, Eastern Europe, Denmark, Austria. Collectivism refer to societies in which people from birth onwards are integrated into strong, cohesive groups, which throughout peoples' lifetime continue to protect them in exchange for unquestioned loyalty. Typical collectivism-direction cultures include China, Mexico, Indonesia, Japan, India, Philippines.

For example, for collectivism-direction cultures is important that all activity (work, studying is done more collectively), (ostracism from the group is used as a strong form of punishment), so industrial order to be culturally sustainable an office layout project must provide enough space for collective decision making for all users who belongs to the group/team[31].

4th dimension. Uncertainty Avoidance (Hofstede)

Hofstede (1991) describes this dimension as 'the extent to which the members of a culture feel threatened by uncertain or unknown situations'. High uncertainty avoidance' means uncertainty, ambiguity, risk and innovation were typically met with anxiety and aversion.

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[30] Based on interview method, Groot and van den Born (2007) explored visions of mastery over nature, stewardship in regard to creation, a partner, and a participant in the process of nature among the Christians, Muslims, Native Americans, Buddhists, and Secularists. The results of the study suggested that all the groups rejected first approach, mastery over nature. The Christians and Muslims adhered to the stewardship image of human nature relationship, while the Buddhists and Native Americans considered themselves to be participants in nature. The secularists made combinations of the approaches to exemplify their view.

[31] In Japan there is term '*Mado-giwa*' (literally meaning to 'pray by the window') referring to those moved out of the main work area to work by an exterior window, is often used by companies to encourage employees to resign on one's own "free will, as opposite in Western culture office window seats are prized.

Familiar risks are generally tolerated, however, unfamiliar risks and uncertain situations are a source of discomfort (Hofstede). Rules, structure, and predictability on the other hand, reduce this discomfort.

Within this dimension countries are ranked from low to high based on survey questions dealing with stress. Some of the highest uncertainty avoidance countries include Russia, Finland, Germany, Greece, Japan, Mexico, Portugal, and South Korea. Some lowest uncertainty avoidance countries include China, Denmark, Singapore, Sweden, and Ireland. Italy, as well as USA has moderate uncertainty avoidance.

For example, for users with high uncertainty avoidance culturally sustainable choice would be clear and predictable spatial organization and circulation that aids in reducing uncertainty, whereas for low uncertainty avoidance would be more suitable dynamic and unanticipated spatial organization (Bachynski, 2009).
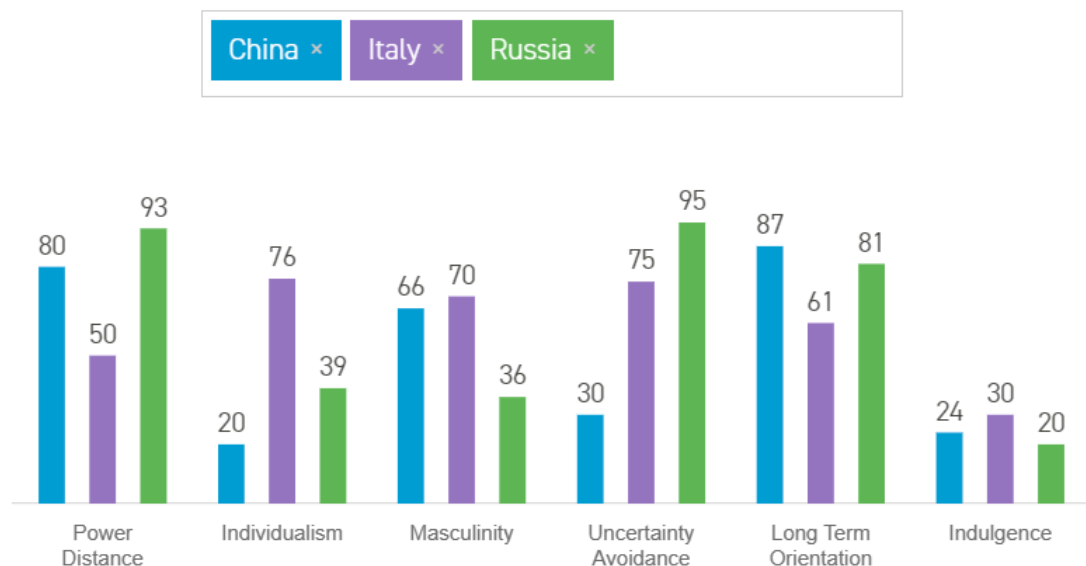
Figure 5. Diagram of 6D Hofstede cultural dimension comparison of China, Italy, Russia. Source: Hofstede Insights.

With a low score of 30, Chinese society is very comfortable with ambiguity. Low UAI societies maintain a more relaxed attitude in which deviance from the norm is more easily tolerated. Plans can be altered at short notice and improvisations made. Open to risk-taking, there is a larger degree of acceptance for new ideas, innovative products and a willingness to try something new or different.[32]

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[32] Despite geographic proximity countries may have significant differences between their cultures. For example, in applying Uncertainty avoidance Belgium has 94 scores compared to Sweden where the UAI is only 29.

5th dimension. Long-term vs. short-term orientation (Hofstede)

Long- versus short-term orientation, a national value dimension originally found by Bond among students in 23 countries, became Hofstede's (1991) fifth dimension of national cultures. National scores on the dimension correlate with certain family values, with school results, with business values, with environmental values and, under favorable historical conditions, with economic growth. In 1988 the dimension scores led to a prediction of China's economic success (Hofstede & Minkov, 2010).

In societies with a long-term orientation, 'people believe that truth depends very much on situation, context and time' (Hofstede, 1994).

In long-term-oriented cultures, children are not expecting immediate gratification of their desires, tenacity in the pursuit of whatever goals, and humility. Self-assertion is not encouraged. Old age is seen as a happy period, and it starts early. In short-term-oriented cultures, children experience two sets of norms. One is towards respecting social codes and being seen as a stable individual; the other is towards immediate need gratification, spending, and sensitivity to social trends in consumption ('keeping up with the Joneses'). There is a potential tension between these two sets of norms that leads to a great variety of individual behaviours. In these cultures, old age is seen as an unhappy period, but it starts late. (Hofstede & Minkov, 2010)

Long- and short-term-oriented cultures represent two different ways of thinking, which can be characterized with the opposing labels 'virtue' versus 'truth', or 'synthetic' versus 'analytical'. On the long-term side, what works is more important than what is right. Matter and spirit are integrated. Good and evil depend upon the circumstances. On the short-term side, there is a deep concern with righteousness. Matter and spirit are separated, and there exist universal guidelines about what is good and evil (Hofstede & Minkov, 2010).

In societies with a short-term orientation, there is generally a 'strong concern with establishing the absolute Truth', a normative thinking, 'great respect for traditions, a relatively small propensity to save for the future, and a focus on achieving quick results' (Hofstede, 1994). Long-term orientation also affects the way a society handles its natural environment[33].

6th dimension. Universalist vs. Particularist (Trompenaars and Hampden-Turner)

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[33] Being asked what the secret of good government is, Confucius is recorded as having answered 'Good government consists in being sparing with resources' (Kelen 1983). This makes him a hero of sustainability.

Trompenaars and Hampden-Turner (1997) measure the importance given to <u>rules versus relationships</u> in this dimension by different national cultures. A 'universalist culture' denotes, 'an obligation to adhere to standards which are universally agreed to by the culture in which we live'. Universalist countries are North America, Switzerland, Norway, Sweden.

A 'particularist culture' <u>values relationships</u> over the society's rules and standards, as well as obligations to these relationships under exceptional circumstances. Behaviour is governed by one's relationship with the individual concerned. For example, Korea, Venezuela, China, Indonesia.

For example, for 'particularist culture' it is important to envision of such interior design layout that provide informal spaces in which socializing can occur with clients before business meetings (Bachynski, 2009).

7th dimension. Internal vs. External Control (Trompenaars and Hampden-Turner)

Trompenaars and Hampden-Turner (1997) state a culture possesses either an 'inner-directed' or 'outer-directed' orientation to nature. 'Inner-directed' describes cultures that 'believe that they can and should control nature by imposing their will upon it'. For example: North America, UK, Norway, Austria, Israel.

'Outer-directed' cultures on the other hand, describes cultures that 'believe that man is part of nature and must go along with its laws, directions and forces'. This orientation to nature can also be applied to acceptance of design. Typical internal-direction cultures include Japan, Egypt, China, Russia, Nepal. They are possessing an 'outer directed' orientation to nature, meaning they generally want to live in harmony with their external environment and circumstance, and adapt their behaviors and actions accordingly. Outcomes are largely viewed as a result of environmental factors which cannot be controlled.

In 'Outer-directed' interiors it is that people should adjust themselves to their environments, and not try to control and change them. For example, maintaining harmony, wa'[34] is one of the most important objectives within a Japanese company. Little employee control or individualization of workstation should be provided in order to maintain uniformity (Bachynski, 2009).

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[34] Wa (和) is a Japanese cultural concept implies a peaceful unity and conformity within a social group, in which members prefer the continuation of a harmonious community over their personal interests.

8th dimension. Societal Cynicism (Leung et al.)

Cynicism is reminiscent of Machiavellianism. According to Bond M. H. et al. (2004), Societal cynicism appears to represent the cognitive component of a previously unrecognized cultural complex that might be labeled *maleficence*, reflecting the assessed hostility of the social system toward its members – the guide their general expectations for emerging events. This world is believed to produce evil outcomes. It includes a negative view of people, a mistrust of social institutions, as well as negative stereotypes about certain groups. Citizens believe that they are surrounded by '*a nature red in tooth and claw*' and are suppressed by powerful others and subjected to the depredations of willful and selfish individuals, groups, and institutions. The associations of this national belief structure include citizens who are, on average, distrustful, unhappy, and dissatisfied with life. They are withdrawn and unreliable. There is somewhat lower voter turnout and high growth competitiveness in these nations.

Cultures that are high in societal cynicism are Japan and Germany; cultures that are low in this dimension are Norway and Italy.

In cultural sustainability context high societal cynicism is rather seen as additional obstacle. Project should rely on instrumental approach rather on cooperation between users. To overcome negative impact of Societal cynicism mindset the Interior design project should be careful how it treats most vulnerable members of society.

9th dimension. Spirituality (Leung et al.)

Spirituality refers to the belief in the existence of supernatural factors and in the impact of religion on people's lives**.** Religious beliefs are promising in all cultures, and the belief in spirituality and its consequences should influence a variety of behaviors. (Leung et al., 2002).

We agree with Adler (2011) who proposed new concept of 'local' biology since spirituality (believes and superstitions) has biological consequences (nocebo effect), and meanings vary across cultures, biology can operate differently in different contexts. This could help better understand how our own preconceptions can affect our design research study.

> **Case study.** Nocebo effect of Tsog Tsuam. One aspect of superstition could be related to spirituality is so-called nocebo effect (the flipside to the placebo effect). While placebo studies have grown in importance, the nocebo effect has not been studied well in scientific literature, in part because of the ethical issues involved in deliberately doing something that might harm people (Adler, 2011).

Shelley Adler in her book '*Night-mares, Nocebos, and the Mind Body Connection*' explores sleep paralysis among Hmong nationality in the U.S. which caused Sudden Unexpected Nocturnal Death Syndrome or SUNDS. When the Laotian communists won, many Hmong struck out for America to avoid reprisals. The U.S. government decided to scatter the Hmong randomly across the U.S. to 53 different cities, breaking up the immigration patterns we generally see. As a result, reportedly 117 immigrants (average age was 33) were found dead in in their beds after spending just several month in the U.S.

Adler concludes that without access to traditional rituals, shamans, and geographies, the Hmong were unable to provide themselves psychic protection from the spirits of their sleep (tsog tsuam). In a sense, the Hmong were killed by their beliefs in the spirit world, even if the mechanism of their deaths was likely an obscure genetic cardiac arrhythmia that is prevalent in southeast Asia. Adler found that the nighttime attacks were part of a matrix of beliefs held by both animist and Christian Hmong. A powerful folklore had built up around tsog tsuam that included both causes and cures for the attacks. Some Hmong felt that they had not properly honored the memories of their ancestors, which was a known risk factor among the Hmong for being visited by the tsog tsuam (Madrigal, 2010).

Another highly disputable topic that has indirect impact on cultural sustainability of spatial design project in urban context (or in cases of gentrification) that demand further research is so called **urban legend (urban myth)**. Objects that has become urban legend could be historical relics and some of those are affiliated with cultural heritage in the form of buildings. There are elements of culture that contain usefulness and good function of myths in culture for each location. According to Merriam-Webster dictionary urban legend is 'an often lurid story or anecdote that is based on hearsay and widely circulated as true'. In context of this research we define it as low-cultural form of myth, story or local belief that firmly connected to particular place or building, that usually has sinister interpretation. For NoLo district such sinister place is, without any doubt, *piazzale Loreto* where in April 1945 dead bodies of Mussolini and Petacci were hanged for a large angry crowd to insult and physically abuse. We hold an opinion, that unsuccessful attempts to reconstruct *piazzale Loreto* during many decades indirectly effected with that historical event. The designers' aim is to reveal the existence of myths that circulate on territory.

10ᵗʰ dimension. Fate control (Leung et al.).

Fate control represent a belief that life events are predetermined and that there are some ways for people to influence these outcomes. Fate control seems to relate to locus of control, which is concerned with the belief whether one can control the events happening to oneself. Fate control is, however, a broader construct because it includes the additional theme that events are both predetermined and predictable. Fate control, which combines

locus of control, predictability, and fatedness, has obvious behavioral implications for taking action to influence those fated outcomes (Leung et al. 2002).

It is still discussable whether interior designer should consider (if yes, to what extent) some fate control as irrational (as superstition and phobias[35]) since often the former are mixed or based on spirituality and religious believes. For example, in many cultures around the world there are superstitions about numbers[36].

Another rather unscientific yet disputable topic is astrology. Nonetheless, this debatable issue cannot be left without, at least, some speculation. Bringing an anthropological perspective to bear on the topic of astrological divination, we see the true role of astrology as participation in the greatest dialogue of all, the grand conversation of earth and heaven. Human beings have always found the starry heavens a source of wonder, meaning and guidance. The particular tradition of doing so that we know as astrology originated in ancient Mesopotamia about 4000 years ago, but is now virtually global .

Until the 17th century, astrology was considered a scholarly tradition, and it helped drive the development of astronomy. It was commonly accepted in political and cultural circles. By the end of the 17th century, emerging scientific concepts in astronomy, undermined the theoretical basis of astrology, which subsequently lost its academic standing and became regarded as a pseudoscience

In his book '*Astrology and Cosmology in the World's Religions*' (2012) Campion has demonstrated that 'there is no human society that does not somehow, in some way, relate its fears, concerns, hopes, and wishes to the sky.' This point is strengthened by the ethnographical record which attests that, for many societies, 'important celestial bodies are perceived as animate entities and their motions in the sky are described in terms of social relations.[37]

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[35] It is also interesting to note that sometimes phobias experienced by architect or designer could affect on entire project. For example, Minoru Yamasaki, the architect of World Trade Center had phobia of heights, so he designed narrow windows in tall structures, as he felt it was necessary to accommodate office workers that may experience a similar discomfort.

[36] In China, the pronunciation of the word for the number 'four' is similar to that of the Chinese word for 'death'. That is the reason why many buildings in China skip a fourth floor, just as U.S. builders sometimes omit floor 13. Some Italians are superstitious about Friday the 17th because rearranging the Roman numeral XVII that can create the word "VIXI"—translated from Latin as 'my life is over'. Almost every Russian believes that presenting bouquet with even number of flowers might inflict woes and even death upon the person to whom the present was given.

[37] A team of researchers found that Chinese Americans die 5 year younger than expected (depends on the people's strength of commitment to traditional Chinese culture) if they have a combination of disease and birth year which Chinese astrology and medicine considers ill-fated (Madrigal, 2011).

Surprisingly, fate control issue is also relevant in western countries. According to statistic, Italians spend 5.5 billion euro a year on fortune tellers and astrology, including Milan where Italians spend on fortune tellers and card readers 90 million euros a year (Squires, 2010)[38]. To the author's knowledge there were no research on topic weather Italians reflect astrological issues in spatial or interior design.

In concluding the discussion on this topic we may suggest that for interior design project in order to avoid nocebo effect and to reach cultural sustainability it is necessary to consider superstitions (including culturally based phobias and astrology) as part of national cultural landscape even if designer personally does not share them. At the same time designer could experience some problems when doing project for national minorities, where another system of believe (and superstitions based on it) is dominated.

11ᵗʰ dimension. Free vs compulsory culture change (Turhan)

Design can change the environment in better way. Though that changes could be in accordance with mainstream changes or go against it. Turhan (1972) divides the changes on culture into two parts (ways) as free culture change and compulsory culture change in terms of change types. According to him, the free culture change means the changes in the structure of a social group or society as a result of the fact that the community adopts a certain part of different culture without being under any internal or external pressure while the society has relations with another society or another social group that has a foreign culture.

Also, the compulsory culture change is the change in the structure of society created as a result of the facts that one of two social groups or societies that have different cultures make pressure on the other one in order to make them accept all or some part of their own culture or the directors of a society try to impose all or some of the cultures of a foreign society to their own society coercively (Anıl, 2011).

This topic even more relevant when the project to be implemented in multicultural and multinational context such as Nolo district of Milan. Every culture has cultural scripts concerning the favored patterns of thought and action that are considered cultural ideals. When groups move from a homeland to a new country, the scripts move with them.

For the purpose of our research we could speculate how different national group or cultural minorities would percept new norm (more restricted) in terms of using of resources. In this

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[38]   https://www.questia.com/read/120752342/astrology-science-and-culture-pulling-down-the

case most important role would be national education system, that could adapt previously accumulated knowledge and culture and transform it into new platform for sustainable development. On contrary, if some particular country was subject of colonialism, new 'foreign' norms of sustainable living would be perceived as interference. In this context the role of international organisations would be crucial.

12ᵗʰ dimension . Vertical vs horizontal cultural transmission (Feldman)

The two main cultural transmission mechanisms are vertical and horizontal. Vertical transmission takes place from parents to children, in various forms: from father, mother, both parents, to only male children, to females or both. Horizontal transmission occurs between unrelated individuals, with any age difference (Feldman, 1981).

Vertical cultural transmission tends to give very similar results; for this reason it is also conservative, and the evolution is slow because it takes on average thirty years (roughly a generation) for a newborn to become the teacher of their children. In horizontal transmission there are no age restrictions, and no kinship ties are necessary with those who receive. So cultural evolution can be very rapid but also very slow.

Because of enormous and fast changes in information technologies well established vertical transmission of culture starts unprecedently functioning vice versa (third type): younger generation becomes teachers of their predecessors.

In context of cultural sustainability all three types of cultural transmission demonstrate mutual, unclear and interwoven impact, that still need to be further analyzed.

Considering more practical aspect of cultural transmission in interior design context as example would be projects of educational spaces. Vertical transmission takes place from designers to students where interiors serve as additional didactic instrument. At the other end of extremum would be interiors for retirement homes (*casa di riposo*), where reversive vertical transmission (from younger generation of designers to elder users) take place. In both cases cultural sustainability as inner part of cultural transmission mechanism should be formulated in some specific set of additional criteria for interior design process.

2.3.1. Cultural dimension of comfort

Apart from cultural dimension from cultural and sociological studies we found useful to add more dimensions, that closely related to interior design, i.e. idea of comfort and how it change from one culture to another. As well as the numerous human factors identified there are also physical geographical factors that have influenced the behavioural and cultural

patterns of its people. One of the largest of these factors is climate. For example, based on climate specific region there are different attitude towards <u>sunlight</u>. For example, we can distinguish *Sun prized vs shadow prized cultures*[39]. In region where population constantly experience lack of sunlight (Nord Europe) big windows are welcomed. In contrast in Middle East the sunlight is rather stressful factor and shadow is more appreciated. If person move to another country with mild climate (like Nord Italy) he/she continue to follow the pattern and keep the windows open/shut.

Warm prized vs cool prized cultures

Similarly, we can distinguish **warm prized vs cold prized** cultures with wide range of cultural specifics in thermal comfort. For example, heating and cooling within the home is commonly associated with building size, use, technology implementation and climate of the area, however the cultural until recently, often been overlooked. In his study of energy use between Oslo, Norway and Fukuoka, Japan, Wilhite (1996) noted that the infrastructure of both cities is similar with comparable living standards. The most significant difference in space heating between Norway and Japan was the area which was being heated. Norwegian participants used central heating or electric heaters to heat all rooms in the household so they were able to move freely between rooms without experiencing discomfort. In Japan, participants only heated one room, or even only part of a room using electric personal heaters and electric blankets (*Kotatsu*)[40].

Figure 6. Japanese Kotatsu - heated table with quilt cover.
Source: capl.washjeff.edu, Creative Commons 3.0 US License.

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[39] Generally accepted division of all countries for two categories: 'Global South' and 'Global Nord' is not correct. developing countries are located in hot climates could border with more developed (for example, Emirates and Egypt).

[40] Japanese *Kotatsu* is a low table that integrates a duvet and heater. Sitting under the table allows one to stay warm without the expense of heating an entire room. Noticeably, the practice orientated product design approach (Kuijer, 2014) has attempted to rethink thermal comfort practices, moving from space heating to personal heating, designing a range of novel solutions that heat the person directly to reduce the need for space heating.

This explained partly the requisite for having a hot water bath for comfort and relaxing. These differences in heating of space are as a consequence of various cultural reasons. In Norway space heat has an important symbolic value as, along with lighting, it creates a 'cosiness' to the home that is important to family togetherness and social affirmation when friends or family visit. Cosiness has become a '*cultural energy service*' which is deeply rooted in the social, cultural and symbolic presentation of the home. The Japanese were more akin to lowering temperatures at night or when they were away from the house. This is partly due to high energy prices and fire safety with electric heaters, but also culturally. In the study Wilhite argues that the energy intensive behaviours such as heating for Norwegians and bathing for Japanese are culturally significant forming 'cultural energy services' and he advises promoting technologies which provide the same cultural service with less energy.

Some research demonstrate that comfort temperatures are flexible rather than fixed, and may be more conveniently specified by culture and physiology than by climate and physics. One research has shown[41] the average temperatures in the homes of different countries during winter, which is considered to be comfortable. For example, in Italy the winters are warm, there is almost no central heating, so the average temperature in apartments is 17.3 C. when outside temperature rarely down to 0. It's paradoxical, but in the coldest country in the world which is Russia (the climate norm of January is minus 19.7 C and in the northern regions often drops to minus 40 C), the comfortable temperature inside home during winter is 25 C.

Even the Russian word '*komnata*' (room, camera) in Russian language, originating from the Latin word '*caminata*', - room that is heated by a fireplace, which in its turn comes from the word '*caminus*'- '*oven, hearth*'. And the name of traditional wooden house 'izba' borrowed from Germanic (*stuba* — 'warm heated room').

Therefore, it is considered that it is necessary to maintain its main parameter of living space - heat, because on this parameter depends survival. Therefore, in modern Russian apartment air is usually overheated, stale, saturated with harmful substances, and the difference between the internal temperature and the outside is about 50 C degrees.

Moreover, the ability to have a warm room in winter is seen as a symbolic luxury as in the southern countries coolness and as one of the options of demonstrative status consumption.

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[41] https://brightside.me/creativity-home/which-room-temperatures-do-the-residents-of-different-countries-keep-during-the-winter-season-419560/

In poor houses it is cold, and in the rich there should be not just heat, but heat with excess. To get rid of the heat and walk in your underwear, open windows and doors. Heat is considered as the main treasure, as well as on the contrary, in countries with a desert landscape most valued water and coolness (shadow). There is famous Russian saying, 'Warmth never broke any bones'. Usually it is used as response to the question 'Is it too warm for you?' This means that the Russians do not consider that excessively warm room (or clothing) can be uncomfortable.

Despite the fact that there are very few sunny days in Russia, the sunlight itself (clear cloudless weather) is not considered as the main parameter of comfort (great part of Russian territory is situated behind the Arctic Circle, and during the polar night - about 2 months people live in the dark).

Color acceptance (Chromophobic vs Chromophiliac) (Batchelor)

The only variable that is not depend directly from climate is color acceptance (*Chromophobic vs Chromophiliac*) proposed by D. Batchelor (2001). We claim that this dimension also effects on cultural sustainability and review more detailed.

Apart from color symbolism[42] we propose to explore such cultural dimension as general color acceptance. From this point of view all cultures could be divided on Chromophobic and Chromophiliac. Chromophobia - fear of colors, fear of corruption or contamination through color as worded by D. Batchelor (2001). Chromophobia has been a cultural phenomenon since ancient Greek times and lurks within much Western cultural and intellectual thought. It is also could be seen as form of color superstition. Batchelor claim that our (western) entire philosophical system is built on nothing less that extreme cases of chromophobia.

For example, India, Morocco, Brasil, Chili and Mexico represent Chromophiliac type of culture whereas Japan, German, Sweden and Italian are rather Chromophobic culture (we take into consideration only architecture and interiors). This alleged division can be regarded as a base for further studies.

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[42] *Color symbolism* arises from cultural, mythical, historical, religious, political, and linguistic associations. The symbolic meanings of color words reveal wide-ranging connotations in cultures including positive and negative meanings. In ancient civilizations, color was an integral part of materials. Most fundamental color symbolism was drawn from nature. Interpretations of color may differ and the symbolism varies with the cultural environment. Clear stand for duality and antithesis is colors that represent life and dead. However, in some traditions, black is the color of death and mourning; in others, white. Red, the color of blood, is usually linked with living, but it represents death in the Celtic world (during the 20th century, red was particularly linked to the Communist party).

The same approach could be applied towards ornament. Being one of the oldest part of culture, ornament forms the base of decorative applied art of any ethnos, embodying ancient traditions and values of the people. In seminal essay '*Ornement et Crime*' architect Adolf Loos criticizes ornament in useful objects, claiming that 'no ornament can any longer be made today by anyone who lives on our cultural level ... Freedom from ornament is a sign of spiritual strength'. Nowadays it is clear that depending on culture and country a plain surface (instead of ornamented) could be seen as crime, i.e. unsustainable. Ornamental culture could be native African, American and Australian. Among European countries, to some extent, France is analysis example of ornamental culture (influenced by African art).

In multicultural context it is important to transfer not the motifs of the past as cultural features, but the customs of using space in that geography. While the transfer of the motifs and/or ornaments from traditional architectural styles has the risk of ending up as shallow reproductions, an adaptation of the planning principles of the past to contemporary lifestyles may give successful results. An imitation of a town with a homogenous population decreases the variables of the cultural sustainability.
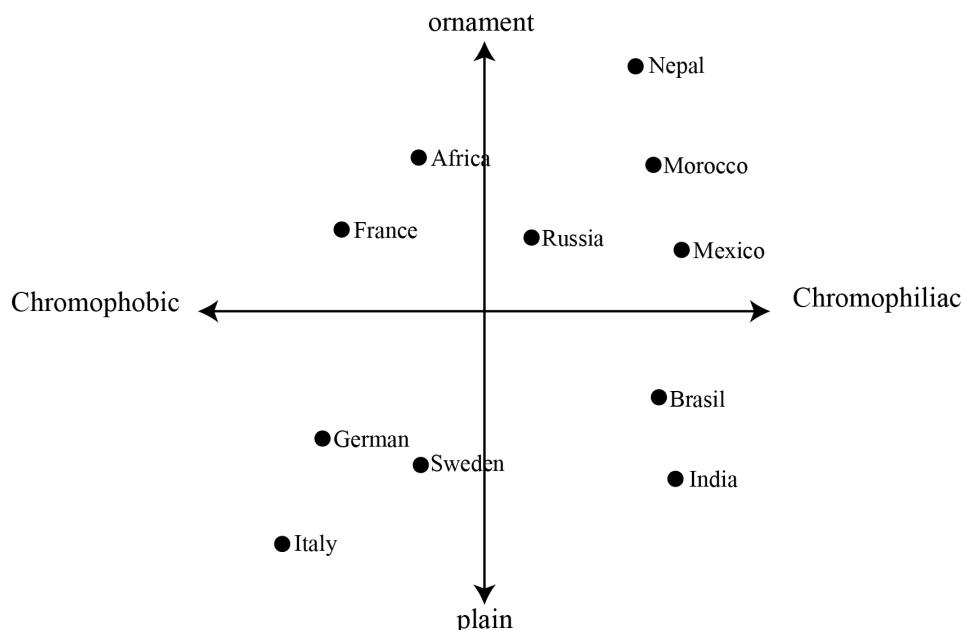
Figure 7. Two-axis matrix of Chromophobic vs Chromophiliac cultures / plain vs ornament cultures. Source: author's elaboration.

Author propose a two-axis matrix, where one axis represents a spectrum of cultures ranging from Chromophobic to Chromophiliac cultures; and the other axis represents the presence and role of ornament in cultures ranging between ornament cultures and 'plain' cultures. According to subjective author observation Nord Italy represent tradition of Chromophobic and 'plain' culture in context of interiors and architecture.

We argue that sustainability of interior design project and use of colors depends on level of color acceptance in particular society and divide all cultures into Chromophobic and Chromophiliac. Indeed, it is hard to imagine sustainable interior design if it contains colors or ornament that are unacceptable by group with particular cultural background.

Water-prized cultures. Clean, unpolluted water is the building block for all life on earth. Traditionally, countries have developed around maritime trade routes, navigable rivers, long coastlines, or good natural harbours. But there are many 'landlocked' countries with deficit of fresh water. In culture of this countries water has important symbolic meaning that effect on user's behaviour. The more deficit the more prize of water. As we analyse this topic in paragraph 'biophilic design' the symbolic meaning of presence of water would be different for people with water-prized culture and others.

