Theoretical Approaches and Methodological Challenges in the Study of the Cultural and Creative Ecosystem

Anda Lake, Ilona Kunda, Baiba Tjarve

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Introduction

Analytical reflection and research questions on growth, evolution, and resilience in culture, as well as the inclusive nature of the creative economy and conditions for its sustainability, have prompted researchers from various disciplines to seek answers by means of ecological approaches, especially the concept of the ecosystem. The epistemological value of the ecosystem concept has grown in conjunction with researchers' attempts to expand and humanize the understanding of societal transformation and conditions of its development, decreasing the role of market and economic values. These ideas are concisely expressed in John Clammer's definition of "holistic development," which refers to "forms of development that far exceed the purely economic or material and involve the development of culture, the pursuit of social and cultural justice, concern for the environment as the essential context for the maintenance and flourishing of both human and non-human life forms and ideas of both material and cultural sustainability and the links between all of these" (Clammer 2015). The need to understand the relationship between culture and development is consistently present also within the context of policy-making, especially so in discussing support conditions and contributions for inclusive and sustainable growth. It may be precisely this discourse that has promoted the development of a new, inclusive and at the same time actionable understanding of culture. A possible answer for this call may be the ecological understanding of culture — "one that can embrace the many interconnections and interdependencies involved in processes of valuing, and experiencing value for oneself" (Wilson et al. 2020). The study of the cultural and creative ecosystem often also includes the development of policy recommendations. On various levels of policy-making (local, national, European Union (EU), international), the agenda has contained discussions on the best ways of governing the mutual dependence of this complex adaptive system and on making decisions about the kinds and concrete instances of cultural and artistic manifestations to be promoted, supported, and developed. These issues became as topical as ever during the Covid-19 pandemic, as the social distancing measures had a particular impact on the cultural domain.

However, notwithstanding the demand for new knowledge on the dynamics of the cultural and creative sector's development, no universal analytical models have been put forward suitable for being integrated into the practice of analysis and monitoring of the national-level cultural and creative ecosystem. The research surrounding these issues is characterized by an active discussion on the meanings of key concepts by their contextual mobility and the selection of criteria for case studies. Scholarly literature and prior research demonstrate that the concepts of ecosystem and ecology may be used interchangeably or in a metaphorical way; the concept of the "cultural and creative sector" similarly is used in varied meanings and is often replaced by a number of other terms. The imprecise definitions of the phenomenon being studied illustrate both the temporal dynamic changeability of the phenomenon, the diversity of its manifestations, the plurality of contexts, and the differences in research discourses. Prior research is dominated by local-level case studies. Researchers acknowledge the value of these local-level studies, as they examine the connectivity of the actual players of the sector and often provide an in-depth view of the dynamic processes that happen within the sector. These studies tend to address either a concrete place or a region (e.g. Markusen et al. 2011 — California), or a specific branch of the sector (e.g. Ooi, Comunian 2019 — art entrepreneurship ecosystems in Singapore). At the same time, scholars point out that there is a relative scarcity of such studies (Blackstone et al. 2016); in addition, their methodology is not always replicable for the limitations of the selected area of analysis, its scope, the constraints of data sources, and other considerations.

The necessity of studying the problem issues of the cultural and creative ecosystem on a national scale became particularly salient during the time of COVID-19, when conventional connections and value flows between the sector's operator groups were deformed or discontinued. In this paper, the authors will also discuss the situation in Latvia. Alongside discussions on the adjusting of national scale support instruments to the network of diverse operators, there appeared in the public sphere several new questions, such as "Who belongs to the cultural and creative sector?" and "Who can be eligible for the state support instruments allocated for the cultural and creative sector?"

In Latvia several issues of the scope, scale, and boundaries of the cultural and creative sector became topical in the spring of 2020, when the measures for limiting the spread of Covid-19 made it necessary to simultaneously identify the most effective mechanisms of political and financial support for diverse operators of the cultural and creative sector. This was needed in order to ensure the continuous process of creative activity in both the public and private sector and in professional and amateur art. It is at that time that discussions surfaced in the media and policy agenda on operators "belonging" and "not belonging" in the cultural domain, framed by Latvia's cultural policy. The discussions addressed the need for state support, its kinds and sources, the differences between private and public operators of the cultural and creative sector, the specific operators of various branches of culture and arts, as well as the commensurability of support for state- and municipality-founded cultural organizations. The discussion of support measures was supplemented by calls for the government to expand the field of political responsibility, integrating into cultural policy not only support initiatives for state, municipal, and non-governmental-sector players, but also those for commercial operators. A pertinent example arose in popular music, where in October 2020 self-employed representatives of popular music established the Association of Self-Employed Musicians (https://www. muzikubiedriba.lv/#par-biedribu), to jointly substantiate and express the call for granting support payments to professional, non-academic musical artists during a time when the

government had enforced downtime. Prior to Covid-19, these artists worked under market conditions and had much less access to public funding instruments than did state- and municipality-founded organizations, for whom financial conditions were more predictable and stable.

In addition, a survey of cultural and creative sector representatives¹ uncovered pronounced differences (more details later in the text) in the self-assessment of the representatives of various cultural and creative sector branches (music, theatre, dance, visual and audio-visual art, film, design, literature, photography, circus, heritage, publishing, media, arts and cultural education, etc.) regarding opportunities for continuing professional artistic activities, the scope and sources of income, and other conditions of professional activity. Thus, Covid-19 illuminated the heterogeneity of the varied legal statuses, the specificity of the production cycle of the creative products, and the distinctive traits of the cultural and creative ecosystem as such.

