

Article

The Exploration of Skill Gaps and Ecosystem Potential among Estonian Creatives

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Abstract: Recent studies on Estonia's creative economy show a growth in employment in the country's creative sector and an overall increase in generated revenue. However, some areas need improvements, such as the international export of talent and art, interdisciplinary collaboration, and digital skills in strategy building and creating ecosystems. This study explores which skills and tools Estonian creatives are using, lacking, and willing to obtain, and focuses on collaboration manners and attitudes towards cross-sectoral ecosystems. The methodology is composed of a participatory co-design approach with quantitative and qualitative data sources, including background research on industry mapping and economic statistical indicators, semi-structured interviews with industry professionals and stakeholders, and co-design workshops with local creatives. Data were collected from recordings and transcribed, and the co-design workshop post-it notes were digitalised. The data were analysed from the bottom-up and mapped top-down with the 21st-century skills and ecosystem approach. Our current studies show that knowledge transfer and collaboration (across industry sectors, NGOs, and academia) are critical in a small country with a small population, intertwined with dynamic ecosystem building. Creative people upscale and continuously deepen their professional skills (digital and non-digital) in a lifelong learning manner. The current study found that specialising is hard since sustainable values, including those that promote degrowth, are involved.

Keywords: creative economies; cross-sectoral ecosystems; knowledge transfer; lifelong learning; skills and competencies



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1. Introduction

The creative economy is significant due to its economic and social impact. The jobs and income generated through the industry enable economic change by enhancing the community's well-being. The Creative Europa programme describes how creative sectors are necessary for the continuous development of societies, increasing financial wealth, and creating a sense of European identity, culture, and values [1]. However, the statistical studies that are available are insufficient to understand the field's full economic and social impact [2]. In understanding the metamorphosis of creative industries (CIs), it is crucial to recognise the integration, disintegration, disintermediation, and reintermediation processes in sharing platforms [3]. Other stated needs are to enhance digital skills in creative industries, and create design learning enablers or a seamless knowledge and skill transfer between different work sectors, which supports the green and digital transition—the twin transition [4]. Introducing new ways of networking, executing context-bound workshops, and providing a base for dynamic ecosystem building are needed for learning [5].

On the European scale, the Cultural and Creative Industries (CCIs) in 2019 represented 4.4% of the gross domestic product (GDP) turnover in the European Union (EU), with annual revenues of EUR 643 billion and a total added value of EUR 253 billion [6]. CCIs were also one of Europe's leading job providers, employing more than 7.6 million people, eight times more people than the telecommunications industry. The CCIs grew faster than

the EU average (+2%). The creative economy performed well regarding technological innovation, gender diversity, and the employment of young people. Due to the COVID-19 crisis, the industry experienced over a 30% loss in turnover.

Many workers have transferred to work outside the sector, which has resulted in skill losses and has slowed the sector's recovery [2,7]. Therefore, to regain its full economic potential, the EU expects to introduce recovery efforts, revitalise this industry, and safeguard its long-term growth [6]. COVID-19 highlighted the challenges of the CCIs that already existed and are now being considered seriously. Recently, there has been an increased number of studies investigating how the situation of the CCIs could be solved and supported, and how the CCIs understand and practice sustainability. Such studies include the sustainable development of creative industries, for instance, in Iran [8], regarding digital transformation and interpretive structural modelling. The most interesting findings considering our study are the social capital, the sustainable development drivers, and the digital entrepreneurial ecosystem. Other studies [9–11] are concerned with the future of CCIs, how digitalisation affects them positively and negatively, and how sustainability is considered. The study closest to our aims is the one conducted in eastern Taiwan [11], which is qualitative and based on semi-structured interviews, while the other studies are quantitative. The long-term study focused on small-scale cultural and creative business proprietors in eastern Taiwan. The study found that a multidisciplinary business model for CCIs should be designed.

