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FOCUS

Transition Design as a Tool to Achieve Sustainability in Product Design

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Keywords
Transition Design, Sustainability, Product Design, Sustainability Transitions, Multi-Level Perspective.

Abstract
Recently, a new area emerged in sustainability design, referred to as “transition design” as a result of integrating system innovations and sustainability transitions theories with design theory and practice, developed at Carnegie Mellon University’s School of Design in Pittsburgh, Pennsylvania, and quickly gained the attention of academics, practitioners and design activists from around the world, transition design is one of the latest design approaches, geared towards social practice through structural change , it aims to transform societies into a more sustainable future in ways that improve the quality of life. Sustainability transitions are fundamental, multidimensional and long-term transitions through which established socio-technical systems are transformed into more sustainable production and consumption patterns, including products, practical and technological innovations as well as actors and interests involved in transition processes. This paper describes the transition design approach through an overview of origins and historical development as complementing countless other design approaches as well as sustainability transitions based on addressing and providing solutions to global changes in current and future society based on environmental, social and economic sustainability standards.

1. Introduction

The transition of the global community, environment and economy into a sustainable foundation is the greatest challenge in this age of variables and developments, an unprecedented challenge in terms of scope and context where the planet as a whole includes. It therefore requires a fundamental shift in awareness and action. Through a new vision and a new approach that contributes to the societal endeavor to achieve sustainability.

Transition design is a new area of design research and practices aimed at directing societal transitions and change at the level of systems (environmental, technological and economic... even individuals) towards a more sustainable future based on environmental, social and economic sustainability standards. The transition design approach is seen as "a paradigm shift and an entirely new way of understanding households and understanding societies" (Tonkinwise, 2012), Besides changes in the way of thinking , the shift to sustainable futures requires new design methods based on a deep understanding of how to design for change and transition within complex systems (Irwin, 2011).

To achieve sustainability, there is an urgent need for a radical and transformative restructuring of social and technical systems that meet contemporary life needs (Ryan,2013), and based on the recognition of this urgent need , the concept of sustainability transitions has emerged and evolved into a multidisciplinary area where the basic concept of transitions acts as a bridge between different scientific disciplines and major societal challenges such as climate change, biodiversity loss and resource depletion.

Finally, new strategies, ideas and ways of organizing are not only necessary to deal with societal challenges, but also shared creative partnerships that demonstrate a sustainable relationship to achieve a transformed society by creating a common motivation (Mulder, 2014), adopting a new collaborative attitude, participatory approach, and having an appropriate infrastructure that supports and strengthens this social fabric.
This paper aims to present key aspects of transition design in order to achieve sustainability in product design, as an emerging design approach within the main design approaches, capable of quickly finding radical design solutions and visualizing future scenarios to improve the ability of human beings to deal with the societal changes and challenges, and to emphasize the importance of transitions that focus on how the societal transition of sustainable lifestyles occurs, in addition to the role of designers in creating and supporting transition processes towards sustainability.

2. Literature Review on Transition Design as a Tool to Achieve Sustainability in Product Design

This work uses the literature review methodology to investigate the principal and most recent documents on transition design and sustainability transitions with the aim of generating new insights for sustainable lifestyles, the study is detailed in three phases.
The first phase describes the transition design approach as one of the most promising and recent design approaches, focusing on the transition design methodology aimed at providing designers with new tools and methodologies to begin the transition to a more sustainable future.

The second phase focuses on the emergence of sustainability transitions and their methodology to enhance the contribution to positive societal transitions through the design to change the level of systems.
The third phase illustrates the role of design and designers in transition studies, and provides some foundations for building an understanding of how design researchers begin to link design theory and practice to sustainability transitions.

3. The Emerging Transition Design Approach

3.1. Origins of Transition Design

Transition Design (TD) derives from a range of methods working together to develop transition solutions and contribute to growing knowledge about societal transitions and changes at the system level, including : socio-technical transition management theory, sustainability transitions, Transition Town Network, The Great Transition Initiative, Transitions in complex systems. Figure 1 illustrates the historical development of the emergence of transition design.
Transition Design is an emerging area of design research and practice, which aims to address and provide solutions to global changes in current and future society based on environmental, social and economic sustainability standards (Irwin et al., 2015). Transition Design combines two main objectives: (a) Develop new tools and methods that offer radical design solutions that help multidisciplinary teams working on transition-related projects and initiatives; (b) educate new generations of designers to qualify them to join these teams by familiarize themselves with key transition design concepts and theories.

