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DESIGN FOR TERRITORIES AND GREEN ECONOMY: IN SEARCH OF A STRATEGY FOR LOCAL DEVELOPMENT

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ABSTRACT

We live in a fast-paced world where it is necessary to rethink lifestyles and develop new strategies to create a green future. Given this scenario, this study presents an introductory discussion that aims to link design thinking, behavioural science and green economy and identify potential synergies to promote sustainable growth and territorial resilience through the development of a 'new framework for design for territories'. While design for territories consists of outlining strategic approaches to the design of products, services, and systems to strengthen local communities and enhance territories, the 'new framework for design for territories' faces the challenge of taking on a new transdisciplinary strategic role. Because of its ability to mediate between actors, techniques, and technologies, the 'new framework for design for territories' was developed based on a literature review from the fields of design thinking, behavioural science, green economy, and design for territories. The findings suggest a remarkable way of thinking that can be successfully applied to policy design, especially for innovative, soft, non-command or classical economic policies. Finally, we emphasise the possibilities of applying design for territories as an innovation catalyst for sustainable territorial value chains, products, and services with well-defined territorial identities.

Keywords: design thinking, behavioural science, nudge theory, new strategy, sustainable development

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INTRODUCTION

Design is increasingly being used as a significant pathway to innovation. This means that design as a field of knowledge goes beyond the aesthetics of products and aims to identify the multiple qualities of products, processes, services, and their systems, and to promote social well-being, sustainability, and economic growth through innovation. By providing opportunities to contribute to a variety of infrastructural, organisational, and socio-economic relationships that make up territorial systems, aspects of the design-oriented approach have been highlighted as potential drivers of local development.

The relationships between such an approach bring the practices of design thinking into focus. In short, design thinking is a method for structuring thoughts through a set of principles and phases that can be applied in a range of scenarios where new ideas are synthesised from seemingly discrete fragments, transforming needs into requirements and challenges into opportunities. The ability of design thinking to assess the socio-economic aspects of a given territory and to activate mechanisms of strategic innovation focused on local development issues thus contributes to broadening the scope of product-service-system design based on territories (design for territories).

Design for territories has thus emerged from debates on the socio-economic and productive role of design in addressing territorial challenges (Parente & Sedini, 2017). As a contribution to consolidating design for territories as an effective approach to local development and sustainability, we suggest innovative solutions based on the design thinking approach (Brown, 2008) in conjunction with behavioural economics (nudge theory) (Thaler & Sunstein, 2008) that can foster sustainable development at large, particularly concerning its economic, social, and cultural domains. Analytical methods from design thinking and design for territories seem suitable to be associated with approaches from other disciplines (such as economics and behavioural sciences) as they can incorporate and coordinate tools for innovation and sustainability into a unified strategic process of local development.

In this paper, we explore the theoretical perspectives of design for territories and their interaction with design thinking tools, nudge theory and the green economy through a literature review. The paper proposes a juxtaposition of these different and usually not associated concepts and is divided into thematic sub-chapters. Each of them reports selected information from these disciplines being instrumental to frame an organic practice-oriented method. We aim to propose a transdisciplinary approach based on the interaction of these fields of knowledge that has not been specifically investigated so far, especially when considered in the context of local development.

Finally, we present a diagram inspired by a transdisciplinary systemic tool aimed to synthesise a proposed ‘new framework for design for territories’. The diagram illustrates a process for managing the approaches developed in different fields of applied research (design for territories, design thinking, behavioural economics (nudge theory) and green economy), identifying novel relationships among them and introducing new combinations of tools that can foster innovation in the territories addressed. In conclusion, we emphasise the importance of developing research based on innovation and transdisciplinarity for the benefit of territories, sustainability, and local development.

TRANSDISCIPLINARITY, INNOVATION AND DESIGN THINKING

We live in a world characterised by volatility, uncertainty, complexity, and ambiguity. These characteristics are the pillars that describe the scenario of incessant change in a fast, complex, and unstable way in which we currently live, and are presented as current challenges that have popularised the acronym VUCA (Volatility, Uncertainty, Complexity, Ambiguity). The concept of the VUCA world was originally introduced in the early 1990s when it described conditions in a world that is increasingly difficult to predict and trust (Shambach, 2004), and so it was quickly adopted as a premise for strategic decision making, and risk management in solving situational problems (Chermack, 2011). To deal with impact and manage a situation, a strategic mindset is required that must include innovative and transdisciplinary solutions.