Except for the Taiwan study [11], the other ones use statistics, providing similar information to the national and international statistics agencies for analysis, or taking another perspective on the statistics. The Taiwan study on CCIs provided the potential for creatives to present their views, attitudes, and wishes. Pratt [12] describes a more conceptual perspective on the unique role of CCIs in sustainability transformation. The study compares sustainability and circular ecosystems to creative economy ecosystems. The novel aspect of Pratt's article is not only the instrumental values (e.g., the ones mentioned in the other studies) but also the value of art and creative products in themselves. He rightly points out the need for multiple value systems, providing illustrative examples of how the cultural economy nurtures immaterial forms (skill, knowledge, and practice), which are often lost in emphasising the material aspects of sustainability. It should be acknowledged that the new hybrid of culture and the creative economy is a complex entity, requiring a reimagining of the future ways of societies [13]. Sustainability can be approached from various angles: the economical perspective considers how environmentally friendly the tools, practices, processes, and materials used are and how circular the creative industries are, while the impact perspective considers how creative industries increase awareness, answer questions, and provide re-imaginative solutions, as well as how we would understand the concepts, their meaning, their use, and how they direct our actions. Our study focuses on the practical aspects of how the actors, from intermediaries to creatives, mention or discuss the values of and hindrances to acquiring and using digital skills and learning.

The gap that our study contributes to closing is the need for qualitative research and an understanding of how digital skills have been adopted and used, what kind of learning needs, habits, and values the creatives have, and how they perceive collaboration and the sharing of resources. To find out, based on the statistics, how well the support that is provided meets the needs of creatives, our study aims to give the floor to these creatives by focusing on 21st-century skills and creative ecosystems [5,10]. In our study, creatives are given the chance to present their understanding of their work, learning, digital skills, values, and needs.

According to a recent study and mapping of the Estonian cultural sector, the local creatives lack interdisciplinary collaboration, have limited entrepreneurship skills and competencies, and need more innovative approaches to processing tools and materials. Project-based activities and financing, as well as a need for cross-sectoral co-operation, are inhibiting the ability of the Estonian creative economy (CE) to expand to international markets [14]. There is an increasing demand for cross-sectoral innovation in digital and

environmental knowledge in all social fields [4,15]. The transformation must acknowledge 21st-century skills and competencies to turn the change into successes and benefits for the companies, society, and the environment.

Based on the previous studies and statistics, we wish to find answers at the national level to the following research questions:

RQ1: What kind of needs, skills, and learning habits exist among creatives?

RQ2: How and why do creative practitioners see that they can share, collaborate, and learn from one another and from other sectors?

The first research question aims to flesh out the statistics and surveys that have already been executed and give a voice to the practitioners by asking the creatives directly, and allowing them to work on the topics. The second research question aims to guide all stakeholders on how such cross-sectoral ecosystems could be created, designed and maintained, where knowledge is transferred and the members complement each other. The study focuses on the Estonian creative economy, characterised by the country's small size but even more its scarce population (Estonia's position geographically in Europe is presented in Appendix B, Figure A1). Estonia being the case is interesting because it provides a different perspective compared to other case studies from Lithuania [9], Iran [8], Taiwan [11], Korea, and old European countries such as the United Kingdom and the Netherlands [5,10], both of which are success stories. Especially Korea, the UK, and the Netherlands are often referred to, as these have provided the scales from bottom-up to top-down, as well as mixed approaches, to solve the issues of creative industries, for instance, by using various models of ecosystems. Estonia, as mentioned, has a scarce population and has successfully used the top-down approach in digitalising the country. Still, creatives use a bottom-up approach, which is attempted to be controlled from the top-down.

2. Background to the Study

2.1. The 21st-Century Skills and Definitions of the Creative Economy

There is abundant research on digital skills, competencies, and 21st-century skills [16]. There is slightly less research on the creative industry (CI) and digital skills and competencies, which has been the aim of Van Laar et al. [16], who found out that these skills are acknowledged but not well combined; the transversal skills are not connected to the digital skills. Furthermore, the managers and experts found giving meaning to skill development difficult.

Another theme is the ecosystems within the creative sector or across sectors. Research into these ecosystems has described case studies that are primarily directed from the top-down with governmental funding, and rarely from the bottom-up [15]. In their report, Oksanen et al. [5] compared the best ecosystem practices in South Korea, the United Kingdom, and Finland. These research directions will be described below with definitions of the key terminology.