Concluding the review of cultural dimension, we argue that the list of interior-related cultural dimension is neither ultimate nor well studied in literature[43]. Designer should better know that dimension and include them in design research. Based on above-mentioned cultural dimensions we propose to use check list in table format (see paragraph 3.4.2).

2.3.2. Religious beliefs and sustainability in design context

In this paragraph we explore beliefs that for centuries represent one of basic element of humankind's worldview, highly shaped by religion. Being integral part of culture beliefs are often underestimated or ignored. Beyond the scope of this research is the theological question of what constitute religion in secular society. There are empirical studies that conclude that people's understandings of spirituality and religion have so many overlaps that differentiating between the two concepts may often be irrelevant (Zinnbauer et al., 1997).

Until recently, religion's role in sustainable development has generally been viewed with suspicion in scholarly and institutional concerns. During past two decades it becomes obvious, that it can't be ignored as religious populations (even in the secular West) may soon exceed the secular citizens and that engagement with religion at all levels of

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[43] For example, The Food Disgust Picture Scale (FDPS) is a newly developed tool that can be used to conduct cross-cultural assessments of food disgust sensitivity about individual differences in sensitivity to disgust.

international policy is thus imperative (Kauffman, 2010). But now the situation has gradually been changing[44].

Beliefs are known to relate to a variety of social. For instance, locus of control, a general belief about the causes of events that happen to oneself, has been shown to be related to a wide variety of behaviors (Spector, 1982). General beliefs about human nature, such as trustworthiness, are related to various interpersonal behaviors. Furthermore, beliefs are sometimes more useful than values in explaining cross-cultural differences in specific, individual behaviors (Leung, Bond, & Schwartz, 1995).

In the past there were common practice of rites and ceremonies dedicated to natural forces. Many of them were not necessarily based on scientific understanding of nature, though they connected people to natural forces in personal way. If culture believe that the earth is living, sacred being, then such culture will respect in artifact different way than artifact more scientifically oriented culture (Merchant,1990). Concept of nature in its turn have been generated and maintained by imagery and representation of nature in the creative industries through time (painting, ceremonial object, tools, architecture, advertising).

Not all agree that religions play only positive role in environment protection. We partly agree with Lynn White (1967) who blamed Christianity for the ecological destruction of the planet. She held that the Christian interpretation of Genesis 1, '*Be fruitful and multiply, and fill the earth, and subdue it; and rule over the fish of the sea and over the birds of the sky and over every living thing that moves on the earth'* sanctioned destructive dominance of the planet and caused the artificial separation of humans from nature.

But we hold the opinion that the first strike to sustainability was done much earlier. Every culture developed its own belief in supernatural entities to explain natural phenomena (day and night, the seasons) or to help make sense of their lives and the uncertain state humans find themselves in daily.

While some scholars assume that there is no actual proof of religious activity before 60,000 B. C., other are convinced of the fact that even the first hominids had a certain spiritual

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[44] At international level *'Caring for the Earth: A strategy for sustainable living'* report says that 'Establishment of the ethic needs the support of the world's religions because they have spoken for centuries about the individual's duty of care for fellow humans and of reverence for divine creation. It also needs the backing of secular groups concerned with the principles that should govern relationships among people, and with nature' (IUCN,UNEP, WWF,1991). As the International Environment Forum (2001) pointed out, 'Values, or the application of spiritual principles, have been the missing ingredient in most past approaches to sustainable development. ... The exciting thing about addressing sustainability at the level of values is the potential to create self-generating human systems building a more sustainable and thus ever-advancing civilization'.

awareness. Pre-history religion world (300 000 BCE -5 000 BCE) was full of magic and mythology deeply connecting men with local nature. Mythology explained the world and local nature around men. Oral mythos governed prehistoric communities and guide their daily life. Mythos were in constant modification process, but in successive way, interwoven natural processes and phenomenon into one worldview.

During period of development from stateless societies to formation of first states there was first need to unite local traditional believes into one state religion. The first crack between religion and nature presumably happened when the territory of state was too large with geographical and climate diversities, so that one myth (religion) could not embrace all particularities' and simplified explanation of nature giving more attention to political dominance of particular stratum. But still monotheism did not make sense to the ancient people.

When powerful states with monotheistic religion conquered not only their neighbor but also distant territory with rulers' religion expansion, religion was detached from nature completely and at the same time new monotheistic religion suppressed local believes and religions. In modern history most outstanding example of non-related to local nature religion is colonization of American continent from late 15th century. Indigenous tribes were forced to forget traditional system of believes and converted into globalized monotheistic Christianity.

Case study. Shintoism. Japan could be opposite example where local believes and traditions were protected from Christianity. The arrival of Christianity had a profound effect on Japan. After first contact with Portuguese in 1543 by the early 1590s there were an estimated 215,000 Japanese Christians. At that time the Imperial Regent of Japan, Toyotomi Hideoshi began to sense that an loyalty to God would threaten his own authority and so issued a decree in 1587 expelling all Christians. From 1639 under the *sakoku* ('closed country') policy all Europeans (except Dutch) were forbidden from entering the country.

Except political reason monotheistic Christianity contradicted to Shinto - Japan's indigenous religion with many gods, 8,000,000 to be precise[45]. Shinto (literally mean 'gods' way') originally began as a form of animism. The Japanese believed that nature forces came from the power of the spirits living in various natural entities, such as forests, rocks, oceans, etc. Shinto gods are basically spirits that are everywhere in nature (Mizumura, 2017). Today half of Japanese people still adhere to Shinto that allow them to live more sustainable way and respect nature. We hold opinion that sustainable spiritual practice and philosophy based on

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[45] Japanese Agency for Cultural Affairs in 2011, show that there are over 100 million Japanese people adhering to Shinto (51.2%), 85 million to Buddhism (43.0%), 1.9 million to Christianity (1.0%), and 9.5 million in other religions (4.8%) (Mizumura, 2017).

Shinto and Buddhism, for example, Wabi-Sabi concept that will be discussed later, allow easily accept sustainable way of living.

White (1967) argued that, if the cause of environmental problems lies in religious ideologies, then the solutions must rise from the same source. Indeed, even monotheistic religion may play a vital role in animating human lives and fulfilling human purpose, which might be ultimately critical in enabling an authentic sustainable development.

Today world's religions can play an influential role in sustainable development in two-fold ways. Firstly, religion offers a wealth of universal values, which lends itself to interpretation and practice by individual seekers and practitioners, both religious and secular, to inform their sustainability practice. For example, the Hindu notion of the *purusharthas* reconceptualizes sustainable consumption by acknowledging the human tendency to want and directing ways for material and sensuous consumption to be in accordance with the rules of dharma or duty (similar to Christian notion of *caritas*). One of Buddhism's primary lessons, that service is an important economic resource for the development of all sections of the society, and cannot be treated as a commodity. The Islamic notion of interest as sin has revolutionized the system of banking for the poor by significantly inspiring the microfinance institution (Narayanan, 2013).

Many environmental thinkers have long believed that a religious or a spiritual view of nature needs to be underpinned by a scientific or a practical view of nature, and have established a strong link between scientific understanding, and morality and care for ecosystems (Palmer, 1998; Kinsley, 1995). Together, science and religion may inspire more strongly sustainability activism and commitment than separately. As Trigg argues (1998) 'Science may tell us 'how' and religion 'why''.

Religion's second role, in influencing ecological and social activism, which may be quasi-religious nature, as seen in the *Chipko* movement[46] of the 1980s in India, the discourses around 'sacred groves in India' or through the rising numbers of faith-based organizations (FBOs) etc. As the strictly secular framework for development gives way to greater inclusiveness, it is important to recognize the valuable capacities FBOs bring to sustainable development work. It is also essential that designers and stakeholders understand how to work with FBOs to overcome theological and ideological.

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[46] The first Chipko action took place spontaneously in 1973 and over the next five years spread to many districts of the Himalaya in Uttar Pradesh. The name of the movement came from a word meaning *'embrace'*: the villagers hugged the trees and thus saved them by putting their bodies in the way of the contractors' axes. The Chipko protests in Uttar Pradesh achieved a major victory in 1980 with a 15-year ban on green felling in the Himalayan forests.) https://www.rightlivelihoodaward.org/laureates/the-chipko-movement/

Concluding the review, we remain convinced that that cultural sustainability of design project cannot be achieved completely if designer goes against system of beliefs shared in particular group or community, especially if in community reside multiethnic religious minorities (as in NoLo district). Thus, religion – for both its constructive and destructive potential – must be considered in the sustainable development agenda, especially within cultural sustainability framework.

2.4. Cultural layers

Unlike cultural levels where the most important is the scale of particular cultural phenomenon (global, national and local) in case of cultural layers scholars study the depth of culture (between two extremum: obvious manifestation of culture and hidden (deep) presence of culture). Sometimes terms 'layer' and 'level' are used as synonyms. But for the purpose of our research we will use them as two different elements.

In this paragraph we propose to consider two similar theories that explore the phenomenon of culture as multilayered intellectual construction: Hofstede 'onion' model (1991) and Spencer-Oatey's (2000) model.

The common ground of these models is that each model contains at least two levels: an **invisible level** (or implicit level) and a **visible level** (or explicit level) of culture. The invisible level represents the aspects of the culture that are less tangible and are more difficult to observe or distinguish. The visible level is more easily distinguished and perceived by an observer.

Hofstede (1991) pictured the manifestations of culture as the skin layers of an 'onion'. He proposed a comprehensive model of culture based on a similar premise of visible and invisible levels. Similar to an onion, a central core is encompassed by three additional layers.
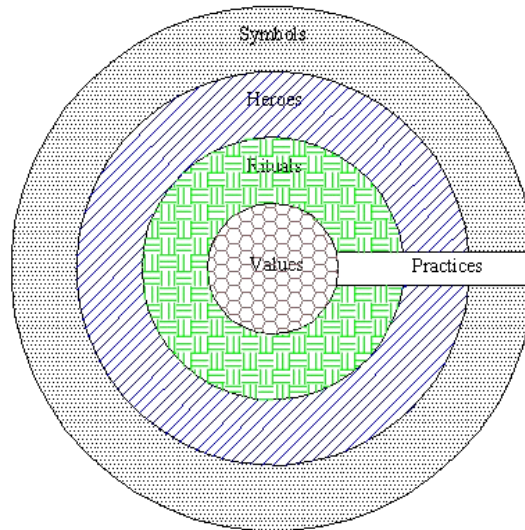
Symbols represent the most superficial manifestations of culture, while values are the deepest manifestations, with heroes and rituals in between. Symbols are words, gestures, pictures, or objects that carry a particular meaning which is only recognized by those who share a particular culture. New symbols easily develop, old ones disappear. Symbols from one particular group are regularly copied by others. This is why symbols represent the outermost layer of a culture.

Heroes are defined as, 'persons, alive or dead, real or imaginary, who posses characteristics which are highly prized in a culture, and who <u>serve as models for behavior'</u> (Hofstede, 2010).

> **Case study.** In this context, many example could be found. Mahatma Gandhi – Indian national hero during period for resistance to colonial power, weaved his own traditional Indian fabrics 'Khadi' at home using a wheel called 'Charkha'. It was woven with natural

Figure 9. Gandhi with spinning wheel. Source: Margaret Bourke-White, LIFE.

75

material like cotton, silk or even wool. For Indians it was a symbol of independence (and example of cultural sustainability), promoted by national hero, which is still the case today.

The third layer from outside is rituals which are collective activities, sometimes superfluous in reaching desired objectives, but are considered as socially essential. They are therefore carried out most of the time for their own sake (ways of greetings, paying respect to others, religious and social ceremonies, etc.).

Hofstede's model also incorporates **practices**, visible behaviors which extend across the rituals, heroes and symbols layers of the model. Hofstede's separation of the visible level into three different layers along with his inclusion of the practices layer, provides a more comprehensive understanding of culture than the previous model.

Helen Spencer-Oatey's (2000) model is both an adaptation and expansion of the models developed by Hofstede (1991), and Trompenaars and Hampden-Turner (1997).
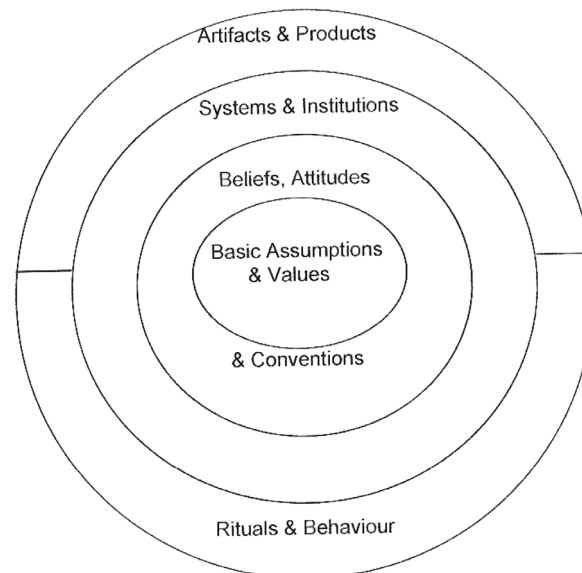
Figure 10. Spencer-Oatey's model of culture.
Source: Culturally Speaking; Managing Rapport through Talk across Cultures (2000).

Spencer-Oatey's (2000) model, the most recent and developed, offers more defined layers of culture. With the introduction of the 'systems and institutions' layer, Spencer-Oatey's model is most relevant to this research. If the workplace is regarded as an institution, presumably it should be influenced by the deeper, more internal layers of culture. The more visible institutional layer of the workplace should therefore be consistent with the invisible layers of 'values and basic assumptions' as well as the 'beliefs, attitudes and conventions' of the culture in which it exists. For the interior design in order to be consistent with the values, assumptions and behaviors of a national culture, the latter must first be identified. It means that design research should be directed from core to outward of the 'onion'.

Spencer-Oatey's model contains **four layers** and also possesses an onion-like structure, however four adaptations have been made to the models explained earlier. The first one involves combining **'values' and 'basic assumptions'** into the single core layer. This allows for the differentiation of visible and more fundamental levels of values suggested by Trompenaars and Hampden-Turners model, yet recognizes them both as central to culture (Dahl, 2004).

The second adaptation is the creation of the layer **'beliefs, attitudes and conventions'** which surrounds the core. The addition of this layer recognizes that these elements can change to some degree without significant changes in the core values (Dahl, 2004).

The third adaptation was the addition of the '**systems and institutions'** layer which surrounds the 'beliefs attitudes and conventions' layer. This level serves to differentiate the psychological aspects of the previous layer from their more physical manifestations in society.

The fourth adaptation is the division of the peripheral level into two equal segments; <u>one</u> side of '**artifacts and products**,' the other of '**rituals and behaviors**.' This division allows the behavioral aspects to be differentiated from more physical aspects in the most superficial manifestation of culture.

These adaptations and expansions provide more comprehensive and detailed model then models developed prior to it. These two models each represent a different concept of culture in terms of content and structure, but could be combined with some modification to become an integral part of theoretical framework for design for cultural sustainability (see paragraph 3.4.2.).

2.5. Cultural levels

Cultures can exist at the global, national, regional, city, neighborhood, and super-culture levels (Spacey, 2018). Culture can be analyzed at several different levels including 'continental culture' (i.e., European culture), 'national culture' (i.e., Japanese culture), and 'regional/sub- cultures' (i.e. Afro- American culture, feminist culture). National cultural analysis is appropriate for this study because most empirical research on cultural differences focus at this the level (Hofstede, 1980).[47]

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[47] After examining the 'as-for-in' cultural sustainability approach (see paragraph 1.3.) we conclude that for practical design cases it is not sufficient instrument for designer. In order to cope more effectively with design problems designer should have clearer understanding not only cultural sustainability ('in-for-as' approach), but how it is modifying according to preexisted landscape where dynamic constellation of non-homogenies

Hofstede (1991), suggests that the broad concept of culture can be broken down into several different **levels** of analysis. These levels are comprised of:

- national level (associated with the nation as a whole);
- regional level (associated with ethnic, linguistic, or religious differences that exist within a nation);
- gender level (associated with gender differences (female-male);
- generation level (associated with the differences between grandparents and parents, parents and children);
- social class level (associated with educational opportunities and differences in occupation);
- organizational/corporate level (associated with the particular culture of an organization).

Hofstede, suggests that the mental program (or 'mental software') possessed by each person largely determines their thoughts, feelings and behaviors. This mental program is comprised of three broad levels; 'human nature,' 'culture,' and 'personality' (Hofstede, 1991).
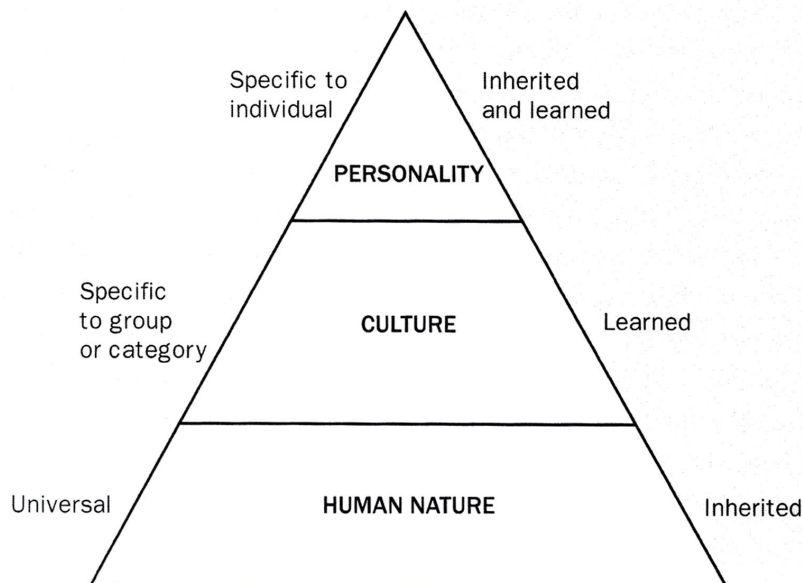
Figure 11. Hofstede's three levels of mental programming. Retrieved from Cultures and Organizations; Software of the Mind, 2nd ed. (2005, p. 4). Copyright property of Geert Hofstede.

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cultural stratums distributed on different scales (global, national and local) of societal reality. At the same time and place different cultural forces and cultural fields create unique cultural situation, where designer is expected to fulfill his professional task. Indeed, successful designer has to simultaneously catch all tailwinds from different cultural levels.

Human nature is the most basic and universal level of a person's mental programming (Hofstede, 1991). This universal level is shared not just among human beings but with the animal world as well. This mental program is inherited in a person's genes, and is responsible for a person's basic physical and psychological functions.

Human nature concept is similar to concept of universal cultural practices or <u>cultural universals</u> - types of actions present in all human. Cultural universals are related to culture as aggregates of non-genetically pre-determined types of behavior (Murdock, 1945; Brown, 1991).

For example, the universal experience of dreaming. The dreamer seems to enter another world, not unlike the 'real' world of the waking state. There he encounters other beings, some of whom he recognizes as folk who had died. Human beings have always found the heavens a source of wonder, meaning, divinity and guidance[48].

Culture is the collective level of a person's mental programming (Hofstede, 1991). The collective level of culture is largely responsible for forming an individual's perception and interpretation of meaning, and thus acts to modify the physical and psychological functions produced by human nature.

Personality is the individual level of a person's mental programming (Hofstede, 1991). It is not shared with other people, and is thus unique to the individual. This individual level can produce a variety of different thoughts and behaviors that are independent of the universal and collective levels of mental programming. This mental program is both inherited as genetic characteristics and qualities and learned from a person's social environment and personal experience (Hofstede). Mental programs therefore produce behaviors that are not random but, to some degree, predictable, and this predictability has allowed for the construction of social systems within a society.

Human nature and personality levels are beyond the scope of this research since further exploration of these factors is needed. In this research we explore Hofstede's **culture level** and related cultural sustainability subdividing for three additional interlinked cultural levels:

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[48] Less than 100 years ago, everyone could look up and see a spectacular starry night sky. Nowadays artificial lights raise night sky luminance, creating light pollution—artificial skyglow. As a result, the Milky Way is hidden from more than one-third of humanity, including 60% of Europeans and nearly 80% of North Americans. It undermines fundamental human experience—the opportunity for each person to view and ponder the night starry heaven. It seems that interior designer could play significant role to prevent light pollution by using correctly lighting fixtures and other methods.

- National cultures;

- Local culture and Creative communities;

- Subcultures.

Also we need to explore other topic highly related to cultural sustainability in national cultures context, such as globalization and cultural identity. We will apply cultural dimension approach as overall conceptual framework for the research.

2.5.1. National level of culture

National culture refers to a common value system and set of norms held by a population defined by the boundaries of a nation-state. National culture is based on the ideas and values that inform the behaviors of a group of people living within the same national context (Kluckhohn, 1951).

Sustainable development does not mean the same in all parts of the world. National culture has a relevant impact on individuals within a society and the way they act and think. The culture of nations is recognized as fundamental determinants of differences between not only individuals but also organizations from different cultural backgrounds (Hofstede, 1984). Designers should take into account that people in different countries need to be persuaded and helped to change their lifestyles in different ways. But despite these differences, there is a widespread need to prepare people for changes that are likely to conflict with the values they have grown up with.

The key ideas and values of sustainable development, inter- and intra-generational equity, justice, participation and gender equality, and ecological quality vary from culture to culture, and within them (Barker, 2006). National cultures are heterogeneous and cannot be considered as uniform, whole systems. Their parameters (societal values) do influence but do not predetermine the behavior of individuals.

Cultural sustainability at national level seems to have some terminological difficulties due to the fact that national states as political bodies with geographical territory and with exact boarders are relatively new phenomenon in human history, comparing to traditional communities.

In much of the world, national borders have shifted over time to reflect ethnic, linguistic, and sometimes religious divisions. From the other hand, a lot of contemporary state boarders are artificial and biased. The most striking example is Africa[49].

Nora (1989) points to the formation of European nation states and construction cultural identity starts in XVIII century. For Richard Terdiman (1993), the French revolution is the breaking point: the change of a political system, together with the emergence of industrialization and urbanization, made life more complex than ever before. This not only resulted in an increasing difficulty for people to understand the new society in which they were living, but also, as this break was so radical, people had trouble relating to the past before the revolution. In this situation, people no longer had an implicit understanding of their past. In order to understand the past, it had to be represented through history. As people realized that history was only one version of the past, they became more and more concerned with their own cultural heritage (French *patrimoine*) which helped them shape a collective and national identity. In search for an identity to bind a country or people together, governments have constructed collective memories in the form of commemorations, which should bring and keep together minority groups and individuals with conflicting agendas.

At **national level** we focus our attention to some particular cultural practice that contribute to sustainability and could be adapted by other nations, so designers must have them in arsenal. As biomimicry takes inspirations from nature to solve design problem the **culture-mimicry** can take inspiration from different national culture. The strongest point lies in the cultural difference itself. Thus, the culture could serve as an infinite field for case studies, both positive and negative, to challenge main and urgent environmental problems such as consumerism, waste pollution and so on.

Some national cultural practice[50] or philosophical doctrine about relationship between man and nature could be implemented globally, such as Wabi-sabi and other eastern practice. Hence, we explore them as subculture since borrowed from outer culture they become useful and sincere but still imitation of original culture. As a good example of

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[49] In Africa its nations largely defined not by its peoples heritage but by the follies of European colonialism. The Berlin Conference of 1884–85 regulated European colonization and trade in Africa during the New Imperialism period. Europe's arbitrary post-colonial borders left Africans bunched into countries that represent not their heritage, but 'effective occupation" by European countries. We add with Kuper (1999) that today mass movements that produce multiculturalisms widespread in the West are the direct effects of colonialism and decolonization, rather than phenomena from aesthetic-ethnographic contemplation.

[50] Shinobu Kitayama has been a consistent critic of culture as an entity with values as key components. He noted that the generally accepted method of measuring culture and attitudes may register the situational reactions of respondents but not the deep structures of the conscious and subconscious (Kitayama, 2002).

dissemination and popularization via mass media we take some national style of living such as *hugge* - a quality of coziness and comfortable conviviality that creates a feeling of contentment or well-being (regarded as a defining characteristic of Danish culture).

2.6. National culture and globalization

> *There is no common global pool of memories; no common global way of thinking; and no universal history in and through which people can unite.*
>
> *Held and McGrew, (2000)*

In this paragraph we need to establish the role of globalization in context of cultural sustainability, since every interior design project seek to strike a balance between local identity (genius loci) and 'otherness'. Does it mean that designer in trying to resist to the process of globalization somehow unintentionally decrease the level of adaptability of particular national culture? Also we need to explore the role of interior designer's agency, because many designers have lost or decided to ignore their local cultural identity to be a member of the global design community.

Globalization lies at the heart of modern culture; cultural practices lie at the heart of globalization'. Globalization is both an old and a new phenomenon, and the overlap is significant. For centuries of human history culture of 'others' represented both danger and possibilities. Exchange of Culture between neighbors led to adaptation of some foreign elements with locally specific forms and practices. But most importantly the adaptation usually took amount of time (Tomlinson, 1999).

From this point of view globalization is seen as a long-term historical process. Modernization and Americanization are the latest versions of Westernization. If colonialism delivered Europeanization, neocolonialism under U.S. hegemony delivers Americanization (Pieterse, 2004). But the difference is that now the franchising is very fast, no time to adaptation or appropriation by local culture. If previously we had a mix of local culture with general idea of effectiveness, now we have instalment of management system that designed to be installable in any local context. Globalization has challenged much established thinking in sociology about the nature of space, locality and social processes, yet there is still little agreement about its meaning and impact in design studies. In this paragraph we try to identify the junction of the previous loose meanings (culture, identity, and globalization) which led to explain and discuss the meaning of 'cultural homogenization' in return for 'cultural hybridization' and the concept of 'glocalization' instead of the struggle between 'localization' and 'globalization'.

Speaking about the 'global culture' (Baecker, 2001) means that we have a new sort or a new version of 'culture', this meaning make us to think about the old versions or the 'local culture' and how can these classical cultural forms survive beside the global one. A global culture in this stronger sense means the emergence of one single culture embracing everyone on earth and <u>replacing the diversity of cultural systems</u> that have flourished up to now (Tomlinson, 1999, p. 71).

The Siena Declaration (Italy, 1998) reads: rather than leading to economic benefits for all people, 'economic globalization' has brought the planet to the brink of environmental catastrophe, social unrest that is unprecedented, economies of most countries in shambles, an increase in poverty, hunger, landlessness, migration and social dislocation. The experiment may now be called a failure (Schirato & Webb, 2003).

Cultural globalization occurred due to the growth of global consumption cultures, media and information flows, migration and identities. Throughout the latter half of the 20th century we have seen the emergence of global brands that carry both cultural and economic significance. For example, during second half of 20th century Italian furniture (broadly, 'Made in Italy' phenomenon) gained worldwide recognition. In 21st century IKEA furniture expanded across the world, whipping out local furniture brands with strong local identity as well as Amazon company triggered bankruptcy of many local shops.

Steger (2003) as '*pessimistic hyper-globalizers*' maintains that we are not moving towards a cultural rainbow that reflects the diversity of the world's existing cultures. Rather, we are witnessing the rise of an increasingly homogenized popular culture underwritten by a Western 'culture industry'. American popular culture seems to be unstoppable, they referred to the diffusion of Anglo-American values and consumer goods as the 'Americanization of the world' (amazonian Indians wearing Nike training shoes).

At the same time '*optimistic hyper-globalizers*', for example, Francis Fukuyama, explicitly welcomes the global spread of Anglo-American values and lifestyles, equating the Americanization of the world with the expansion of democracy and free markets. Cultural imperialism in this view serves as form of consumerist universalism: the influence of American media makes <u>global cultural synchronization</u>. Globalization creates profound change as states and societies try <u>to adapt</u> to a more interconnected but uncertain world (Held & McGrew, 2000).

There is also middle way of thinking which propose that 'Globalization is neither good nor bad in itself; in the long-run it is a step towards <u>efficiency</u>; in the short-run, however, it

involves all kinds of painful social and cultural adjustments. Every country has to meet the challenge of globalization in its own individual way' (Das, 2009).

Appadurai (1996) explained that globalization is not a single process, happening everywhere in the same way. Globalization is made up of a series of processes, some of which are working in opposite directions and with opposite ends. These processes are all about movement: that of people; of media images and products; of technologies and industries; of money and finance; and of political ideologies (complexities of globalization). Others have added to the list: the movement of religious ideas, of academic theories, and so on.

Each of these types of exchanges relates directly with one of the globalization's dimensions and all the three dimensions relate together (Waters, 2001):

- Material – Economy;
- Power – Politics;
- Symbolic – Culture.

At **'Symbolic - Culture' dimension** of globalization we understand the dominance of American popular culture: symbolic exchanges (exchanges of signs) by means of oral communication, performance, entertainment, propaganda, advertisement, public demonstration, the exchange and transfer of tokens, exhibition and spectacle. Cultural imperialism assumes and supposes that the process of globalization is a one-way flow: from the West to the rest.

At **'Material – Economy' dimension** of globalization we see the growing China's power as new material imperialism (taken with other Asian developing countries). Many ideas and concepts developed in West obtain their materialization in China.

At **'Power – Politics' dimension** of globalization we allege the decline of the nation state in a globalized world, which has led to wider questioning of the idea of 'society' as a territorially bounded entity and we should now talk of a 'sociology beyond societies' (Urry, 2000). It involves a paradigm shift from the era of the nation state and international politics to politics of planetary scope.