Transdisciplinarity is the most advanced concept when it comes to categorising the disciplinary approach. As the prefix 'trans' suggests, it refers to that which lies simultaneously between, above and beyond each discipline. Its goal is to understand today's global challenges, which require, among other things, the combination of fused disciplinary knowledge to create a newly unified hybrid approach. In other words, transdisciplinarity does not mean abhorring disciplinary approaches, nor does it presuppose a syncretism of knowledge, but it is an invitation to think outside the box and not to confine knowledge itself to limited or closed perspectives.

According to Sommerman (2006), between the 1950s and the end of the 20th century, new forms of collaboration between disciplines and knowledge were proposed, especially in the context of academic research, to solve problems arising from the lack of dialogue between knowledge and unbridled technological development. This author argues that several thinkers have attempted to conceptualise these proposals for collaboration between disciplines by elaborating similar and complementary concepts that provide an understanding of what each approach or method is, categorised as multidisciplinary, pluridisciplinary, interdisciplinary and transdisciplinary, which led to confusion over the years.

However, since our focus is on transdisciplinarity, we will not engage in the analysis of all these disciplinary categories. A discipline can be understood as a knowledge framework or even the learning or teaching of a science that follows the rules and methods of the science to which it corresponds. According to Sommerman (2006), this knowledge framework can be either through a discipline characterised by scientific rigour or through the learning that results from its methods. Despite the marked diversity of knowledge that emerged in the last centuries, humanity has always strived for its unity and integration. However, as the methods of modern science deepened, more and more specialised disciplines emerged as epistemological islands in an attempt to identify and explain interrelated phenomena in increasingly coherent ways.

In this way, the need to reform thinking was recognised and stimulated by new theoretical and methodological frameworks. From the work of Nicolescu (1999), which already draws on the earlier ideas of Edgar Morin and Jean Piaget about the possibility of overcoming the limits imposed by academic disciplines, a strong critique of the technocratic model that prevails in our society can be seen. Nicolescu mentions two important revolutions of the 20th century: the quantum revolution, which was limited to an academic elite, and the revolution in computer science, which should have led to the liberation of time and the knowledge exchange, but has become an icon of the commodified world; he criticises the postulates of modern science because they are based on the search for the separation of the individual from observed reality. It is at this point that the potential contribution of the field of design to transdisciplinary thinking becomes most apparent. We know that the concern with human factors is not limited to the design practice, but its integration with technological aspects points to a transversal path for the discipline.

From a general point of view, Neumeier (2010, p. 50) makes a significant consideration and claims that "designers do not solve problems, they work through them". According to this author, it is a dynamic knowledge process based on the human-centred approach, through a repertoire of actions and reactions that combines 'thinking' and 'doing' by learning what is done during the process. Neumeier believes that in working with 'what could be' rather than 'what is', the designer draws on intuitive thinking and departs from a purely linear approach: action A, then action B-C-D, in consecutive order. The intuitive mind rearranges the elements as C-B-DA and adds R-KP-Z for completeness. But like in the logic of transdisciplinary methodology, the designer who adheres only to intuitive thinking cannot build anything tangible. The designer

must combine this with logical thinking to bring his or her vision of 'what could be' into the tangible reality of 'what is'.

The differences between design thinking and other disciplines lie not only in the results it produces, but also in the mental and physical processes that produce those results. The design thinking method can be divided into three main phases: inspiration, ideation, and implementation (Brown, 2008). The phases must be embedded in a context in which project members with often different points of view work together. In the inspiration phase, insight gathering begins with the empathy that comes from participants' observations, and it is important to emphasise that for more meaningful results, they should have diverse perspectives and multidisciplinary profiles, including users and experts on the issues addressed (e.g., designers, architects, urban planners, community, and stakeholders, etc.). According to Brown (2008), immersion is about understanding how people experience the world physically, cognitively, and emotionally, and it aims to define the project scope and its boundaries and provide inputs that will be explored in the subsequent phases.