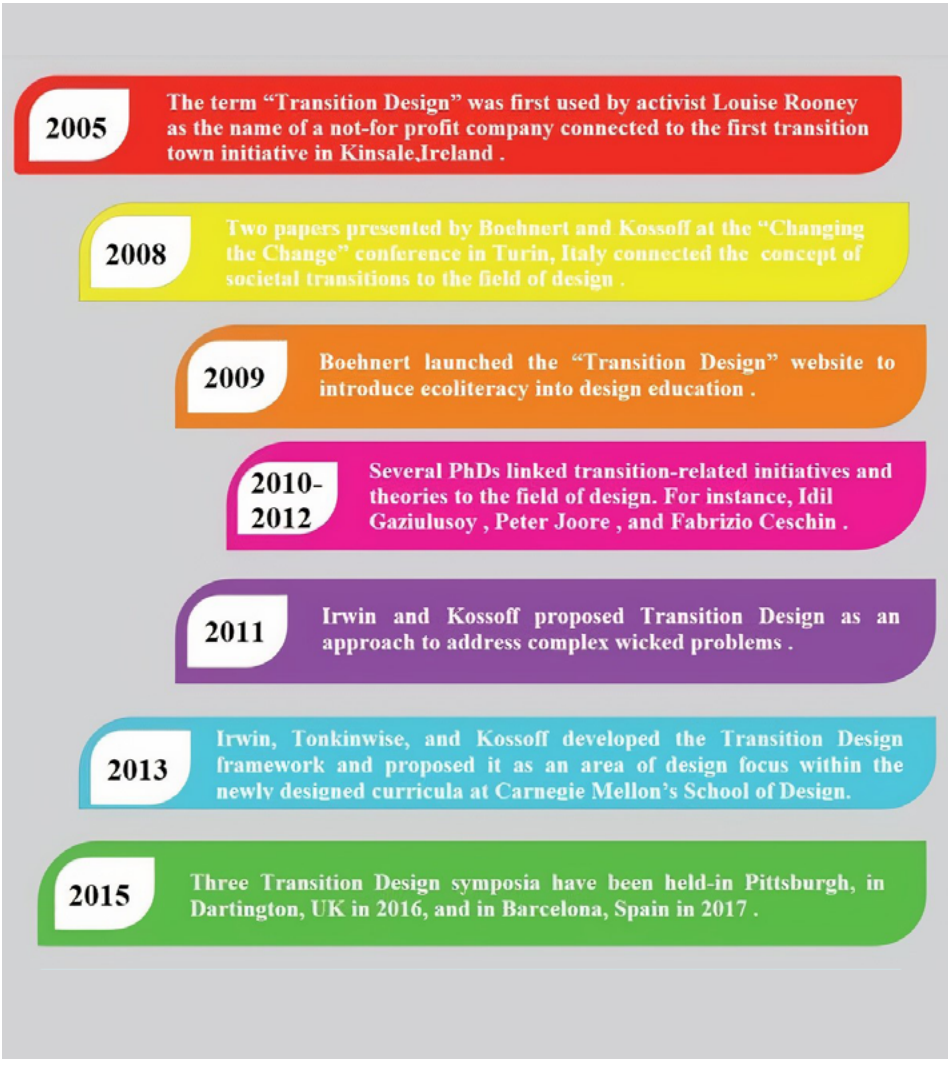

Figure 1. The historical development of the emergence of transition design (credits: Osama Youssef and Yasmin Sherif).

Transition Design is a design methodology aimed to transform societies into a more sustainable future by understanding the interdependence of social, economic, political and natural sys-

tems to address problems at all scale levels to improve quality of life, the origins of transition design solutions are based on long-term thinking, are lifestyle-oriented, space-based and always recognize the natural world as the largest context for all design solutions (Irwin, Kossoff & Tonkinwise, 2015).

Kossoff (2011a) explains that transition to a sustainable future is a design process that requires the vision and integration of knowledge and the need to think and act at different levels of scale and context (relationships, connections, and place). TD is "design directed at structural, long-term socio-cultural change", i.e. system-level change, but this does not mean policy-making or strategic planning; rather, TD "aims to bring design's human-scale artifact-interaction focus to the transformation of everyday practices needed to enable structural transitions to more sustainable economies" (Tonkinwise, 2015).

3.2. Characteristics of Transition Design

Although transition design complements and borrows countless other design approaches such as service design and social innovation design (Irwin, Kossoff, & Tonkinwise, 2015, p. 3), it is distinguished in its focus on some of the important points described in Figure 2.

3.3. The Transition Design Framework

The Transition Design Framework identifies four key areas of knowledge, practice and self-reflection, they reinforce and co-develop each other (Irwin, 2015, p. 232), (a) vision of transition, (b) theories of change, (c) mindset & posture, and (d) new ways of designing (Fig. 3).