The goal of the article is to appraise the theoretical approaches in studying ecosystems and the methodological principles of related empirical studies, which can be used in the analysis of a national-scale cultural and creative ecosystem and the identification of the indicators enabling its vitality and growth. According to the goal, in this article we will answer three core research questions: 1) What are the key conceptual traits of the theoretical approaches to the study of ecosystems? 2) What is the prior tradition in the use of the ecosystem concept in the exploration of the cultural and creative sector? What methodological solutions have been used in determining the scale of the cultural and creative ecosystem? 3) What analytical models and methodological solutions can be used in the study of a national-scale cultural and creative sector ecosystem? The paper is a synthesis review, based in the study of theoretical literature and prior empirical research. Its goals are to provide a comprehensive analysis of extant approaches and solutions for the application of said approaches and solutions in the study of national-level ecosystems.

The theoretical approaches to the study of ecosystems

There are varied definitions of the ecosystem concept and its related ecological perspective, its analytical structure. Responding to the increased popularity of this approach,

1 To determine the impact of the Covid-19 on the cultural sector, the Latvian Academy of Culture in collaboration with the Ministry of Culture, the Latvian Council of Artists' Associations, and the Association of Contemporary Culture NGOs in May 2020 initiated and implemented a survey of representatives of the cultural and creative sector. A total of 3222 respondents provided their assessment, including 1824 creative persons and 1398 representatives of organisations, state- and municipality-founded institutions and commercial enterprises in the cultural and creative sector (accessible there: https://drive.google.com/file/d/1MPAQjNl5tdgxvBKq9qLoy3g26ItBVlw5/view).

several literature reviews have been published on the ecology and ecosystems of various sub-sectors. Scholars who have used one or both terms in their studies have not used common research methods or applied a consistent understanding of what elements constitute an ecology or ecosystem. The dominant discourse posits that the research object is the ecosystem, while ecology is the science that studies it. Ecosystem in its initial meaning is defined as "a biological system composed of all the organisms found in a particular physical environment, interacting with it and each other." (Oxford English Dictionary 2017, as cited in Tsujimoto et al. 2018). However, as already mentioned, the concept is used also in its broader meaning, denoting various complex systems whose working principles resemble the biological ecosystem. Although the ecosystem conception has been generated in biology, scholars have compared and discussed similarities and differences between societal and biological ecosystems in numerous studies. The scholarly interest in the use of the ecosystem concept for the analysis of social phenomena has grown rapidly in the previous three decades. One of the earliest instances of the use of the concept was in 1996, when Ulov Spilling wrote about the complexity and diversity of the actors, roles, and environmental factors that determine the level of entrepreneurship in a region or a place. Although in this case the subject was entrepreneurship, the aspects of complexity and mutual influence could be related to ecosystem activities of other subject areas. Researchers from the University of Tokyo (Tsujimoto et al. 2018) conclude that the number of scholarly articles with the keyword "ecosystem" started to increase already in 2004 and became a dominant concept in entrepreneurship literature in 2016, considerably outpacing the use of the concept of "environment" (Malecki 2018). Victoria Barker (Barker 2018: 55) points out that in the analysis of entrepreneurship processes the theoretical concept of the ecosystem has been used in three ways: for the analysis of individual firm strategies, for the analysis of support systems of specific companies/organizations/sectors, and (this mostly in the cultural and creative sector) for identification of the focus of the necessary policy support actions.

The societal ecosystem approach is grounded in several disciplines — it joins ideas from economics, strategic management, entrepreneurship, economic geography, and many other branches (Loots et al. 2020). In any case, most often the objectives of ecosystem research are to find the decision-making principles and behavioral chains that strongly affect the growth and decline of the ecosystem under specific boundary conditions. Viewing the ecosystem as a complex actor network, each actor has a different background and attributes. The decision-making principle means the mechanism and priority of the decision may be very different among actors in an ecosystem (Tsujimoto at al. 2018). While the ecosystem approach emphasizes linkages between action and territory, various ecosystem studies attest that the analytical boundary of ecosystems more often is the systems of products/services. That is, the boundary does not always coincide with the boundaries of state or regional communities. The linkages of ecosystem elements are created and influenced by concrete resources which are present or absent in specific territories, including various capitals and demand, highly skilled professionals, services, suppliers, and governance systems (ibid). The review of prior studies attests that in the

cases when the ecosystem concept is used in entrepreneurship research, ecosystems are categorized in three ways: emphasizing companies, products, or territorial units (Lehtonen et al. 2020). In addition, sometimes researchers use industrial districts, clusters, and innovation systems, strategic alliance networks with the same meaning (Tsujimoto et al. 2018). An essential aspect of the ecosystem approach is the necessity to identify the elements or resource groups of the ecosystem. A well-known theoretical framework is that by Daniel Isenberg (Isenberg 2011); it is often used for ecosystem mapping. Isenberg points out that the key groups of resources in the environment that the ecosystem needs are as follows: funding (capital and investors), culture (local success stories, societal norms, attitude towards risk), supports (infrastructure promoting actual linkages, including various organizations, governmental and non-governmental, professional organizations), human capital (labor with the needed skills level, educational institutions), market/demand, leadership, and local policy (of various kinds). Overall, there are almost 50 individual elements.

While there are varied study scales and approaches, it is possible to identify the analytical potential of the ecosystem concept and its benefits for research. Firstly, it allows reaching deeper analysis on the mutual influence and dynamics of various phenomena in complex networks (Barker 2018). Secondly, in the opinion of numerous researchers, analysis of the ecosystem allows to view the essence of the goals, traits, and decision-making of each participant actor, as well as engage in complex analysis of both commercial and non-commercial actors (Tsujimoto et al. 2018). Thirdly, it allows the analysis of organic, self-constituting networks, also taking into account negative traits at the system level.

Scholars (Brydges, Pugh 2021; Loots et al. 2020) note that until now ecosystem researchers have been more focused on high-tech industries, which narrows the epistemological potential of the concept. Although the ecosystem approach is less used in the study of the cultural and creative sector (for examples, see Jeffcut 2004; Brydges, Pugh 2021; Loots et al. 2020; Ooi, Comunian 2019), one may discern a certain tradition there.