Unlike national cultures, a global culture is essentially memoryless. When the 'nation' can be constructed so as to draw upon and revive latent popular experiences and needs, a 'global culture' answers to no living needs, no identity-in-the-making ... There are no 'world memories' that can be used to unite humanity' (Pieterse, 2004). There is no common

global pool of memories; no common global way of thinking; and no universal history in and through which people can unite (Held and McGrew, 2000). The contemporary experience of living and acting across cultural borders means both the loss of traditional meanings and the creation of new symbolic expressions. Reconstructed feelings of belonging coexist in tension with a sense of placelessness. At the same time we must admit that today hardly any society in the world possesses an 'authentic', self-contained culture.

Benjamin Barber in his book on the subject book entitled '*Jihad v. McWorld*', (where terms '*Jihad*', the resistance against this coming McWorld) warns against the American way of life and the cultural imperialism of what he calls '*McWorld*' - a soulless consumer capitalism that is rapidly transforming the world's diverse populations into a plainly uniform market. McWorld is a product of a superficial American popular culture assembled in the 1950s and 1960s, driven by expansionist commercial interests. Music, video, theatre, books, and theme parks are all constructed as American image exports that create common tastes around common logos, advertising slogans, stars, songs, brand names and trademarks. Diffusionism, if cultural diffusion is taken as emanating from a single center, has been a general form of this line of thinking. From the 1950s, this has been held to take the form of Americanization. In the long run, the *McDonaldization*[51] of the world amounts to the imposition of uniform standards that eclipse human creativity and dehumanize social relations (Steger, 2003).

Along with McJobs, McInformation, McUniversity, McTourism, McCulture, (Gottdiener 2000, Ritzer 2002) in the same context it is acceptable to suggest the term '*McFurniture*'. All these 'Mc- forms' work to increase the loss of 'authentic' local culture in these places. 'In short, the perceived loss of diversity would appear to be attributable to a certain rescaling of territories: from a world of more internally homogeneous localities, where diversity was found by traveling between places with significantly different material cultures to a world where one travels between more similar places but finds increasing variety within them' (Storper, 2001).

Tony Schirato and Jen Webb (2003) explained that most theorists, though, fall into one of two camps with respect to the question of a global culture. One is the '*cultural homogenization*' camp, the other is the '*cultural hybridization*' camp. The former equate globalization generally with the homogenizing of culture, the resultant retraction or dismissal of local cultures, and the Westernization of the globe.

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[51] In Latin America in the 1970s, this effect was known as 'Coca-colonization'.

We need to examine the question could cultural hybridization be more culturally sustainable factor instead of homogenization of culture? Cultural hybridization refers to the mixing of Asian, African, American, European cultures: hybridization is the making of global culture as a global mélange. As a category, hybridity serves a purpose based on the assumption of difference between the categories, forms, beliefs that go into the mixture (Pieterse, 2004). Globalized culture as a hybrid culture follows directly from the notion of deterritorialization, that the networking of the globe does not necessarily lead to the extinction of local culture and local forms (Tomlinson, 1999).

The idea of '*think global, act local*' refers to the '*glocal*' strategy which represents a middle way between the 'global' and the 'local' strategies (Dumitrescu and Vinerean, 2010), 'Glocal'[52] approach describes the possibility of producing art in a dynamic tension between global and local tastes, traditions, narratives and imperatives.

Glocalization is the ability of a culture, when it encounters other strong cultures, to absorb influences that naturally fit into and can enrich the culture, to resist those things that are truly alien, and to compartmentalize those things that, while different, can nevertheless be enjoyed and celebrated as different (Friedman, 2000).

Global is about the size and strength of a business. Local is about the people: where they live and work, how they think, what they need, what they value. It is important to reduce the clash between global and local. Glocalization, then, seems to be the art of attaining a fine balance of assimilating foreign influences into a society that add to its diversity without overwhelming it (Sucháček, 2011).

Global capitalism today promotes only a certain type of cultural difference that can be easily 'packaged and sold', and ignores other differences (Wilk, 1995). The task of designer is not only to represent the global products in a local form to be acceptable as a new generation of these products in other societies but also to produce the local forms in a global content which allows these local forms' values to be a part of the global matter.

There is no strict separation between 'local design' and 'global design'. What is today local maybe become tomorrow global. The rationale is universal/global and the emotional is local. Also other authors propose term '*Cosmopolitan Localism*' – small, diverse, local,

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[52] The term 'Glocal' was coined by R.Robertson to describe the selling of goods and services on a global scale, but targeted appropriately to particular local markets. The original phrase 'Think global, act local' has been attributed to pioneering town planner Patrick Geddes (1854 – 1932).

and place-based communities that are global in their awareness and exchange of information and technology (Sachs 1999; Manzini 2009, 2012).
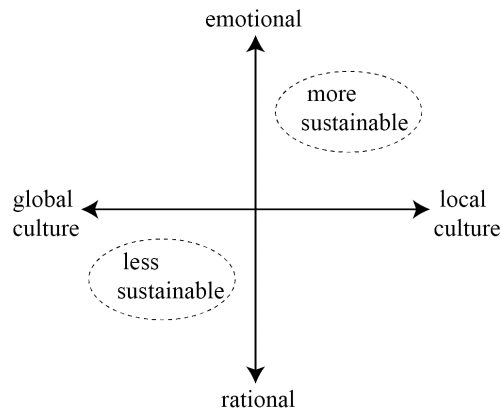
Figure 12. Relationship between global and local design approach. Source: author's elaboration.

To conclude these observations, interior design could be an agent for addressing the challenges of cultural sustainability operating within the context of globalization. This strategy would involve interior design that is responsive to the national culture of the country. The implementation of this culturally adaptive design approach could potentially provide more effective support to the values, understandings, behaviors, and practices inherent to the indigenous national culture. This cultural adaptation could also potentially increase user satisfaction and result in more effective and efficient utilization of resources. Finally *design for cultural sustainability* could express respect for the culture, and support the integrity of the national culture within particular space, and thus in the overall community.

2.7. Subcultural level

The person's need to identify himself with some not-native community could be used as sustainable practice in case when such community manifests sustainable way of living. Culture is defined as a collective construct and thus shared by either a group or category of people (Hofstede, 1991, 2001). People are inevitably born into a culture or multiple cultures but also they may choose to join a particular culture or subculture. Whereas culture surrounds social groups such as a nation, community, religion, ethnicity or social class, subculture tends to be an individual choice.

Subculture is self-organizing whereas culture is more of an overwhelming force. A subculture may surround a hobby, art movement, fashion sense, philosophy or lifestyle. Culture is often more intensive than subculture (Spacey, 2018). Subculture isn't necessarily contrary to culture and the two tend to intertwine. The difference between creative

communities and subculture is that the former is usually united by territory, whereas the members of the latter could be located in different part of the world and maintain connections only via internet.

For example, *slow-food movement*[53] was born in Italy, but then it was spread across the globe. Another example is '*guerrilla gardening*' movement (sometimes called 'graffiti with nature'). Born in 1970s in USA now it is worldwide web of activist who try to make degrading urban territory more comfortable by planting vegetation.

Another example is American '*self-sufficiency movement*'[54]. Participants recognize that the political and economy organization of contemporary society comes with many risks including environmental degradation at a global scale. 'Americans' are trying to achieve self-sufficiency changing their individual household practices to decrease their dependence on institutions that they deem untrustworthy. They often adopt household level sustainability measures to ensure their own well-being in the event of political or social system collapse.[55]

Permaculture involves the systematic design of ecological systems that sustain human communities and the natural environment. Since its introduction in the United States in the 1980s, it has spread via publications and educational workshops. Bill Mollison and David Holmgren (1978) coined the word 'permaculture' to refer to their system of 'design principles' for constructing sustainable human settlements. These permaculture principles were based on principles of environmental science (Odum, 1971), coupled with an ethic of 'earth repair' and 'people care'. The word permaculture was a conjunction of 'permanent' and 'agriculture' or, more broadly, permanent culture. Mollison copyrighted the permaculture concept and spread it around the world by teaching courses, while establishing a set of protocols by which practitioners and teachers could be certified to spread the permaculture movement for themselves.

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[53] Slow Food was founded in 1989 to prevent the disappearance of local food cultures and traditions, counteract the rise of fast life and combat people's dwindling interest in the food they eat, where it comes from and how our food choices affect the world around us.

[54] John Seymour published in 1976 '*The Complete Book of Self Sufficiency*' where urged readers to return to a more traditional way of life and be less reliant on the outside world. He believed this would free people from their dependence on a damaging industrial society. A global oil crisis and striking coal-miners in Britain had made the public realise how reliant they were on fossil fuels to heat and light their homes. The environmental movement of the 1970s had also made them more conscious of green issues.

[55] It seems that Covid-19 pandemic of 2020 is the crucial moment for this movement to proof its ability to survive and demonstrate its effectiveness (or fail). Yet no information has been found to date of research about how self-sufficient movement cope with coronavirus pandemic. But nonetheless we remain convinced that Covid-19 will start new discussion on the topic of self-sufficiency as it was in l970s.

What distinguished Mollison's permaculture from other alternative agricultures was its emphasis on integrating all the components of a human settlement: building construction, farm layout, transportation, hydrology, energy management, and community relations in addition to food production. Mollison proposed to re-design the whole production process, including architecture, energy, technology, economics, urban design, and governance. Though, little communication between the world of scientific research and the world of permaculture design and education have been found In 2002, it was estimated that 500 to 1,000 teachers have trained 100,000 people in permaculture worldwide. The international permaculture movement produces conferences, magazines, and permaculture teachers' manuals.

There are unfortunately few well-developed farms and village-scale projects based primarily on permaculture, but there are at least 100 farms and landed communities in the United States that use permaculture in some aspect of their design. It would seem that permaculture could be the perfect subject for inspiring a multidisciplinary approach, but thus far it has fallen into the blind spot of scholarship but heterogeneous nature of permaculture is a barrier to entry into the world of professional research. However, it is demonstrated permaculture's ability to inspire people to try to do something about environmental problems. The number of permaculture courses offered annually in the United States is a testament to the number of people inspired by the concept (Scott, 2010).

Another example is essentialism or (**new**) **minimalism** and zero-waste movement. In literature there is no single definition or source for minimalism. Minimalism (or new minimalism) is an alternative lifestyle movement whose practitioners, minimalists, seek to reduce modern life's clutter. This ethos of living with less is not new — minimalism in various guises have sporadically re-emerged and gained popularity. It is a hallmark of philosophies and virtues in many Asian religions, including Buddhism and Taoism.

Recently, two self-proclaimed American minimalists Joshua Fields Millburn & Ryan Nicodemus have been particularly promising figures in helping to label and spread the minimalist movement globally. As of 2020, more than 633,000 people have followed their Facebook page and subscribed to their website[56]. Despite different forms of new minimalism (e.g., as religion-like practice, social movement, or alternative lifestyle), all new minimalists share a central practice: re-evaluating what they possess with the goal of

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[56] https://www.theminimalists.com.

having less and eventually pursuing other life goals that they consider more important (e.g., spending more time with family, developing new skills) (Cheon & Su, 2018).

The idea of minimalist living encompasses contemporary concerns such as sustainability, eco-feminism, and civic movement. Minimalists constantly question whether an object is valuable to their lives, reflect on decluttering, and iteratively reconstruct their home spaces. Yet, minimalists do not live in isolation—they negotiate with others over their own transition to a minimalist lifestyle. Additionally, minimalist living has mainstream appeal; aspects of minimalism can be found in popular self-help styled books. Minimalist values and lifestyle—people especially attuned to objects and values—could offer a valuable insight into cultural sustainability in design practice (Cheon & Su, 2018).

Minimalists see the home as the primary site for reinventing themselves. It is through the home that minimalists curate objects and spaces to reify their values. Minimalists also integrate and influence others while negotiating the values of objects entering and leaving their home. Cheon & Su (2018) suggest that minimalists have an alternative concept of the home as one with <u>a porous boundary</u> that acknowledges the interaction and the 'leaks' (intended or not) between the home and the outside, how the border makes one place distinct from the other, the mobility of objects and the fragility of their ties with values between spaces, and the collaborative processes of creating and reinforcing the porous boundary which, as a result, lead to redesign spaces for the home.

For example, minimalists stressed about the reception of objects from non-minimalists. This tension stems from how minimalists and non-minimalists differently interpreted the value of particular objects. Furthermore, these principles reflected the ways minimalists brought these objects outside their home.

In concluding the discussion on this topic we argue, that all that subcultures could be practiced across the globe without maintaining strong network, but more as a pull of anonymous 'followers'. In any case interior design project should facilitate engagement of such activist and followers who are resident or even non-resident of given territory to be more sustainable. The role of designer is to support this categor of people who manifests sustainability through their subcultures. At level of case-study we attempt to research different cultural-based strategies that allow to reach more sustainable outcome. We analyze some examples where designers have demonstrated outstanding capacity in implementation of principle of sustainability in particular projects.

Case study. 'Edible Estate.' In this project architect and social designer Fritz Haeg (USA) proposes the replacement of the American lawn with a highly productive domestic edible landscape. Lawns are artificial, though; they do not exist in the natural world. They have relatives in nature, such as meadows or prairies. Those ecosystems have similar structures, but they are much more diverse and are not densely planted or developed.

With the modest gesture of reconsidering the use of our small individual private yards, Edible Estates takes on issues of global food production, our relationship with our neighbors and our connection to the natural environment. Haeg is concerned not only with the short-term gains for participants, but also with how this system works as a tool for reorganizing neighborhoods, instigating new community relationships, and reviving the social commons. Community stewardship of the project into the future will determine its evolution over time. (Haeg, 2005).

Figure 13. 'Edible Estates' Haeg, F, (2005). Retrieved form http://www.edibleestates.org

2.7.1. National traditional practices of spatial and interior design

It is important to highlight that these system of knowledge and beliefs often assumed to be true as a result of personal experiences and socialization but <u>not as a result of scientific validation</u>. For example, in recent years there has been a rediscovery of *Feng Shui*, an ancient oriental discipline, and *Vastu*, Indian version of the same discipline. Both of them start from the idea that space has its own energy and that this feature must be harnessed in order to achieve wellbeing and prosperity for the inhabitants of dwellings.

In Europe two more trends have emerged, defined by the Scandinavian words: *hygge* and *lagom*. Hygge expresses the mental and emotional wellbeing coming from small, daily things. It is a lifestyle based on a sense of comfort, security and welcoming, a familiar atmosphere that makes people feel more peaceful (Wiking, 2017). Lagom, which literally

means the '*right quantity*', is a lifestyle based on the key concepts of reduce, reuse and recycle.

The Feng shui discipline started and spread in China around 5000 BC but most of the original manuals were destroyed by the Chinese Popular Republic in 1949 after they declared the practice of Feng shui illegal. Only in the last few decades Feng shui concept arrived in North America and Europe as a technical and methodological design system deemed to contribute to people's quality of life.

Feng shui is a system of speculations and beliefs with no scientific proof so far of its claims, principles, and theories. These theories principally refer to the energetic conditions (focusing on the flux of chi energy)[57] of the building area. Chi has been considered by experts in geobiology, bioarchitecture, and medicine as the equivalent of, for example, natural electromagnetic waves, Hartmann's knots, or geopathogenic zones but most of the time they have proven problematic.

Although the positive effects of Feng shui on human well-being are not yet scientifically demonstrated, there are many assertions coming from Feng shui experts spreading its multiple advantages, such as overcoming hidden harms or maximizing comfort through the modification of one's living environment (Rossbach, 1987).

Restorative design elements such as window views, burning fireplaces, and various displays (e.g., aquariums and moving water) can function as a coping resource that can help building occupants alter their balance between environmental demands and personal resources (Coss, 1973). In this aspect Feng shui concept is similar to biophilic design approach (see paragraph 3.3.6), that, in its turn, could be related to restorative design approach. These two approaches have growing scientific foundation based on empiric research, that makes them more reliable source of information in Interior design process.

2.7.1.1. *Wabi-sabi*

In this paragraph we explore Japanese philosophical, aesthetic attitude Wabi-sabi as it seems promising approach in popularization of sustainable way of living.

The Zen philosophy always emphasises the impermanence and uncontrollability of nature. The realm of lifestyle in Japan stems from the adaptation and expression of nature. They pursue the concept of life that coexists with nature. Wabi-sabi consists of two parts: *Wabi*

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[57] There are countless examples of life energy ideas in the many cultures of the world, from the dawn of human civilization to the present: the Latin *spiritus*, the Greek *pneuma*, the Indian *prana*, and so on. (Stefan Stenudd 'Life Energy Encyclopedia: Qi, Prana, Spirit, and Other Life Forces Around the World').

refs to the essence of simplification, of cutting down the things to the important, whereas *Sabi* refers to the passage of time, and more specifically to the fact that the core of something remains the same, even though the facade or surface may change over time (Powell R. 2004).

The Taoists of China sought to live close to nature and embrace the Tao, or the force that they believed guides everyone's lives (Juniper, 2003). The Tao means river. Zen was later to spring from this spiritual tradition with Wabi-sabi arising around the time of the Song dynasty (960- 1279). To Taoism that which is absolutely still or absolutely perfect is absolutely dead, for without the possibility for growth and change there can be no Tao. In reality there is nothing in the universe which is completely perfect or completely still it is only in the minds of men that such concepts exist.

Contrast this with the Western ideal of individualism, materialism, and perception of the world through a decidedly dualistic lens and one can rapidly see the effects of Zen and Wabi-sabi on Japanese consciousness as being more grounded in simplicity, humility, and appreciation for the *here* and *now* (Juniper, 2003).

At its deepest, broadest reach, Wabi-sabi is a form of beauty that overcomes the dichotomy of beauty and ugliness, even as it overcomes the dichotomy of ordinary and extraordinary. We might think that beauty and ugliness, like good and evil, only make sense in relation to each other. In Zen philosophy, both positive and negative are important. (Sartwell 2006).

Wabi-sabi is the beauty of imperfect temporary uncompleted, humble modest and unusual things (Koren, 2002). Wabi sabi is the beauty of faded, eroded, oxidized, scratched, intimate, rough, earthy, vanishing, elusive, ephemeral things. It is a kind of beauty beyond the dichotomy between beauty and ugliness, between ordinary and extraordinary (Sartwell, 2006). Wabi sabi is about embracing a design that is imperfect, impermanent, and incomplete.

> **Case study. Wabi-sabi interiors by Axel Verdoort's**. This Belgian designer broadly apply wabi-sabi principles in interior design. His design practice includes wide territory: from urban New York penthouse or Moscow apartment to a waterfront estate in New England, and from a Tokyo dwelling to a Bordeaux wine château. The simple and clean lines of the pieces allows them to blend into a room and let us not forget that removable covers have the added bonus of being ever so practical. His vision has been defined by a continual quest for harmony, beauty, and the creation of interior atmospheres that are rooted in the past,

connected   to   the   future,   and   imbued   with   today   s   comforts.

Figure 14. Belgian designer Axel Vervoordt

A central peculiarity of Wabi-sabi is an awareness of the transience of all things, and a corresponding pleasure derived from the things that display the marks of this impermanence; including wrinkles on one's face or the patina on one's furniture, both of which you have to learn to lovingly embrace.

Some interior designers see Wabi-sabi as the just latest interior trends, which is too superficial. On more profound level Wabi-sabi way of interior and spatial design encourages us to take on a 'less-is-more' approach, let go of material wants, and appreciate the things we already have. As a result, less energy and virgin materials spent, and at the same time it extends time of usage of furniture and interiors as whole. In this sense wabi-sabi concept is similar to emotionally durable design (EDD) approach (see paragraph 3.3.1).

Case study. Kintsugi. Artistic technique ('Kin' means 'gold' and 'tsugi' means 'joining')**.** In Japanese mending, when something is broken (usually ceramic wares), it can be repaired but without intention to obtain its original state (while the modern mending technique would try to remove every marks). To emphasise that it is broken before, the mender would leave the marks of the crack on the surface of the wares. An artistic technique derived from the traditional mending. It is an art of fixing broken pottery with lacquer resin and powdered gold. This fixing technique keeps the cracks on a pottery purposely. 'Kintsugi' can be a way to personalise objects as it no longer looks the same.

From cultural sustainability point of view kintsugi help to solve the problem of wastefulness of consumerism. Fixing things with obvious marks of that fixing can create another form of beauty that means new valuable characteristic of everyday object. It is similar to design for sustainability approach that must also embrace the aging of products, the accumulation of

meaning over time, and more profound notions of attachment and empathy (Walker, 2009).

Figure 15. Tea Bowl fixed in the Kintsuji method. Source: public domain (Wikimedia).

2.7.1.2.   Hygge

Denmark is considered one of the world's 'happiest' countries[58] and is widely recognized as a progressively sustainable culture. The modern Danish word 'hygge' originates from 'hyggja, hycgan, hugjan' (Old Norse, Old English, Gothic) with the meaning 'think, consider, feel'. Thus, the concept of the word is a state of mind, created by certain rituals in behaviour and physical surroundings.

Hygge can be defined as a sense, as the 'national feeling' of Denmark (Howell & Sundberg, 2015) if we define a sustainable culture as a culture of stewardship, conservation, preservation, mutual care and responsibility, health and wellness, presence and awareness. In this way hygge is a model for an effective cultural phenomenon that promotes the crucial participation of its members in a larger cooperative effort to lead more sustainable lives. Hygge has taken up a desirable position in contemporary visions for everyday life in several westernised countries (Jensen R. H. et al.,2018).

Though every society has an equivalent of the '*hyggelig*' experience, it seems that Danish society is perhaps the only one to frame this particular type of socio-spatial experience as a specific, primary feature of its cultural identity. Hygge would appear to be a significant part of everyday Danish life - unlike in other cultures, where experiences of comfort,

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[58] The World Happiness Report is an annual publication of the United Nations Sustainable Development Solutions Network. It ranks national happiness based on respondent ratings of their own lives, which the report also correlates with various life factors. As of March 2020, Finland was ranked the second happiest country in the world. https://happiness-report.s3.amazonaws.com/2020/WHR20.pdf

security, and familiarity are maybe less explicitly overstated into the day-to-day lives or identities of individuals.

According to Bille (2015), hygge is part of the Danish national identity and closely linked to security or secureness, togetherness (physical and emotional closeness), relaxation, informality, intimacy, food and losing a sense of temporality. It thereby seems to represent a socio-cultural countermovement to modern life.

The Danish concept of hygge reflects a romanticised Scandinavian lifestyle featuring cosiness and companionship. Hygge is a mode of habitation that is culturally ingrained. It is a culturally inherited spatial, material and social sensibility. It has to do with a sense of belonging - belonging both to one's culture and belonging to one's immediate environment.

Hygge emphasizes the types of egalitarian values that a culture must be built on in order to be truly sustainable. Hygge is the cultural tendency of the Danes to deliberately set aside a time and a space to commune, to relax, to be content, to be equal, to celebrate life's simple joys. Hygge often involves an embodied, sensory experience: the sight of a flickering candle or the dancing flames of a fire, the experience of warmth, the taste of a favorite or luxuriant food or drink, the familiar scent of one's childhood home, the soft touch of a woven sweater or blanket.

Hygge is characterized by a sincere contentment with what one has and with one's position in life, a behavioral tendency that supports a culture that consumes less, consumes more responsibly, and consumes with meaning. Related to this concept of contentment is the '*hyggelig*' notion of cherishing and caring for what one has and has inherited, a concept that is characteristic of a culture of preservation and stewardship. Hygge involves an emphasis on a <u>sheltering and encouraging intimacy</u>, trust and honesty, connection and empathy - all of which are essential to the health and wellness of a community. A certain sense of rootedness and loyalty is also associated with the experience of hygge - with, for example, its focus on tradition, inherited family rituals, restorative nostalgia and cherished souvenirs and other symbols of memory.

Hygge is very commonly experienced as a collectively achieved atmosphere and can be seen as a demonstration of how cultural wellness too requires that each individual is a participating co-producer of shared social space. This may support a radical argument for architecture or interior design to be delivered incomplete or unfinished - to be completed and appropriated by the occupants, exercising their spatial agency, according to their own values and concerns.

Hygge is about memory, tradition and a valuing of both personal and collective past and supports artifact culture of historical awareness and preservation. Certain sense of contentment, both individual and shared, as that which is associated with hygge, must be central to a culture of sustainability and wellness.

One particular aspect of Hygge that directly related to sustainability is <u>low-level lighting</u>. Hygge is shaped by orchestrating atmospheres through low-level lighting with candle as the most common symbol associated with hygge. Light as the primary operative material in the construction of a hyggelig setting. While not directly marketed as 'low energy', the vision embodies ideas of low-level lighting, minimal engagement with technology, and 'traditional' ways of keeping warm, such as using blankets or drinking hot cups of tea. Hygge promotes minimal engagement with technology.

Lighting is central to hygge where natural daylight, candles, and electrical lighting all play important roles in orchestrating hygge atmospheres . The hygge consider using natural light in more valuable way. Hygge support primordial human habits of division day and night activities and symbolic meaning. Night illumination should not imitate natural light in term of intensity.

In this way, hygge has parallels to the energy-intensive aesthetic vision of pleasance that embeds desirable expectations of comfort, relaxation, and peace of mind into the smart home. Like pleasance, comfort and relaxation are central to hygge, but in contrast to it, creating the calm and convivial atmosphere associated with hygge tends to involve less use of electrical lighting and technology. As a result, hygge can be 'naturally' less energy intensive. Soft and minimal hygge light shapes aesthetic, ambient, and emotional experiences. These findings can help lower electricity consumption and thus be Interior design project could be more sustainable.

In conclusion, hygge is a useful concept for interior designer s to examine and contemplate as an effective model for an approach to integrated, healthful, human-focused design because it weaves together the sensory, tangible, material characteristics of a spatial setting, with the palpable but intangible atmospheric qualities of the space, with the social and emotional aspects of the space.

2.8. Creative communities

When looking for remedies against environmental crisis we need to focus our research also on lifestyles that are adopted by creative communities, that have taken concrete steps towards sustainability from the bottom, on a local scale. <u>Creative communities</u> are groups

of people with initiative, organised to obtain a certain result, to solve a problem and/or to open a new opportunity (Meroni, 2007). Culture is closely interwoven with social activity. As a rule they reside in particular area, so we include them in local level of culture. The difference between subculture and creative communities is that the latter are deeply connected with particular territory and have specific and where among residents of compact area there is particular group of individuals with unique cultural background and specific set of communication skills. As a result, it is difficult to reproduce the practice in other area, not to mention other country. Nonetheless, designer could use the experience of creative communities and seek support of his design project within that local groups.

For example, the creative communities could build new food supply networks and prefer the local producers of quality or organic food.

> **Case study.** Nolo Social District (NoLo), a social phenomenon based in one of the most vibrant neighborhoods in Milan. The social district is an enlarged social street, or more precisely, a group of neighbors that try to know each other via a web platform (usually a Facebook group) in order to improve the quality of their everyday life through mutual assistance, suggestions about daily activities, and organizing offline actions.
>
> Nolo Social District more than 15 subgroups have been spontaneously created by members with a variety of goals: Nolo Plastic Free promotes a plastic-free approach to everyday life by including an awareness campaign in the local shops and encouraging good environmental habits among neighbours; Radio Nolo is the local web radio that gives voice to what is happening in Nolo and to emerging talents. There are even cross-community events such as the Neighbourhood Breakfast every Saturday morning, when people from the neighbourhood meet in a different place each week, sharing breakfast of cake and coffee together in a convivial environment and enjoying networking activities. From the creative union of a gardener and a bike fanatic etc. (Fassi et all, 2019).
>
> There are other socially oriented commerce activities in district. For example, Bici & Radici is more than just a store, it's a community hub where visitors can repair their own bikes, test their green thumb, or meet up with friends. Furnishings in the space— like the objects on sale — all stem from the collaboration with international and Italian entrepreneurs working with new forms of sustainable design.[59]

All these case study could be viewed as source for inspiration for designers.

2.9. Local level of culture

In above-mentioned definition of culture UNESCO generalize all human beings' activities within groups and societies. For the purpose of our research we need to seek more detailed

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[59] There is no available information about level of inclusion of non-Italian individuals in that groups, considering that third of NoLo residents are foreigners.

everyday cultural practice at local level. We will try to analyse to what extent designer should consider local culture as guideline to design practice.

Mackenzie Valley Review Board of Canada (2009) offers a definition of local culture through the lenses of elements of aboriginal cultures that 'culture is a way of life, a system of knowledge, beliefs, values and behaviours passed down to each generation', which includes:

- traditional knowledge,
- commonly held values such as respect for Elders,
- principal history,
- spiritual practices,
- language,
- physical heritage resources,
- traditional dances and songs,
- place names,
- spiritual sites and cultural landscapes,
- traditional land use,
- values associated with the land.

That much depends on context what from above-mentioned characteristic designer is going to apply. The one thing is clear: the better designer knows local culture the more sustainable would be his project[60].

Local (cultural) knowledge of the environment can be seen as an essential resource and factor in nature conservation, local livelihoods and social well-being.

According to definition of International Council for Science: 'Traditional knowledge is a cumulative body of knowledge, know-how, practices and representations maintained and developed by peoples with extended histories of interaction with the natural environment. These sophisticated sets of understandings, interpretations and meanings are part and parcel of a cultural complex that encompasses language, naming and classification systems, resource use practices, ritual, spirituality and worldviews' (UNESCO/ICSU, 2002).

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[60] It should be noted that usually culture is considered as a positive condition for development. But sometimes the particular cultural norm or custom or believes play negative role if we consider economic dimension of sustainability. For example, the Kwakiutl potlatch practices were considered as economically unsustainable according to new capitalistic paradigm in the North America, so they were banned by the US government. It allows to come to conclusion that sometimes cultural and traditional practice could partly contradict to economic dimension of sustainability or to new ethical norms of humanism (for example, Corrida in Spain).