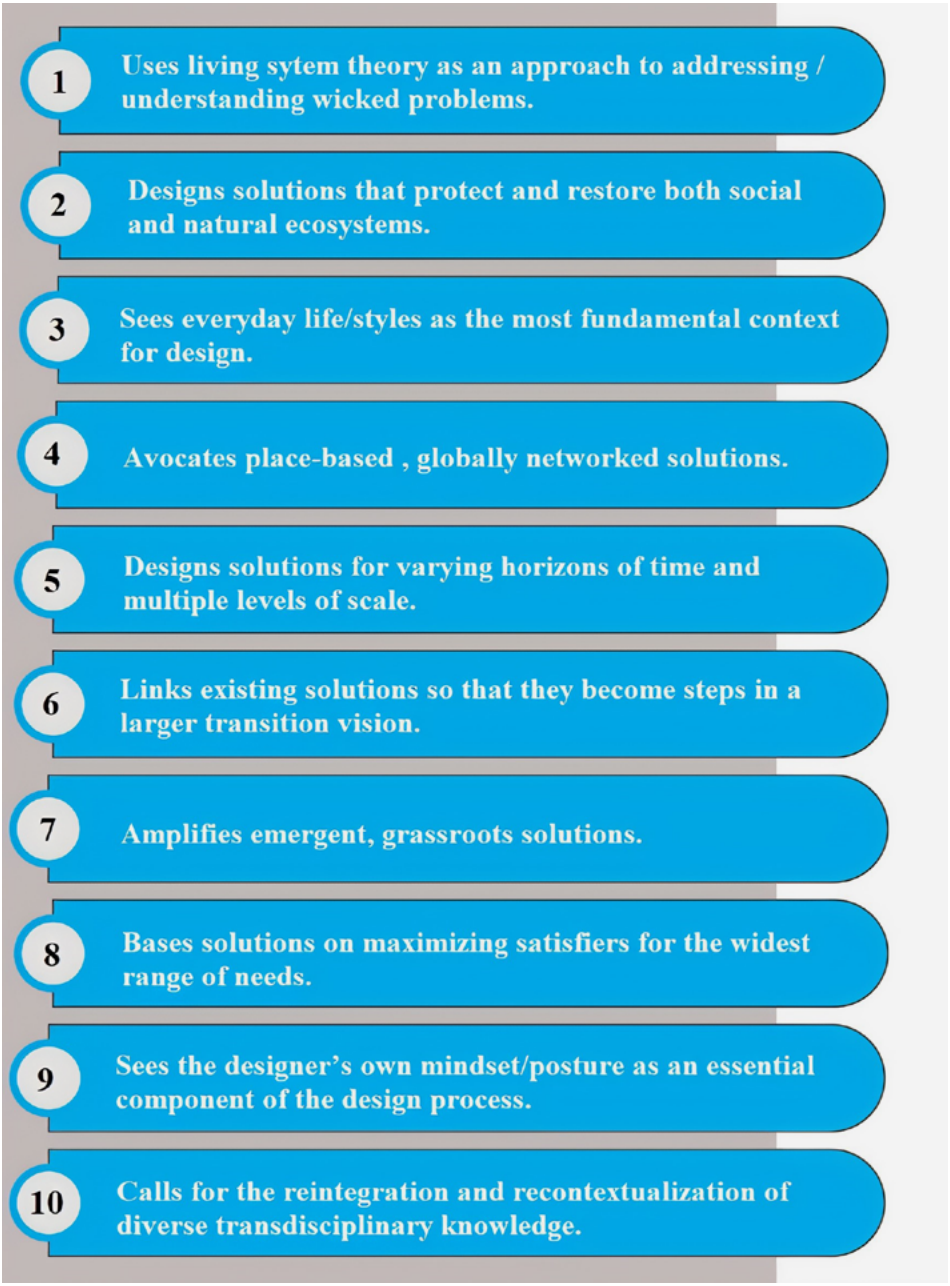

Figure 2. Characteristics of Transition Design (credits: Osama Youssef and Yasmin Sherif).

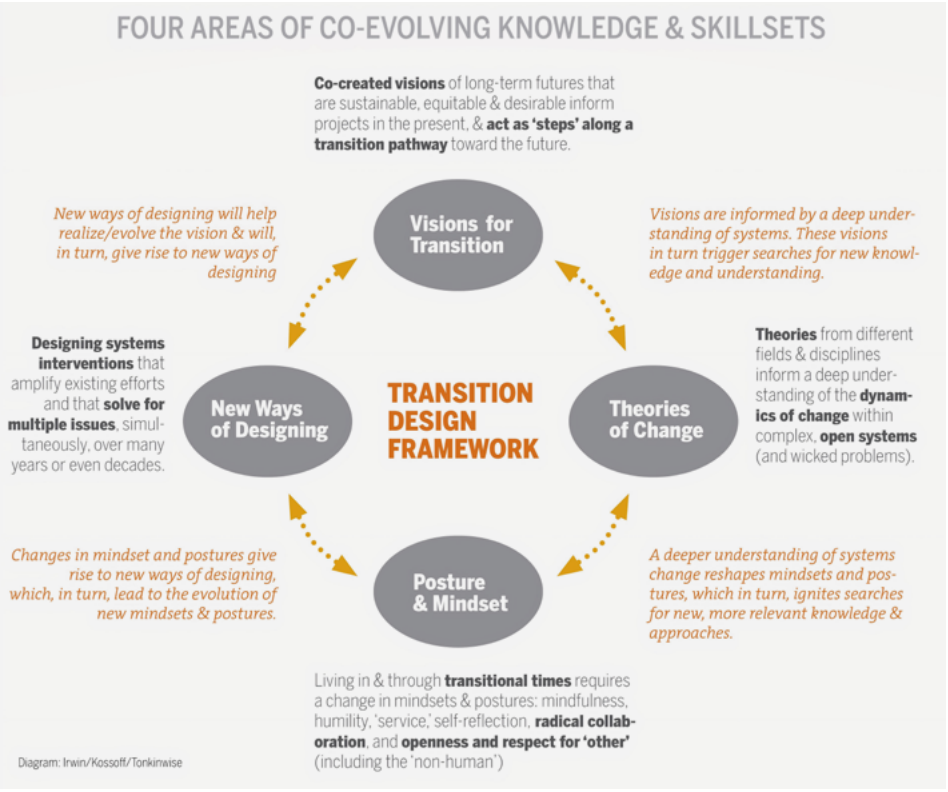

Figure 3. Transition design framework (Irwin, Tonkinwise & Kossoff, 2013).

3.3.1. Vision for Transition

Transition Design is linked to the need for future visions to inspire design projects nowadays through the use of design tools and methods in developing insights into what "can be", Tonkinwise (2014) believes that these visions are the basis for evaluating design movements, which are changeable according to changing situations, and different design methods such as backcasting, scenario development and meditative design develop our ability to imagine the future, and inspire short, mid- and long-term solutions (Fig. 4).

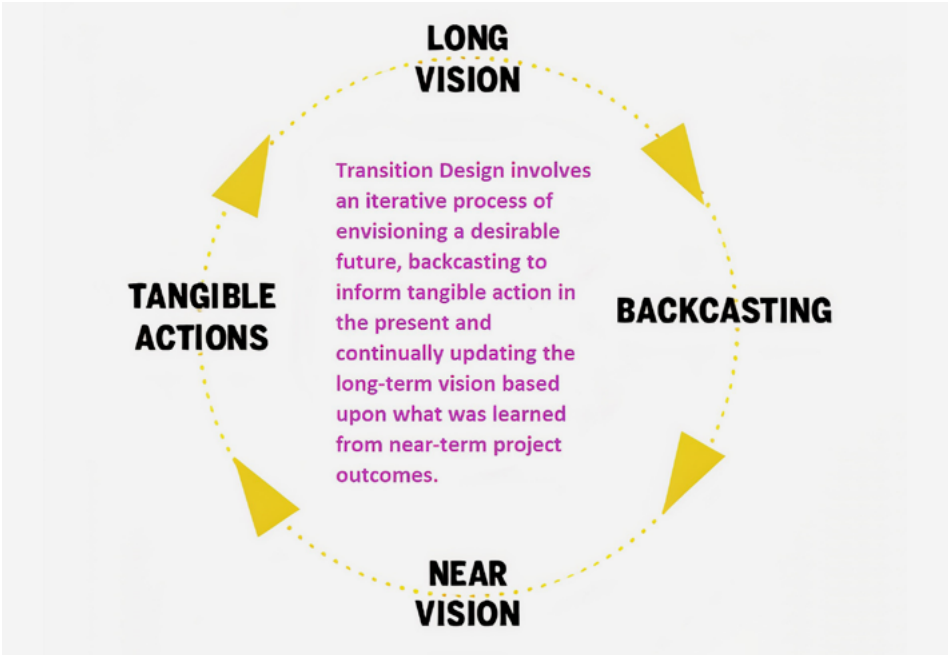

Figure 4. The visioning and backcasting process in Transition Design (Irwin, Tonkinwise & Kossoff, 2016).