Thus we conclude that the analytical models of ecosystems focus on identification of linkages in complex networks and key development resources for operator groups, which have various goals and decision-making models. Such an approach in studies may promote the creation of new knowledge on development scenarios of the internally heterogeneous cultural and creative sector. In addition, the ecosystem concept has to include a sufficient breadth of understanding of the creation and identification of value in the making of a creative product (Barker 2018). So far, a formal theoretical model has not been created that would include such an extended view of the values created in the network and which could be used universally for data analysis with regard to the cultural and creative sector. It is important to take into account that cultural and creative ecosystems are special in that they include linkages which are not directly related to the creative product (Barker 2018) but serve the need of developing new products and promote the overall development of the system in the long term.

The use of the ecosystem concept in theoretical and empirical studies of the cultural and creative sector

Both in the policy and entrepreneurship spheres there is a generally positive assessment of the contribution of the cultural and creative sector to the economy — both with regard to its economic footprint, providing employment, producing and transferring innovation, and in other aspects including social impact. Simultaneously it is acknowledged that not all governments have been successful in adjusting the support policies during the Covid-19 pandemic, since the non-traditional business models and employment forms of the sector have hindered the provision of support. To increase the economic and social impact of the cultural and creative sector, experts call on policymakers at the EU and national levels to increase the sector's innovation capacity and promote the crossover of innovation to other sectors. Critical is the removal of digital deficiencies to help recognize new business opportunities. Experts also call for improving the access of the cultural and creative sector to funding and integrating cultural and creative communities into broader regional and local strategies of regeneration. Often it is the fragmentation of funding sources and models that hinders the development of the cultural and creative sector; therefore, studies focus on this sector's value chains, resource bases, sources, and flows. The EU level expert group (European Union, Goethe-Institut 2020) considers that a vital and integrated financial ecosystem of the cultural and creative sector should include four balanced pillars: 1) access to sufficiently diverse financial and non-financial instruments; 2) capacity-building both in the cultural and creative sector and in the financial sector; 3) the joining of the current funding opportunities with special funding needs (funding combination); 4) suitable policies at various governance levels.

Now we will turn to the question of whether and how one can use the ecosystem approach not only for the analysis of the funding flows of the cultural and creative sector, but also for the sector development as a whole. Studies conclude that the cultural and creative sector ecosystem approach is a solid choice for future studies not only because it includes a broad array of research designs and research objects, but also because these studies simultaneously activate discussions about key concepts. Studies initiate discussions on the relationship between "creative industries" and "cultural industries," making visible the concurrent value issues by incessantly examining these and maintaining in the sector a certain generative tension.

The literature review by de Bernard et al. (2021) comprehensively characterizes the prior research tradition of the cultural and creative sector ecosystem, analyzing 56 publications relevant to the cultural and creative sectors. The authors (Bernard et al. 2021) increase the analytical value of the review by presenting a scheme of categorization of published items, which at the same time allows the assessment of the research designs dominant in the prior ecosystem research. The array of publications has methodological variety, as a little less than half (43%) are characterized as theoretical and conceptual (of which 66% are academic publications and 34%, policy reports), while the majority of publications (57%) contain new primary empirical data. Of these, 13% are based on quantitative methodology, 30% on qualitative, and in 14 publications a mixed-methods strategy is used. The new empirical data differs by their epistemological character, in that they allow either macro- (25%), mezzo- (66%),

or micro-level (9%) analysis. This data attests that researchers most often choose to carry out mezzo-level analysis including the analysis of networks and network-like phenomena. In addition, the authors conclude that publications can be categorized by the scale attributable to the empirical data. The authors of the review point out that among the empirical investigations, the favored geographical scale of analysis is the city (37.5%), followed by region (21.88%), neighborhood (15.63%), and nation (12.50%). Lastly, both cluster-level analysis and other scales accounted for 6.25% each. Thus, we may conclude that there is a certain balance between the theoretical and empirical contribution. However, we must admit that in cultural and creative sector ecosystem research there is a relatively large proportion of publications that include only a theoretical analysis of the phenomenon. This shows that the theoretical approaches to the study of cultural and creative sector ecosystems remain in an active process, and the research agenda continues to include numerous unclear, complex issues on the research design in each new study. The applied value of the approach may be illustrated with the fact that one-third of the publications are policy reports. This indirectly points to a stable demand from policymakers and their role in policymaking, especially in decision-making on the most suitable support instruments for the growth of the cultural and creative sector. Analyzing the designs of the empirical studies, we note that there are few studies with a crosscutting quantitative design, while there is a relatively large number of gualitative studies. This fits the conclusions of other scholars on the value and suitability of the case study design for ecosystem analysis. The survey of prior studies attests that network analysis methods have a special importance in ecosystem studies, as these methods are well adapted to the measuring of ecosystem actor linkages and attitudes, and scholars predominantly use them for mid-level/mezzo analysis. A certain informative "demand" is evidenced by the fact that scholars most often use the territorial scale of the city for their analysis. We believe that such research statistics attest to the ecosystem researchers' striving to map and analyze quantitative data sets, to acquire a photographic view of the cultural and creative sector. However, the diversity and the shortage of comparable data form barriers to such crosscutting studies and often limit scholars' goals, making it necessary to adjust the case study design in accordance with research questions.

The inclusive nature of the cultural and creative ecosystem concept

The development of the ecosystem approach in the study of the cultural and creative sector has continued and provoked academic discussion on not only the meanings of the concepts of ecosystem and ecology, but also on the meanings of the cultural and creative sector, creative and cultural industry, and other terms.