From an indigenous perspective, traditional knowledge is developed from experience gained over the centuries and adapted to the local culture and environment, and transmitted orally from generation to generation. It tends to be collectively owned and takes the forms of stories, songs, artistic expressions, proverbs, cultural events, beliefs, rituals, customary laws, languages, agricultural practices, including the development of plant species and animal breeds, traditional know-how relating to architecture, textile-making and handicraft-making, fishery, health and forestry management (UNESCO/ICSU, 2002).

It also reflects indigenous peoples' holistic worldviews which is considered as a most important source of the world's cultural and biological diversity. The use of traditional knowledge has great potential also in designing strategies for culturally sustainable development (Preston et al. 1995).

Summing up, the cumulative body of traditional knowledge, related to interior design, could be viewed as example of cultural sustainability that not only carries instrumental values, but also symbolic (or non-instrumental) values, such as those relating to self-identity, spiritual renewal, a role in local myth and history, ritual significance, and a sense of place (Berkes 2008).

> **Case study. Shanzhai. (Repairability).** The phenomenon of the Chinese *shanzhai* involves products that bypass intellectual property laws. It began about 20 years ago among manufacturers working on different parts of the same product, and as Silvia Lindtner of the University of Michigan writes, it expressed 'a culture of sharing of know-how among makers, comparable to the open source phenomenon.' What emerges from this type of culture is that success is no longer a matter of originality, but of speed of implementation and market availability. An understanding of this leads to a new relationship (still partially to be reformulated) between the project and its production, prior to the entry of products on the market.

Conclusion of Chapter 2.

After research we see definition of 'culture' as lifestyles based on patterns of thinking, value systems, determined by biological system of human being and territory, featured by local traditions and beliefs, that expressed in cultural heritage (material and non-material).

We found that for design research it is important to highlight that now it is difficult to speak about one specific culture, or about one isolated identity. That means that project in order to be culturally sustainable should aim at not only at specific ethnicity or physical appearance, but more 'liquid' cultural identity.

Through comparison, a number of cultural values are examined. Following analyses of different cultural values, <u>twelve promising cultural dimension</u> were identified based on a description of equivalent concepts. The set of dimensions and level of relativeness depends on in what sphere Interior design project to be implemented.

We remain convinced that that cultural sustainability of design project cannot be achieved completely if designer goes against system of beliefs shared in particular group or community, especially if in community reside multiethnic religious. Thus, religion – for both its constructive and destructive potential – must be considered in the sustainable development agenda, especially within cultural sustainability framework.

We conclude that interior design could be an agent for addressing the challenges of cultural sustainability operating within the context of globalization.

We argue that as biomimicry takes inspirations from nature to solve design problem the culture-mimicry can take inspiration from different national culture.

We argue that in order to achieve true cultural sustainability of any project designer should examine particular cultural and in all its diversity. Stating with correct identification of cultural identity of main stakeholders and main challenges of globalization. With particular attention designer should consider culture at different cultural levels and layers, applying cultural dimension approach, search for inspiration in national culture and local knowledge, not forgetting about creative communities and groups that practice sustainable subculture in particular territory.

CHAPTER 3. DESIGN FOR CULTURAL SUSTAINABILITY

In Chapter 3 we explore how cultural sustainability issues could be applied in particular problematic 'fields' where interior design encounter cultural sustainability, which is space, time and symbols. All the three create one meta-field where 'the battle' for cultural sustainability. Then we investigate most promising design approaches that could be applied in culturally sustainable interior design, and in conclusion we propose set of design criteria that could be used by interior design students as a guideline in developing interior design projects.

3.1. Cultural sustainability in Interior design

Human beings are animals, but a major distinction between human systems and ecosystems is the fact that, unlike other ecosystems that are governed by dimensions of time and space, human systems are governed by <u>time, space, and symbols</u> (including language). Another important distinction is **scale**. Humans are not just the dominant species we have substantially altered natural systems, in some cases irreversibly changing the conditions for all other life on Earth. Our use of symbols and abstract ideas is the very thing that allows us to have impacts over such a <u>large scale</u>. Our ability to harvest energy and use technology causes us to have far greater impact for our numbers than any other species does.
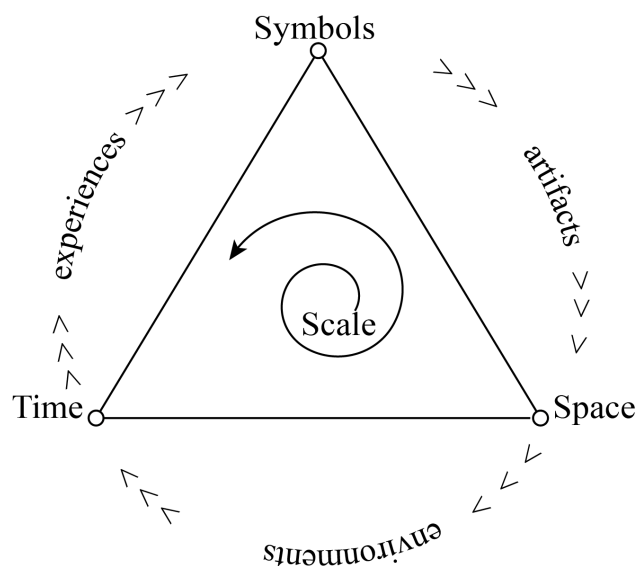

Figure 16. Field of Space, time, symbols and scale. Source: author's elaboration.

All these fields are interconnected and it is difficult to separate them from each other. Nevertheless we focus on some aspects of each field (we would rather use the term 'battlefield') to outline some problematic question each designer could face during design practice to promote cultural sustainability.

3.1.1. Space

We want real spaces to be just as exciting as the web. (Barbara, 2018)

As it was mentioned previously, in terms of cultural sustainability we need to rethink our connection to nature – the way in which nature is in fact part of culture as it shapes us on physiological as well as physical level. Interior and spatial design should aim at solving problems using cultural sustainability approach. Some of them we outline in this paragraph.

3.1.1.1.   *Consumerism of spaces*

One of the problem with space in unsustainable consumerism of spaces. In this sense we have passed from being inhabitants to being consumers of spaces, seeing space as a product. We witness demand for spaces that offer higher, more exiting more engaging performance, as if reality should generate the same adrenalin produced by gaming. We want real spaces to be just as exiting as the web (virtual one) (Barbara, 2018).

Being consumers of places means using values without producing new ones, which can imply cannibalizing resources, failing to build reciprocal relationships with the inhabitants, using the qualities of the space for ourselves. Places consumption could be compulsive, useless, bulimic, careless. For example, mass tourism transform cites into consumer goods. It is expected to provide constant performance, out of scale, out of season, distorting the very nature of the places. The space consumer has artifact predatory attitude, demanding an increasingly high level of entertainment, interaction and narration capable of channeling one experience or more (Barbara, 2018).

One helpful concept to analyze the significance of the media in culture and society is **mediatization** (Jansson, 2018). Mediatization is defined as a process of social change whereby media logic becomes ingrained into cultural and social areas of life (Silverstone, 2005). Mediatization is also connected to culture and cultural change. One aspect where mediatization becomes visible is in the accommodation of institutions to media logic (Lundby, 2009).

One of example of mediatization is so-called '**instagrammability'** of interiors and spaces. Potential or ability of 'likeness' of places arrived from reputation economy. Space is deemed well designed if, for example, people willingly spend time there, or simply because they express positive opinion about it. This view become the measure of the value of the project itself. The web becomes the best press office and especially social networks. If the

photo has lots of 'likes` it goes to the top of the ranking of visibility. Reputation is created by the judgement of consumers, clients and users (Barbara, 2018).

Place becomes simply a backdrop and photographer becomes protagonist. Certain museums becomes selfie-factories, where the art serve only to effective presence of the visitor in that specific place. The visit per se is less important than the shot to be posted. Recently, instagrammability is often seen as a part of architectural brief, especially in hospitality business. Paradoxically, interior and spatial design to be posted on social networks leads to new rules and new canons of post-Vitruvian proportioning (Barbara, 2018).

In more general view Ann Thorpe (2007) suggest new term '**visuality**' for the dominance of visual images in our lives and a one-way direction those images tend to flow. The global dominance of visual imagery means we're quickly connected to places and issues that might otherwise remain remote. Much of what we see in visuality looks real but isn't, creating physically unobtainable ideals. Visuality keeps us focused on external and largely material sources of satisfying our needs and squeezes out others internal methods for satisfying them. In addition, visuality often acts as pseudosatisfier, providing a short-term sense of satisfaction that is fleeting and leaves dissatisfaction in its wake. We begin to dismiss the value of our own reality, which isn't validated by the imagery we see in visuality, and instead we adapt what is shown as a 'reverse' validation.

We have to admit that commercially driven interior and spatial design per se is part of the problem as main protagonist of 'fashionisation' of interiors. The most frequent false expectation that interior designers experience is to be able to understand spaces through images. But copying images does not mean designing places, an activity that instead involves paying attention to light (natural and artificial); to sounds, present and generated; to odors, temperature, the physical touch of surfaces, the visual touch of finishes, the chromatic narrative, humidity in the air, the presence of other human beings.

Visuality could be seen as tween trends of materialism. Materialism suggests that person can define himself in terms of his/her material possessions and his/her physical appearance. It makes individuals to rely increasingly on things and appearances in trying to satisfy theirs human needs, to use appearance as a substitute for real meaning and experience.

The web is a big world, but at the moment it is prevalently filled with things that resemble each other, with a very similar flavor and tone. The libraries from which the market draws images and references are the same (mostly from Pinterest). Algorithms behind search

engine promote same search results (images) that depends not from cultural weight but almost randomly in sense of formality). Thus, everything has the same taste, everyone on the planet wants the same houses, the same accessories, equal all over the world. Because using the same tools makes us feel like part of the same time, the same humankind[61]. All these lead to the 'sameness' of interiors, places, cities.

We live in the era of compulsive response. So every time we interrupt what we are doing to react to new e-mail or messages continually threats concentration caused by this insistent stimulation. The arrival of a message often takes priority over any action in progress, which we interrupt to see the content that has just arrived. The new phenomenon that we can name '**walking a digital tightrope'** means paying no attention to anything around you, shutting out any stimuli that might arrive from the context in order to concentrate only on gadget. During digital interaction the body is often lacking in spatial and sensorial awareness of the surrounding space. It makes little difference if the space is dark, noisy, brightly lit, because the body is emotionally excited more by what happens across the screen than by what happens around (Barbara, 2018).

The spaces in which we exist suffer a bombardment of external stimuli that distract us. This is why certain spaces boost the tone of their presence with very noisy sonic backdrops, dazzling lights, bright colors, aggressive odors. The new frontier of spatial design has to do with the radical interpretation of this idea, taking stimulation towards full immersion (Barbara, 2018).

Biologically it contradicts to the environment that homo as biological specie lived for thousand years. To be aware of the environment, one must sense or perceive that environment. All living organisms on Earth have the ability to sense and respond appropriately to changes in their internal and external environment. Organisms, including humans, must sense accurately before they can react, thus ensuring survival. If our senses are not providing us with reliable information, we may take an action that is inappropriate for the circumstances, and this could lead to injury or death. The body senses the environment by the interaction of specialized sensory organs with some aspect or another of the environment[62].

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[61] We explored this issue in paragraph 'National culture vs globalization'.
[62] Maintaining postural equilibrium, sensing movement, and maintaining an awareness of the relative location of our body parts requires the precise integration of several of the body's sensory systems including visual (peripheral retina), vestibular (inner ear), somatosensory (touch, pressure, stretch receptors in our skin, muscles, and joints), somaesthetic (viscerae), and auditory inputs. Acting together, these systems constantly

In the industrialised West, **Nature** is <u>increasingly being proposed as a 'commodity'</u> to be purchased, in some cases at a high price and to be used in special privileged places. Any experience is considered and sold as a commodity. The beach, the trees, the healthy food, the clean air Nature in different shapes and packaging is now offered to us, in the version of 'product' or 'experience' to buy: the access to natural 'oases'; the travel and the stay; the guided tours; the organic food; the ecological products for personal care or home. Nature becomes a 'surplus' that the object or experience can contain.

The adherence to this model supposes that we feel our environment as contaminated, and we are constantly looking for ideals 'natural islands' that remove us from this condition. In fact, the most compelling attempt is to transform the surrounding into an 'island', a reality as uncontaminated as possible. But it reveals an over-exploited planet where there are no paradisiacal islands or unpolluted places.

At the same time<u>, nature should not be seen as a playground</u> for the weekend, a guided educational trail, a place to organize safe and sterilized visits, a corner increasingly narrow and remote to be searched when possible, as if it were, paradoxically, yet another artificial spectacle. <u>Nature is not ahead or around us, but simply we are the Nature</u>: it is the only reality we have and of which we are constitutively part. (Henderson, 2018).

We are witnessing a rematch of the nomadic way of life over the principle of territoriality and sedentariness. Now being smaller, lighter, more mobile is a sign of perfection and progress. Attachment to a particular place is not so important, as it can be achieved and left in the blink of an eye (Thorpe, 2007).

We deem to propose to use ecocultural neoregionalism as way of more sustainable development in design research. It means to vitalize new 'glocal' design approach as we discussed in paragraph 'National culture vs globalization'. The response to visual overexcitement that interior and spatial design can offer is sensefulness and sense-based approach. That should be scrutinized through further research.

> **Case study. Compact living.** Another way to reduce living space in apartment (unit of satisfaction) as sum of such trend as miniaturization and dematerialization. In UK average apartment size shrinks by more than a fourth since 2014[63]. At just 26 sq metres, the L&G/RHP homes squeeze living space down to levels never seen before in publicly

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gather and interpret sensory information from all over the body and usually allow us to act on that information in an appropriate and helpful way.

[63]   https://www.theguardian.com/money/2017/jul/15/prefab-sprout-off-the-peg-homes-bid-to-ease-uk-housing-crisis.

sponsored housing. New national space standards, introduced in 2011, demand that a one-bed flat for one person should be a minimum 37 sq m.[64]
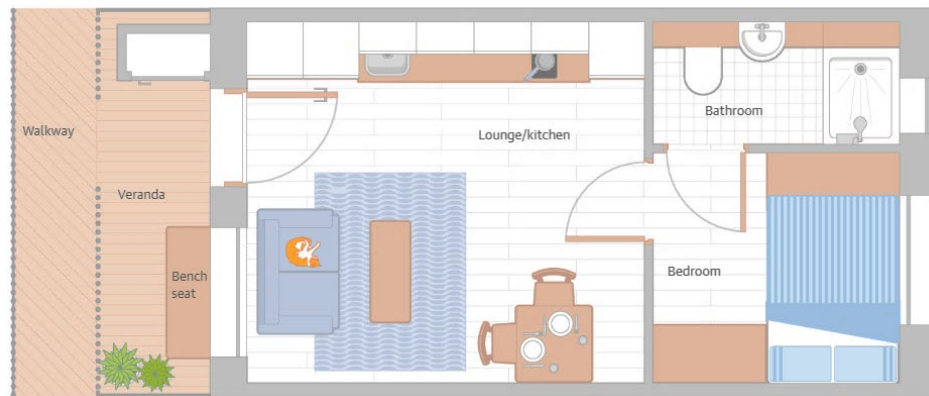

Figure 17. L&G/RHP home plan. Source: Richmond Housing Partnership Limited.

3.1.1.2. *Interior as a material bank*

Each brick, board, piece of wood or glass in a building has a value. These materials are often not reused after demolition or refurbishments, instead they are wasted, and a cost instead of an asset – in several ways. Sustaining the value of the materials is the key to circular material use – and ways to harvest this value is at the center of the circular economy. In a circular economy materials are kept in use for as long as possible. The key is to maintain the value of materials, products or components at the same level. Materials are valuable if they are accessible, functional and attractive. This requires that materials or building products can be removed from a building after their lifetime with minimal effort, contamination and without loss of quality.

Historically, building materials and products have generally been reused at a higher level to construct new buildings. In the last 70 years this procedure has decreased (Hobbs and Adams 2017).

A promising design approach (not only from cultural sustainability viewpoint) is to consider the building (interior) as a material bank, in which recyclable materials are stored (while it is also used for a function at the same time); at the end of their lifecycle, they are then dismantled and introduced to a new cycle. To facilitate this approach, during design

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[64] In this context the *effects of crowding* emerge. It could be broadly defined as the hazards associated with inadequate space within the dwelling for living, sleeping and household activities. Studies have reported that the level of crowding relates to the size and design of the dwelling, including the size of the rooms, and to the type, size and needs of the household. But usually national cultural aspect of space perception remains without due research. For example, average home size in US in 2013 was 250 m^2, whereas in Italy 90 m^2. (Retrieved from https://money.cnn.com/2014/06/04/real_estate/american-home-size/ and http://demographia.com/db-intlhouse.htm).

and installation it must be ensured that the respective material is available again after use (individually retrievable).

The problem is that in order to be effective this approach has to offer to users a meaningful and community-connected reprogramming, since not all materials are seen as sacred to people. In the following two case studies designers envisaged afterlife of materials that are even more important than first life[65].

Case study. People's Pavilion. **Bureau SLA + Overtreders W (Eindhoven, The Netherlands) 2017.** The pavilion is a design statement of the new circular economy, a 100% circular building where no building materials were lost in construction. The designers of the bureau SLA and Overtreders W accomplished this with a radical new approach: all of the materials needed to make the 250 m2 building were borrowed. Not only materials from traditional suppliers and producers, but also from Eindhoven residents themselves. 100% of the materials: concrete and wooden beams, lighting, facade elements, glass roof, recycled plastic cladding, even the Pavilion's glass roof, all of which were returned completely unharmed - with one special exception - to the owners following the DDW. 100% borrowed means a construction site without screws, glue, drills or saws. This, in turn, leads to a new design language: the People's Pavilion reveals a new future for sustainable building: a powerful design with new collaborations and intelligent construction methods.

Figure 18. People's pavilion. Architects: Overtreders W, bureau SLA, Eindhoven, The Netherlands, 2017. Source:dezeen.com

Case study. 'Hola Holanda'pavilion (2016). MVRDV's design for the Dutch exhibition 'Hola Holanda' at the Book Fair of Bogotá (FILBO) features a modular system of crates that will be repurposed as neighbourhood libraries after the Book Fair ends. Avoiding the waste

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[65] It reminds Christian and others religion dogma about life-after-death or Hereafter, that is more important than this life.

of resources created by one-time pavilions, the Dutch firm has introduced a playful element of sustainability to the fair, maintaining its spirit even after the event ends.

At the center of this activity, MVRDV's pavilion circumvents the common problem of pavilions and exhibitions disappearing after an event, rather than benefiting surrounding communities. The pavilions within the Dutch exhibition were designed as a collection of over one thousand 'vividly coloured' wooden creates, which can be easily deconstructed and re-assembled.

Each unit uses standardised wooden panels, leaving little waste material, and allowing 'unlimited possibilities for reconstruction throughout their lifetime.' After the event, the pavilion's elements were distributed throughout Bogotá as libraries, and social and education spaces. Instead of trashing an expensive pavilion after a short use materials was reused adding long term value to the city.
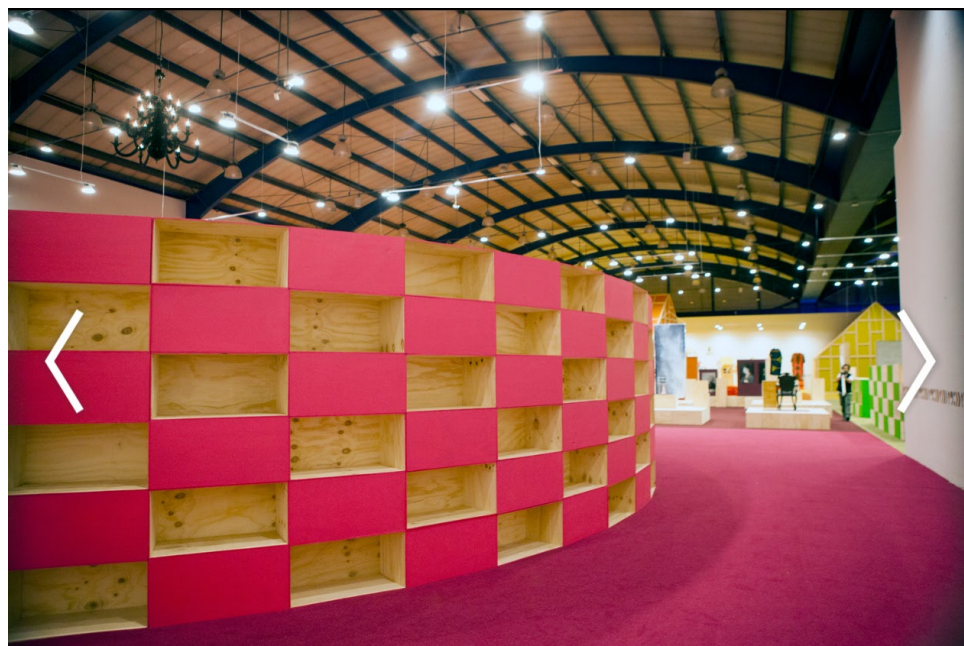
Figure 19. MVRDV, 'Hola Holanda'pavilion at the Book Fair of Bogotá (FILBO), 2016

Another problem from cultural sustainability's point of view is light pollution of our planet - inappropriate or excessive use of artificial light, a side effect of industrial civilization. Its sources include building exterior and interior lighting, advertising, commercial properties, offices, factories, streetlights, and illuminated sporting venues. Artificial lights raise night sky luminance, creating the most visible effect of light pollution—artificial skyglow. Notwithstanding its global presence, light pollution has received relatively little attention from environmental scientists in the past

The fact is that much outdoor lighting used at night is inefficient, overly bright, poorly targeted, improperly shielded, and, in many cases, completely unnecessary. This light, and the electricity used to create it, is being wasted by spilling it into the sky, rather than

focusing it on to the actual objects and areas that people want illuminated (Falchi et al., 2016).

Due to light pollution, the Milky Way is not visible to more than one-third of humanity, including 60% of Europeans and nearly 80% of North Americans.[66] It means that artificial brightening of the night sky represents a profound alteration of a fundamental human experience—the opportunity for each person to view and ponder the night sky (see paragraph __ where we discuss connection between nature and astrology).

The interior designer's task is to limit the light pollution effects and, at the same time, allow for the lighting that is usually perceived as a need by people.

In conclusion, we have the ability to know places, landscapes, and ecosystem like a <u>close friend</u> - precious in their entirety. Fortunately, the relationship between perceived similarity and empathy is bidirectional, the more we practice empathy in our engagements with others, the more we experience a sense of connection and familiarity. It means that if we feel passion and empathy to landscape and to the nature, which surround as we do towards human beings, we can care more about this environment. In this case we can be more responsible and we can change our behavior easily in respect to another situation where we do not have strong relationship with that place.

The <u>better we know some particular place the stronger connection we have with it</u>. Consequently we more ready for action to protect this habitat. In this case and the significant role and the successfulness of interior designer depends on how good we know this place. We can't care too much about the place we never been there but instead if we connect our future with some particular place - we will protect it much more efficiently. To summarize we can say that having empathy towards environment is much more important than classification or scientific study of this place. In contrast if we see then environment as living organisms only, as an object for our scientific research we label it and once it is done, we lose interest and stop to wander (Thorpe, 2007).

To our opinion interior designer must have general ecological knowledge of his/her own local bioregion. For example, final destination of garbage, primary sources of pollutions, native plants of region used for virgin raw materials or resource flow through the city.

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[66] Immanuel Kant in his book '*Critique of Practical Reason*' wrote his famous line: "Two things fill the mind with ever new and increasing admiration and awe, the more often and steadily we reflect upon them: the starry heavens above me and the moral law within memory… I see them before me and connect them immediately with the consciousness of my existence." Could he come to the same conclusion living in contemporary city? Probably no, just because he could not see the stars.

Community members who live in and on a landscape build competencies and knowledge about that landscape, and therefore provide unique insight into collaborative design (Davidson-Hunt & Berkes, 2003).

3.1.2. Time

Considering time as cultural phenomenon and exploring the role of time in cultural sustainability concept we start with assumption that it has long philosophical and rhetorical tradition that contrasts *kronos* (chronological time) to *kairos* (the opportune moment, the 'right' time, or, as in contemporary Greek, the weather). Sustainability suggests a succession of individual lifetimes—an unbroken sequence of embodied experiences from the past and into the future that presupposes sociocultural evolution taking place against the backdrop of the timeless present of a long-lasting Nature (Cohen, 2012).

As Ann Thorpe (2007) argues in addition to reducing our focus from the community down to the individual we have reduced our time horizons. Impatience characterize the citizens of our century. We seek quicker and easier routes to well-being and expect our individual needs to be satisfied instantaneously or in the immediate future, whereas in the past we used to consider the best interests of the community over the long term, or contemporary focus centers on the short-term individual.

The main threat to cultural sustainability represents **speed and short-termism**: these are the two key dimensions of time. It is clear that cultural sustainability has an important dimension related to **time** if we aim to create meaning from internal or community processes and not from global commerce. Speed is an obstacle to cultural sustainability because it disconnects us. Short termism undermines cultural sustainability because it doesn't respect the past or the future.

Without a bigger sense of time we don't gain a connection to the people before us or those after us. Future generations who have no input to our decisions will experience the cumulative effect of all our very short-term decisions. Satisfying human needs well is primarily a slow process, not a fast one. But now we are so accustomed to the speed of the web that the idea of standing in line, of waiting, is no longer acceptable. The thrill of the network creates dependency. For example, it disconnects us from reflection. Speed also disconnects us from our investments. It reduced the resilience of our cultural systems: there is little left to maintain long-term stability or memory. Design offers ways of translating or transitioning between fast and slow knowledge and fast and slow layers of society. (Thorpe, 2007).

The 'Short Now' suggested the possibility of its opposite – the 'Long Now'. 'Now' is never just a moment. The 'Long Now' is the recognition that the precise moment you're in grows out of the past and is a seed for the future. The longer your sense of 'Now', the more past and future it includes (Eno, 2000).

Stewart Brand (1999) suggest for 6 levels of pace and size so that when the whole system is balanced it combines learning with continuity. From fast to slow the layers are art/fashion, commercial, infrastructure, governance, culture and nature. Culture in this sense includes such features as religion and language. Our Western civilization has lost the balance among its layers as the commerce layer (resting firmly on technological change) has assumed a dominant role, driving nearly all other layers to exist at its pace. This is leading to the loss of slower layers, including nature and culture.
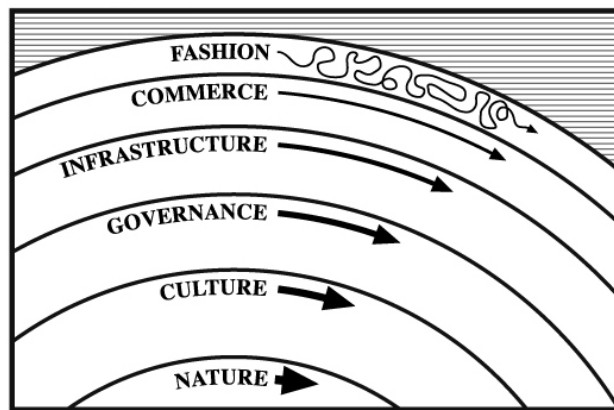
Figure 20. Pace layering. Source: Brand (1999) 'The clock of the long now'.

In Pace Layers the relationship between layers is key to the health of the system. More specifically, the conflicts caused by layers moving at different speeds actually keeps thing balanced and resilient.

Using scheme proposed by Brand (1999) we can apply cultural sustainability profile. It ought to have triangular shape (or better, amphora shape) with base on culture and nature and peak (minimum) at fashion/art zone (outer layer). On contrary, culturally unsustainable design solution would have bottom up triangular shape: trends to be changed next year that contribute to higher level of consumerism, material consumption and waste accumulation.
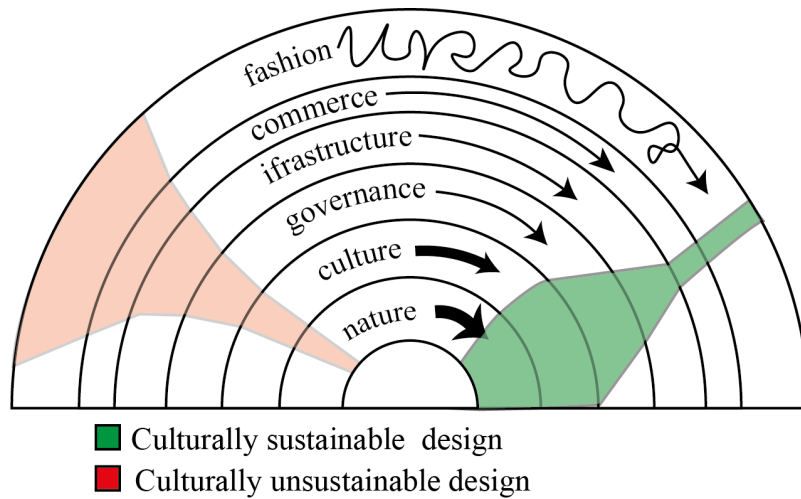
Figure 21. Sustainable design profile and pace layering. Source: author elaboration.