Transition design is concerned with reshaping entire lifestyles by meeting basic needs locally or regionally to address quality of life issues in the context of everyday life in place-based (Cosmopolitan Localism) and lifestyle ways (Manzini 2009; Sachs 1999), transition visions are not conceived as design blueprints, but future visions change and evolve constantly based on the knowledge gained from projects and initiatives in the present. The transition vision is seen as a repetitive process of envisioning new ideas for the future that develop sustainable ways of living.

3.3.2. Theories of Change

The concept of change is central to the methodology of transition design, because the theory of change is an integral part

of the design process, whether it is partial change or a comprehensive change to all levels of society, and that change depends on the ability of society to change traditional ideas about the idea of change itself and how to direct it at the level of systems. Historically, change has been seen as something that can be "managed" through top-down centralized design processes that produce clear and predictable results (Irwin, 2015).
Theories of change represent a central perspective of transition design, a flexible and evolving set of knowledge and ideas, aimed at providing designers with new tools and methodologies to begin and catalyze transitions toward a more sustainable future. These ideas (new ways of living, alternative social, economic and political structures, technological innovation, etc.) have the ability to guide new methods of design and problem solving.

3.3.3. Posture and Mindset

Transition design relates to lifestyles in transition times, which require self-reflection and new ways of being in the world. This change should be based on a new mindset or worldview that leads to different practices, behaviors and interactions with others to find solutions to design problems. Our individual and collective mindsets represent the beliefs, values, assumptions and expectations shaped by our individual experiences, cultural norms, religious beliefs and the social, economic and political models we share (Capra, 1997; Clarke, 2002; Kearney, 1984).
Designers often go through special situations that are unnoticed but deeply affect their ways of thinking and how they treat these situations as problems that need to be solved. How-

ever, these factors are rarely taken into account during design processes. Transition Design asks designers to look for value and the role it plays in the design process, and the best solutions to change can be conceived within a more comprehensive global vision that can help create new attitudes to interaction.

3.3.4. New Ways of Designing

The transition into a sustainable society requires new design approaches informed by different values and knowledge, the transition designers see themselves as one of the agents change, change represents a multi-intervention iterative process carried out at multiple levels of spatio-temporal scale to find solutions towards a vision based on the future, transition solutions may be short/near-term, or the solution may be designed for long periods of time (Brand 1999).

Transition designers have the skill, insight and ability to connect different types of solutions (service design or social innovation solutions) to increase the ability to participative design and bring about change based on a long-term goal or vision, as transition designers look for emerging possibilities within the contexts of the problem, rather than imposing and resolving pre-planned solutions based on situation , a multi-disciplinary approach based on understanding how change emerges within complex systems.

4. Sustainability Transitions

4.1. What are Sustainability Transitions?

Design for sustainability transitions is an emerging area of research and practice that combines theories of sustainability,

design and transition management. Sustainability transitions have recently been framed as design challenges of three main dimensions: creative, technical and political by referring to the multi-level perspective of system innovations, and Design for Sustainability Transitions explores specialized social and cultural practices and techniques to develop and analyze design scenarios for alternative futures using participatory approaches (Gaziulusoy & Ryan, 2017).
The origins of the design of sustainability transitions go back to the late 1990s in the Netherlands, when ongoing research at that time in developing sustainable technologies influenced the thinking of eco-design scientists, and the Dutch National Inter-Ministerial Program for Sustainable Technological Development (STD) was implemented between 1993 and 2001 and serves as a prelude to system innovations and transitions researches (Weaver et al.). In addition to SusHouse (Strategies towards a sustainable family 1998-2000), is an EU-funded research project that focuses on developing and evaluating strategies for becoming sustainable families, focusing on technological and cultural innovations needed that contribute to family sustainability.

Another key point is the first conference on design and sustainability transitions – "Changing the Change" conference – in Turin, Italy (Cipolla & Peruccio, 2008) as an evidence that sustainability transitions are linked to design thinking. The conference highlighted that a radical change in lifestyles and ways of meeting needs is a prerequisite that makes sustainability a major objective of all design research activities. Sustainability transitions are defined as "Long-term, mul-

ti-dimensional, and fundamental transformation processes through which established socio-technical systems shift to more sustainable ways of production and consumption" (Markard et al., 2012).

4.2. Theoretical Framework for Sustainability Transitions

The past two decades have produced some distinct analytical frameworks that deal with the characteristics of sustainability transitions, namely: transition management (TM), strategic niche management (SNM), multi-level perspective (MLP), and technological innovation system (TIS) as shown in (Fig. 5).