In the study of culture-related phenomena, the discussion on the meanings of concepts and their interpretations and definitions has been a long-standing part of scholarly thought. There are several reasons. Firstly, authors of scientific papers and participants in public and academic debates often fail to explicate the reasons for choosing to use the concepts of culture, creativity, art, cultural industry, creative industry, cultural sub-sector, creative sub-sector, art sub-sector, the cultural sector, and the creative sector. Second, the definitions of concepts are formed within the context of diverse research questions and designs, which makes scholars either choose comprehensive, relatively abstract, and inoperative definitions or to accentuate a specific aspect of the cultural and creative sector, to the exclusion of others. Thirdly, the conceptualizations are of course influenced by the scholar's affiliation with the traditions of either the social sciences or humanities. De Bernard, Comunian, and Gross 2021 argue that as there are competing understandings and definitions, the issue of the boundaries of the cultural and creative sector remains unclear. Some of the definitions are relatively exclusive — that is, they regard only the "production" dimensions of the cultural and creative sector. Others are so inclusive that there is a risk of their being difficult to implement in research or policymaking. These divergent approaches often reflect the disciplinary roots of the authors and their arguments — economics and business in the former case and anthropology, cultural studies, and humanities in the latter. However, these differences also have the potential to create radically different directions in policy and practice, including divergent ideas about the key agents in creating cultural and creative products (de Bernard, Comunian, and Gross 2021).

Regardless of the diversity of the definitions of the cultural and creative sector, one can identify a common trend. That is, the "culture" part of the concept "the cultural and creative sector" usually denotes non-profit activities (most often carried out by the public and non-governmental sector), while the "creative" part often relates to market-oriented and commercial activities. The understanding of concepts in scholarly study is certainly related to the diversity of the phenomenon as such. It is precisely the diversity of the cultural and creative sector, the mutual dependence of the various "cultural and creative branches[,] that may substantiate the scholars' decision to use the ecosystem approach and the key assumptions, primary terms and concepts of ecology" (Gross, Wilson 2018).

The academic debate on the definition of creative industry and the notion of the cultural sector is in part also an issue of values. Are these spheres of activity considered important, based on their contribution to employment and GDP? Does the value of the cultural sector stem mostly from its being the main space of meaning-production, helping to make life good and pleasant, and even in some sense providing the basis for social life and political and economic change? (Gross, 2020).

The analytical value of ecology as a fundamental scientific paradigm and of ecosystem's epistemological means is most often substantiated by their suitability for the study of complex systems. It has been emphasized in various contexts that the use of the ecosystem approach is desirable and productive, as it allows the broadening of the units of analysis used in the conventional/traditional study of the cultural and creative sector. Such a broadening mostly manifests itself as a striving to include in the analysis not only the features of the sector related to market and economic effects, but also non-profit, social, and community activities. This allows one to pay attention to a more extensive range of ecosystem participants (geographically and by the legal status). It also allows one to analyze the flows of more diverse values (not only market-related ones), and expands the idea of the connections and relationships between the ecosystem operators (de Bernard, Comunian and Gross 2021).

The discussion on the concepts and their meaning has largely determined both the theoretical assumptions regarding the phenomena and approaches in empirical studies.

Theoretical study of the cultural and creative sector ecosystems is characterized by several core terms and concepts. First, the concept of the boundaries of the cultural and creative ecosystems; second, the concept of the ecosystem participants, or actors; and third, the conceptualization of the relationships, linkages, and networks.

The issue of boundaries — that is, which participants and resources should be included in the cultural and creative ecosystem — is interpreted as one of the most unclear elements of the ecological approach. In assessing the general opportunities for studying the cultural and creative ecosystem, a considerable number of scholars are in agreement that the issue of what cultural and creative actors and resources must have to be included in analysis is situational. There are no clear methodological guidelines. Generally, the ideas on the boundaries of the cultural and creative ecosystems have been developing towards the broadening of elements to be included. In modeling the cultural and creative ecosystem boundaries, scholars discuss whether the ecosystem should include (in addition to cultural organizations and artists) cultural and arts education institutions, the premises of cultural and art events, communities of amateur art, infrastructure, archiving institutions, and other operator groups.

Similar to the defining of the cultural and creative sector, in determining the cultural and creative ecosystem and its scale and boundaries there is a trend for including in the ecosystem analysis both commercial and non-profit operators, as well as an attempt to develop an approach that could join the processes of profit-generation with non-market activities.

One of the most productive suggestions in recent years with regard to defining the cultural and creative ecosystem boundaries is to draw the analytical boundary at the product system rather than the national boundaries, regional clusters, contractual relationships, cultural and creative sub-branches, or other segments (Tsujimoto et al 2018). In the opinion of Tsujimoto et al, the analysis should also include non-commercial actors, and the system development must be viewed longitudinally. One such case has been implemented in the Portuguese city of Porto for 15 years (Loots et al 2020). Researchers of creative economy, modeling the five steps of cultural product production, have used the model of cultural product production as a tool for drawing ecosystem boundaries: creating, making, distributing, exchanging, and archiving. In each of the steps, the scholars grouped the participants of the ecosystem and visualized their relationships in the network (UNESCO, World Bank 2021).

To avoid the danger of nonconstructive discussions and fruitless relativism, several scholars have emphasized the need to leave open the issue of the cultural and creative ecosystem's boundaries and to define smaller-scale ecosystem boundaries according to the goals of each concrete study. For example, Barker points out that it is not possible to determine the "true boundaries" of the cultural and creative ecosystems, as they are boundary-less systems: tracing any perimeter is artificial and inconclusive. She suggests determining the cultural and creative ecosystem boundaries in connection with a specific broader ecosystem to suit the goal of the concrete study (Barker 2019): for example, the ecosystem of the creative industries or the theatre sector. Certainly, such an approach is a step forward; however, it leaves open several questions as to specifying what should be included. Because of these unanswered questions, the boundaries of the cultural and creative ecosystem are often set according to not only the principle of inclusion of diverse cultural and creative participants, but also in response to practical, methodological, and feasibility considerations for data collection and analysis. This uncertainty and inability (or refusal) to define what is included or excluded

reveals an important trait of the cultural and creative ecosystem.