Reinterpreting the scheme we can apply same principle to cultural levels (see paragraph __). The slowest pace has cultural universalities: during last 10 000 years little has been changed. This level profoundly interwoven with nature but not equal to biology. The second slowest pace is culture of local communities. They closer to the pace speed of cultural universalities and existed long before national states were born. As it was mentioned previously national states could be seen as common myths that exist only in people's collective imagination until we believe in them (Harari, 2015). We deem to consider international organization (first of all UNESCO and other UN bodies) as accelerators that during last four decades advocate and promote idea of cultural sustainability at international level. It should be admitted that national states often follow program reluctantly only because this is topic of international agenda. Art and fashion are the fastest cultural layer that constantly changing (or at least should changing minimum once a year).
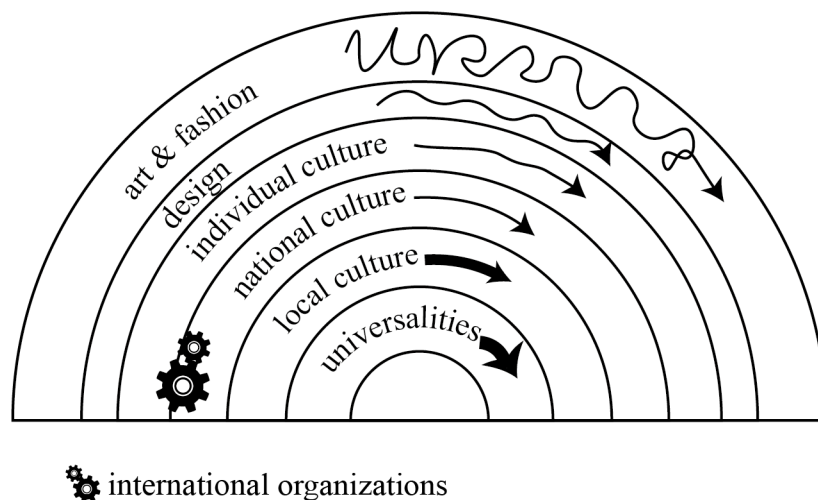
Figure 22. Pace layering of different cultural levels. Source: author elaboration.

Here we also could apply analog profile of culturally sustainable design project, that has to be based on cultural universalities with central role of national and local culture and only smallest part of project could engage art and fashion.

Concept of time is highly related to concept of memory. Nora (1989)pioneered concept of memory as connected to physical, tangible locations, incorporated as *lieux de mémoire*. Memory goes beyond just tangible and visual aspects, thereby making it flexible and in flux. For example, at sensory level, a smell or a sound (song) can become of cultural value, due to its commemorative effect. The problem of memorialization our past is the fact that it is absent. It becomes a 'present past' (Terdiman, 1993). This desire for recalling what is gone brings to surface a <u>feeling of nostalgia</u>, noticeable in many aspects of daily life but most specifically in cultural products[67].

Speaking of embodied memory in object it is safe to say that the most powerful object in term of embodied memory is photography. Pictures can stimulate memory, but can rather eclipse the actual memory – when we remember in terms of the photograph – or they can serve as a reminder of our propensity to forget.

Edward Chaney has coined the term *'Cultural Memorials'* to describe both generic types, such as obelisks or sphinxes, and specific objects, which have meanings attributed to them that evolve over time.

Guy Beiner (2015) argued that studies of cultural memory tend to privilege literary and artistic representations of the past. As such, they often fail to engage with the social dynamics of memory. Monuments, artworks, novels, poems, plays and countless other productions of cultural memory do not in themselves remember. Their function as *aides-mémoire* is subject to popular reception. We need to be reminded that remembrance, like trauma, is formulated in human consciousness and that this is shared through social interaction'.

The aim of spatial design is to delicately work with all that materials. It is quite impossible to predict the perception of particular artifact in interior design and parametrize outputs. In this context we see strong connection with <u>slow design</u> approach (see paragraph 3.3.)and many local knowledge and practice[68].

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[67] For more detailed exploration of how design interpret memory in object see paragraph 3.3.1. dedicated to Emotionally durable design.

[68] For example, The Seventh Generation Principle is based on an ancient Iroquois philosophy that the decisions we make today should result in a sustainable world seven generations into the future. Also *Hygge* help defending against the terror of time - while at the same time providing a sensibility for how a space

As the term 'embodied' is widely used in field of sustainability (referring to embodied energy) this term also could be used for examination of **culture embodied objects**. Space full of **culture embodied objects** represent meaningful habitat. On contrast, the space were anonymous, standard and meaningless objects are presented (for example, standard set of furniture) hardly evoke any memory.

The artifact or set of artifacts can also be seen as a container, or carrier of memory of two different types: personal or collective. Souvenirs and photographs inhabit an important place in the cultural memory discourse. The relationship between memory and objects has changed since the nineteenth century. Products, according to Terdiman (1993), have lost 'the memory of their own process' now, in times of mass-production and commodification. At the same time, the connection between memories and objects has been institutionalized and exploited in the form of trade in souvenirs. These specific objects can refer to either a distant time (an antique) or a distant (exotic) place.

For the purpose of our research much more interesting is the aspect as *memory-embodied recycled materials*. We define them as recycled raw materials with strong presence of collective or personal memory embodied inside, that could create new meaning in after-life using, which is more valuable from cultural sustainability's point of view.

> **Case study.** Diederik Schneemann operates in the niche between Art. His works are often derived from something that already exists. His latest works revolve around the concept of collecting. In search of new interesting materials to work with, Schneemann stumbled upon some old, discarded and unique collections cherished by people in the course of many years, often decades. Such hidden collections, like matchboxes, pins, postcards, smurfs or perfume bottles represent a highly personalized 'Cultural Memorials'.
>
> Usually memory-embodied recycle materials demand less energy comparing to 'raw' recycled. It keeps the in-between status of something that used to be (in this case a collection) and reborn upcycled material with memory.

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might be designed to offer its inhabitants a salutary sense of fixity. Hygge is also very much about slowness and a striving for presence and in this way might offer strategies for the shaping of environments and atmospheres that could provide relief and shelter from the alienating effects of hypermodernity's speed and anonymity (Wilson, 2015).

*Figure 23. D.Schneemann's objects form 'Cherished' project . Fuorisalone 2019.
Source: author's photography.*

Designers must adopt a multi-term design perspective. In other words designers are asked to focus on different time perspectives: the long-term one (designing of the concept vision), and the short- and medium-term ones (designing of the steps to be undertaken to orient the societal embedding process towards the achievement of the project vision).

> **Case study. Shelves for Life[69].** When it comes to sustainability, the term cradle-to-grave is often frowned upon. But in this context, 'cradle-to-grave' is quite eco-friendly. A coffin takes a significant amount of wood to make but is ironically one of the only things that people purchase for themselves and never actually use in their lifetimes. Buying a Shelves for Life system allows a person to rest in peace knowing that their coffin was repurposed from a piece of furniture that they already owned, meaning that no extra trees had to be cut down and no extra energy had to be expended (aside from the human energy it takes to assemble the coffin). Since coffins are expensive why burden family with the design decisions associated with choosing a casket during their time of mourning? With a Shelves for Life system, they won't have to shell out any extra dough or look through any confusing coffin catalogues: they can just put aside your stuff, and reassemble shelves. Aesthetically being in a shelf-yet-form it doesn't resemble the coffin at all. What gives meaningful appearance and neutral style.

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[69] Retrieved from: http://www.williamwarren.co.uk/2009/10/shelves-for-life/
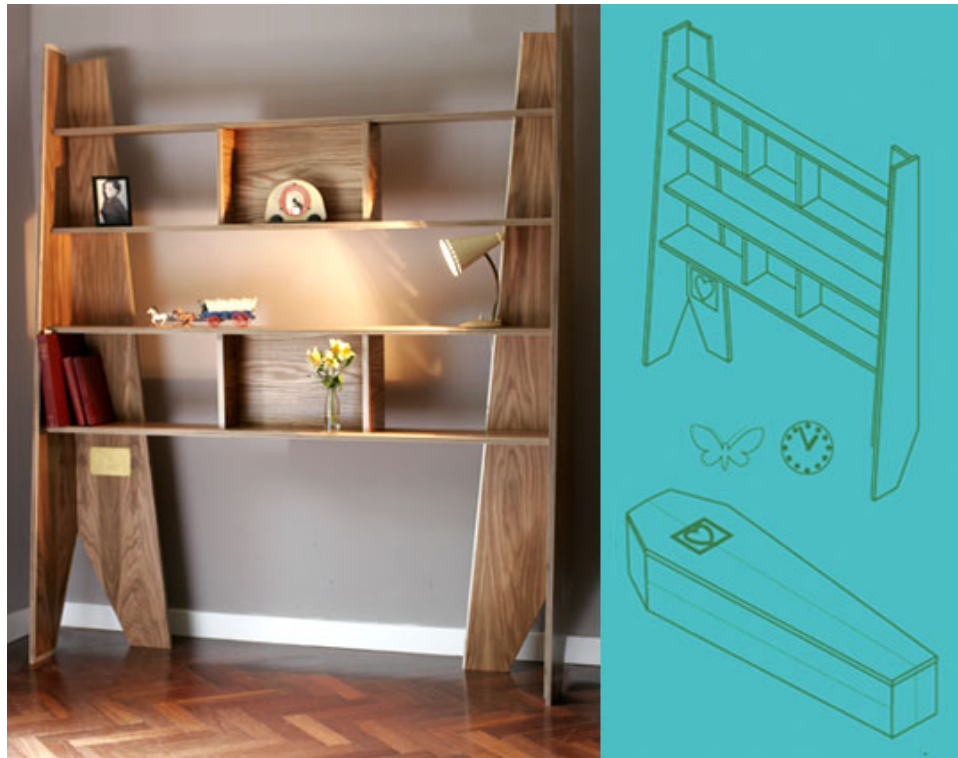
Figure 24. Shelves for Life. Source: William Warren. Retrieved from http://www.williamwarren.co.uk/2009/10/shelves-for-life/ .

3.2. Symbols

> *'The interdependence of identity and context is so strong that psychologists speak of a 'situational personality.''*
>
> *Juhani Pallasmaa*

Culture is symbolic communication. Some of its symbols include a group's skills, knowledge, attitudes, values, and motives. The meanings of the symbols are learned and deliberately perpetuated in a society through its institutions. Human beings are animals, but a major distinction between human systems and ecosystems is the fact that, unlike other ecosystems that are governed by dimensions of time and space, human systems are governed by time, space, and **symbols** (including language). The symbolic dimension of human systems allows us to detach from local environments because we can think and communicate with abstract ideas. This thinking allows us to effect on our own situation and also to embody our knowledge in technology and tools.

The symbolic dimension of culture: culture as semiotic, drawing on symbols as vehicles, arguably as the broadest view of all, including as it does both intentional and unconscious behaviour.

Ann Thorpe argues that the lost social elements sometimes called 'symbolic resources' also tended to promote a longer-term perspective. Having lost appropriate social symbolic resources we have turned to material goods. The things we own project and identity for others to see - whether that identity is real or just an appearance. For designers the key question is how we can help to provide symbolic resources, but in such a way that they are not so materially intensive and that they are more internally or community driven rather than externally and commercially driven. Also we need to avoid favoring the present too heavy in artifacts.
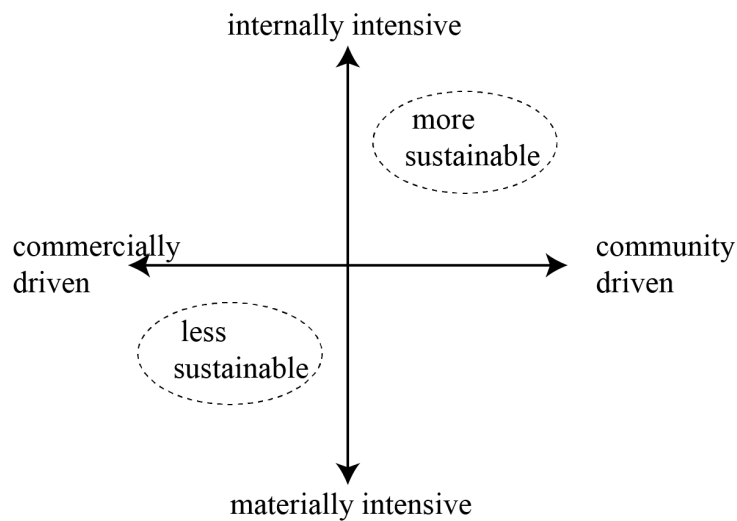
Figure 25. Cultural sustainability of artifact. Source: author elaboration.

3.2.1. *Capability in cultural context*

One of the most important factor for effective implementation of sustainability in everyday life of any person is a particular set of capabilities. A capabilities approach suggests that all humans have capabilities that become functioning through an exercise of their agency guided by cultural values. Capabilities are things, such as resources, assets or capitals that are culturally and socially constructed. For example, if a person does not perceive the utility of a thing, or believes it is taboo to use a thing, then it does not fall into the set of possible resources, assets or capitals of which they can make use.

Central to both design and the capability approach is the idea of an individual as starting point, seen as culturally endowed beings who act and create as part of complex social networks. In a seminal paper about the standard of living, Sen (1984, 1985, 1992) put forward the idea that individual well-being has to do not solely with income levels, but with the freedoms or 'capabilities' enjoyed by the individual. In order to achieve a sustainability individuals and societies must change the set of capabilities available to them for future action.

Capabilities are the potential functionings of people. Functionings are beings and doings. Some examples of functionings are being well fed, taking part in the community, being sheltered, relating to other people, working on the labour market, caring for others, being healthy and living in harmony with nature (Nussbaum, 1998). While functionings are achievements or outcomes, capabilities are the freedom or opportunities to achieve (Robeyns, 2003).

On the one hand, a capability-based approach to consumption differs fundamentally from the utilitarian approach, which considers exclusively whether people get pleasure from their consumption choices. Instead the capabilities view changes the focus from the subjective feeling of pleasure or satisfactions to objective criteria like opportunities for health and participation. It revives the concern with poverty and deprivation, which had been lost in utility theory. On the other hand, its emphasis on opportunities rather than outcomes preserves some of the respect for individual choice, which is one of the key concerns for critics of the needs-based approaches.

The capability approach allows distinguish between someone who has to walk because they do not have any other means of mobility and those who choose to walk for environmental reasons. The capability approach directs us to investigate whether societies, and societal consumption patterns, would permit people to live healthy lives, in harmony with each other and with nature.

Thus, Sen's approach underlines the fact that simplistic appeals to consumers to forego material consumption will be unsuccessful. Such appeals are tantamount to demanding that we give up certain key capabilities and freedoms as social beings.

The capabilities approach is merely a normative tool, which can help to frame discussions about lifestyle choices, but it does not allow us to derive goals and criteria directly. It gives the possibility that we could significantly reduce material impact without compromising our well-being.

While Oosterlaken (ibid.) suggests that the role of design is to increase the set of capabilities available to human agents, Sen's work has noted that it is in the exercise of agency, in a specific time and place, in order to achieve a particular functioning, that individuals and societies change the set of capabilities available to them for future action.

In this context the most urgent issue is reconsidering of the attitude <u>towards waste</u>. Non only in term of waste management but on much more deeper level. Waste must be seen as a new raw material.

3.2.2. Artifacts

For the purpose this research we will use the term 'artifact' to denote as a wide range of designed mass manufactured products and craft-made products (furniture, ceramics, textiles etc.). We will consider interior spaces as collection of artifacts controlled by the interior designer.

Artifacts also contribute emotionally to human well-being, and in these emotional dimension of artifacts that has changed the most overtime. Historically, the emotional and cultural meaning behind material objects originated with the community. Individuals were more closely involved in making all the items they needed in order to survive as well as creating what they wanted for entertainment and leisure. In this sense<u>, making and using</u> artifacts was more important than <u>buying and owning</u> them (Thorpe, 2007).

Previously, artifacts held much stronger links to the past and the future common since most material goods were passed from one generation to the next. Artifacts, which were all handcrafted, also held cultural meaning, serving as symbols of community roles or expressions of religious or social values. Tools, including ceremonial objects, were deployed with care because of their expense and scarcity. The community and its activities where the primary source of meaning and experience. Participation in community life supplied symbolic meaning. They satisfied the needs for connectedness, self-understanding and creativity (Thorpe, 2007).

In our century we are largely lacking the commonly accepted social rituals and other social markers that historically supported personal identity, cultural meaning and community coherence.

According to Borgmann (2009), current products reduce the engagement of the user, by focusing on the performance linked to their main function and exclude the user from usage or maintenance aspects. The results are '*black-box'* products, unable to offer autonomous production of use-values (Maycroft, 2004). Users are no longer concerned with how the product completes the required function and are unable to perform minimal repairs. Moreover, designers must encourage users to become active participants in the design process, 'embracing ideas of conviviality and exchange to foster social accountability and enhance communities' (Strauss and Fuad-Luke, 2008, p6).

120

Case study. Achille and Pier-Giacomo Castiglioni were pioneering Italian designers in this area and could arguably be considered as the first critical designers. They moved away from formal development towards ready-made and ad hoc approach in their design work. The *Sella stool (1957)* implies new combinations and ways of using existing things through which the Castiglionis aimed to endow the product with an individual object character. The results were objects that were familiar form but had a de-familiarizing effect that encouraged the user to interpret the object and its use (Malpass, 2017). From the cultural sustainability point of view ready-made familiar objects could create more profound attachment between user and territory.

Figure 26 Sella stool (1957). Achille and Pier Giacomo Castiglioni. Source: Zanotta.

The pressure to create immediate benefits to consumers forces design to focus on the short term as well as to create artifacts that 'de-skill' that is, objects that don't require much skill to use. Fewer skills are needed and thus people are less engaged by the material environment, because of design 'disburden' the users by hiding technologies that 'do they work' and then putting the focus on the style of the outside package aesthetic design. The overall movement is a move from the user engagement to user disburdenment (Buchanan & Margolin,1995).

For example, even preparing cafe in *Moka* pot requires some skills and knowledge whereas in Nespresso capsule machine de-skilling is more obvious. Another example from field of interior design and architecture could be process how to open/close window. Even this prosaic everyday action required knowledge of local window hardware (lock mechanisms) that depended on whole window system and more generally local architectural thought (for example, *Cremone bolts*). Nowadays, across the world manufacturers and architects preoccupied with window shape and thermal efficacy, programming interaction with window to be as simple as possible, i.e. de-skilling users. As a result of universal sameness of window lock mechanisms we have sameness of skill (de-skill) and disconnectedness of individuals from its territory[70].

3.2.3. *Beauty and aesthetic in cultural sustainability*

> *We have abandoned the desire for beauty in favour of ... a right to be beautiful.*
>
> *Walter Mariotti* [71]

Beauty, which is perhaps the most global measure of aesthetic judgment, is among the most frequently measured qualities in empirical aesthetics. Beauty has long been regarded as an

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[70] Here, although we witness flipside of medal. As soon as the particular cultural skill of interaction with interior (never mind how complicated it is) becomes routine - it lose its reflectiveness. Deep neurobiological mechanism removes learned skills from conscientious field to unconscientious to allow us focus on more urgent task with less fatigue. The brain finds ineffective to puzzle itself with same task of opening window every day. It means we see uniqueness of artifact only when it is external to our daily practice.

[71] https://www.domusweb.it/en/opinion/2020/03/31/from-beauty-to-beauticians.html

important quality of architectural design in cultures around the world. Efforts to understand environmental beauty have gained traction in both environmental psychology and architectural research, perhaps because of the growing view that 'attractiveness is a key element in how the built environment affects our wellbeing' (Cooper & Burton, 2014), as well as the primary role that beauty plays in our desire to live in a place.

At that time when Wells first introduced in 1969 Wilderness-Based Checklist for Design and Construction there were no special provisions for interior design since it was considered as a secondary part of architecture. Out of 15 checklist parameters proposed by Wells, only the last one could be considered as related to cultural sustainability, i.e. building must be beautiful: 'when architecture draws its lessons from the wild, beauty will no longer have to be applied. That's an empty exercise. Organic rightness – appropriateness – will repair the broken connection between architecture and its roots' (Wells, 1981).

It seems obvious, that such category as beauty has been always presented in theoretical discourse on architecture since *Vitruvian Ten Book on Architecture*, where he first claimed that all should be built with due reference to durability (*firmitas*), convenience (*utilitas*), and beauty (*venustas*) from Latin: venustus , beautiful, elegant, loved or that arouses love, from Venus. The venus is first and foremost the physical beauty, of the body - female species, referring directly to the goddess of beauty.

In 20th century Modernism either mixed or replaced the term 'beauty' with term 'function'. Wells was one of first who has named *beauty* as one of criteria of sustainability, which is still the most complicated and most important factor of cultural sustainability.

By aesthetics, we mean the complex set of characteristics that make an artefact appealing and satisfying.

It should be noted that that traditional western notion of aesthetics may pose one of obstacle to culturally acceptable sustainable design. It is not to say that aesthetic in design is overestimated or contradict to cultural universalities. At the same time the concept is in great part mythologized by western mindset. From neurobiological point of view this is no more than neurostructural patterns presented in our brain plus occasionally (but not spontaneously) cultural paradigm of group of people locally inhabits which, in turn, is a dominated set of superstitions taken in particular period of time. The Golden ratio as well as Vitruvian man is not universal law, but artistic principles or myth dominated in western

civilization[72]. Now we need to imagine plurality of aesthetics: aesthetics that is born from sustainability values and then transformed into different shapes.

Clino Trini Castelli proposes a new language as dignity of the <u>recycled materials,</u> being concerned of not finding any aesthetic dimension capable of expressing their ethical value in the first place. This research led to the definition of the concept and of the 'Native' figurative language (Castelli, 1997), i.e. the aesthetics of the 'rising state' that allowed, to overcome the traditional opposition between nature and artifice and the commonplace according to which only natural materials are eco-friendly, filled with contents, rich in symbolic and emotional values, bringing innovative information'.

According to Andrea Branzi sustainable development requires a radical aesthetic response that 'resets the quality issue, and goes back to touch things for what they are, organizing them according to new relationships, not according to new shapes' (Branzi, 1995). We need new 'everyday life aesthetics' (Petrillo, 1995). Ezio Manzini is convinced that aesthetics is a fundamental driver of change, a 'social attractor' that can contribute to direct the choices in this transition phase towards sustainability. No aesthetic renovation comes without founding itself on a value system (Vezzoli & Manzini, 2008).

There is a common negative perception of recycled materials. They are perceived as being inferior in quality compared to virgin materials, both aesthetically and for safety reason. The key for improving the overall perception of reused materials in the market is a growing number of successful show cases. In addition, an improvement of the practice of reused materials' assessment can prove their appropriateness for construction.

It means we need the research on materials, which re-examines and redesigns them with the eye of the scientist but also of the designer, able to give value to the most humble as to the most sophisticated; the acceptance of waste, the broken, the dirt and residue as a concrete and scientific starting point for the project, the basis for an aesthetic conception far from the aseptic nature of the rationalist object.

> **Case study. Alehandro Aravena installation at Biennale 2016.** Architect created installations in the first rooms of both the Arsenale and Central Pavilion venues using seven miles of scrap metal and 10,000-square-metres of plasterboard (100 tons) of waste material from last year's Art Biennale. Lengths of crumpled metal channelling are suspended

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[72] Dr Keith Devlin, a Stanford University mathematician, stated that Euclid had never claimed the ratio had any aesthetic qualities, an idea largely invented by Gustav Theodor Fechner, a 19th-century German psychologist. More recently it appeared in a 1959 educational cartoon, Donald in Mathmagic Land, and Dan Brown's The Da Vinci Code.

vertically from the ceiling like fringing in the first room of the Arsenale. Similarly, the walls are covered by stacks of multi-tonal plasterboard that incorporate display shelves[73].

Figure 27. entrance rooms of Venice Biennale 2016 by A. Aravena. Photography is by Luke Hayes.

While it is not clear what exactly drives the difference between naturally occurring aesthetic domains and cultural artifacts, the authors argue that it may have something to do with the relevance of these different domains for everyday behavior. E. Vessel (2018) suggests that perhaps 'aesthetic judgments of faces and landscapes are more likely to have actual consequences for daily decisions' than are judgments of artwork or architecture, which leads different people to value similar sets of features. Previous studies have shown that people - regardless of ethnicity and cultural background - prefer faces that are symmetrical and particularly masculine or feminine. In the case of landscapes, generally open views, the presence of water and signs of human use are positively assessed. In this aspect the beauty concept (in its universal dimension) is very close to the biophilic design approach, that will be analyzed further.

Figure 28. Bomb Drinks Cabinet. Source: Plane Industries.

Case study. Luxury upcycling. Plane Industries' projects idea is taking pieces of existing materials, adapting them using sustainable techniques, and adding an eclectic mix of materials. There may often be a misconception that upcycled products are by nature not luxurious. Plane Industries is a British furniture brand with a focus on authentic aircraft parts as our core material of choice. Founded in 2013 by two brothers new life and new purpose are given to old materials and old objects. Each piece of aviation furniture has a unique history, provenance and a story attached that is linked to the heritage and beauty of flight.

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[73] Retrieved from: https://www.dezeen.com/2016/06/02/venice-architecture-biennale-2016-recycled-waste-exhibition-entrances-alejandro-aravena/

> Standing more than eight feet tall and weighing 600 pounds, the mirror-polished Cluster Bomb Drinks Cabinet is a truly unique piece of furniture. Behind the gleaming 1970s missile fuselage, three glass shelves revolve around a gold-plated spindle; while in the base, a sliding platform built from lacquered American walnut conceals an armoury of custom-made cocktail utensils. With its potent fusion of industrial heritage and high-end craftsmanship, this breathtaking cabinet is without equal[74].

3.3. Cultural sustainability in different design approaches

During this research the author has studied numerous design approach and design practices to find most promising from cultural sustainability's point of view and could serve as base for development of new design approach - **design for cultural sustainability** . The design strategies of sustainability are just as plural as are the aesthetics that now affect the design project. As we have seen through the design approach examples, today very different approaches coexist.

Based on the assumption that the issue of consumption, lifestyles and needs of end users have crucial importance in the discussions about sustainability we conclude that we should study 'Culturally oriented' sustainable design approaches among which we could single out two groups of different design approaches (depending on the level of development and importance culturally sustainable design:

1) Most important and elaborated for s cultural sustainability design approaches are:
    a. Emotionally durable design (EDD);
    b. Design for sustainable behavior (DfSB);
    c. Biophilic design.
2) additional design approaches, that also could be valuable are:
    a. Critical design;
    b. Open design;
    c. Design for appropriation (DfA);
    d. Slow design;
    e. Biocultural design;
    f. Design for social innovation;
    g. Human oriented design (HOD) or human-centered design;
    h. Transition design.
3) Design approaches that belong to other 3 pillars but not to cultural one:

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[74] https://www.scmp.com/magazines/style/article/1809039/luxury-upcycling-gaining-momentum-world-interior-design

a. Cradle-to-cradle (C2C);

b. Sustainable product-service system (S. PSS);

c. Ecodesign;

d. Green design;

e. Design for the base of pyramid (DfBoP).

The relationship of different design approach could be better understood if represented on the following Cartesian diagram (where X and Y extremums represent 4 pillars of sustainability).
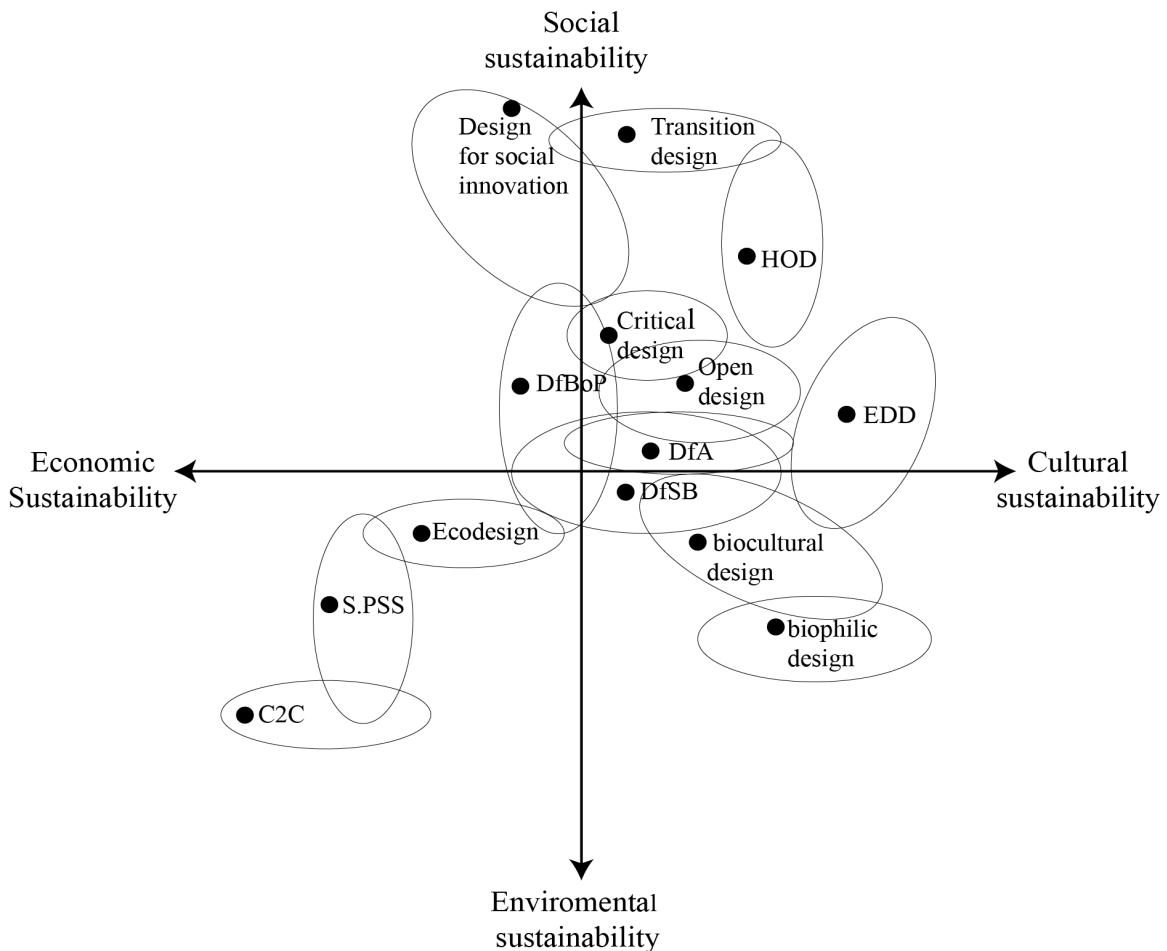
Figure 29. Diagram of relationship of different design approaches in cultural sustainability.
Source: author's elaboration.