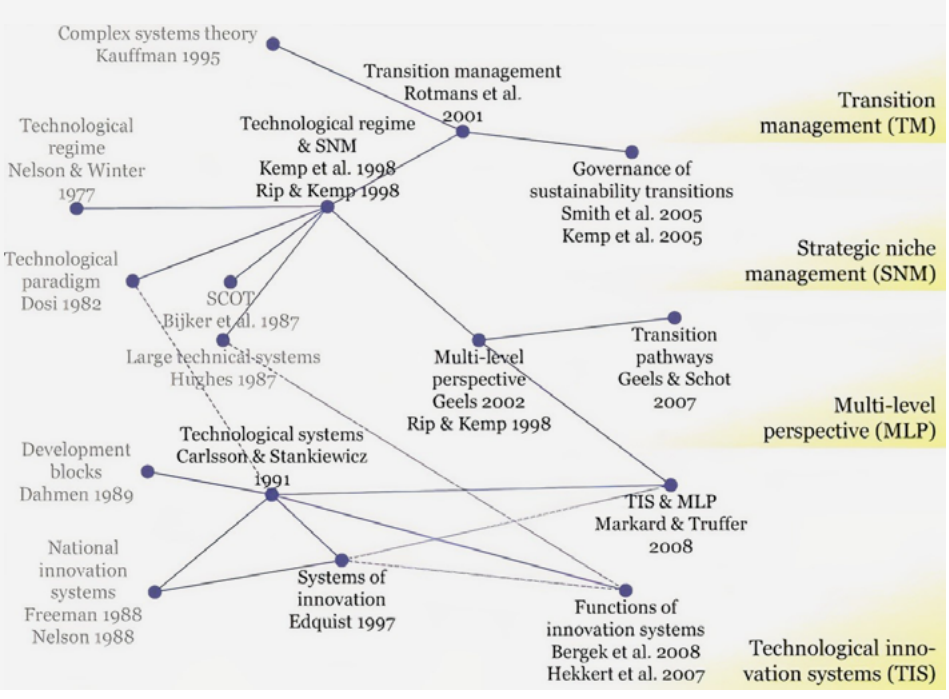

Figure 5. Map of key contributions and core research strands in the field of sustainability transition studies (Markard et al, 2012).

4.2.1. Transition Management

Transition Management (TM) introduced by Rotmans, Kemp and Van Asselt (2001) and developed by Loorbach (2007), an approach to sustainable development and one of the main frameworks in transition studies. The origins of transition management are due to the concepts of complex systems theory, such as contrast and choice, emergence, co-evolution, and self-regulation.

Regarding the implementation of the transition management approach, Loorbach (2010) proposes a so-called "transition management cycle" (Fig .6) that is represented by the cyclical process model through four main steps:

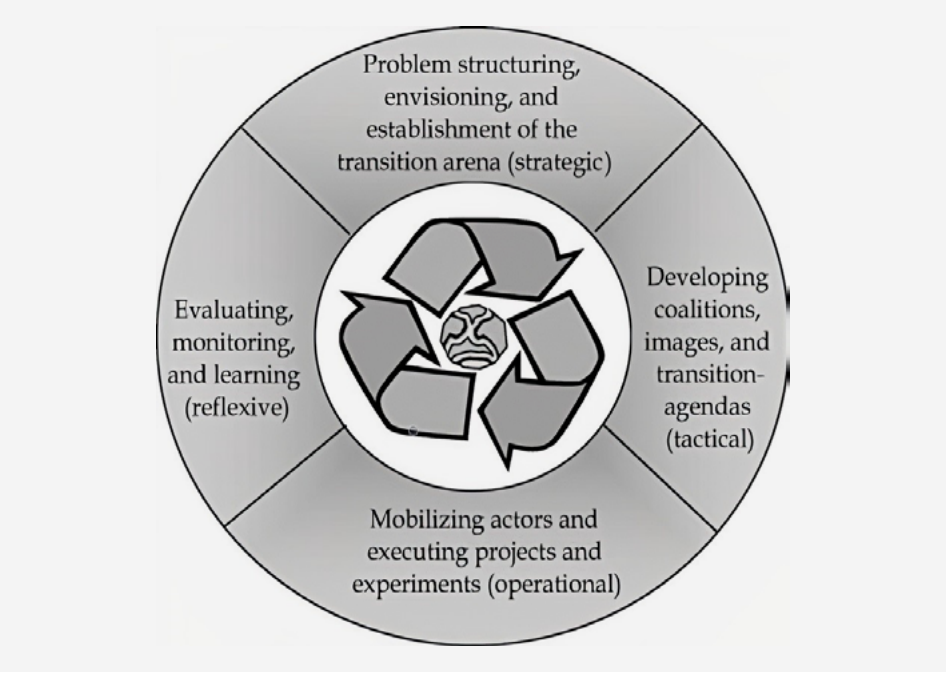

Figure 6. The Transition Management Cycle (Loorbach, 2010).

1. Structure the problem in question, develop a long-term vision for sustainability and create and organize the transition arena (strategic activities).
2. Develop future images and a transition agenda and derive the necessary transition paths (tactical activities).
3. Create and carry out transition experiments and mobilize the resulting transition networks (operational activities).
4. Monitor, evaluate and learn lessons from transition experiments (reflexive activities).

4.2.2. Strategic Niche Management

Another widely used framework for analyzing the emergence of radical new innovations to bring together ideas from the social innovation and evolutionary economics, SNM focuses on the interactions between learning processes (on different dimensions), social networks, insights and expectations. Kemp et al. (1998) defined it as

> The creation, development and controlled phase-out of protected spaces for the development and use of promising technologies by means of experimentation, with the aim of (1) learning about the desirability of the new technology and (2) enhancing the further development and the rate of application of the new technology.

SNM scientists suggest that radical innovations appear in "protected spaces" (such as R&D laboratories, supported demonstration projects, or small market outlets), which protect them from the prevailing market choice. This approach distinguishes three basic processes that are essential for further innovation development: (a) Formulating and modifying

expectations or visions, which provide guidance for innovation activities, (b) Building social networks and registering more actors and (c) Learning processes and expressing of different dimensions.

4.2.3. Multi-Level Perspective

MLP is a medium-term theory depicting dynamic patterns in socio- technical transitions, and serves as a hybrid theoretical framework linking science, technology studies and evolutionary economics. Transitions occur through dynamic processes within and between three analytical levels: the level of the landscape (the socio- technical landscape) at the top, the level of the socio-technical regime in the middle, and the niches (the locus of radical innovations) at the lower level of the overlapping hierarchy (Rip and Kemp, 1998).