Studies also pay special attention to various categories that comprise the context of the cultural and creative ecosystem. The importance of the concept of context is substantiated by the previously mentioned ideas on the inclusive nature of the concept of the cultural and creative ecosystem and the trend of expanding boundaries. For instance, Jeffcutt in his analysis of creative enterprises points out that the context is characterized by a mixture of social, cultural, and professional relationships and networks that the enterprise has or can access. He emphasizes that in the production of the creative product the broader material and social context is important, as it generates the value chains and sustains them (Jeffcutt 2004: 77–78). Often the scholars view the operators' international cooperation dimensions as the context, as well. Although the context of the cultural and social context of these ecosystems are currently defined in a relatively fluid and situated manner — that is, they have not been sufficiently researched. One has to admit also that the "context" is more often than not determined by the research questions and limitations of the concrete study, and not theoretically substantiated principles.

As the issue of the cultural and creative ecosystem boundaries is particularly complicated, most prior studies analyze a certain segment of the ecosystem. Quite often this narrowing refers both to the territorial, sectoral, and temporal aspects. For example, scholars implicitly consider that the ecosystem boundaries are the territorial boundaries, calling the ecosystem by the name of the territory — for example, Singapore's artepreneurship system (Ooi, Comunian 2019), Porto's creative ecosystem (Loots et al. 2020), California's cultural ecosystem (Markusen et al. 2011), and others. In some studies, the ecosystem boundary is drawn at a set of concrete operators or an art/cultural sector. For example, the study by Brydges and Pugh (2021) provided new data and conclusions on the Toronto fashion environment, identifying fragmentation of the ecosystem, duplication of the activities of institutions, and the isolated activities of fashion designers. The boundaries of the Toronto case allowed an in-depth analysis of operators, connections, and context, as well as the obtaining of valuable data on the spaces of the cultural and creative ecosystem activities that happen outside of the traditional "places of development" — incubators, universities, and other institutions — in more mundane places like shops, homes, and studios, within the fluid and changing boundaries between work and life (Brydges, Pugh 2021: 18).

Thus, we conclude that if the cultural and creative ecosystem boundaries are drawn at too broad a scale, attempting to include distinctly diverse groups of operators, there may be a risk that researchers have to analyze an excessively large number of interacting factors. This may be a reason why ecosystem studies sometimes limit themselves to an enumeration of these factors (for example, participants, connection, etc.) (Loots et al 2020). We conclude that overall, studies of cultural and creative ecosystems reveal a certain entropy of their participants and connections which largely influences the strategies of boundary definition. In boundary definition, one can notice the expansion of both the cultural and creative ecosystem boundaries and their context. The propensity to include increasingly diverse operators and their connecting elements in the cultural and creative ecosystem both changes the idea of ecosystem importance and hinders its empirical study.

The issue of the cultural and creative ecosystem boundaries is simultaneously the issue of the operator groups, which scholars epistemologically categorize as belonging to said ecosystem. The categorization of the ecosystem participants is especially important in the case of an empirical study, when one has to determine the data sources and methods of data collection and analysis. A typical approach entails categorizing the operators in accordance with concrete subfields of the cultural and creative sector.

For example, a UNESCO and World Bank study singles out seven cultural domains: Audio-visual and Interactive Media; Literature and Press; Performing Arts; Visual Arts and Crafts; Intangible Cultural Heritage; Design and Creative Services; and Heritage and Tourism Activities (UNESCO, World Bank 2021). One of the best-known theories that attempts to circumvent the traditional typology of actors, subordinated to the belonging to a specific branch of the cultural and creative sector, is John Holden's model of cultural ecology, which offers another typology of ecosystem actors (Holden 2015). It is John Holden who, in his report "The Ecology of Culture" (2015), called for viewing the cultural sphere not an economy but an ecosystem. Based on a qualitative study, Holden derived roles that in his view were present in a cultural ecosystem — Guardians, Connectors, Platforms, and Nomads. Role-analysis may show that a given micro-ecology and its development may be hindered by insufficient activity of Connectors or the non-existence of a needed Platform (Holden 2015: 33). Connectors are especially important, as they interact with all other roles and may signal the problems and weaknesses of the system.

Categorization approaches of the cultural and creative ecology operator groups continue to develop; they are subordinated to the research goals of concrete studies.

The third strand in the conceptualization of the cultural and creative ecosystem is related to the goal of emphasizing the importance of relationships, connections, networks, and researchers' attempts to categorize the relationships between the system's actor groups. Firstly, these are attempts to point to the complexity of the existing interrelations (Gross, Wilson 2019: 19) in the processes the cultural and creative practices (Jung, Walker 2018; Schippers 2016), as well as the processes of supplying the cultural and creative products (Markusen et al. 2011). The relationships between actors in cultural and creative ecosystems differ from other sectors and the reasons for actor cooperation are endlessly diverse (Lehtonen et al. 2020), as the foundation for value-creation is aesthetic and cultural signs and symbols are closely connected with the context and the place (Loots et al. 2020). The ecosystem approach focuses on the relationships in the broader system, showing the way in which careers develop, ideas cross borders, funds flow, and products and their content move to and from various sub-sectors. The diversity of attitudes in this ecosystem follows from the imperfection of culture as a system and its non-linearity. For instance, John Holden suggests the "view from above," as it allows the appreciation of "flows." He examines flows of four types: careers, ideas, money, and products (Holden 2015).

Several scholars point out that the number and quality of connections between and among participants is an indication of the general healthiness of the "system," emphasizing that the main objective is the maintenance of the number and quality of these relationships (Barker 2019; Gross, Wilson 2019; Holden 2015). Such an argument calls for paying special attention to the examination of relationships, connections, and networks, as these connecting elements allow describing a domain as an ecosystem. In analyzing a similar phenomenon — creative clusters — Andy Pratt points out (Pratt 2004) that the most suitable way of viewing interrelated economic units is not a linear chain, but a network, and that the traits to analyze are the content and quality of links, relationships, and resource flows. This is a considerably more complicated task than identifying the quantitative indicators of the network nodes — for example, the number of jobs created (Pratt 2004: 60).