Van Laar et al. [16–19] have executed in-depth research on creative industries, from a systematic literature review to surveys and semi-structured interviews with experts, founders, and managing directors to policy, measuring 21st-century skills in action, and finally, policy suggestions. Their findings are crucial for further digital transformation, twin transition, or ecosystem-building studies.

However, transversal skills have not been taken seriously, and the qualitative studies are fewer in number than surveys on skill development among the creative economies (CE) [20,21]. Digital competencies, skills, or transversal skills are often defined under the umbrella of 21st-century skills. The Assessment and Teaching of 21st-Century Skills (ATC21S), EnGauge 21st-Century Skills, and the Partnership for 21st-Century Skills (P21) have proposed definitions and frameworks. Joynes, Rossignoli, and Amonoo-Kuofi [22] analysed eight frameworks of 21st-century skills by Voogt and Roblin [23] and presented the skills of collaboration, communication, citizenship, creativity, critical thinking, ICT literacy, and problem-solving as the most mentioned skills in the analysed frameworks. Many of these skills are content-related and purely ICT-based technical skills. However,

the current push towards twin transition and the growth of a technology-rich society demands individuals to learn the skill of adapting their usage of ICT. Therefore, we follow Ref. [16] in adapting the core 21st-century digital skills: technical knowledge, information processing, communication, collaboration, critical thinking, and problem-solving skills. This framework suits the economic fields of building ecosystems well.

The concept of creative industries or economies is vague [15]. Cultural industries are defined by the European Commission, and the DG Education and Culture Green Paper on cultural and creative industries [24] (pp. 5–6), as the following. ‘Cultural industries’ are those industries producing and distributing goods or services which, at the time they are developed, are considered to have a specific attribute, use, or purpose which embodies or conveys cultural expressions, irrespective of their commercial value. Besides the traditional arts sectors (performing arts, visual arts, cultural heritage—including the public sector), they include film, DVD and video, television and radio, video games, new media, music, books, and the press. ‘Creative Industries’ are those industries which use culture as an input and have a cultural dimension, although their outputs are mainly functional. They include architecture and design, which integrate creative elements into wider processes, as well as sub-sectors such as graphic design, fashion design, or advertising.

Nevertheless, country-specific economic structures differentiate how these definitions are formed, interpreted, and used. CEs have distinctive features because their products and services are increasingly built on the content, experience, and organisational structures where project work and informal networks become crucial [19,25]. The ideas generated by the CE and the innovative products and services that it offers are used across fields [13].

We agree with de Bernard et al. [15] and de Bernard and Comunian [26] in that the CE includes the performing arts (e.g., visual arts/crafts, theatre, music, and literature) and the more commercial fields (e.g., design, media, software, and publishing/advertising), and all of these fields have creativity at their core, with the emphasis on not just using binaries such as funded vs. non-funded, producers vs. audiences, public vs. private, and so forth. Oksanen et al. [5] discuss creative industries from the perspective of creative economies in their cross-sectoral ecosystem research. As the sectoral approach is no longer relevant, the research has sifted the definition for promoting cross-sectoral collaboration. The cross-sectoral view is presented clearly in the report [5]. The study exemplifies the differences in different cultures in defining creative industries, creative and cultural industries, and the creative economy. The defining issue prevails; even today, researchers keep discussing the definitions [15,26]. From the report by Oksanen et al. [5], we can summarise the similarities, which are the separation of art and cultural heritage from media, advertising, and entertainment, leaving many differences in each country, such as some countries not defining creative industries. At the same time, most countries define creative industries as industries providing goods and services that convey cultural values or creative services to industries whose origin lies in individual creativity. As a definition, the “goods and services view” is dominating [5,27].

Despite the cultural difference in the definition of creative industries, the creative economy, or creative and cultural industries, in 2010, the impact that the creative economy could have on sustainable societies was acknowledged. The DG Education and Culture Green Paper on cultural and creative industries [24], (p. 18) drafted a direction towards the concept of creative economies as a system that can make a fundamental contribution to the fight against global warming, and to the transition to a green economy and a new sustainable model of development. The cultural and creative economy has a unique capacity to create green jobs, raise awareness, challenge social habits, and promote behavioural shifts in societies, including our general attitude to nature.