In the ideation phase, insights are analysed to synthesise and filter information to generate ideas for the topic under discussion. Storytelling and brainstorming are techniques used in this phase to communicate and generate many ideas in a short period of time. The goal of this phase is to select and rank the best ideas to make them tangible to be subsequently implemented, prototyped, and tested in the last phase of the process (Brown, 2008). Thus, the implementation phase should be consistent with all the knowledge gained from the previous phases and the known current business opportunities for the company or solutions to the organisations/ stakeholders' challenges. Brown stated that prototypes are developed to improve highly innovative solutions by validating the designed ideas and testing them. After prototyping and testing, this last phase also includes collecting data on performances of the applied solution and adjusting implement it, repeating the previous phases as needed.

Based on this scenario, and with the goal of making the phases of the design thinking process more efficient, we identified a potential hybrid approach that could be used to promote local development through transdisciplinarity between design thinking, behavioural economics (nudges) and green economy. This identification was made for two main reasons: the first is based on the recognition that the typical communication of the results and strategies developed in the design thinking process is often not sufficient to ensure broad acceptance, especially among citizens and consumers, leading to the need to rethink strategies throughout the process. For increasing the support to a strategy, sound scientific results from consolidated disciplines can be helpful. The second is based on the idea that local development seems to be intertwined with green economy concepts, suggesting that green economy instruments and policies must be included in local development strategies.

NUDGE THEORY AND GREEN NUDGES

Thaler and Sunstein's (2008) nudge theory is based on tactics aimed at gently influencing a particular decision or attitude without coercion, in a predictable way through behavioural economics. To contextualise, behavioural economics is a bridging science that links psychology with economics and aims to explore topics of interest to the community of economists by leveraging the knowledge produced by psychologists. It is as noble as it is simple: this approach uses empirical results that are well established in the psychology literature to enrich and improve the description of individuals' behaviour and decision-making processes. The goal is not

to prove people' irrationality or the uselessness of the traditional models used by economists. Rather, it is about improving the psychological part of economic models, in a variety of areas that economists deal with, in the hope of increasing the explanatory and predictive power of these models.

Nudging is thus a tool to achieve behavioural outcomes by predicting how the human brain perceives its environment and makes decisions. In this sense, norms and standards have a strong influence on behavioural change in the desired direction, especially when elicited by implicit or explicit suggestions. When architects of choice take advantage of people's cognitive and motivational constraints, they can stimulate behaviour change and direct it toward their interests: for example, when we use the norm for nudging intervention, the norm is what happens automatically when a person does nothing (inertia), so "nothing is what many people will do" (Sunstein, 2014, p. 9).

To implement a nudge, it is necessary to address all the individual's needs and doubts during the process: there are several projects that apply nudges to change behaviour with very effective results in implementation. For example, they include subconscious cues such as changing the way options are displayed (e.g., making salad a more prominent choice to promote healthy eating) (Thaler & Sunstein, 2008). When tactics similar to those mentioned above are used to encourage environmentally friendly and ecologically sustainable behaviours, we refer to them as green nudges. According to UNEP (2020), green nudging focuses on aspects of human behaviour that are best suited for positive and gentle persuasion to promote sustainable behaviour. Therefore, the environmental awareness created by green nudges can produce tactics that change the policy course toward sustainability.

Green nudges thus play an important role in protecting the environment by encouraging sustainable behaviour and could be considered a significant approach to promoting local development. This point has led us to reiterate the potential of developing a transdisciplinary approach to design for territories using methods and concepts from the nudging theory. Thus, when we look at behavioural economics from the socio-economic and sustainability perspectives of green nudges, which focus on figuring out how and where individuals make their decisions, what information they use to do so, and what environmental and social factors play a role in achieving their goals, we see another link to transdisciplinarity, which is supported by a complementary approach in the disciplines that are the focus of this research. These findings have led us to recognise the opportunity to develop an unprecedented transdisciplinary approach to design for territories, significantly relying on nudging techniques.