Socio- technical researchers argue that systems transformation is the result of large and small events, technological innovations. Transition design researchers also argue that changes in social norms and practices in everyday life are also factors in the dynamics of socio- technical systems. All these factors/dynamics occur a result of slow-moving events (landscapes) such as climate change, natural disasters, droughts, population growth etc. Understanding of these systems dynamics can be guided by small and large design interventions that can cause a shift in socio- technical situation over time.

The diagram in (Fig. 7) shows how technological innovation at the large slow-motion level of landscapes (electricity) led to the emergence of an innovation that originated at the niche level

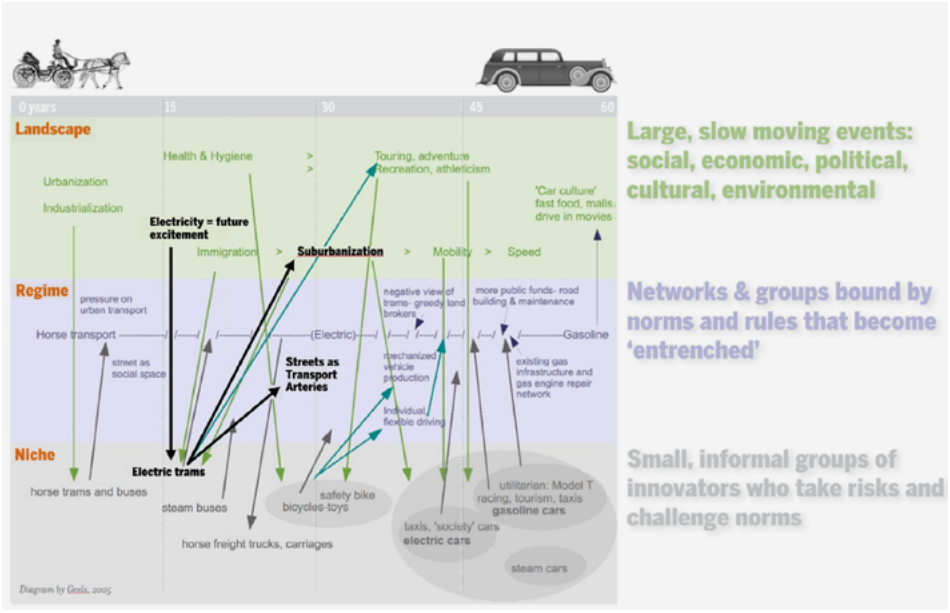

Figure 7. A dynamic multi-level perspective (Geels, 2005).

(the electric tram). The success of this innovation eventually changed the system-wide infrastructure: the streets grew as transportation arteries grew exponentially (Geels, 2005).

4.2.4. Technological Innovation Systems

Research into technological innovation systems (TIS) has emerged as the fourth major framework linked to transition studies, it is concerned with the emergence of new technologies and institutional changes that must go hand in hand with technology development. The TIS concept is based on Carlson and Stankowitz (1991), and has highlighted the systematic interaction of companies and other actors within a particular institutional infrastructure as the main engine behind the generation, diffusion and use of technological innovation.

TIS's approach focuses on shifting analytical attention from technological innovation that contributes to economic growth to new technologies as a nucleus of fundamental socio- technical transitions, and TIS studies have established a strong foothold in the search for sustainability transitions. This requires a thoughtful reflection of current concepts, as well as an explanation of how different frameworks relate to each other (Markard & Truffer, 2008b).

Recently, there has been some interest over the past few years in developing a clearer visualization of the geographical dimension of historical and emerging transitions transformations (Coenen & Truffer, 2012), where the geographical perspective supports a stronger normative trend in transition processes, because it forces analysts to question who wins and who bears the costs of certain transition paths, so analysts recommend addressing spatial transition contexts more clearly in future studies.

5. Role of Design in Transition studies

One of the shared main endeavours in establishing DfST has been determined potential roles that design plays and can further play in transition studies so design researchers could start linking design theory and practice with sustainability transitions. For instance, PhD's projects of Idil Gaziulusoy (2010), Peter Joore (2010), and Fabrizio Ceschin (2012) linked transition-related initiatives and theories to the field of design which generated a set of theoretical frameworks with similarities but also differences, and this is evident in the following.

According to Gaziulusoy (2010), design as a subject of transition is implicit. Similar to design that indirectly affects societal visions, it is assumed that societal visions will influence design through the mediation of the company's strategy as well, and Designers are important actors in sustainability transitions due to their innovative ability to create new products, services, and meanings within new socio- technological systems. However, despite this importance, they have partial power to influence change at the societal level. This is because they are constrained by short-term requirements informed by the company's strategies. Ceschin (2012) and Joore (2010) do not deal with questions about the possibility that design can become the subject of transitions.

Based on Joore (2010) the role of design and designers at different system levels varies from normal product design, visualization and co-thinking in future solutions, Joore understands that the designer's ability is high and direct at the level of product development but as the scope of the system increases, the capacity decreases and the role becomes indirect. Joore draws the V-Cycle System Innovations model for the successful implementation of product or service innovations based on a case study, facilitating the articulation of contemporary stakeholder dependencies, and developing insights about stakeholder expectations not only from the project but also from each other. The V-Cycle model is a detailed version of a linear process.

According to Ceschin, designers can play multiple roles in sustainability transitions. It includes the design of socio-tech-

nical experiences through which new concepts of a sustainable product service system are identified and developed. And design transition pathways to integrate sustainable product service systems into the societal context. He developed a useful toolkit for practicing designers to expand their temporal view and design to cover the design of transition paths, including tools for (formalizing the visions of the SPSS concept, developing transition strategies, managing network of actors, monitoring and evaluating the transition process).