The interaction between actors in an innovation-driven economy has been a theme of policy documents over the past 19 years; thus, it is a trend that has been around for a while. The concept of the creative economy includes all creative areas of the economy (creative meaning the ability to create new things or new ideas); Ref. [13], Tamsyn (for an in-depth discussion on the terminologies, see [15,28]). The variety of immaterial creative

competencies is wide. Thus, the creative economy sector includes non-creative jobs, and creative work is also executed in non-creative sectors.

2.2. Cross-Sectoral Ecosystems

There has been a longitudinal emphasis by the European Union on building ecosystems with novel economic models. According to Ref. [29], the COVID-19 crisis accelerated the need for CE organisations and professionals to contribute to the well-being of citizens, as well as for social innovation and social cohesion. Organisations and professionals also emphasise that the CCI and CI should be supported in lifelong learning digital and media literacy, as well as cross-sectoral collaboration for renewing revenue and value change. After the pandemic and ongoing wartime, these fields are increasingly brought up as one solution to help the green and digital transition, in other words, twin transition with a suggestion to policymakers to scaffold the CE [29]. The report does not provide guidelines on how a novel cross-sectoral ecosystem could be built, or examples of existing cross-sectoral ecosystems. Those ecosystems can and should be built by focusing on the network topologies of creativity, shifting the perspective away from urban creative centres into networked activities for reaching the “niche markets” [30,31].

The categorisation of creative competencies presents the need for an ecosystem and a cross-sectoral approach, as creative competencies are not an exemption but an essential part of the work. We have adopted the description by Oksanen et al. [5] of the ecosystems for the current paper. The authors have benchmarked three countries, and Estonia suits the description in its CE definition. The ecosystem concept is described in the research fields of management, system thinking, and evolutionary economics. The partially overlapping areas discussed are the industrial, business, service, platform, innovation, and knowledge ecosystems. However, how these areas are interconnected is only discussed within the collective management of entrepreneurial ecosystems where policymakers can engage stakeholders to co-ordinate their actions (de Bernard et al. [15,26]). In real-world ecosystems, the mutual interests of the actors (i.e., organisations or individuals) are intertwined with the ecosystem’s parts and other ecosystems’ parts. All actors have their roles in and views on the partially overlapping ecosystems. Relationships and interactions must be analysed to understand how connections appear and are used between ecosystems [5] (p. 10).

Oksanen et al. [5] determined three ecosystem types, sometimes also called the elements of ecosystems, in a continuous transformation process (see Figure 1). The visualisation respects a newer understanding of the creative and cultural ecosystems by Bernard and Comunian [26], which provides different visualisations to represent various angles so that the ecosystems can be seen from hierarchical or non-hierarchical connections, without connections, and so forth. The ecosystem elements are not sequential but can emerge and transform into several emerging and existing business ecosystems. It was found that dependency relationships lead to feedback loops of causality and enable self-organisation. The findings indicate the importance of a shared vision. It is essential to support continuity and a long-term commitment to funding. Creative economy ecosystems often operate around regional hubs but need a joint vision [5].

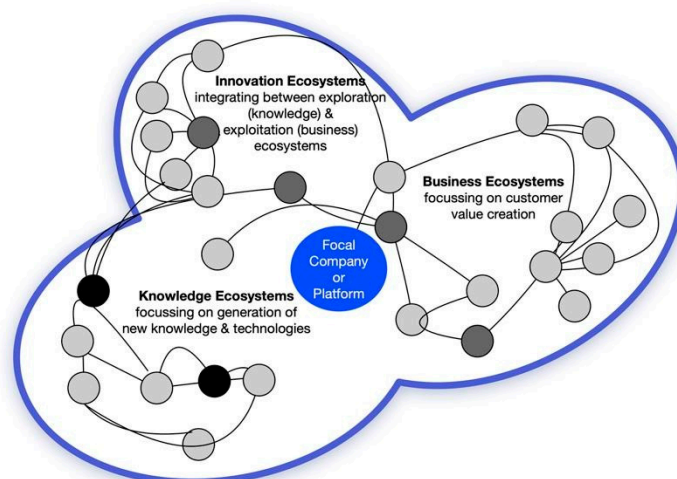


Figure 1. Oksanen et al. [5] (p. 11) (earlier displayed in Ref. [32] (p. 20)), detected three ecosystem types or elements interacting in the benchmarked countries (knowledge, innovation, and business ecosystems). Figure modified by the authors. Permission to publish has been granted.