LOCAL DEVELOPMENT, SUSTAINABILITY AND GREEN ECONOMY

There are multiple perspectives about local development. Moura et al. (2003) distinguish two approaches, one of which is called social and the other competitive, depending on the focus of the discourses and practices. In the first case, the fight against social exclusion appears as a guiding principle, and policies tend to focus on small businesses and segments that are on the margins of the large market. In the second case, the focus is on the competitive insertion of the city/region in the market and the actions are preferably directed to large and medium enterprises. Certainly, there is some consensus that addressing social exclusion is a distinguishing criterion in measuring benefits between territories. However, the quality of the intervention changes as the promotion of the economy for social aspects takes on a strategic character or expresses a new facet of anti-poverty policy. Regardless of the approach chosen,

sustainability is one of the essential means to help in the elaboration of well-defined local development strategies.

Local development thus emerges as an integrating concept in which many interrelated issues can be systematised. It is a variable process of change that could use the green economy as a means to achieve the goal of sustainable development. Based on this scenario, Elkington (2012) presents the theory of the Triple Bottom Line, also known as the 'sustainability tripod', which states that sustainable development is only possible if it is ecologically correct in the interaction of processes with the environment, socially and economically viable. In this context, sustainability can be understood as the principle that determines the effectiveness of ecologically clean, socially inclusive, and innovative local development strategies to ensure the right to well-being in the present and the future, preferably in a preventive and prudent manner.

Nowadays there is a growing interest in sustainability and approaches related to environmental protection and management, eco-efficiency, social responsibility, industrial ecology, ethical investment, eco-design, and countless other concepts. The approaches depend on the area of application (architecture and urban planning, business, government, etc.) and are commonly related to an interpretation of the green economy. A green economy is defined as an economy that leads to improved "human well-being and social equity, while significantly reducing environmental risks and ecological scarcities" (UNEP, 2011, p. 1). In short, "a green economy can be thought of as one which is low-carbon, resource-efficient, and socially inclusive" (UNEP, 2011, p. 1). The reasons for the spread of the green economy are related to the recognition of the effects of market failures on the environment and the clear responsibility of firms for the ecological crisis (Bhattacharya, 2020), to the currently diffused economic paradigm, the so-called brown economy. This is based on the misallocation of capital with massive investments in environmentally harmful activities and sectors, which cannot be sustained in the long term. Then, there is a need to involve the business sector in any credible paradigm change for the society (Sukhdev, 2012).

For Young (2011), the concept of green economy proposes that the dynamism of the economy should be done through the expansion of sectors with low environmental impact, promoting actions such as sustainable agriculture, waste management, environmentally friendly transport, clean technologies, renewable energy, green buildings, and forest management. This proposal to transform economic activities aims to simultaneously achieve the best return on investment in natural, human, and economic capital and reduce environmental impact. In developing our transdisciplinary approach to this research, the green economy may represent for us simultaneously the goal, the process, and the endpoint. To achieve a transition to a green economy and meet SDGs there is a need to direct public and private investments toward approaches that are considered strategic for local development. These investments should lead to an increase in economic production levels, job creation and, consequently, poverty reduction without putting the resources and environmental assets of territories at risk.

NEW FRAMEWORK FOR DESIGN FOR TERRITORIES

Design has been applied to territorial systems since before the discipline was even recognised, with the goal of assessing local systems, historical and cultural environmental resources, and identifying collective ideas related to the identity of specific places by designing products (artifacts, objects, items) that contain tangible and intangible values associated with the context in which they were conceived. However, the discipline of design for territories emerged only in

the late 1990s as a very young research field that shifted its focus from "observing the territory as the design context to considering the territory as a design object" (Parente & Sedini, 2017, p. s3048).

Although it is a young discipline, it has been constantly changing. Nowadays, the results of a design for territories approach can include products, services, buildings, street profiles, or models, but also a point of view, a concept or urban planning project, or a strategy: for example, the *Rebuild by Design* competition, which took place in 2014, was developed to make New York City more resilient to extreme climate conditions. The multi-phase competition guided participants (e.g. designers, architects, urban planners, community, and stakeholders, etc.) through cross-professional collaboration and cross-sector in-depth research through design thinking (including government, business, nonprofit, and community organisations) to move beyond repairing the damage caused by Hurricane Sandy, to fully understand the vulnerability of New York's coastline, and to develop protective measures against climate changes and other territorial challenges.