We will investigate first and second groups. As for the third group, that we have already touched in paragraph 1.2., we believe that these design approaches contribute little to cultural aspect of sustainability, though they have more developed theoretical basis. It is safe to say that cultural sustainability, if applied in holistic way to the third group, would increase effectiveness of the latter.

Some of design approaches overlap each other and framework is constantly moving. Each approach has been developed by some designer/scholar. They use some common pull of

elements and tools, so sometimes the approaches overlap each other in terms of that elements. To achieve comprehensiveness of their approach authors gradually include more and more new elements from related fields of design studies. Most systematic approach becomes at the end commercial product in form of assessment tool[75].

Before focusing on first group of promising design approaches we briefly review the second group of supplementary design approaches, as they propose useful insights as well.

Starting from the second half of the 2000s **Emotionally durable design (EDD)** strategies were developed as a challenge in reducing consumption. Emotionally durable design aims to enhance the emotional tie between the user and the product in order to delay or avoid product replacement. EDD will be explored further in paragraph 3.3.1.

At the same time **Design for sustainable behavior (DfSB)** aims to address use- related impacts by implementing strategies that target influencing user behavior so that it tends towards pro-environmental modes.

EDD and DfSB both require insights from psychology and behavioural sciences, and implementing DfBoP also requires input from development studies and anthropology. S.PSS design, in addition to know- how on product, service and business model development, requires a basic level of understanding of systems, as the successful functioning of any PSS depends on being able to properly conceptualise the interrelationships between the products, services, providers and users across time and space.

In **Design for social innovation**, systemic understanding is also necessary; however, the emphasis is on social, organisational, political and economic relationships. In design for social innovation, two skills that are particularly necessary are group facilitation and the infrastructuring of communities. In design for social innovation the main role of design shifted from designing for a target group to <u>designing with communities</u> to assist them in meeting their own needs.

Human oriented design (HCD) is a model of human centered sustainable design first and foremost take an expensive view of people and their context, beyond the limited notion of users who merely interact with products, communications and services in an input-feedback-action loop. HCD recognizes that people are complex, emotional and intellectual

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[75] For example S. R. Kellert E. and O. Wilson in 1984 coined the term 'Biophilia', then they elaborated biophilic design principles, then establish The International WELL Building Institute™ (IWBI™) and at the end developed WELL Building Standard™ (2014) WELL v2™ (2019) assessment tool.

beings. The interrogation of empathic research practices reflects an appreciation of learning about people and places through not only facts and figures, but also all of the senses.

If design is understood as transforming current situations into preferable one sustainable design necessities defining preferred in terms of the health and durability of human any and natural communities. Therefore, practicing sustainable design includes and underlying shift in how we relate to the world. If we value all of life and see the world as a complex system of dynamic, interrelated entities, our design decisions are more likely to support its continuation.

Transition design expands problem contexts and objectives to address problems in social, cultural, and economic domains, often outside the context of the business and consumer marketplace (Irwin, 2015).

Transition design focuses on the transformation of socio-technical systems through technological, social, organisational and institutional innovations. In this regard, it can be understood as an overarching approach which embodies the other approaches, including S.PSS and design for social innovation. Transition Design is a proposition for a new area of design practice, study, and research that advocates design-led societal transition toward more sustainable futures. Transition Design focuses on the need for 'cosmopolitan localism,' a lifestyle that is place based and regional, yet global in its awareness and exchange of information and technology.

Transition design proposes that more compelling future-oriented visions are needed to inform and inspire projects in the present and that the tools and methods of design can aid in the development of these visions. Transition visions are not conceived as blueprints for design – rather they remain open-ended and speculative. Transition visioning is conceived as a circular, iterative, and error-friendly process that could be used to envision radically new ideas for the future that serve to inform even small, modest designs in the present. Transition Design argues that living in and through transitional times calls for self-reflection and a new way of 'being' in the world. This change must be based upon a new mindset or worldview and posture (internal) that lead to different ways of interacting with others (external) that informs problem solving and design (Irwin, 2015).

Designers' mindsets and postures often go unnoticed and unacknowledged but they profoundly influence what is identified as a problem and how it is framed and solved within a given context. In this assumption transition design is similar to biocultural design that focus on the role of designer's mindset as a key factor in design project.

From cultural sustainability point of view we can borrow form transition design a posture of humility, reference for nature and acknowledgement of human ignorance (we can never fully understand or 'manage' complex natural or social systems), transdisciplinary knowledge and collaboration and 'beta'/'prototyping'/ 'tinkering' approach to design. Also an understanding that any action may have unseen short and long-term ramifications. As a result, actions and solutions should be conceived with welfare of the natural world and future generations in mind (Irwin, 2015).

Slow design is an approach predicated on slowing the metabolism of people, resources and flows, could provide a design paradigm that would engender positive behavioural change (Fuad-Luke, 2002, 2003). The slow design approach (Fuad-Luke, 2005) also proposes a solution to over-programming. Slow design reveals the experiences in everyday life collaboratively in an open-source environment, relying on transparency of information. Some guiding principles of Slow Design formulated by SlowLab are the follow.

1) Reveal: experiences in everyday life that are often missed or forgotten, including the materials and processes that can be easily overlooked in an artifact's existence or creation. Acknowledgment the origins of a product is the first step towards making more informed and ethical choices about what we consume.

2) Expand: slow design considers the real and potential 'expressions' of artifacts and environments beyond their perceived functionalities, physical attributes and lifespans).

3) Reflectiveness: artifacts/environments/experiences induce contemplation and 'reflective consumption.'

4) Engagement: open-source and collaborative, relying on sharing, cooperation and transparency of information so that designs may continue to evolve into the future.

5) Participative: encourages users to become active participants in the design process, embracing ideas of conviviality and exchange to foster social accountability and enhance communities. Through empirical observation, sensory awareness and intuitive imagining, people are invited to connect with the histories and patterns that a given site reveals. To capture local knowledge and public imaginings about the evolving identity of the neighborhood or surrounding area, they are encouraged to annotate local area maps with their

thoughts, memories, sensations, fantasies, drawings. Slow design invite to explore 'warm relationships' with manufacturers.

6) Evolve: Slow Design recognizes that richer experiences can emerge from the dynamic maturation of artifacts, environments and systems over time. Looking beyond the needs and circumstances of the present day, slow designs are (behavioural) change agents.

As it will be demonstrated further these days slow design tools and methods were merged into emotionally durable design, which is more comprehensive and elaborated.

Case study. Full Grown. This company that grow pieces of furniture, each made from one solid piece of wood – with no joins – following a project that was launched almost 10 years ago. The idea of growing furniture dates back millennia. The Chinese were known to dig holes to fill with chair-shaped rocks and had tree roots grow through the gaps, while the Egyptians and Greeks had a method for growing small stools. But Full Grown appears to be on a scale entirely of its own, with an entire farm destined to be harvested into chairs, assorted light fixtures, and other unusual objects. The process of growing chair can take between 4 to 8 years. As a result each piece is unique, epitomising elegant cooperation between nature and craftsmen that could last for hundreds of years.

Figure 30. Founder of Full grown Gavin Munro with the Gatti chair on field in Wirksworth. Source: Gavin Munro, Retrived from: https://fullgrown.co.uk/.

The **critical design** was coined by Antony Dunne (1997). This design is less about problem solving and more about problem finding within disciplinary and societal discourse. The term critical design has been adopted as umbrella term for any type of practice and possibilities beyond the solving of design problems. Critical design is often placed as a UK-centric movement. As a design practice critical design is perhaps better understood in

relation to recent design approaches that expand design methods tactics and strategies beyond generating consumer products. It is informed by a long history of creative practice. Informed by these traditions, critical design practice has drawn on tactics associated with art[76]. Critical design practice might be described as the shifting focus from designer and the object to the concept (Malpass, 2017).

In Italy during the Linea Italiana, also known as the *Bel design era* (1956-1970) product designers for the first time disassociated themselves from the interests of monetary gain and embraced broader political goals, seeking a critical discourse with capitalist consumer society.

Italian radical designers attempt to create new and unusual experiences with objects by using ready-mades from industrial production and incorporating them into the designs of furniture and lighting. The designers promoted emotional play and symbolism over practical function and refuted assumptions of utilitarianism and consumption[77] (Lees-Maffei and Fallan, 2014).

Critical design criticized a bourgeois society, limited to driving consumption through mythologies of optimization, utility and practicality in use and product styling. On contrary, anti-design suggest symbolic, cultural and existential functions (Malpass, 2017).

3.3.1. Emotionally durable design (EDD)

> *Today we have been taught that aging (both products and people) is bad. We wear things, use and enjoy them as long as they look like we've just bought.*
>
> *Victor Papanek*

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[76] Critical design have roots in artistic avangarde practices with the earliest form of critical design practice developed in Italy during the late 1950s.This movement has been described in a number of ways and turned 'radical design', 'anti-design' and counter-design. Each demonstrates how in Italy designers began to question orthodoxy and dogmatic approach is in practice in a ways that lays the foundation for critical design practice today. In this context the events, happenings, writings, images and designs created in Italy in the period in question that set out to challenge the cult of the industrially manufactured objects, which by the mid-1960s had become the norm. Critical design questioned and sought to provide an alternative to the model of ideal, universally valid design that had been promoted by the 1920s international modern movement in the neo-modern Italian design movement of the year 1945 to 1965 (Sparke, 2014).

[77] It is safe to say, that predecessor of critical design was **Anti-design** collectives saw industrial design as having aggravated social and environmental problems. Originated in Italy, anti-design groups (*Superstudio, Archizoom Associati, Gruppo strum, Gruppo 9999, Gruppo G14, Archigram*) each shared the desire to critique the world of consumption. Anti-design project aimed to open an intellectual discourse trough design. Design was used to facilitate active participation trough happenings, interventions, exhibition and publications. The designers aimed to engage consumers in shaping and questioning forms of consumption, community and industrial models of production at large. The projects were ultimately designed for ideological consumption.

Emotionally durable design (EDD) is a user-focused approach to product longevity with which to explore this way of thinking. It examines and articulates the unspoken emotional experiences that occur between products and consumers, seeking to uncover the complex emotional drivers for why we use, consume and discard some products faster than others. (Chapman, 2015) This view encourages a reduction in consumption and waste of natural resources by encouraging more durable, resilient relationships with products; highlighting, that Product longevity needs to be concerned with not only the physical lifetime but also the psychological lifetime of the product as there is little use in designing products to last longer if the user has no desire to keep them. Only a few designers take a user-centered perspective and consider the emotional lifetime as well.

Jonathan Chapman (2015) sees waste as a symptom of a failed relationship as modern consumers are short-distance runners, who only stay for the getting-to-know-you period, when all is fresh, new and novel. Nowadays it is harder than ever to treasure the things we own. Most products within the current model of design are static, possessing non-evolutionary souls; we as users, on the other hand, are anything but static and exist within a restless state of continual adaptation and growth.

Many products are designed purposely to be less durable, in order to keep us consuming. I lead to the fact that people do not even have time to build up deeper emotional feelings for the products/interiors. After the newness has worn away, the love (relationship between human and object) will come to an end. Since selling price of products is too cheap, users often prefer to buy a new one when the product is broken, instead of repairing it.

Haines-Gadd et al.(2018) elaborated most comprehensive diagram of relation EDD and related design approaches.
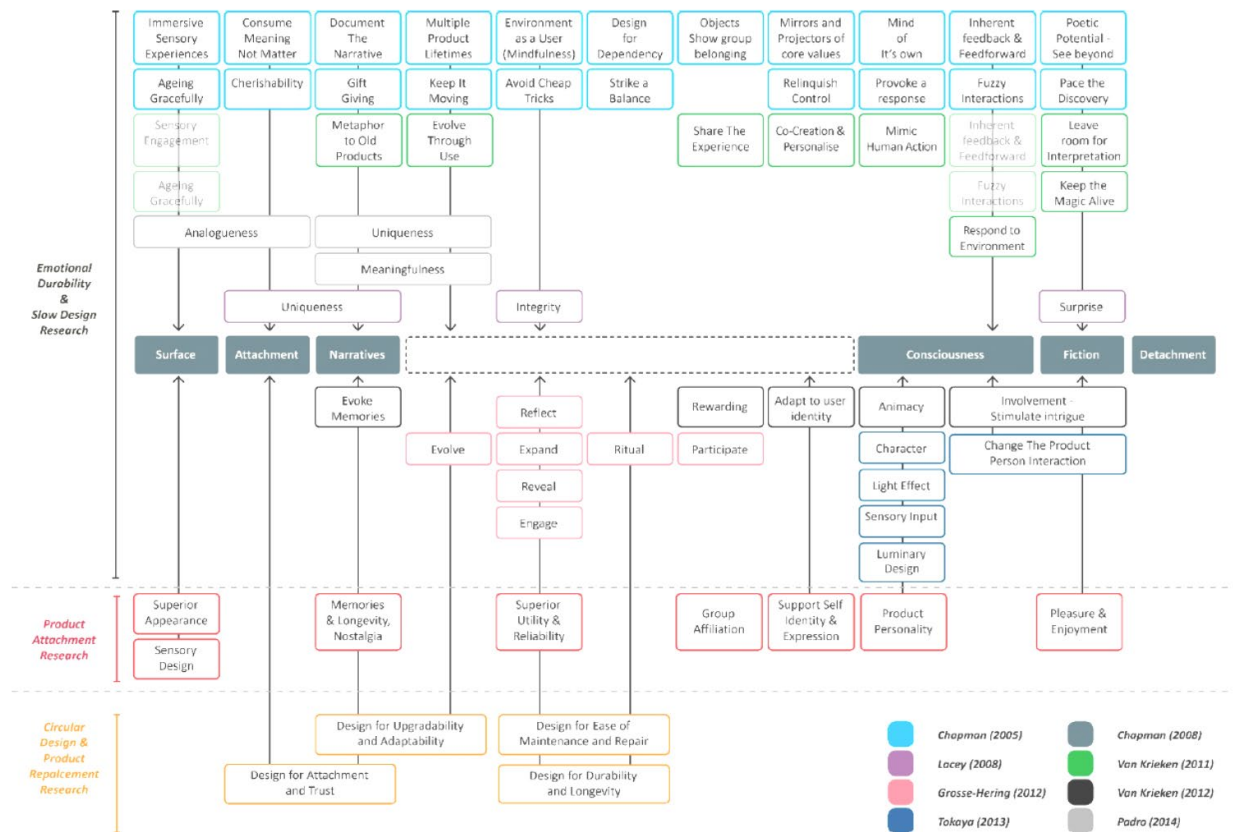
Figure 31. Relationship between emotional durability, product attachment, and circular design.
Source: Haines-Gadd et al.(2018).

Chapman, in the second edition of Emotionally Durable Design, presents <u>a six-point</u> experiential framework to increase the emotional connection between product and user: '*Narrative, Detachment, Surface, Attachment, Fiction, and Consciousness*' (Chapman, 2015). Haines-Gadd et al.(2018) published important findings, based on this approach and from this process of development and analysis, nine themes and 38 strategies emerged describing what an EDD perspective can bring.
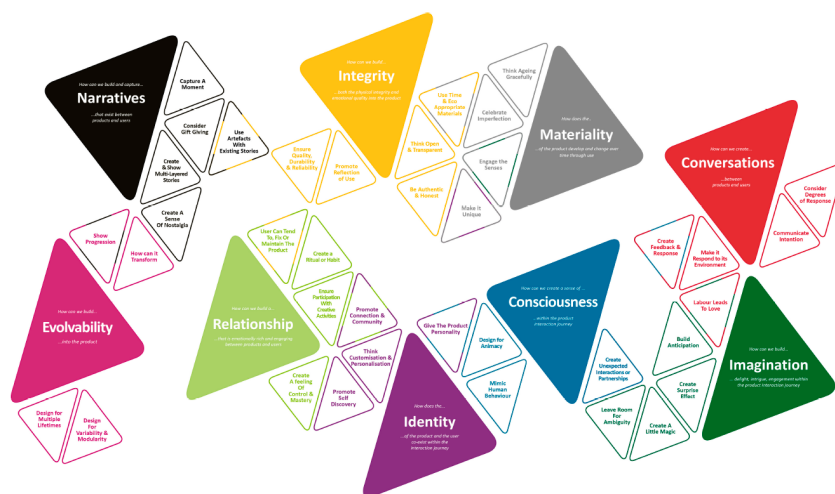
Figure 32. Emotionally durable design framework in full. Source: Haines-Gadd et al.(2018).

133

They distinguished nine themes: *relationships, narratives, identity, imagination, conversations, consciousness, integrity, materiality, and evolvability*. After reinterpreting those findings we can ground and connect them to spatial and interior design context that facilitate cultural sustainability of interior design project.

1. Relationships. Building engaging, rewarding, active partnerships between people and spaces by ensuring participation through creative activities. This allows users to become producers, not observers of their interaction, which can also be achieved by letting the user reconfigure the place or learn a new skill or acquire knowledge through using it. And, designing in mechanisms that encourages users to care, tend to and maintain the product building a relationship of mutual altruism. Or providing moments to create a ritual or habit with the space or artifacts within the space forming a relationship of stability and reliability. Engendering a feeling of control, a sense of mastery through the interior, either through intimate knowledge of the space and its inner workings or the ability to use it well.

2.Narratives. Capturing the unique shared history that exists between place and users and embedding this into the interior artifacts interaction through creating a sense of nostalgia providing tangible metaphors to previously loved artifact or interactions. Also trough materials or artefacts with existing stories highlighting and valuing an item for its previous history and creating a sense of provenance. Indeed, people are trying to somehow capture a moment, create markers in time and build multilayered stories that evoke memories of first times, turning points, commemorations, and celebrations as well as linking us to family and friends through inherited objects, traditions, and shared moments. We may call it *neomicroimprinting*. The place or interior could come with own story-books about collective experience, remodel, tenats experience, babies born in the building, that book could give full picture of building's life[78].

3. Identity. Designers need to create place and interior and allow for self-expression through customization and personalization, demonstrating stages in life, religion or values. Designers can also create a defined artifact personality to create connection and community with others resulting in group affiliation, as these places connect users to others while projecting a feature of selves to the world. Interior design should facilitate self-discovery,

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[78] Ann Thorpe suggest to turn from hotel room aesthetic to mountain hut aesthetic. In the hotel room all traces of previous occupancy are erased daily, wiping out any connection among people whereas mountain hut represents connective design where visitors can report on the hut and as well as their experience. As the technical part of building life could be log of collective knowledge and maintenance.

letting the user access or understand previously unknown aspects of themselves or their consumption habits.

4. Imagination. Interiors can provide not only functional interaction but also to understand the mystery, excitement and captivation. This can be achieved through building anticipation within the interaction, to maximize feelings of love and discovery. Or creating a little magic through unconventional methods of interaction that exceed expectations. As we are trying to elicit feelings of enjoyment and pleasure, a critical factor that leads to attachment and emotional engagement. But users can become immune to such stimulation over time so, to ensure continued involvement, the interior must try to create surprise effects or unexpected interactions. But, it is also important to leave room for ambiguity for the user to find their own meaning in the interaction.

5. Conversations. Viewing the interaction as a conversation, creating opportunities for inherent feedback and response between people and interiors. By designing in mechanisms of feedback such as making artifacts respond to the environment makes it seem more dynamic over time. Feed-forward interactions like communicating intention let the user know why the artifact or interior is behaving in a particular way, facilitating a relationship that is more open and evolutionary. Fuzzy Interactions such as 'labor leads to love' phenomenon is an interaction that requires a degree of time and effort, like learning a language or instrument, consequently increasing the likelihood of a rewarding experience.

6. Consciousness Design in a way so that artifacts have quirks and can be temperamental, indicating that the artifact has its own character and free will. Within Japanese philosophy Shinto (see paragraph 2.7.1.1.), this would be considered Kami—'spirit in everything'— whereby all artifacts are imbued with a soul. This can be achieved by designing for animacy by creating mechanisms that give the perception of character traits and expression, such as mimicking human behavior. This makes the interaction seem more intuitive while creating unexpected interactions, which generates richer moments of engagement with the interior.

7. Integrity. Authenticity is crucial for developing attachment and empathy with interiors. This fosters a sense of openness and transparency with the user about the processes and materials used. This can also be assisted through repairability and maintenance, designing artifact and interiors to be explored, understood and fixed. Slowing things down to reveal spaces forgotten or overlooked promotes reflection in use creating moments of intervention for the user to stop and consider their own agency within the interaction. Designer should use time and eco-appropriate materials to build interiors that have a quality, durability, and

reliability for high performance and a long life to increase the chance for emotional connection to be built.

8. Materiality. Designer in choosing materials for interior should focus on that can age with grace, while also providing a multisensory experience and eliciting satisfaction and pleasure derived from the look, feel, and smell of a product. Consider how material wear. How their aging. Selecting material that age gracefully. For example, using layered finishes it is possible to create artifact more interesting and appealing aging process, allowing material to evolve, as blue jeans fade. The beauty of interior could celebrate the imperfection in the transience and fallibility of our interactions with our products, which allows users to embed aspects of their personality into the material of artifact and interior to make it unique (it corresponds to concept of Wabi-sabi).

9. Evolvability. Through adaptability and upgradability interior can have different phases of use or adjust to developing needs and technology through variability and modularity. Within interior artifacts should have multiple lifetimes, or design for multiple generations of user, as this can create artifact sense of legacy. While, also helping to show progression, demonstrating the passing of time by documenting the narrative of use. Designer should consider how to Blend new artifact and old one. So that the artifact is no longer either new or old, but combination of new and old parts, all of high qualities. Even some of these part could tell stories. The question of compatibility of old and new technology is also important.

3.3.2. Biocultural design

Biocultural design (the term was coined in 2012 by Davidson-Hunt I. J. et al.) is a conceptual framework that brings together the insights gained through a focus on biocultural diversity and heritage with a design approach to innovation. In its turn, biocultural design is based on concept of biocultural diversity, which is defined by the Global Diversity Foundation1 as, '…the total variety of the world's cultures and natural environments.'[79] Integral to the concept is the recognition that, 'Their co-evolution over time has generated local ecological knowledge and practice: a vital reservoir of experience, understanding and skills that help communities to manage their resources now and in the future.'

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[79] http://www.globaldiversity.org.uk/.

In the literature, biocultural diversity[80] is often used as an index, or measure, to assess geographical regions in terms of the linkages between biological, cultural and linguistic diversity (Gorenlo et al., 2012; Harmon, 1996; Sutherland, 2003). This framework provides a focus on the linkages between the knowledge, innovations and practices of Indigenous and local communities and their inextricable linkages to territory, economy, cultural and spiritual values, customary laws and biological diversity (Swiderska, 2006).

Other author define biocultural design to be an intentional, collective and collaborative process by which individuals with a diversity of knowledge and skill sets engage in a creative process of designing products and/or services. The goal is for communities to create and deploy solutions to contemporary challenges that reflect their desires, values and aspirations (Davidson-Hunt I. J. et al. 2012).

The framework retains features reflecting its origins including: a strong, almost exclusive, focus on local and Indigenous Peoples; an emphasis on language over other aspects of culture and identity; and, a concern for conservation. The motivation for framing biocultural diversity in terms of conservation is based on the observation that the <u>global species extinction crisis is mirrored by a global cultural and linguistic extinction crisis</u> (Gorenlo et al., 2012).

'Changing livelihoods, worldviews and value systems alter peoples' sense of place and cultural identity and lead to a breakdown in the intergenerational transmission of local knowledge, practices and languages that are so closely tied to the surrounding environment' (Woodley, 2010).

While design brings to the biocultural heritage framework a focus on innovation, the design process itself is given a new set of materials to work with in creating solutions that foster co-existence through a collaborative process with local peoples. The goal of biocultural design is to provide an approach to innovation that is rooted in biocultural heritage and to provide support to local peoples as they face livelihood challenges.

Interaction between nature and culture that goes back to Kroeber's (1963) mapping of the linkages between cultural and natural areas, Steward's (1955) work on cultural ecology,

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[80] '*Bio-cultural diversity*' is the diversity of life in all its manifestations (biological and cultural forms) which are all inter-related within a complex socioecological adaptive system (Harmon et al, 2010). Biocultural diversity is a way to read the diversity of urban landscapes, as well as narratives and atmospheres, in relationships to socio-cultural groups and the quality of places. Bio-cultural diversity emphasises the adaptive connections between nature and people and thus the significance of hybrid landscapes. Moreover it is a way to analyse these landscapes as an integrated value-practice system.

and Sauer's (1956) work on cultural landscapes. In 1993, the category of <u>cultural landscape</u> was introduced as a type of cultural nomination for World Heritage Sites. This provided recognition to landscape form and function, along with the symbolic associations that emerge out of the relationship between nature and culture (Mitchell et al., 2009).

Biocultural diversity is that ways of being and doing should allow for our co-existence with 'the other', who may be human or another living or spiritual being, while building upon and enhancing diversity.

There are four principal themes underpinning biocultural diversity, namely:

1. the relationships between biodiversity, cultural, and linguistic diversity;
2. common threats to biological, cultural and linguistic diversity and the sociocultural and environmental consequences of loss;
3. approaches for joint-maintenance and revitalisation of different aspects of biocultural diversity;
4. 'the development of related aspects of human rights' (Mafi, 2005).

Davidson-Hunt I. J.(2012) propose biocultural design to be an intentional, collective and collaborative process by which individuals with a diversity of knowledge and skill sets engage in a creative process of designing products and/or services. The goal is for communities to create and deploy solutions to contemporary challenges that reflect their desires, values and aspirations. The basic premise of biocultural design is that people are creative agents with knowledge, values and skills that allow them to shape their everyday lives (Davidson-Hunt, 2006; Davidson-Hunt & Berkes, 2003; Sen, 1999).

Particular application for biocultural design in situations where communities are looking to build new economic development opportunities that <u>both reflect cultural values and use biocultural heritage</u> in new ways - including the development of commercial products or services. Biocultural design could be seen as a process that may help communities engage in such conversations and create innovative ways to meet their <u>context-specific needs and challenges</u>.

In context of cultural sustainability the biocultural design approach has some significant limitations. First of all, it focuses exclusively on indigenous communities, that is tribes or small communities living in historical landscape with aim how they can increase theirs capabilities to be fitted into capitalistic, profit-driven western society. Largely, it could be said that biocultural design (as it seen by Davidson-Hunt I. J.) proposes initially healthy

people how to cure disease brought by doctors themselves. This approach has little to offer modern western societies where most people lives in cities in completely artificial landscapes.

Another problem, that constrains effective application of biocultural design approach is that to the current moment it mostly contains tools and methods of design workflow process, i.e. management of team where members have different scientific background. At the same time the core cultural universalities remain ill-defined except Sen's capability concept.

As a result, the biocultural design approach, having coined such broad term, still need to be elaborated and integrated into cultural sustainability paradigm. Nonetheless we will use some biocultural design insights about design team set in cultural sustainability checklist.

3.3.3. Design for sustainable behavior (DfSB)

Design for sustainable behaviour has emerged over the last decade or so as a vital research area for sustainable design. Since sustainability requires a cultural and behavioural change, DfSB[81] approach can play a fundamental role by shaping or instilling new behaviours and habits. DfSB has emerged under the domain of sustainable design, which explores the measures of reducing environmental impact through moderating the way people use products, services and systems. The synergetic contribution of DfSB can be applied at different innovation levels facilitate cultural acceptance of design proposals.

Design for Sustainable Behaviour is a relatively new, but incredibly fast-growing area of research concerned with influencing user behaviour towards more sustainable action during the use phase (Lilley, 2009). As we mention in Chapter 2, according to Williams' second meaning culture is a particular way of life, so DfSB focuses on 'behaviour part'' of it. From some angle, behavioural approach could be seen as excessively mechanical, that consider human being merely as a set of programmed reaction to stimuli, which lead to demystification and desacralization of culture's phenomenon. However, some of DfSB's insights and findings (factors) could be used for cultural studies.

Culture shared and learned behaviours. Peoples' habitual behaviours due to their context and physical location such as culture, social class, education, climate, geography, public policy, cost of goods etc. have a real social and environmental impact on resource use. The

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[81] Acronyms: DfSB, Design for Sustainable Behaviour; CADM, The Comprehensive Action Determination Model; TPB, The Theory of Planned Behaviour; NAM, The Norm-Activation Model.

DfSB theory identifies antecedents of behaviour but does not demonstrate how these differ between different cultures and how this information is useful to designers looking to create products that change behaviour (Spencer, 2014).

There is a distinct lack of literature specifically related to the effect that culture has on sustainable behaviour[82].

The study by Elizondo (2011) attempted to understand how culture could inform the DfSB strategies, however, it culminated in a methodological approach for gaining empathy with users in different cultures, rather than a theoretical understanding of what influences behaviours in different cultures and a process of informing designers looking to change behaviours.

Before Jelsma (1997) connected Akrich' (1992) concept of script (physical attributes of a product to prescribe a desired behaviour in the end user (Wilson, 2013) to the task of reducing environmental impact. Lilley et al. (2007) introduce the idea of Design for Sustainable Behaviour (DfSB) Strategies.