2.3. Creative Economy in Estonia and Building the Background Framework for Analysis

To date, the creative economy sector in Estonia has been charted four times at 4-year intervals [31]; according to Ref. [14], around 28,300 employees worked in the creative industries sector in Estonia in 2019, which made up 4.2% of all employed persons in Estonia. The most significant number of employees worked in publishing; the second biggest field was music, and architecture was the third. The sales revenue of creative companies and institutions receiving state subsidies was EUR 1.86 billion in 2019. It made up 2.6% of the sales revenue of Estonian companies. Of the total revenue of the creative economy, 14% came as grants; the most important sponsors of the creative sector were the Ministry of Culture, the Estonian Cultural Capital and the Entrepreneurship Development Foundation, and the Ministry of Education and Research, in the case of libraries [14].

Estonia has its peculiarities. For instance, in the nationwide Estonian statistical centre, crafts and self-employed artists should be adequately categorised in the statistics (Estonian Statistics (Estonian statistics: <https://andmed.stat.ee/en/stat>), accessed on 23 August 2023). It makes following and using indicators more difficult than in some other countries. Nevertheless, Estonia has associations supporting the CEs in Tartu and Tallinn. The Tartu Centre for Creative Industries provides clubs, training, and incubation. The Loom Eesti Centre in Tallinn also collaborates with other sectors, such as the Creative Entrepreneurship Academy (CEA), providing training sessions focusing on the relationship between the creative economy and other sectors. The CEA provides theoretical knowledge and hands-on experiences (conferences, TeamLab, and an accelerator), networking events, and study trips. In addition, Estonia has over 20 development and creative centres.

Josing et al. [14] found that digital solutions were increasingly used in the creative economy, and the different fields were more intertwined in their work. The value creation chains of different fields have different lengths, and digitalisation has transformed the value chains—the consumer is reached faster and more flexibly (e-shops, music and film sales platforms). The sector has become increasingly global and interdisciplinary, so it is more and more difficult to define specific areas and the sectoral affiliation of companies. Still, a specific “minimum capacity” is needed to find and fulfil foreign orders. Given the small size of Estonian companies, such a capacity can only be achieved by joining and co-operating with companies. Entrepreneurial awareness has grown, business models have become organised, and the entire creative sector has thus become more structured. Reporting to the business register has improved, resulting in better data in the Estonian statistics centre (especially for non-profit organisations). A better recognition of the country in the world helps export Estonian products and services, where culture can be an essential

first introduction to the country [14]. The first research question aims to bring more depth into the digital, transversal, or, in other words, 21st-century skills of Estonian creative practitioners.

The worrisome fact is that the research on how ecosystems should be supported is scarce in the Estonian context. We found that only the Loom Eesti CEA in Estonia provided training and scaffolding in ecosystem building. Regarding Estonian digital ecosystems, there are examples of top-down ecosystems but not cross-sectoral ecosystems promoting collaboration between enterprises. The ecosystem concept and the level of digital penetration into governmental aspects in Estonia are known worldwide (Estonian Digital Ecosystem (Estonian Digital Ecosystem; accessed from <https://e-estonia.com/estonias-digital-ecosystem-is-creating-a-seamless-society/>), accessed on 23 August 2023). The second example of using the term ecosystem as a description of established support systems is in start-up culture (Estonian Start-up Ecosystem (Estonian Start-up Ecosystem, accessed from <https://therecursive.com/lessons-from-the-estonian-startup-ecosystem/>), accessed on 23 August 2023). The second research question aims to determine how ready the Estonian creative sector is to collaborate with other sectors to build a bottom-up ecosystem.