Through this scenario, we can see how design thinking is already associated with designing for territories and sustainability. It thus proves to be an effective tool to understand territorial systems and find ways to improve them by bringing together different fields of knowledge. Considering that local development can be supported by innovative solutions that contribute to economic and sustainable growth in line with the green economy paradigm, and based on the characteristics of transdisciplinarity discussed in the literature review, we have developed a summary diagram suitable to visualise pathways and strategies for local development through a 'new framework for design for territories' that supports policies and introduces targets consistent to a transition to a greener economy (Figure 1).

The 'new framework for design for territories' is mainly based on the three phases of the design thinking process (ideation, inspiration and implementation) presented by Brown (2008). It also incorporates the concepts and approaches of nudging and green economy and shows a simple method to address the presented processes simultaneously. The proposed diagram can be read from left to right, following the direction of the arrows. The diagram is divided into two macro-groups: 'goal-setting: challenges and strategies' and 'implement solutions', which include other sub-phases: 'research' to gather data; 'inspiration' to organise the previously gathered information; 'ideation' to evaluate ideas and develop solutions; 'implementation', as the name suggests, to develop and put into practice perspectives for action; and 'test' to implement and monitor the planned actions. Each phase is a consolidation point: the transitions between two phases are diamond-shaped to illustrate that each one is always followed initially by a search for new information, characterised by the 'divergent' (new options emerge) and 'convergent' (options are eliminated and decisions are made) stages. The diamond shapes become smaller as the process progresses through the steps of data, information, knowledge, perspective for action and plan, because the range of research becomes smaller as the entire diagram converges on a solution or refined question.

All phases communicate and integrate approaches that relate to the complementary knowledge domains discussed in this paper. The literature review does not provide a useful 'manual' for applying or identifying methodological tools for implementing nudges and green economy concepts in local development strategies. In line with Brown's (2008) interpretation of design thinking, we have therefore used the phases as a reference to organise the knowledge from nudge theory, economic tools and green economy policies, integrate their findings into advanced solutions and guide decision-makers and participants in incorporating integrated solutions into the design of tangible or intangible projects and strategies for local development

and sustainability. At this theoretical stage of the ongoing research, the elements related to the different phases and categories of the diagram have not yet been precisely identified (e.g., what are the nudges, policies or tools that need to be implemented in specific cases). However, the identification of these elements is necessary for the functioning of the diagram and will be a central task in the following phases of our research.