Thus, the theoretical approaches of the cultural and creative ecosystems are not characterized by stable and endlessly verified postulates and clear definitions, but rather by dynamic study of new empirical cases, redefinition of concepts, and testing of the ecosystem theoretical approach in the context of ever new research goals and issues.

Methodological approaches to the empirical study of cultural and creative ecosystems

The mobility of the theoretical basis of the cultural and creative ecosystem has influenced the designing of empirical studies and the development of methodological solutions. Cultural and creative ecosystem studies use diverse methodological tools — qualitative, quantitative, mixed methods, and those enabling effective data visualization. Regardless of the above-mentioned difficulties in defining the boundaries of cultural and creative ecosystems, which create barriers to collection of representative data and implementation of crosscutting studies (as it is not possible to define the general sample), a considerable number of quantitative studies is carried out. Quantitative study usually includes work on developing indicators of ecosystem operators' activities and connections, formulating hypotheses to measure correlations between significant internal parameters of the ecosystem or the effects caused by operator activities. A quantitative approach is often applied in the first phase of ecosystem research, presuming operator mapping within specific territorial boundaries. However, as in many studies it has not been possible to develop credible hypotheses and study the causal relationships of the complex cultural and creative ecosystems, some scholars successfully use qualitative methods. These have allowed the study of factors and phenomena that influence the development of concrete cultural and creative ecosystem, and the in-depth study of participants' notions and experiences (Jung, Walker 2018). Scholars have used qualitative research methods in a considerable number of studies to identify the opinion of informants on their links with other ecosystem participants, their involvement in the cultural and creative processes and activities, on the connections of specific ecosystem sub-sectors with broader societal context and more. The dominance of qualitative research methods is to a large degree determined by the decision to use case study design when encountering difficulties in determining boundaries of the cultural and creative ecosystems.

Similar to practices in the study of other phenomena, the empirical study of the cultural and creative ecosystem by means of either the quantitative or qualitative approach have their own limitations. The limitations of the quantitative approach are predominantly determined by the difficulty in forming representative samples, as well as by using too general variables in the measurements. A qualitative approach, in accordance with the features of the methodology, does not allow the generalization of data and conclusions. These limitations have allowed the developing of diverse mixed-method designs that are widely used in the study of cultural and creative ecosystems. The simultaneous belonging to various operator groups by the ecosystem operators — both organizations and individuals — hinder the precision of operator mapping. Therefore, qualitative data are often needed for the interpretation of quantitative data, as it enables the explaining of interconnections or collecting additional information on the operators that have low representation but substantial impact.

The complexity of the cultural and creative ecosystem has created a situation in which many scholars attempt to reflect the ecosystem elements and their interrelations and hierarchies in such data sets that lend to effective data visualization. Many scholars have rendered the complexity of elements through visualizations, which comprise overlapping or interactive elements (see Bernard de et al. 2021 for an overview). The importance and epistemological value of data visualization (for example, of the network analysis results) has been debated on a relatively wide scale, by critical assessment of possible simplification of empirical reality in these visualizations. However, scholars rate highly the opportunity to reveal and communicate data on participants' relationships, resource exchange, and hierarchies.

The main substantiation of the research design and methodological choices, however, is the research goal put forward by scholars in each concrete case. For example, the study by UNESCO and World Bank exploring the cultural and creative cycle of production in the study of music industry ecosystem is used to identify and analyze culture and creativity as city assets and resources (UNESCO, World Bank 2021).

Finalizing the analysis of the prior theoretical research tradition of the cultural and creative ecosystem and the survey of the methodological solutions of empirical studies, we conclude

that the dynamic and complex nature of this phenomenon does not allow a conclusive systematization of the basic theoretical postulates and methodological standards of the cultural and creative ecosystem. However, it does not lessen the need for data, which enable the understanding of sources of ecosystem development. Scholars admit that they should abandon hope of acquiring a definitive "helicopter view." Instead of that, an understanding of the cultural ecology from several perspectives should be developed, including and constantly responding to the emergence, growth, and evolution that is a characteristic trait of ecosystems. The constant developing of co-created knowledge is both an epistemological and political necessity (Wilson, Gross 2017). As emphasized by John Holden, ecological metaphors regeneration, symbiosis, fragility, feedback, and interdependence — provide epistemological opportunities for a much more nuanced view of culture and enable the development of new typologies, visualizations, and modes of thinking (Holden 2015: 2).

The study of a national-level cultural and creative ecosystem

What analytical models and methodological solutions should be applied in studying a national-level cultural and creative ecosystem? What are the preconditions and barriers in their application? These are the kinds of questions to ask when we attempt to address the development conditions of a country's cultural and creative sector as a whole and debate the most effective development tools for the cultural and creative sector. In 2021 the research team of the Latvian Academy of Culture started the National Research Program "Cultural Capital as a Resource for Sustainable Development of Latvia" /CARD (No. VPP-KM-LKRVA-2020/1-0003), https://lka.edu.lv/en/research/research-projects/ national-research-programmes/cultural-capital-resource-sustainable-development-latviacard/, and within this program established a dedicated component to identify, map, and typologize operator groups of the Latvian cultural and creative sector ecosystem and their interactions, as well as to evaluate the role of these operators in the context of accumulation of the cultural capital and attainment of national scale cultural policy goals. In the planning of the research design and methodology, the issues of data collection on cultural and creative ecosystem operators and the definition of the ecosystem context caused considerable challenges to researchers.

In the empirical study of the Latvian cultural and creative ecosystem, regardless of the existence of clear-cut geographical boundaries, there remains the question of which participants and resources should be included in the ecosystem. It is especially pertinent when taking into account prior studies, which identify methodological risks that arise in studying ecosystems whose boundaries are drawn in a broad scale not only in territorial terms but also because of the diversity of participants and complexity of contexts. In the Latvian case, too, considerable limitations in data access, collection, and analysis were identified when developing methodology for the study of the Latvian cultural and creative ecosystem. It was necessary for the sector-mapping and network analysis to collect and analyze data on operator groups that have divergent statistical systems: some of these have considerable shortcomings or are nonexistent. For example, in Latvia the data-gathering systems on the remuneration of representatives of the public and private sector are divergent to the degree that the remuneration levels are incomparable. There are shortcomings in the NACE code system of creative enterprises, in the methodology of the identification of the number of cultural NGOs, in the possibility to determine the number of representatives in a concrete art sub-sector, and more. It is impossible to collect comparable data on the investments in the products of concrete art sub-sectors, as statistical systems do not collect such data.