Continuous or lifelong learning is essential for the research on 21st-century competencies and ecosystems because of the push toward a green economy, and the rapid technological changes in which complex knowledge and new skills are created and learned [15,33]. Two essential skills are the critical thinking and creative skills. Critical thinking skills comprise carefully considering various arguments, generating sound inferences from online information and communication sources, and detecting false arguments [30]. Creative skills provide a means to use divergent and convergent thinking [34,35], and enable the designing of an awareness of and potential for societal changes [25]. Competence and skill learning require continuous learning, e.g., through formal learning such as workshops and conference attendance, and through informal learning at one's daily work. Informal learning is based on self-directed learning activities or takes place in communities of practice. These communities involve building relationships and practice-based interactions between individuals with similar interests, and peer-to-peer learning is a crucial aspect of acquiring digital skills [36].

Van Laar et al. [17–19] found that the levels of digital information, communication, and problem-solving skills remained worrisome among CE workers. Furthermore, resilience towards changing technology is crucial for being digitally skilled. Most companies studied did not have a skill development policy around 21st-century digital competencies and did not connect ICT skills with transversal skills [17–19]. Managers and experts have a misconception that the young generation are automatically digitally literate. Using software packages does not mean that users know technology. For instance, ethical or societal use stresses that the current technological deterministic viewpoint of skills does not support considering the diversity and ethical aspects. Organisations benefit from being able to describe explicitly the expected competencies and skills in each job function. Haukka [37] states that most participants do not conduct performance evaluations because they do not know how to evaluate 21st-century skills. Van Laar et al. [16] found that information management, communication, collaboration, and problem-solving skills are acknowledged as needed skills integrated with ICT skills, but managers could not mention how the needed skills should be integrated with the ICT skills. We concluded from the previous studies that it is pivotal to connect the 21st-century skills of technical knowledge, information processing, communication, collaboration, critical thinking, and problem-solving skills to the needs of ecosystems. Thus, our background framework combines these skills and the needs of ecosystems (see Figure 2).

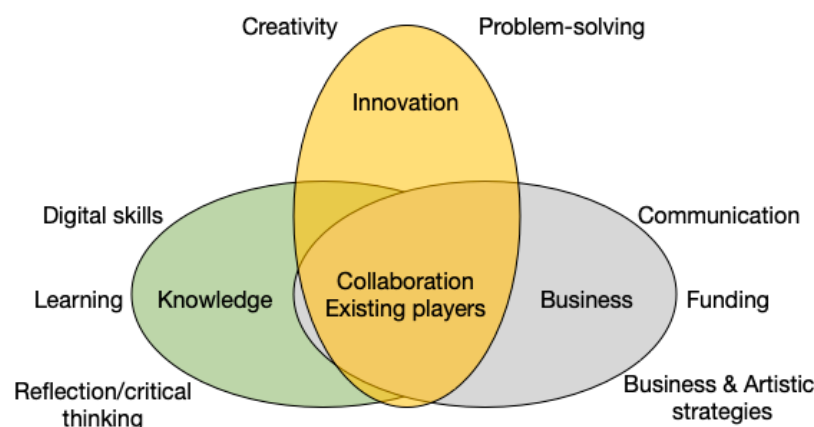


Figure 2. The figure presents the combination of 21st-century skills and the cross-sectoral parts of the ecosystem. We added the existing players into the system, as the existing players provide vital knowledge for mapping the overall context of players.

3. Research Questions and Methods

The research objective was to understand in-depth the lack of digital skills and learning habits that creative economy people described themselves as having, and the views of the creatives on their situation (RQ1). We also aimed to bring insight into how creatives share and collaborate to understand if creative economy ecosystems are a viable solution to enhance the creative economy's export and learning, as well as its existence on the front line of changes, addressed via (RQ2) on collaboration potentials.

To achieve the objectives, we designed a research plan with three stages: (1) background research based on a literature study and the existing statistical data that enabled the (2) design of semi-structured interviews with actors seeing the whole field (the so-called top-down view), and, (3) based on the preliminary analysis of the semi-structured interviews, workshops for creatives (the so-called bottom-up view).