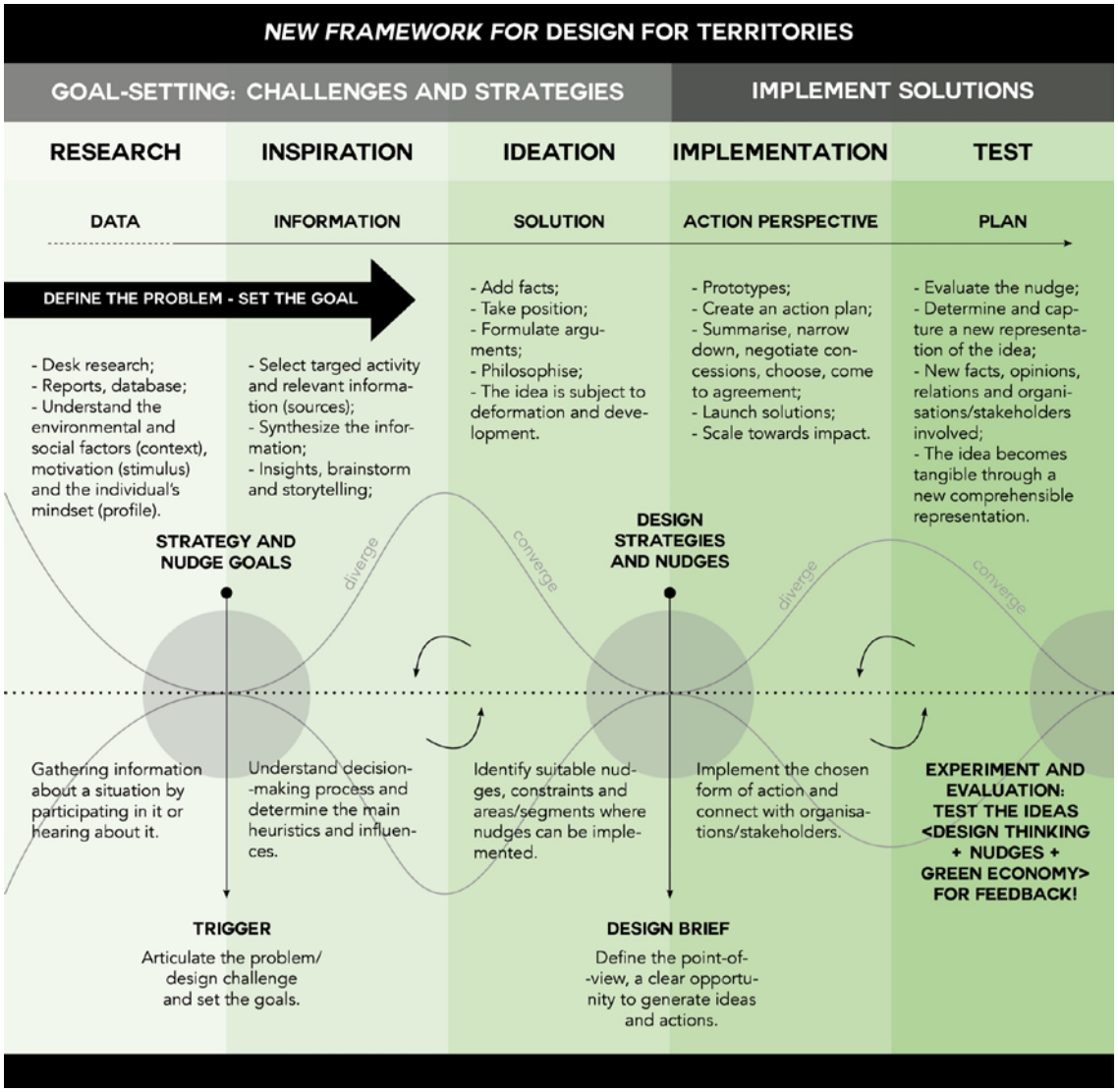

Figure 1: New framework for design for territories

Source: The authors

The resulting framework favours the bundling of economic and sustainable development targets from the beginning of the process and allows the strategy designers to gain some awareness of the potential outcomes of techniques, tools, and policies from behavioural economics, nudge theory, and green economy from the early stages of the design process. Consistent with the classical goal of design to meet the needs and preferences of users, consumers, and citizens, the framework considers the participation of stakeholders (including government, business, non-profit, and community organisations) essential, as subjects being directly involved at all stages

of the process described (from gathering local information to setting goals and evaluating implemented solutions), and bringing in diverse perspectives. Moreover, these same subjects are directly addressed through the nudging techniques envisaged within the framework.

As a contribution to a broad debate on addressing the issue of territorial development, the 'new framework for design for territories' aims to develop a strategic approach to an alternative way of achieving sustainable local development, coherent with the targets typically found in the framework of a green economy. The idea is to conceive the territory as a new space of action based on the combination of different disciplines, accompanying the local society in the 'metabolisation' of a sustainable social and economic transition.

CONCLUSION

Sustainability has become a dominant issue and the role of the design discipline is progressively changing in society. Environmental concerns and the path to local development present a great challenge, but also a great opportunity. The main concern of this research is how to develop and balance long-term territorial growth with sound and sustainable economic development through a transdisciplinary approach. For designers, as social actors who assist, interact, and sometimes determine the scenario in which they are inserted, transdisciplinary thinking serves as a catalyst for more creative action. Overall, to play an effective role in promoting local development and meeting people's needs, it is important to (re)define and frame problems regularly and in a scientifically sound way, to outline and map possible ideas by thinking holistically and systemically, and to strive to better identify the causes and consequences of problems in order to be more assertive in finding solutions. Against this background, we developed the diagram that provides a 'new framework for design for territories'. It is a contribution to the debate on the development of strategies for local development and the transition to a greener economy through a transdisciplinary approach that comes from combining concepts from design thinking, behavioural economics (nudge theory) and green economy. The next step in this ongoing research will be to apply the 'new framework for design for territories' in real contexts to test its validity.

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