Lilley (2009) argues that there is an axis of influence between the user and the product that determines where the power in decision making lies.
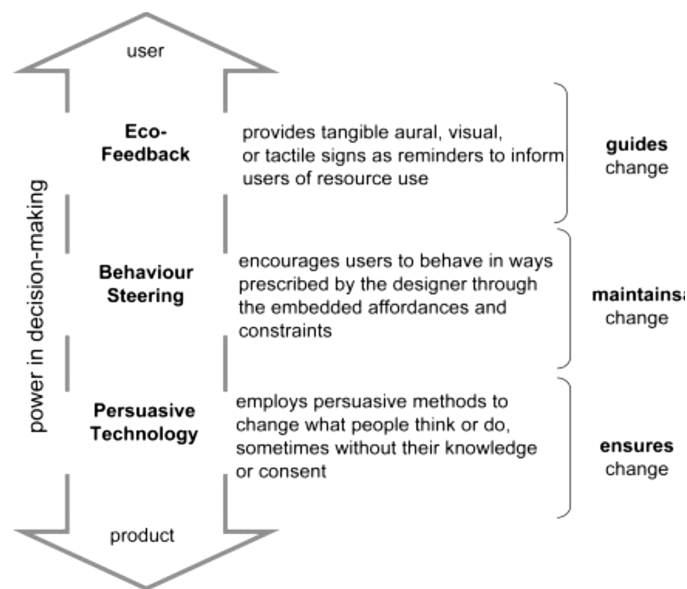
Figure 33. Lilley's axis of influence. Source: Lilley(2009).

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[82] In 2005, Jackson presented a review of models describing behaviour and behavioural change. He points out that many of the models lack focus on key causal influences, as they often focus either on internal (attitudes, values, habits and personal norms) or on external aspects of behaviour (incentives, institutional constraints and social norms). This makes them less suitable as heuristics for exploring specific behaviour, or identifying the factors that may influence behaviour (Jackson, 2005).

However, some findings and insights could be useful for our research of cultural sustainability. First of all, *Comprehensive Action Determination Model* (CADM)[83] (Klöckner and Blöbaum, 2010) provides a comprehensive overview of the factors affecting ecological behaviour, which makes it suitable to support the current research. The CADM explains that individual behaviour is directly determined by influences from three possible sources (or factors): **Habitual, Intentional** and **Situational**.

The **Habitual** processes consist of *schemata (scripts)*, *heuristics* and *associations* (Klöckner and Blöbaum, 2010). The difference between the three lies in the explanation of how the automated process is created.

The **schemata** *or script approach* treats habits basically as knowledge structures that provide people with a blueprint of expectable or appropriate behaviour sequences in certain situations even if the complete set of situational information is not processed. **Heuristics** means understanding habits as nothing but extremely simple and efficient decision rules that allow people to make comparatively good decisions with comparatively little effort in information processing. **Associations** means habits are cognitively represented by strengthened connections (neuronal pathways) between parts of the neuronal network activated by situational cues and other parts activating behavioural patterns. The more often the parts of the network responsible for processing specific situational cues are activated simultaneously with the parts responsible for activating specific behavioural patterns the stronger their neuronal connection gets.
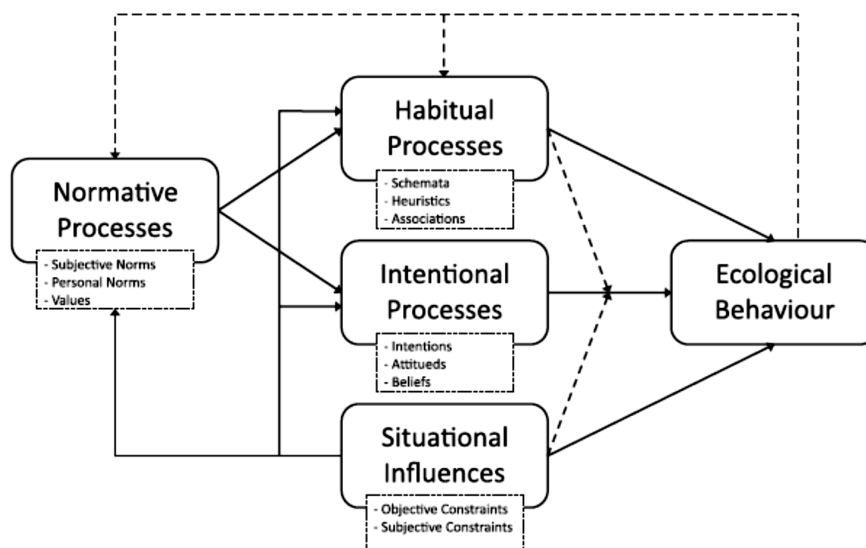

Figure 34. The comprehensive action determination model (CADM). Source: Klöckner and Blöbaum, (2010).

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[83] This model builds on four theories: the Theory of Planned Behaviour (TPB), the Norm-Activation Model (NAM), the theoretical concept of habit and the Ipsative Theory of Behaviour.

The **Intentional processes** consist of *intentions, attitudes and beliefs*. These are connected in a hierarchical structure where intentions are affected by attitudes, which again are affected by beliefs (Klöckner, 2010).

The **situational influences** consist of *objective constraints*, which enable or limit the behaviour directly, and *subjective constraints*, which are the factors the user perceives to be relevant for their behaviour and result in what is often *called perceived behavioural control*. The objective constraints form the basis for what the user perceives, but subjective constraints can also include factors that are not objective. In addition to affecting the behaviour directly, situational influences also affect the habitual, intentional and the normative processes (Daae & Boks 2015).

The *normative processes* have an <u>indirect effect</u> on the behaviour through affecting the habitual and intentional processes, and consists of personal norms that are affected by subjective/social norms and values (Klöckner and Matthies, 2011).

All these factors that constitute behaviour are highly influenced by cultural factors and therefore understanding the strategies to design for sustainable behaviour are central to this research.

Turning to more practical issues most DfSB approaches and tools developed are centered around one or more of the four basic principles (Niedderer et al., 2014):

- making it easier for people to adopt the desired behaviour;
- making it harder for people to perform the undesired behaviour;
- making people want to perform the desired behaviour;
- making people not want to perform the undesired behaviour.

Consumption behaviour is a matter of individual choice, but it is also influenced by social norms and institutional settings. The current and dominant consumption behaviours put several constraints to the diffusion of alternative sustainable models.

Researchers have developed mental methodological frameworks and tools to inform them with design strategies to nudge users in a direction of preferred, sustainable behavior. Based on a figure with 2 dimensions from hidden to apparent influence and from strong to weak influence Tromp et al (2011) distinguished 4 types of influence (*decisive, coercive, seductive and persuasive*) that a designer can employ when designing intervention for sustainable behavior.
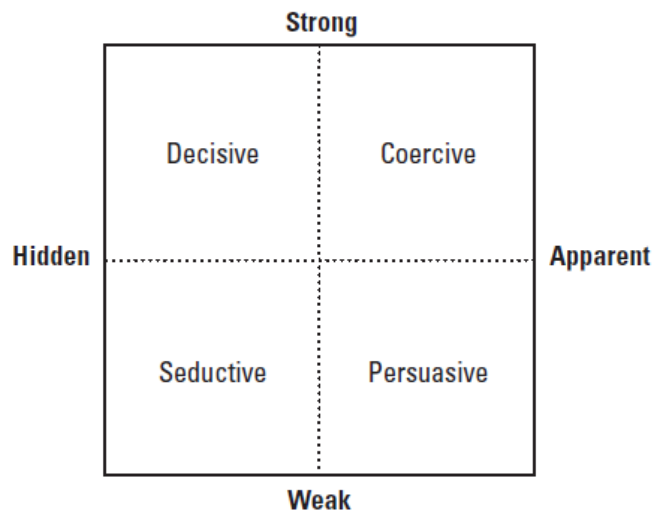
Figure 35. Four types of influence based on the dimensions of force and salience.
Source: Tromp et al (2011)

Based on this framework, they proposed 11 design strategies across this landscape that may help designers to find the right dosage of salience and forced to influence user behavior. It contributes with concept of understanding how behavior is motivated by *internal* and *external* determinants, and how the desire to choose more environmentally friendly ways of behavior the of behaving can be initiated and enhanced in the direct interaction with products[84].

For example, design could trigger human tendencies for automatic behavioral responses. This strategy activates a human tendency by creating a perceptual stimulus as in case of human inclination toward order and a preference for symmetry (cultural universality). Similarly designer could apply some stimulus based on national culture. In this case designer could also apply cultural dimensions, such as Hofstede's uncertainty avoidance. It is also highly related to biophilic design approach (see paragraph 3.3.6).

Concluding the review of DfSB it is worthy of note that whilst the research area is continually growing, with theoretical and practical studies adding to the knowledge base, parallel research strands, such as the implications of cultural context, remain very emergent, with few research studies and little published material available (Elizondo, 2011).

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[84] *Internal factors* exist within the user and include factors such as attitudes, values, habits and personal norms. *External factors* exist outside the user, and include objective constraints and social norms. The other characteristic concerns whether the factor is *conscious* or *unconscious* to the user. Klöckner et al. (2003) stated that habits are to be considered as unconscious, as they are conducted without deliberate thinking. People are therefore less likely to be able to provide information about what they did out of habit.

3.3.4. Open design

Open design suggests limitation-free 'design knowledge' sharing and calling for participation of people with varying backgrounds to develop and iterate design solutions. It is not a goal-oriented, linear process of developing finalized design outcomes, but rather a set of branched processes with differing goals shaped by different contributors who self-select (Bakırlıoğlu & Kohtala, 2019).

Open design is seen and conceptualized as alternative manufacturing or fabrication, a new way to organize and manage design, acts of *prosumption* or peer production, alternative material culture, and/or explorations in horizontal community organization (Manzini, 2015).

Open design has emerged at, and been informed by, the intersection of open-source software development, DIY maker culture, hacker culture, and new understandings of the designer-user relationship.

There are two main different aspect of open design. Marttila and Botero (2013) identify the first aspect as openly shared, publicly available designs (e.g. blueprints). This involves the free sharing and adopting of designs, following the Do-It-Yourself (D.I.Y.) movement that dates back to early projects such as Nomadic Furniture (Hennesey & Papanek, 1973) and Autoprogettazione? (Mari, 1974: 2014).

> **Case study. Autoprogettazione by Enzo Mari.** In 1974, Italian designer Enzo Mari published the first edition of 'Autoprogettazione?' (the title might be roughly translated with 'Self-design?'), a manual which included a number of furniture projects that could be realized by anyone through wooden boards and simple tools, basically a hammer and some nails.
>
> The book provides exercises which should be carried out individually in order to understand how good design works, 'good design' meaning, according to Mari, a design which responds honestly to human needs. In the words of Mari, these projects do not want to be alternatives to industrial production, but exercises which may help each one understand how industrial products work and help to develop a critical eye towards them.
>
> The technique to be employed in order to build the furniture is elementary, but the reader/user may carry out the projects in different ways, changing some details and shapes while understanding the basic structural component of an object. 'Autoprogettazione' is an activity of research made through practice (Fabrizi, 2016).
>
> The weak side of 'Autoprogettazione' project, to our opinion was that being in essence as Design for the base of pyramid it was offered to highly consumeristic and commercially driven Italian society. Also furniture proposed by Mari did not fit into convinced '*belleza*' criteria.
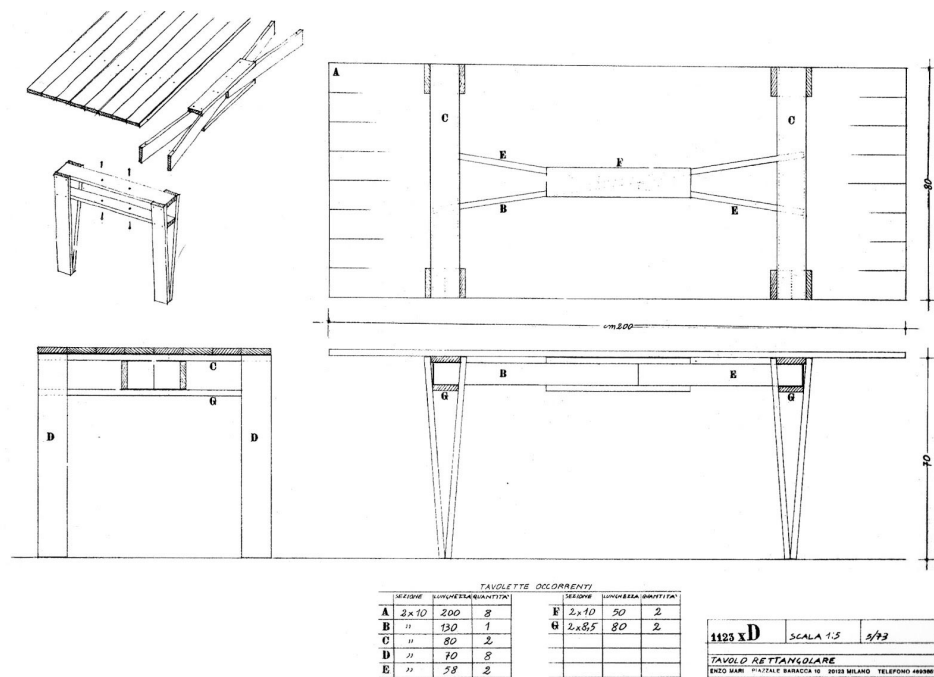
Figure 36. Drawing from 'Autoprogettazione?' book (Mari, 1974). Source: http://socks-studio.com

The second aspect Marttila and Botero (2013) identify is <u>open-ended design activity</u> that suggests people participating in design activities to produce products (especially in fab labs and makerspaces). In this sense open-ended design is similar to participatory design. The latter was initially developed in workplace studies to enable the people affected by a design solution to influence design early. Although openness per se is not directly addressed in participatory design.

For our research the second aspect of Open design (as a process of interaction between designer and stakeholder) is more important since it allow to create more culturally sustainable spatial and interior design.

Open design[85] is a process in which users are involved with designers in the design development of artifacts, although the degree of user participation and its means may vary widely. (Thorpe, 2007). The open design engaged the user beyond simply buying or owing an artifact. An engaged user brings more of the meaning (the symbolic resources) to the artifact, reducing the role of designers (and advertisers) in inventing ready-made commercial meaning for artifacts.

The most important aspect of an open process is that objects that produce better feet, flow or appropriation are more meaningful for people, and could replace some of the commercial

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[85] In non-European contexts, openness of design and innovation processes has been characterized in varying terms, such as *shanzhai* or *gongkai*, *gambiarra*, *jugaad*.

industry driven meanings. Open design could help people develop more successful internal methods of meeting needs, improving cultural conditions for human well-being, and contributing to cultural sustainability (Thorpe, 2007).

It is also often promoted as environmentally beneficial, fostering material and resource eco-efficiency, localizing production, closing loops and empowering communities to meet their own local needs, as well as needs of citizens in the future through open, adaptable solutions and knowledge sharing (Kostakis, Niaros, Dafermos, & Bauwens, 2015).

Case study. 'Half a good house' by A. Aravena. Chilean architect, Pritzker Prize winner Alejandro Aravena, released a number of his residential designs as an open-source resource to help tackle the global affordable housing crisis. Aravena has championed an approach he describes as 'incremental,' in which governments fund construction of 'half a good house,' with residents completing the other portion as resources allow. The provision a physical space for the 'extensive family' to develop, has proved to be a key issue in the economical take off of a poor family. Due to the fact that 50% of each unit's volume, will eventually be self-built, the building had to be porous enough to allow each unit to expand within its structure. The initial building therefore provided a supporting, (rather than a constraining) framework in order to avoid any negative effects of self-construction on the urban environment over time, but also to facilitate the expansion process.

Figure 37. Social housing, Iquique, Chile.
Sourse: Cristobal Palma / Estudio Palma, ELEMENTAL, Tadeuz Jalocha

This project represents at the same time combination of open design approach and design for appropriation. First, that user is invited to accomplish the second half of the house and thus, to appropriate in more profound way. Secondly, Aravena's firm, Elemental, has posted drawings for four of its low-cost 'incremental' housing projects on its website for free download[86].

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[86] The drawings, including plans, sections, elevations, site plans and details of the firm's Quinta Monroy, Lo Barnechea, Monterrey and Villa Verde projects, are available to download from ELEMENTAL's site. In addition, the firm has produced a brief summary of the principles that underpin these projects.

In sum, open design suggests limitation-free 'design knowledge' sharing and calling for participation of people with varying backgrounds to develop and iterate design solutions.

3.3.5. Design for appropriation

Design for appropriation could be seen as part of emotionally durable design since it focuses on the theme of *sense of mastery* over the place or artifact. But design for appropriation suggests going further and beyond the 'right' and 'correct' usage of designer's intention. According to ethnographies and field studies people do not 'play to the rules': they adapt and adopt the places and artifacts around them in ways the designers never envisaged.

Appropriation which means making it your own. It can take time for an individual to feel a real connection to an artifact or interior, to feel a strong sense of ownership and sense of place. When one contributes to the design or construction of an artifact or interior, there is an automatic personal investment. At the same time, people delight in discovering things for themselves. When we truly appropriate something as our own, it has genuine meaning for us, we care more about maintaining it and feel more concerned about what might happen to it later on. This care could result in longer-lasting, more meaningful objects (Thorpe, 2007).The main difference how to apply design for appropriation between private and public places could be drawn. In case when the user is the owner of the artifact or place the design for appropriation suggest that user can appropriate it as he wants till destroying it completely.

Case study. in critical and ironical artistic research '*Seeking comfort in uncomfortable chair*' Bruno Munari has clearly demonstrated the attempt of the chair's appropriation with one difference underlined that design of that chair did not supposed to use it in such unconventional way.
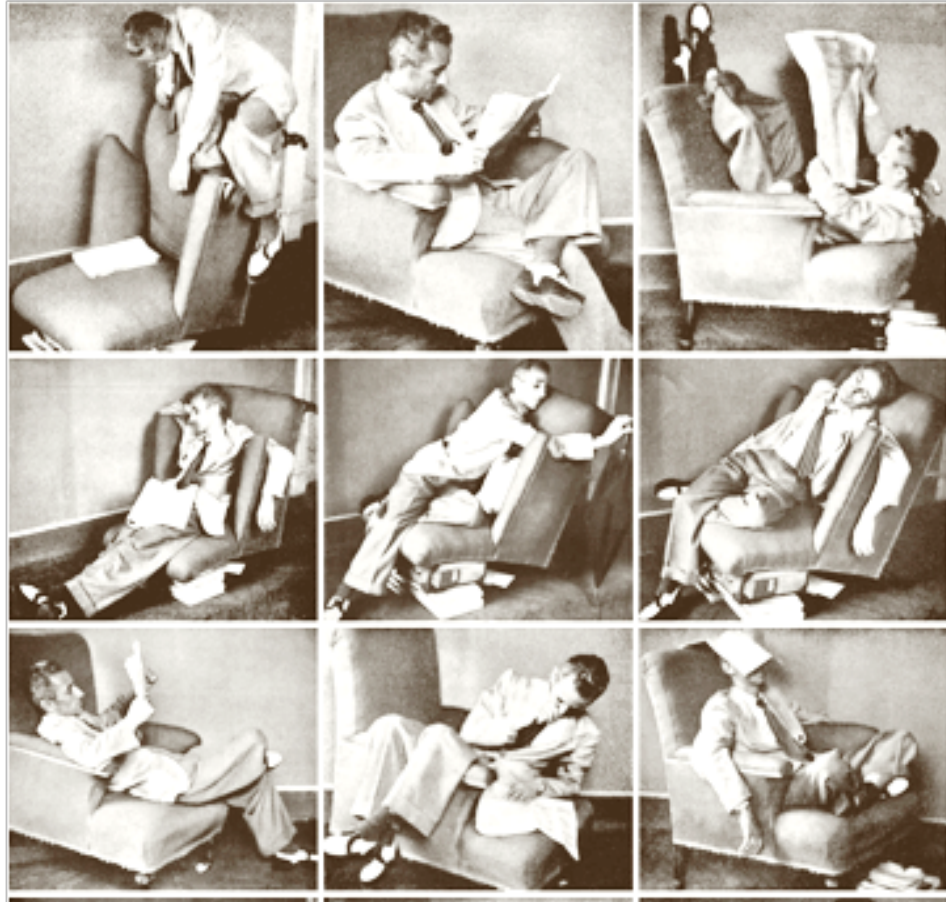
Figure 38. Bruno Munari "Ricerca della comodità in una poltrona scomoda", 1944.| Source: Domusweb.

With appropriation comes a <u>sense of ownership</u>. This may simply be a feeling of control, users feeling they are doing things their own way. Sometimes appropriation can be a form of subversion, deliberately using something in a way it was not intended, not just because of something the designer didn't think about, but in order to thwart its intentions.

Another, more complicates case when the user does not suppose to be owner of artifact or interior. For example, within the social urban design field the use of the term appropriation has no consensus and reminds vague. Nevertheless, there is an ambiguity when referring to the appropriation as both uses of the public space, illegal and informal, because it belongs to the citizens, and so does it it's used, and because for most of the government of authorities, the informality is usually linked to the informal commerce.

Case study. Interventi pubblici by Ugo La Pietra. In one of Ugo La Pietra's most memorable performance projects, staged in Milan in 1979, the architect-designer used half a dozen concrete moveable street bollards strung together with a loose chain, to cordon off an area on a busy city street where he arranged a bed for him to sleep in. La Pietra's intent

was to toy with simple everyday street furniture in an attempt to confuse the public's perceptions on domesticity. La Pietra identifies it as the *'re-appropriation'* of the city, something he sees as similar to what native American Indians do when they give a kind of spiritual identity to a territory, a 'sensorial value' to the landscape.

Figure 39. Film Still: 'Interventi pubblici per la città di Milano ', Source: Triennale di Milano, 1979.

Fonseca Rodriguez (2015) defines temporary appropriation as the activities as the temporary act in which people use public spaces to carry out individual or collective activities other than the purpose that the space was originally designed for. Lefebvre (1971) describe appropriation as the goal of the social life by claiming that the domination of the natural environment without the appropriation tends to be absurd. The appropriation is what gives citizens the right to fully use and managed their everyday life within the urban environment (Melis et al. 2019).

According to Graumann (1976) appropriation of the space is a medium and a goal in order to overcome human alienation. The design of the build environment is necessary but not sufficient. It is a process similar to humanisation it is concept relied as temporary phenomenon, involving a dynamic interaction between the individual and its environment. For Graumann (1976) the appropriation is the essential societal defined meanings interiorized by the individual. This is inborn human need expressed through activities in public spaces as a crucial part of the urban landscape, establishing a theoretical link between people and places (Melis et al. 2019).

To conclude observations of design for appropriation we argue that interior designer in post-design period should allow users make interpretations: not to make everything in the

space that have a fixed meaning, but include elements where users can add their own meanings. Designer should provide visibility of interior i.e. make the functioning of the system obvious to the users so that they can know the likely effects of actions and so make the system do what they would like (Dix, 2007).

3.3.6. Biophilic Design

> *How can we distinguish what is biologically determined from what people merely try to justify through biological myths? A good rule of thumb is 'Biology enables, Culture forbids.'*
>
> *Yuval Noah Harari, Sapiens: A Brief History of Humankind*

Throughout all research we argue that connection between culture and nature are much more profound and as Hofstede refer to core cultural layer as 'human nature' we believe that cultural sustainability cannot be achieved if nature is ignored. We hold opinion that biophilic design is one of promising design approach that could bridge the gap between culture and nature in interior design project.

Biophilic Design is a human centred approach aimed at improving human connection to nature and natural processes in the buildings that people live and work. Biophilic design emerges as an endeavor to go beyond previous approaches to green architecture, with their varying emphases on environmental impact or personal wellbeing, in order to introduce a scientific approach to understanding the innate human affinity for Nature (Wilson, 1984)[87] and incorporating this into a paradigm shift in design buildings and communities. Wilson claims that the genetic base of humans could not fully adapt to cultural changes sufficiently and many psychological mechanisms are obsolete and/or functionless. These psychological mechanisms and automatic behaviors were created and formed in prehistoric times.

The biophilia hypothesis proposes that there is a fundamental human need to affiliate with life and life-like processes (e.g., Kahn, 1999). Biophilia has been described as our affective responses to nature and natural environments, each of which has its own 'peculiar meaning rooted in the distant genetic past' (Wilson, 1984). Biophilia has been loosely defined as 'an innate tendency to focus upon life and lifelike forms, and in some instances to affiliate with them emotionally' (Wilson, 2002). Man has evolved in the natural environment and genetically he is comfortable with a visual environment that has a variety similar to that we

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[87] While the term *biophilia* has been attributed to psychologist and philosopher Erich Fromm – who referred to 'a psychological affinity for life' – it was renowned entomologist E.O. Wilson who popularized it.

see in natural forms, harmonious proportions, soft, plastic forms, natural colors and textures.

Stieg's (2006) argue that biophilia develops an emotional connection with the environment and continually helps us support what we believe to be right and forces us to seek information that sustains our beliefs. Hutchison (1998) stated connectedness to the environment and the world emerges as a cultural task to efficiently respond to the ecological crisis. According to Cavalli Sforza (2016) culture is the knowledge we acquire and behaviors that we develop during our lives; based on the combined action of our biological heritage.

Dubos (1980) has argued that active engagement with the natural environment rather than passive observation may awaken the dormant genetic, psychological traits that enabled our ancestors to survive in the natural environment, which have been subdued by relatively recent social and cultural forces. Ulrich's functional-evolutionary perspective suggests an importance for humankind to be in contact with the natural environment for a range of cognitive and affective functions, such as problem solving, creativity and stress reduction (e.g., Ulrich, 1993).

The biophilia hypothesis reflects the interests of American environmentalism in the second half of the 20th century, such as rejecting technocratic solutions to the ecological crisis and consumerism. Unlike cradle-to-cradle or S.PSS approaches the biophilic design approach has little with economic development aspects. If the first two approaches tend to be universally applied in different field of design (products, services etc.) biophilic design is more focused on interiors and spatial design.

Biophilic Design offers an approach to creating buildings and spaces that respond to our human needs. For example, fast growing urbanization process which cause additional stress to urban dwellers. Stress has been called the 'health epidemic of the 21st century' by the World Health Organization[88]. It is highly probable that pandemic of COVID-19 in 2020 only increase the level of stress of all humankind. Biophilic Design principles can be applied to existing and new buildings, interior and exterior spaces alike. Apart from philosophical explanation, biophilic design has a solid scientific research (first of all, biology and anthropology) which still under development. It has been argued, however, that the genetic basis to any biophilic predisposition may be a weak one, requiring the

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[88] https://www.mequilibrium.com/wp-content/uploads/2013/03/3-1-13-FINAL.pdf.

addition of learning, culture and experience of nature to optimize biophilic tendencies (Kahn, 1999; Kellert, 2002).

Although these design patterns are more tangible and have a wide range of applications, they do not redress the gap between theory and practice in designing specific types of buildings. Ryan et al. (2014) claimed that they intended their proposed patterns of biophilic design to serve any building type as a 'multi-platform solution' that is flexible enough to match any project's needs based on its intentions. For this reason, many designers are still struggling with the embodiment of biophilic design features within their projects (Abdelaal & Soebarto, 2018).

Cramer (2008) and later Kellert (2015) suggested the first conceptual framework for biophilic design, which included three categories of human experience within spaces:

- Direct (literal) experience of nature (or nature in the space);
- indirect (facsimile) experience of nature (or natural analogues);
- evocative experience of space and place (nature of the space) such as sensory variability, prospect and refuge, serendipity, discovered complexity.

Recently, Ryan et al. (2014) derived from these categories a list of 14 nature-based design patterns (Browning, Ryan, & Clancy, 2014) that are the following.

1. Visual Connection with Nature. View to elements of nature, living systems and natural processes;
2. Non-Visual Connection with Nature. Sounds, touch, smells, or tastes that engender a positive reference to nature;
3. Non-Rhythmic Sensory Stimuli. Objects or materials in consistent yet unpredictable motion as found in nature (e.g: grass swaying/ripples on water/leaves in a breeze);
4. Thermal & Airflow. Variability Changes in air temperature, humidity, airflow across the skin and surface temperatures that mimic natural environments;
5. Presence of Water. Seeing, hearing or touching of water;
6. Dynamic and Diffuse Light. Varying intensities of light and shadow that change over time to mimic natural patterns and cycles;
7. Connection with Natural Systems. Awareness of natural processes such as seasons and temporal changes;
8. Biomorphic Forms & Patterns. Contoured, patterned, textured or numerical arrangements that mimic nature;

9. Material Connection with Nature. Materials and elements from nature that reflect local ecology/ geology to create sense of place;

10. Complexity and Order. Rich sensory information that adheres to a spatial hierarchy similar to nature;

11. Prospect. Unimpeded view over a distance for surveillance and planning;

12. Refuge. Place for withdrawal with protection from behind and overhead;

13. Mystery. The promise of more information using partially obscured views to entice an individual to go further into the environment;

14. Risk/Peril. Identifiable threat to create tension paired with reliable safeguard.

All these patterns could be connected to other research findings elaborated in previous chapters. For example, pattern 4 '*Presence of water*' (seeing, hearing or touching of water) in different cultures may have diverse meaning and value as we discussed in paragraph 2.3.1. In water-prized regions where historically people experience shortage of water (Nord Africa) the presence of water has vital symbolic meaning. In contrast, in Nord Europe presence of water may not be so crucial and water is rather seen as just utilitarian supplement of modern building. Some similar situation with pattern 5 '*Thermal & Airflow*'. Nonetheless, biophilic design offers useful criteria for evaluation of design project, focusing on primordial human being preferences of environment's elements that had a major impact on emerging and development of culture. From our point of view biophilic design approach would be more effective if designer find ways to interpret mutual relationship between culture and nature, considering local geographical specifics of region where Interior design project take place. At the same time designer must duty national and natural origins of users to avoid reproduction of natural elements that actually have not much value in particular national culture.