According to Kossoff (2011), the main task of the designer is to facilitate the emergence of areas of everyday life that have deteriorated through modernity and to protect and repair relationships at all levels of the scope that exist between people, nature and material objects. Irwin, Tonkinwise, and Kossoff proposed a conceptual study framework (transition design) as an emerging area in design research and practice. The framework focuses on sustainable lifestyles at the individual and society level.

In Irwin (2015), design is explicitly a subject of transitions. Within their framework, transition visions, transformative knowledge, designers' mindset and attitude, and new approaches to design are four elements that are supposed to continually reinforce and transform each other.

Vezzoli et al. (2008) suggest a transition model of shared evolutionary design with a focus on sustainable product service system innovations. Their model offers conceptual stages, which evolve in periodic and repetitive activities around

stakeholder participation, vision adaptation, design improvement, and evaluation. The process they propose begins with the generation of a PSS prototype, and then continues to experiment with the pilot project, which was later introduced as a niche in system innovation and has finally been expanded.

Hyysalo et al. (1019) have submitted insights from collaborative design research to transition processes and developed a toolkit to accelerate socio-technical change. This toolkit provides a variety of leading actors with the means to collaboratively visualize and build pathways for accelerated system change in an average time scale of 10 to 20 years.

These tools and proposals represent some contributions to how design researchers begin to link design theory and practice to sustainability transitions. The situation referred to in these works can be summarized as sustainability as a place-based feature of globally interconnected societies, enlightened by evolving visions that propose whole lifestyles and permeate everyday practices.

6. Conclusions

TD is a new design approach aimed at addressing and providing solutions to global changes in current and future society based on environmental, social and economic sustainability standards, and presents the idea that design can play an important role in social and environmental change, according to a new design model that coincides with sustainability values for all areas of society in order to create sustainable scenarios in complex environments.

Sustainability transitions are a highly complex area, given the large and diverse number of actors and interests involved in transition processes. Depending on an understanding of the analytical and practical effects of fundamental transitions in socio- technical systems, this will create conditions for the creative context and facilitate convergence towards shared ideas and potential solutions.

This paper traces the origins of the emerging areas (transition design and sustainability transitions) in order to achieve sustainability in product design and presents the key theoretical and methodological contributions which provide pointers for future research and practice.

In conclusion, the transition design approach can help new generations of designers to understand design challenges by creating and supporting transitions towards sustainability to create a desirable future for all.