As mentioned, the ecosystem context definition has an important role in studying cultural and creative ecosystems; it is an essential methodological condition in ecosystem research. However, there are considerable epistemological barriers. The trend of context expansion, which characterizes the dynamics of any ecosystem, in our opinion is particularly prominent in the analysis of a national-level cultural and creative ecosystem. In attempting to identify the context of the Latvian cultural and creative ecosystem, two substantial aspects were found. Firstly, an insufficiently analyzed, yet existent trait of the cultural and creative ecosystem context is the role of culture in the history of national state formation. That history has created the system of societal opinion and political values precisely with regard to the role of culture and art in the existence of individuals, communities, and statehood. These discourses, which do not yield well to rationalization, often serve as a strong argumentative basis for decisions on the cultural and creative ecosystem support tools in Latvia. Secondly, in our opinion, the ecosystem context framing is created by development goals for the cultural and creative sector, which are defined in Latvia's national- and local-level development and policy-planning documents. This trend is influenced by terminologically and temporally divergent definitions of the cultural and creative sector development goals in national development planning documents, in which the concepts of "culture," "national culture," "cultural and creative industries," "creative industries," and so on are defined in divergent, often metaphorical, and semantic scopes that yield divergent interpretations. This hinders the clear-cut operationalization of operator groups and the processes and interactions related to the above concepts. The lack of comparable operational definitions in the Latvian national-level planning documents makes it difficult to give unequivocal answers to another methodologically important question: What is the development goal and role of the whole of the national level cultural and creative ecosystem and of its concrete operators? For example, state- and municipality-founded cultural organizations act in accordance with objectives, functions, and public funding which is set in pertinent regulations. However, these organizations enter the cultural and creative product market and compete with the supply offered by the commercial and non-profit sector, whose market conditions and financial instruments are different. In addition, the Latvian state policy tends to fail to define conditions for supporting popular and contemporary art products, as well as their place and role in the national-level cultural and creative sector development. Prior cultural and creative-sector research in Latvia demonstrates that in the former case, the product has a potential to reach a large audience scale and profit, although it does not always have a high artistic merit, while in the latter case niche products are created. These are characterized by experimental nature and attempts to find development paths for a concrete art sub-sector or an inter-sectoral initiative. There are in Latvia especially numerous problems with regard to the definition of

roles and scale of national level ecosystem participants who engage in interaction between professional and amateur art. Support policies for amateur art in national and local cultural policy may be quite diverse, and demonstrate an insufficient rationalization of their goals. The population's motivation to engage in these forms of cultural participation is divergent; the boundaries between professional and amateur art become increasingly fuzzy. In addition, the role of concrete art sub-sectors as cultural and creative ecosystem operators is hard to analyze in a comparable way, as they differ by artistic forms — individual (literature, visual arts, etc.) and collective (theatre, film, etc.). The features of the diversity of the national cultural and creative ecosystem operators are supplemented by another fact that hinders empirical research: In Latvia, as elsewhere, an individual may act in divergent ecosystem operator statuses. For example, she may be a director in a state-founded or non-profit non-governmental theatre and be an artist creating a product of popular culture or contemporary art, etc. The latter factor may have a particular impact on the study of internal connection in the ecosystem.

Simultaneously, the above-mentioned barriers to empirical study of the Latvian national-level cultural and creative ecosystem do not cancel the demand for effective and tailor-made support instruments for each operator group in the sector. This necessitates the illumination of various aspects of ecosystem functioning, as well as the precise determination of long-term, medium-term, and short-term operational goals and values of cultural and creative ecosystem development. External crises, for example the epidemiological crisis brought on by Covid-19, as well as military and digital security risks, which may endanger various development aspects further exacerbate the need for effective support policy instruments. The complicated nature of the national level cultural and creative ecosystem and defining the boundaries of its context demands the continuation of a multilevel dialogue between scholars and policy-makers on the improvement of the development goals, results, and indicators of the cultural and creative sector. This is needed to identify, within the context of limited resource availability, the sector's support instrument, which would allow the development of the cultural and creative sector in accordance with the development goals of the concrete country.

Conclusions

In answering the research questions of this paper, we have reached a number of conclusions on the conceptual traits of the theoretical study of ecosystems, in particular regarding the exploration of the cultural and creative ecosystem and the methodological solutions used in determining the scale of that ecosystem.

The cultural and creative ecosystem as a concept has the ambition to overcome the preceding discourse, which is neoliberal, growth-oriented, dominated by market and economic imperatives, and focuses on supply chains and clusters. In contrast, the ecosystem analysis also includes activities by non-profit entities and communities; it contains a broader range of participants, relationships, and geographical scales.

The objectives of ecosystem research are to find the decision-making principles and behavioral chains that affect the growth and decline of the ecosystem under specific boundary conditions. The analytical models of ecosystems focus on identification of connections in complex networks and key development resources for operator groups, which have diverse goals and decision-making models.

The ecosystem model may promote the creation of new knowledge on the internally heterogeneous cultural and creative sector, as the model includes a broad array of research objects and designs and activates a generative tension through discussions on the key concepts. However, currently the model fails to include the dimension of value and consideration of linkages, which serve long-term goals of a system's development rather than the specific creative product.

Theoretical study of cultural and creative ecosystems is characterized by several core terms and concepts: the boundaries of the cultural and creative ecosystems, the ecosystem participants or actors, and the conceptualization of the relationships, connections, and networks.