Case study. The Supertree Grove in Gardens by the Bay (Singapore) was designed by Grant Associates in collaboration with Atelier One and Atelier Ten. Supertrees comprise four major parts: a reinforced concrete core, a trunk, the planting panels of the living skin and a canopy. There are 18 Supertrees in the grove with heights ranging from 25 to 50 meters. The trees host a large number of plants of different species. Some of the Supertrees are

fitted with solar photovoltaic systems that convert sunlight into energy to generate electricity, providing lighting and water technology within the conservatories below.[89]

Figure 40. The Supertree Grove. Source: Peter Stewart Photography.

Notwithstanding lacunae in biophilic theory some approaches of biophilic design were included into environmental building standards, such as the international building performance standard Living Building Challenge (LBD) (see paragraph 3.4.1.), which has incorporated biophilia into its rating system to promote buildings with a positive and generative environmental impact.

All this led to conclusion that biophilic design approach could be included in cultural sustainability criteria. Interior designer must understand the variety of aesthetics based on biophilic patterns and relationship between culture and nature through design and technology with an emphasis on the value of the antiquity of nature or on local biodiversity research. Design research should focus on our irrational preferences for various natural phenomena and reflecting on our innate sources for motivating conserving nature.

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[89] Retrieved from: https://www.dezeen.com/2019/10/07/michael-pawlyn-architects-declare-interview-regenerative-architecture/.

3.4. Design criteria of cultural sustainability in interior design project

The previous phases of research have revealed some insightful and detailed findings into the everyday behaviours of people from different cultures. However to be relevant to designers design criteria needs to be categorized to provide resources that can be used to innovate in unfamiliar contexts. The analysis of the cultural perception has highlighted elements of the process that are 'culturally significant' and elements that are 'culturally independent'. Cultural significance refers to the elements of interior design that were common to all nations (human nature, cultural universalities) or specific to particular nation (group). Culturally independent elements refer to the differences between particular individuals often influenced by their personal experience (demonstrate rather exception than cultural norm).

In each case Culturally Significant Factors and Culturally Independent Factors should be established in the beginning of design research. Also should be drawn factors that have influence on output project sustainability.
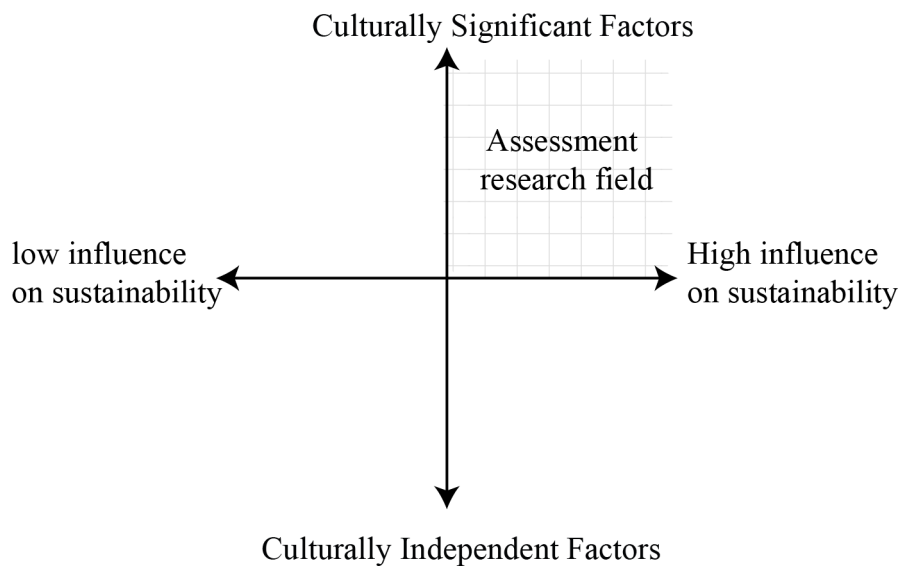
Figure 41. Two-axis matrix of cultural factors significance and sustainability.
Source: author's elaboration.

Culturally significant elements identified may included; the external environment, the influence of other people, consumption etc. Culturally independent elements identified may included; perceptions, aspirations, senses, views, and income. For application of design criteria in more structured way we need to research current assessment and certification tool.

3.4.1. Assessment and certification tool

Though is it disputable weather cultural sustainability can be measured in absolute terms but sustainable systems can be envisioned and enacted upon across relevant guideline and principles.

Assessment tool (AT) and certification schemes offer a way for designer to formalize a sustainable approach in interior design and architecture. Currently, a large range of tools for assessment and labelling with an extensive width of complexity and varying scopes of application are available on the market. Assessment scheme are typically voluntary and usually focus on environmental sustainability, but some also cover social and economic issue. Though no review of published literature about cultural dimension in AT was found. One of the major challenges of including culture in AT is that defining 'culture' and therefore 'cultural impact assessment' is difficult.

Some of the AT are industry schemes, whereas others tend to be more independent and are naturally less biased. In addition, several AT have strict criteria that require a third-party validation process. One aspect that the presented AT have in common is the requirement for data in order to provide a sound assessment. Although research tends to be skeptical about the green building **rating system**, it is undeniable that these standards or rating systems provide practical methods and guidelines for designing and assessing building performance through a user-friendly checklist.

Regeneration-Based Checklist for Design and Construction

© SBSE @ Tadoussac 1999

Project:

	degeneration				sustainability				regeneration	
	-100 always	-75 usually	-50 sometimes	-25 a bit	0 balances	25 a bit	50 sometimes	75 usually	100 always	
pollutes air										cleans air
pollutes water										cleans water
wastes rainwater										stores rainwater
consumes food										produces food
destroys rich soil										creates rich soil
dumps wastes unused										consumes wastes
destroys wildlife habitat										provides wildlife habitat
imports energy										exports energy
requires fuel-powered transportation										requires human-powered transportation
intensifies local weather										moderates local weather
excludes daylight										uses daylight
uses mechanical heating										uses passive heating
uses mechanical cooling										uses passive cooling
needs cleaning and repair										maintains itself
produces human discomfort										provides human comfort
uses fuel-powered circulation										uses human-powered circulation
pollutes indoor air										creates pure indoor air
is built of virgin materials										is built of recycled materials
cannot be recycled										can be recycled
serves as an icon for the apocalypse										serves as an icon for regeneration
is a bad neighbor										is a good neighbor
is ugly										is beautiful

(left side: the site / the building)

| negative score 2200 possible | | positive score 2200 possible |

final score:

Figure 42. First AT checklist for design and construction was presented by architect Malcolm Wells' in 1969. Source: McClure and Bartuska.

The first simple guide for design and construction of ecological green shelter was presented by architect Malcolm Wells' in 1969: Wilderness-Based Checklist for Design and Construction[90]. In 1990, the U.K. announced a building environmental performance assessment system known as the BREEAM (Building Research Establishment Environmental Assessment Method). In the next two decades, many nations began their research on green building assessment tools[91].

Some critics of rating systems have concluded that there is evidence that organisations and firms are not using them as guideline to reduce ecological impact, but rather as an asset for positive publicity (Gabe, 2005). Other critics have pointed out that the application of rating systems is very subjective process with few criteria which are truly measurable. Further criticism define rating system is based on checking certain components on the building without assessing the ability of the building to continue providing outstanding service for

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[90] In 1998 this checklist was the key concept for the leadership in energy and environmental design (LEED) – the most used AT in the world.

[91] For example, systems like HK-BEAM (Hong Kong Building Environmental Assessment Methods), U.S. LEED (Leadership in Energy and Environment Design), Japan's CASBEE (Comprehensive Assessment System for Building Environmental Efficiency), Australia's Green Star, China's GBL (Green Building Label), etc. A detailed description of each of the systems is beyond the scope of this research.

the future. For example, a sustainable proposed development could have landscape roofs, geothermal energy production, photovoltaic panels, high performance window and extensive use of recycled and renewable materials, but be a hulking structure, out of scale with the neighborhood.

According to leading biomimetic thinker Bill Reed: (who co-chaired the development of LEED standards from the outset): 'We could have a world full of LEED platinum buildings and still destroy the planet, these greener … is simply 'less bad' (Levitt, 2008).

As we previously mentioned in biophilic design review this approach was developed into AT. In an effort to create restorative and regenerative design Kellert elaborated a set of biophilic standards checklist based on 6 elements and 75 attributes, calling it '*A pattern language to help people who want a checklist*'. According to Kellert, biophilic design has to make sense in context and must make sense culturally. Biophilic standards checklist provides a base to design in harmony with nature but don't offer a meaningful Bio-Eco regenerative checklist as 'people don't live by efficiency alone'.

Attributes of Biophilic Design			Elements and Attributes Biophilic Design		
Environmental Features	**Natural shapes & forms**	**Natural patterns & process**	**Light & space**	**place connections**	**evolved relation to nature**
Natural materials	Botanical motifs	Sensory Variability	Natural Light	geographical connectin place	prospect & refuge
Natural colors	Animal motifs	Information richness	filtered & diffused light	Historical connection place	order & complexity
Water	Shell & spiral forms	Age, change	light & shadow	cultural connection place	enticement & curiosity
Air	Egg, ovular form	Growth	reflected Light	ecological connection place	change & metamorphosis
Sunlight	Arches, vaults, domes	Central focal point	Light pools	indigenous materials	Affection & attachment
Plants	Tree & columnar supports	Patterned whole	warm light	landscape orientation	Attraction & beauty
Animals	Shapes lacking right angles	bounded spaces	Light as shape & form	landscape ecology	Exploration & discovery
Natural views	Simulation of natural system	transitional spaces	spaciousness	integrating culture & ecology	Fear & awe
Facade greening	Resemblance to natural features	Linked series & chains	spatial variability	sence or spirit of place	Information & understanding
Geology & landscape	Geomorphology	integration of parts to wholes	space as shape & form	avoiding placelessness	Mastery & control
Habitat & ecosystem	Mimicking organic function-biommicry	similar format different scale-fractals	spatial integration of lightness	landscape features that define building form	security & protection
Fire		dynamic balance & tension	Inside & outside spaces		Reverence & spirituality
		complementary contrasts			
		hierarchically organized scales			

Figure 43. Biophilic standards checklist. Source: Kellert et all (2008).

Another promising tool to study AT related to cultural sustainability in design project would be <u>cultural impact assessment</u> (CIA) which is a less well-developed aspect of IA (impact assessment). Unfortunately, CIA has been developing only for last two decades, primarily for the purpose of understanding impacts of development, including mining, on indigenous communities, and, relatedly, has mainly been documented as occurring in countries with indigenous populations to mitigate the negative impact of mining without

disturbing the indigenous people of that territory[92]. This narrow field of application is related to the fact that <u>culture is a comparatively new dimension of public policy</u>, not yet fully integrated into government policies around the world, but increasingly being included (Hawkes, 2001).

After studying several dozens of AT the author concluded that the only AT which includes some of aspects related to cultural sustainability in sustainable criteria list is the <u>Living Building Challenge</u> (LBC) - a program of the International Living Future Institute (a non-governmental organization committed to sustainability issues). It is a holistic standard, pulling together the most progressive thinking from the worlds of architecture, engineering, planning, interiors, landscape design, and policy. There are 20 simple and profound *Imperatives* that must be met for any type of project, at any scale, in any location around the world.

Figure 44. Summary table of living building challenge. Source: International living future institute.

As other AT reviewed during this research the LBC imperatives does not include explicitly such parameter as culture except seventh 'petal': i.e. '*beauty*'. According to LBC guideline[93]: 'The intent of the Beauty Petal is to recognize <u>the need for beauty</u> and the connection to nature as a precursor to caring enough to preserve, conserve, and serve the

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[92] As in the Avatar movie, where the main protagonist's mission was quite similar to primary CIA on the field.
[93] Retrieved from https://living-future.org/wp-content/uploads/2019/08/LBC-4_0_v13.pdf.

greater good. The key to creating beautiful buildings is to embrace a biophilic design process that emphasizes that people and nature are connected and the connection to place, climate, culture and community is crucial to creating a beautiful building'. Then it says: 'We do not begin to assume that we can judge beauty and project our own aesthetic values on others. But we do want to understand people's objectives and know that an effort was made to enrich people's lives with each square meter of construction, on each project'….The project must meaningfully integrate public art and contain <u>design features</u> intended <u>solely for human delight and the celebration of culture, spirit, and place</u> appropriate to the project's function'.

In next paragraph we will offer our vision on the guideline for DfCS.

3.4.2. Design for cultural sustainability (DfCS) tool

As a result of the research the author developed a tool (including Checklist and questionnaire) for interior and spatial designer to facilitate design workflow and design research with focus on cultural sustainability of particular project. Rather than create a rigid AT for DfCS, we feel it is best at this point in time to simply develop the questionnaire that will facilitate creative and design thinking processes of interior design students.

Checklist of cultural probes. This table is synthetic analysis of cultural dimension for designer self-esteem and esteem of cultural background of project's beneficiaries. At starting point of design research this table represents useful tool for snapshot of cultural landscape for better understanding of context and new insights. This tool could serve as a snapshot of the complexity of the multicultural environment to identify the values in cultural diversity as was in case with NoLo.

Category	Parameter/ cultural dimension	Beneficiaries belongs to	Does the parameter make the interior design project (proposition) more sustainable or less sustainable?		
			more sustainable	indifferent	less sustainable
cultural universalites	High/ low-context culture (Hall)	high			
		low			
	Uncertainty avoidance (UAI) (Hofstede)	high			
		low			
	Individualism/collectivism (IDV) (Hofstede)	indiv.			
		coll.			
	Long-term vs. short-term orientation (Hofstede)	Long-term			
		short-term			
	Man-nature orientation (Kluckhohn and Strodtbeck's)	subjugation			
		harmony			
		mastery			
	Universalist vs. Particularist (Trompenaars and Hampden-Turner)	Univ.			
		Partic.			

	Internal vs. External Control (Trompenaars and Hampden-Turner)	int.				
		ext.				
	Societal Cynicism (Leung et al.)	high				
		low				
	Spirituality (Leung et al.)	high				
		low				
	Fate control (Leung et al.).	high				
		low				
changes	Free vs compulsory culture change (Turhan)	free				
		compul.				
	Vertical vs horizontal cultural transmission (Feldman)	vertical				
		horizontal				
comfort perception	Warm prized vs cool prized cultures	warm				
		cool				
	Color acceptance (Batchelor)	chromophobic				
		chromophiliac				
	Ornamental culture	high				
		low				
	Water-prized cultures	high				
		low				
	Sunshine-prized vs shadow prized culture	sunshine				
		shadow				

Table 4. Checklist of cultural probes for design for cultural sustainability. Source: author's elaboration.

Whilst the cultural factors can help the designer 'ask the right questions' and the guidelines can help them 'think about the problem differently', they are not a 'silver-bullet' for the problem of creating cultural acceptable interior design that meet another economic, environmental and social dimensions of sustainability .

Questionnaire   does not provide only one correct answers but rather act as queries to be considered and reflected avenue of thoughts toward particular type of interior design project that meet the need of beneficiaries. We do not regard these criteria as 'absolute truths'; rather, they are guiding principles, open to dialogue, a tool for gathering and evaluating design-relevant data. These criteria are a result of re-elaboration and reformulation of different design approaches as well as cultural studies including new aspects and dimensions.

SECTION A. CULTURAL IDENTITY

1.   Self-esteem of designer and design team composition
1.1. Whether designer is inside or outside the culture to be evaluated?
1.2. Does designer share values and believes (including superstition, rituals) of community or beneficiaries he work for (in)?
1.3. How designer translate his/her own values and believes (superstition, rituals) to design output?

1.4. How can designer prevent his own culturally based biases while conducting design research?
1.5. How long designer lives in particular place (district, town) and how strong his connection to that place?
1.6. Has the designer got general ecological knowledge of local bioregion?
1.7. Is the design process guided rather by local cultural values / traditions / identity or market/global/fashion?
1.8. Does the design team composition provide balance between knowledgeable community members and complimentary expertise?
1.9. Does the design team acknowledge humility, reference for nature and human ignorance, transdisciplinary knowledge, collaboration and 'beta'/'prototyping'/ 'tinkering'?
2.   Cultural Identity of beneficiaries
2.1. What is geographical origin, language, and self-identification of ethnic and cultural group (including second-generation) – residents of territory/ potential users?
2.2. What is widely shared religious and ethical beliefs among beneficiaries?
2.3. Who is considered as Heroes (alive or dead, real or imaginary, locally or nationally prized) who could serve as models for sustainable behavior for beneficiaries?
2.4. What culturally based phobias, beliefs, taboo or superstition (including nocebo) are common among beneficiaries that could impede effectiveness of design project and usage of particular artifacts?
2.5. How to increase set of capabilities available to beneficiaries to achieve cultural sustainability?
3.   Participation
3.1. How residents, community stakeholders and end-user groups are involved in the design process?
3.2. How political systems and public institutions maintain the design?
3.3. Does the project maintain 'warm relationships' with local manufacturers?
3.4. How the project involve/ encourage faith-based organizations (FBOs) of community that promote sustainable behaviour?

3.5. How the project involve/ encourage creative communities on territory?
3.6. How the project involve/ encourage followers of sustainable subcultures such as new minimalism, 'Guerrilla gardening', 'Slow food', 'Green consumer', 'Zero waste' movements etc?

SECTION B. DESIGN DIVERGENT STAGE RESEARCH

4.   SPACE
4.1. Does the project foster the feelings of belonging rootedness, self-knowledge and meaningfulness and connection with territory?
4.2. Is there sense of relatedness in interior (including furniture), and expression of their authentic values?
4.3. Does the project produce an output interior that cannot be reproduced or transferred that ensure its irreplaceability?
4.4. How the interior provide emotional and cultural meaning originated with the community?
4.5. Is interior more internally or community driven rather than externally and commercially driven?
4.6. Does the space (interior) contain Complexity and Order, Prospect and Refuge?

Appropriation
4.7.1.   Does the project encourage (temporal) appropriation of space (interiors) to gives a sense of uniqueness and overcome human alienation?
4.7.2.   Can user re-design and reconfigure, fix or maintain interior easily?
4.7.3.   Does the space (interior) create a feeling of control & mastery (thermal, light, and other types of control), including self-assembled artifacts?
4.7.4.   Does the interiors (space) offer interactions that require time and effort to learn some skill (Labor Leads to Love principle)?
Experience
4.8.1. How the space (interior) create unexpected interactions trough unconventional way (surprise effect, mystery and wonder) in user interaction?
4.8.2. In what ways space (interior) facilitate connectedness of people together and produce group affiliation?

4.8.3.	Does the interior maintain rituals and habits considered as socially essential among beneficiaries ?
4.8.4.	How the project stimulates making and using artifacts rather than buying and owning them?
4.8.5.	How the project contributes to dwell poetically?
4.8.6.	How interior encourage salutary forms of dwelling, well-being, stewardship and presence?
4.8.7.	How interior design dynamically respond to the environment changing (daily, seasonally)?
4.8.8.	Does the project use light to create a feeling of community, coziness as a way of communicating with custom, personal light?
Materials	
4.4.1.	Does the project use Materials and elements from nature that reflect local ecology/ geology to create sense of place?
4.4.2.	Does the project use authentic and 'honest' materials?
4.4.3.	How the interior acknowledges the origins of materials?
4.4.4.	Does the project use memory-embodied recycled raw materials recovered during urban mining process?
4.4.5.	How does the materiality of the interior develop and change over time through use?
4.4.6.	How the project fosters a deep care and respect for the world's natural materials?
4.4.7.	Does the materials and coatings wear or mature in a beautiful or interesting way (ageing gracefully).
4.4.8.	Do the materials embrace the imperfections and transience of existence, achieving this through asymmetry, roughness, irregularity, simplicity, economy and austerity?
4.4.9.	Do the materials provide the opportunity for a multi-sensory experience and active engagement?
4.4.10.	Does the project use hyggelig materials aesthetics of the second-hand, the reclaimed, restored, natural, collected, handmade, salvaged, worn?

Artifacts
4.5.1.   How the project acknowledges the origins of an artifacts?
4.5.2.   Do some artifacts or parts of interior mimic human or animal behavior?
4.5.3.   Do Artifacts rather 'de-skill' and 'disburden' user or encourage user to use some specific skills?
4.5.4.   Have the artifacts familiar form with de-familiarizing effect (context)?
4.5.5.   Do artifact wear well?
4.5.6.   Does the project blend new artifact and old one.

5.   TIME
5.1.   How can the interior evolve with the beneficiaries?
5.2.   How artifacts in interior design can have multiple lifetimes and stories with many generations of beneficiaries? (Principle of Seven Generations)
5.3.   How the project encourages slowness and 'reflective consumption'?
5.4.   How might interior design express the value of durability?

Cultural continuity
5.5.1. How the project support cultural continuity (the spread of cultural (material and non-material) heritage from one generation to another?
5.5.2. Is the project (particular proposals) likely to conflict with the values of beneficiaries they have grown up with?
5.5.3. How the project prepares people for changes (transition)?
5.5.4. How the project makes easier for people to adopt the desired sustainable behaviour?
5.5.5. How the project use or facilitate local traditional knowledge of building and construction technics and material usage?
5.5.6. Does the project contribute to heritage revitalization through the reuse, relocation or rehabilitation of an existing building and spaces?
5.5.7. How the project prevents disappearance of indigenous languages along with indigenous identity of territory?

Cultural adaptation
5.6.1. How the project avoid 'McDonaldization' of space (interior design)?

5.6.2. How the project can combine the local values and contemporary technologies and reduce the clash between global and local ('glocal' strategy)?

6. SYMBOLS
6.1. Does the project create emotional play and symbolic, cultural and existential functions instead of practical-functional connotation?
6.2. Does interior provide symbolic resource in less materially intensive way and less commercial way?
6.3. Does the project refer to symbols that carry particular meaning (objects, images, words) which is only recognized by those who share the culture?
6.4. Does the project meaningfully integrate public art and contain design features intended solely for human delight and the celebration of culture, spirit, and place?

Narratives
6.5.1. How interior/space use metaphors to established relations between objects and culture?
6.5.2. Does the project balance well between dream and function?
6.5.3. Does the project correspond to urban myths and its romantic dimension?
6.5.4. Does the interior leave room for to re-interpretations, re-imagining, and re-appropriations (avoid over script)?
6.5.5. Does the space (interior) create a sense of nostalgia trough metaphors of old artifacts or experiences?
6.5.6. Does the project involve artefacts or building with existing multi-layered stories?

CONCLUSION OF THESIS

The major conclusions obtained from a systemic analysis of the concept of design for cultural sustainability and sustainable development are presented below.

In this research we have barely even scratched the surface in asking such questions as what **design for cultural sustainability** could be, let alone formulated coherent answers for next research. We take the realm of interior design as a starting point since the author is more familiar with it, but this design approach could be applied in any other design fields.

After research we conclude that cultural sustainability is equally as important as economic, social and environmental dimensions of sustainable development and is reasonably included **as 4ᵗʰ pillar** of sustainability, which is significant step towards solving ecological issues such as climate change, 'natural' disasters, waste crisis, capitalist exploitation of energy and food resources, virus pandemic, contamination, reduced biodiversity, deforestation, desertification etc.

We hold an opinion that application of any innovative sustainable design practice in **NoLo** district is hardly possible without cultural sustainability approach. From the other hand the crisis of multiculturalism and self-identity, illegal migrations, xenophobia and intolerance create difficulties with the implementation of foreign national cultural practice until it perceived as 'contamination' of Italian culture, in relation to internal or neighboring otherness (Ugo Fabietti et all, 2000). But if taken as inevitable process of cultural hybridization together with appropriate design approach and culturally accepted solutions, it will provided fertile ground for the seeds of innovations.

While we believe that our findings offer valuable insights for researchers and practitioners, some limitations and possible avenues for future research need mentioning. Perhaps most important, our work did not test cultural dimensions about comfort. Also the checklist and questionnaire were not tested in real context in **NoLo** district due to short timescales and academic nature of the project and the fact that significant part of research was done during COVID -19 quarantine period (Spring 2020).

Having clear and precise user (beneficiaries) information is critical in the design process. A design brief cannot be successfully fulfilled without the designer interacting and engaging with the beneficiaries to some degree. Nowhere is this more important than when designing for different cultural contexts.

To address global sustainability problems, often complex, ill-defined and intermingled, it is critical to integrate **knowledge from different academic and non-academic disciplines**, from natural and exact sciences to cultural sciences. In order to integrate sustainable approach in Interior design project and daily activity student should have convenient and updating **set of tools** to use them on regular basis. The response to sustainability of project would be more effective if students were provided with achievement evaluation form template, including detailed checklists or questionnaire, where they report about particular parameters of the project.

We need to embrace great openness to the whole range of human knowledge and traditions, use the extraordinary richness of the cultures present on our Earth, from which to draw on the possible alternative paths of development. Designer, rather than trying to 'convert' user into his value and beliefs, could search for different solutions within different cultures. We need to foster intercultural exchange and mutual respect towards studying how different cultures treat the Earth and ecosystem in more sustainable way. In this context the superiority of developed countries over developing world is blurring, especially in terms of sustainable consumption patterns.

It is too early to make definition of Design for cultural sustainability, yet it is attempted to bridge gap between cultural studies, design and environmental issues. After this research we see *Design for cultural sustainability* as a broad amalgamation of cultural studies and design approaches that perceive sustainable development through lens of culture. Further development of this research and the study area in general, with new design challenges and in different cultural contexts will help to substantiate the findings and progress this emergent research field. Some hypothetical findings can assist in theoretical development of this area to potentially become groundbreaking parts of design theory and practice that deal with sustainability in general and sustainability in interior and spatial design specifically. We offer formulation of some principles of this design approach.

1. Design for cultural sustainability principles

- Unlimited growth has deep roots in western culture including religions. We have to liberate ourselves equally from simply sustaining the economic status quo and from that part of culture that justify it (as humankind once abolished slavery).

- Culture consists of material and non-material heritage. Overwhelming presence of material artifacts undermine sustainability. Material

consumption is not linked to happiness. Designer should promote lifestyles based on the consumption of far less material resources (external), more focusing on inner ways of satisfaction.

- Criteria of well-being and comfort are culturally determined (not only physically). Designer should be aware what parameter particular national culture consider as more treasured.

- Without empathy to local culture there is no cultural sustainability. We conserve only what we love, we love only what we understand, and we understand only what we are taught. Designer must be inscribed in local culture (residency and language requirement?) by his own choice. Touring designer or architect is rather unsustainable option.

- Cultural and language diversity is as important as biodiversity. Even small but homogeneous societies have larger circle of trust which results happier life. Designer should maintain feeling of belongness to community and local culture.

- Today in liquid society man can choose his own culture and his (multiple) identity. Alternative ways of living are available for the most people. Designer should offer to make that choice more consciously and responsibly.

- Hybridization of cultures is sustainable factor but if it goes too fast it becomes unsustainable. Culture wins only in long run time horizon. Designer should slow down the process (7 generations principle).

- There is no pure national culture, but only hybrid of high culture, low culture and neighbor's culture. Renaissance is a rotation of them. To save national and local culture designer should take effective solution from globalization ('glocal' approach).

- Culture is a composite of rational and irrational (beliefs, phobias, taboo, superstitions, rituals) that sometimes discourage sustainable behaviour. Designer should find balance between respecting beneficiaries' irrationalities and offering more sustainable behaviour (new set of capabilities).

- Often religions 'imported' to remote geographical regions without roots in geographical and native cultural landscape play negative role and destroy

fragile balance between man and nature. Designer should discover indigenous level of culture, as basis for future sustainable solutions.

- Juxtaposition of culture and nature is wrong. Culture is a result how man explained natural world around him. Architecture or interior design that distances the individual from nature will never be sustainable. Designer should change role of builder to role of gardener and use biophilic design approach as integral part of any culturally sustainable design solution.

- Beauty is in the culture of the beholder. Ugly artifacts or building never be sustainable even if they utterly energy effective and ecofriendly. Beauty as a promise of good has deep roots in nature. Designer should find inspiration in local nature and local materials.

- Human being does not live only by rules of effectiveness. Deep human universality is a need to daydream and wonder. Designer should return to man right to see starry heavens above.

We hope that this research will be as one of steps towards **cultural sustainability turn** in design practice.

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LIST OF TABLES

List of acronyms

AT   assessment tool

BCD   behaviour- centred design

C2C   Cradle to Cradle

CIA   Cultural impact assessment

DfBoP   Design for the base of the pyramid

DfCS   design for cultural sustainability

DfS   Design for Sustainability

EDD   Emotionally durable design

FBO   faith-based organization

IA   Impact assessment

IUCN   International Union for the Conservation of Nature

LCA   Life cycle approach

LCD   Life cycle design

MDGs   Millennium Development Goals

PSSD   Product-Service System Design

S.PPS   Sustainable Product Service System

SD   Sustainable development

UNEP   United Nations Environment Programme

WHO   World Health Organization

Rating system abbreviations

BREEAM   Building Research Establishment Environmental Assessment
Methodology

CASBEE   Comprehensive Assessment System for Building Environmental
Efficiency

DGNB   Deutsche Gesellschaft für Nachhaltiges Bauen (German Sustainability
Council)

GB Tool   Green Building Assessment Tool

GBAS   Green Building Assessment Method

GBL   Green Building Label

HK-BEAM   Building Environmental Assessment Method

HQE   Haute Qualité Environnementale

LBC   Living Building Challenge