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IV

BIOGRAPHIES

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She is an Italian graphic designer. In 2015 she graduated in Design for Innovation at University of Campania "Luigi Vanvitelli". In 2020 she obtained a Ph.D. degree in Architecture, City and Design - Design Sciences at University IUAV of Venice with the dissertation "Kono - Analysis and design of a digital archive of visual communication". Main focus of her line of research are data visualization, digital design and digital archive - knowledge acquired during her academic path.
Since may 2020 she has a research grant entitled "Scientific Design for Medical Research", with tutor Carla Langella, at the University of Campania "Luigi Vanvitelli" - Department of Architecture and Industrial Design (DADI). At the same Department, she is Teacher Assistant of the course "Visual identity for Cultural landscapes" held by Daniela Piscitelli.
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He holds a doctorate in theory of Design from the Department of Products and System Design Engineering of the University of the Aegean. His research sprawls around Design for sustainability, craft, service design and social innovation. His work is based on creating meaningful dialogue between the theoretical framework and the sociotechnical propositional artifacts that embody different questions in a Research through Design approach. Applying introspective and auto-ethnographic methods to this process he aims to challenge the dominant modernist epistemology of design. At the very core of this process lies the notion that we live in transitional times and fostering the discourse that leads to networks of artifacts that embody alternative systems of values is necessary to move away from today's unsustainable society.
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Marco Bozzola
Associate professor in design at the Department of Architecture and Design of Politecnico di Torino, where he teaches Concept Design and Design for Cultural Heritage at the bachelor degree in Design and Communication.
His research fields are design for crafts and territory, design for cultural heritage and packaging design. Research areas that develop through the exploration of the relationships between local artisan production and design in the Piedmont Region and find applicative feedback in research activities and design actions.
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She has been working in Izmir Institute of Technology as a lecturer for three years. After biotechnology and chemistry fields, she tries to shift her career into design. Her research interests are biodesign and biomaterials.
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Systemic designer particularly keen on relationships between cultures, and enhancement of territorial identities. She is currently a PhD candidate at the Department of Architecture and Design of Politecnico di Torino, with a research project on the improvement of cultural heritage and cultural accessibility, with the aim of highlighting new approaches in defining the relationships between design, cultural heritage and communities.
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Helen Charoupia
She holds a degree in Product and Systems Design Engineering from the University of the Aegean, majoring in Service Design. Since 2020, she has been a PhD candidate in the Department, studying issues related to the emergence of sustainable futures through design.
Using participatory action research she aims to explore the ways in which tacit knowledge can emerge, be understood and leveraged to better design relational services for sustainable futures. This exploration will pivot on the ways of knowing that emerge from the process of design, craft and co-creation as well as on the indigenous practices at the local level.
Her research aims to enable the emergence of a new design epistemology, based on concepts like post-humanism as well as on feminist and indigenous theoretical frameworks. This will be accomplished with small groups of people, within which co-creation will occur, following processes of participatory design.
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PHD Fellow Professor at EINA, Centre Universitari de Disseny i Art de Barcelona, at the UAB, since 2011. She is doctorate in Humanities (2023), at UPF, and Graduate in Interior Design (2004) at EINA. She combines teaching in Space Design Bachelor at EINA with and researching. She coordinates the Master in Space Design and also she has her own studio of space design Sara Coscarelli Creación de Espacios (2008). Her researches are related with Interior Domestic in the Mediterranean context. She is developing consequences of the Mediterranean Critical Regionalism concept.
She has published in many international conference. Moreover, she is an Interior Designer with own studio.
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Antonio de Feo
PhD student in Design Science at Università Iuav di Venezia, designer and photographer. He investigates how the culture of the project can become a tool for reading and social innovation. After graduating in Industrial Design at the Polytechnic University of Bari with a thesis that combines territory, handicraft, design and industry, patented by the Polytechnic, he moves to Venice where he continues his studies at the Iuav University, graduating in product and visual design with a thesis on photography for design. In September 2020 he becomes a research fellow at the Iuav of Venice.
In his research he intends to analyze representational and transformative technologies as tools to communicate and market a product or a service. In addition, he studies to understand how photography could become a means of analysis and study for design, becoming historical memory of ancient craft values and material knowledge.
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Claudia De Giorgi
Architect and Full Professor of Design at Politecnico di Torino, she is a researcher in the field of the culture of materials for innovative design, technologies and production processes, investigating the sensory and sustainable dimension in a human-centred approach to design, which pays attention to people real needs: functional, relational and perceptive.
The work is carried out in close connection to the regional manufacturing sectors as part of a complex system of relationships which aims to disseminate innovation, develop new technological paradigms and new, more sustainable production scenarios.
Scientific Director of MATto, innovative materials archive open to Piedmont SMEs, since 2018 she is Vice Rector for Quality, Welfare and Equal Opportunities at the Politecnico di Torino.
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She is member of the Advanced Design Unit. Her main research topics are advanced design and future-focused processes, design education and the relationship between design sciences and humanistic knowledge.
She wrote articles both in international conferences and journals, such as "Strategic Design Research Journal", "Design and Culture", "Journal of Design History", "MD Journal", "DIID. Disegno Industriale Industrial Design", "The Design Journal".
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One of his main lines of research concerns the valorization of that design dialoguing with craftsmanship, strongly anchored to territories of the country, and capable of supporting the Made in Italy development, that is what he names "Handmade in Italy. About this, he is the national coordinator of the ADI Thematic Commission "Handmade in Italy," which he founded in 2017. Since 2020 he is Scientific Committee member of SYMBOLA Foundation for Italian Qualities.
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Researcher in Service Design and lecturer at the Advanced Design Master's Degree Course. Her fields of expertise are: advanced design approach to support urban transformations through multi-stakeholders collaboration, co-design of urban accessibility, design for preparedness.
She is involved in the development of International projects and in educational cross-city programs about design for responsible innovation.
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In her current work she and her co-worker argues the current socio-cultural transformation in Anatolian Dowry Culture in the context of reinvention of tradition.
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From 2007 to 2017 lecturer fellow and then post-doc researcher at DIDA Department of University of Florence, where he led several joint research labs in between Academia and advanced craftsmanship SMES. Professor in Fashion Design and Product Design at undergraduate program in Design of University of Florence. PhD in Industrial design, Environment and History, his professional profile is focusing on relationships between design strategies and advanced manufacturing processes. Academic coordinator at Fashion Design department of IED-Istituto Europeo di Design in Florence from 2014 to 2018. From March 2018 to December 2019, Associate Researcher at Nanjing University/School of Art.
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She teaches Bio-innovation Design and Design for Scientific Visualization in the Master's Degree Course Design for Innovation and Industrial Design Laboratory 3 in the Three-year Degree Course of Design and Communication. In the field of experimental design research, she investigates the opportunities to build hybrid paths that involve advanced scientific contributions in the design project to bring contemporary science closer to people's lives.
Since 2006 she founded and coordinates the Hybrid Design Lab (www.hybriddesignlab.org), the design laboratory dedicated to mutual relations between design and science with particular attention to the experimentation of biomimicry in design and the integration of designers in the development processes of new materials to which the specific Designer in lab project is dedicated.
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Since 2009 Dr Chikh Mhamed has held several teaching positions in various universities and business schools in France, Italy and China and conducted consultancy in strategy and international business. Her areas of research focus on collective strategies, business models and innovation as well as sustainability, in particular in Europe and Asia. In 2020, she has received a fellowship on the European Green Deal of Konrad-Adenauer-Stiftung in Berlin.
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She is currently doing her PhD at the same department (2018), focusing on UX evaluation methods in interactive systems related to cultural heritage. She is also a research fellow and member of the Heritage Management e-Society (HERMeS) NGO. She has been a Marie Curie Early Stage Researcher (2016) in Cyprus and Austria at an Initial Training Network (ITN) dedi-

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Main focus of his line of research are parametric design, medical design, and advanced manufacturing – knowledge acquired during his academic path.The Ph.D. course with industrial characterization has allowed him to carry out and consolidate his research activity, as well as at his university, also at the Escuela Técnica Superior de Ingeniería y Diseño Industrial (Universidad Politécnica de Madrid, Spain) and a company from Campania, based in Gricignano di Aversa, to design a system of innovative orthopaedic devices through parametric design.
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He is occupied with street art and mainly with large-scale murals. He's worked individually and with his team, Really? Team, in various parts of Greece.
He also works as a designer, illustrator, street artist and musician. His interests include photography, production and direction of audiovisual works, writing and acting. His research interests revolve around Design, Art and Creation, focusing on the design processes that precede, are subject to and follow the creation of works of Street Art, and how they are qualitatively and quantitatively related to Design, in terms of productivity, quality, performance and user experience.
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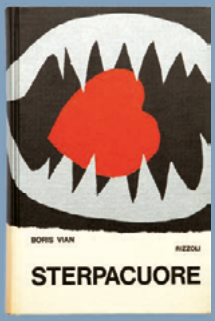
AIAP CDPG, the Graphic Design Documentation Centre. Working to collect, catalogue, archive, enhance and promote any documents related to graphic design and visual communication. These documents (originals as well as layouts of projects, books, posters, prints, catalogues, correspondence, photographs) help to rewrite the history of graphic design in Italy and to support research and educational activities, as it is the CDGP's intention to make these documents widely available.



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