The ideas on the boundaries of the cultural and creative ecosystems have been developing in the direction of the broadening of elements to be included. These boundaries are often set in response to practical, methodological, and feasibility considerations for data collection and analysis. The uncertainty and inability (or refusal) to define what is included or excluded in the ecosystem is an important trait of the cultural and creative ecosystem research.

The issue of the ecosystem boundaries is simultaneously the issue of the operator groups, which scholars epistemologically categorize as belonging to said ecosystem. Categorization approaches of the operator groups continue to develop, subordinate to the research goals of concrete studies.

Scholars define the elements creating the material and social context of ecosystems in a relatively fluid and situated manner — that is, they have not been sufficiently researched. The "context" is often determined by the research questions and limitations of the concrete study, and not by theoretically substantiated principles.

Overall, the theoretical approaches of the cultural and creative ecosystems are characterized by dynamic study of new empirical cases, redefinition of concepts, and testing of the theoretical ecosystem approach in the context of new research goals and problem issues. That is, it remains in an active process and the research agenda continues to include numerous unclear, complex issues on the research design in each new study. The main basis of the research design and methodological choices is the research goal defined by scholars in each concrete case.

As to empirical study solutions, there are few studies with a crosscutting quantitative design, as the diversity of data and the shortage of comparable data form barriers to these. However,

there is a relatively large number of qualitative studies, which is to a large degree determined by the decision to use case study design. Studies using mixed methods have made the most innovative contribution.

Network analysis methods have a special importance, as they are well adapted to the measuring and visual representation of ecosystem actor linkages and attitudes, reflecting the complexity of the cultural and creative ecosystem. Development of visual data models both reveals the limitations of the current understanding of ecosystem and the need to create new ideas, which make visible ecosystem participants, hierarchies, and relationships.

The dynamic and complex nature of the cultural and creative ecosystem does not allow for a conclusive systematization of the basic theoretical postulates and methodological standards. Instead of striving for a "helicopter view," scholars should develop an analysis of the cultural ecology from several perspectives. Overall, ecological metaphors provide epistemological opportunities for a nuanced view of culture.

In studying the national-level cultural and creative ecosystems, all of the above-mentioned barriers manifest themselves. In addition, several types of boundaries are increasingly fuzzy, which impedes clear-cut methodological solutions. However, evidence-based policy demands that scholars illuminate various aspects of ecosystem functioning. External threats to the cultural and creative ecosystem further exacerbate the need for effective support policy instruments. Thus, scholars and policy-makers must continue a multi-level dialogue on the complicated nature of the national-level cultural and creative ecosystem and its boundaries.

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Kultūras un radošās ekosistēmas izpētes teorētiskās pieejas un metodoloģiskie izaicinājumi

Anda Laķe, Ilona Kunda, Baiba Tjarve

Atslēgvārdi: ekoloģiskā pieeja, kultūras un radošais sektors, analītiskie modeļi, robežas, mērogs, tīkli

Raksta mērķis ir analizēt teorētiskās pieejas un metodoloģiskos izaicinājumus kultūras un radošo ekosistēmu izpētē. Raksts veidots kā sintezējošs pārskats ar mērķi visaptveroši analizēt pastāvošo teorētisko un metodoloģisko pieeju un risinājumu klāstu un iezīmēt nepieciešamību pēc jauniem pētījumiem, kā arī identificēt minēto pieeju un risinājumu praktiskās lietošanas nosacījumus nacionāla mēroga ekosistēmu izpētē. Rakstā secināts, ka ekosistēmas jēdziena iezīme ir centieni pārvarēt līdzšinējā neoliberālā diskursa rāmjus un tirgus imperatīvu dominēšanu, pētījumos iekļaujot daudz plašāku dalībnieku, attiecību un ģeogrāfisko mērogu klāstu. Kopumā ekosistēmas modelis ir piemērots kultūras un radošā sektora pētniecībai, taču pašlaik tas vēl atrodas konstituēšanās posmā. Rakstā identificēti vairāki pamatjēdzieni, kas metodoloģiski strukturē ekosistēmu izpēti: robežas, aktori un saites. Katram no šiem aspektiem jārod metodoloģisks risinājums, kā arī praktiski un īstenojamības apsvērumos balstīti pieņēmumi attiecībā uz datu ieguvi un analīzi.

Raksta autores norāda, ka kultūras un radošo ekosistēmu teorētiskās bāzes "kustīgums" ietekmē empīriskos pētījumus, radot ierobežojumus (piemēram, šķērsgriezuma pētījumiem) un arī risinājumus (piemēram, tīklu vizualizāciju). Rakstā secināts, ka ekosistēmas jēdziena kompleksā daba pašlaik nedod iespēju pārliecinoši sistematizēt teorētiskos postulātus un metodoloģiskos standartus. Norādītās ekosistēmu izpētes īpatnības attiecas arī uz mēģinājumiem noteikt nacionāla līmeņa kultūras un radošās ekosistēmas izpētes risinājumus. Rakstā, pamatojoties Latvijas kultūras un radošā sektora līdzšinējos pētījumos, raksturotas Latvijas mēroga KRE izpētes metodoloģiskās barjeras. Atzīts, ka Latvijā nacionālā līmenī kontekstu būtiski ietekmē neviennozīmīgi racionalizējami pieņēmumi par kultūras vērtību, kā arī sektora attīstības mērķu atšķirīgi interpretējamās definīcijas plānošanas dokumentos. Tāpat konstatēts, ka Latvijas gadījumā izpētes iespējas ietekmē dažādu operatoru grupu robežu saplūšana un hibrīdformu veidošanās gan mākslas nozaru, gan operatoru juridiskā statusa, gan radošo produktu, gan citās ekosistēmas izpausmēs. Liela nozīme ir arī tam, ka atsevišķām aktoru grupām nav valstiski definēta loma, kā arī ir nepietiekamas salīdzināmās statistikas datu ieguves iespējas. Rakstā secināts, ka jāturpina daudzlīmeņu dialogs starp pētniekiem un politikas veidotājiem.