The analysis of the semi-structured interviews and of the outcomes of the co-design workshops was executed from the bottom-up from the data we gathered. After this, we discussed how the results of the data fit with the themes from the literature discussed in Chapter 2 (see Figure 2).

Next, we shall describe the semi-structured interview and workshop methods, after which we will explain the analysis methods and units of analysis.

Research questions:

RQ1. What kind of needs, skills, and learning habits exist among creatives?

RQ2. How and why do creative practitioners see that they can share, collaborate, and learn from one another and from other sectors?

Timeline of the study:

- November 2020–March 2021—Skill and need mapping from existing statistics and comparing these with the literature;
- March–June 2021—Planning and creating pilot designs for workshops;
- July–October 2021—Execution of the workshops with Estonian creatives;
- December 2021–February 2022—Categorisation and analysis of the gathered data;
- March 2022–January 2023—Writing and submitting the manuscript.

3.1. Semi-Structured Interview Design

We chose semi-structured interviews to hear the opinions and views of the Estonian creative economy strategists, association heads, and creative centres' personnel on what happens in the field. The goal was to find the top-down view of the specialists in the field, to flesh out the above-mentioned Estonian scientific studies and the reporting of the state

of the creative economy, and to see if there were differences amongst practitioners in the field (see Section 5).

We chose semi-structured interviews as they offer the possibility to learn about topics and ideas unknown to the interviewers; in other words, such interviews are explorative, allowing new ideas to be brought up based on what each interviewee said [38]. We designed the semi-structured interviews around the topics we learned about from the background research. Namely, we used the Digital Economy and Society Index (DESI) as well as the Eurostat Data Browser [39] skills and competencies to determine Estonia's general digital competency state. The number expresses the position of Estonia on the scale of all European countries (the scale varies depending on the indicator).

- Take up of Internet services (2021):
 - looking for information about goods and services online (≥ 78.06 to 85.53 of 39 countries);
 - using online banking (≥ 72.52 to 81.84 of 39 countries);
 - participating in social networks (≥ 64.93 to 69.29 of 39 countries);
 - doing an online course (in any subject) (≥ 19.83 to 32.35 of 39 countries);
 - looking online for information about education, training, or course offers (≥ 78.06 to 83.53 of 39 countries).
- Internet Usage and Digital Skills (2020–2021):
 - Individuals—use of cloud services (≥ 34.06 to 43.88);
 - Evaluating data, information, and digital content (2021 onwards, ≥ 54.71 to 62.42);
 - Individuals' level of computer skills (2021 onwards, ≥ 5.63 to 7.38);
 - Individuals' level of digital skills (from 2021 onwards, ≥ 54.71 to 62.42);
 - Internet purchases made by individuals (until 2019, 55.02 to 66.35);
 - Websites and functionalities by size class of enterprise (≥ 75.8 to 82.83);
 - Obstacles for web sales by NACE Rev.2 activity (≥ 0.3 to 1.03);
 - Artificial intelligence by size class of enterprise (≥ 2.73 to 3.57).

The DESI and Eurostat investigation can be summarised as Estonia being in the middle or just below the middle of the European countries. The exceptions are that in Estonia, enterprises seem to have few obstacles in using digital services for their businesses, and the enterprises are slow in adopting artificial intelligence into their businesses. Therefore, based on surveys and statistics, it is not easy to design refined guidelines for training within the lifelong learning of the Estonian EC digital transformation, because the needs are specific and detailed; the main skills have been acquired already. The viewing of the statistics underscores the need to focus on the practitioners in the field to find their accurate needs. Based on the need to focus on the practitioners in the field, we drafted a semi-structured interview structure. The topics were the following: (a) what the general view of the creative industry/economy in Estonia was, (b) what skills and knowledge were missing, (c) what was done about it, (d) who acted in supporting the creatives, and (e) what kind of attitudes the creatives had for collaboration.

The recruitment strategy was based on networks we knew. We gathered a list of 31 names. We screened and contacted potential interviewees by using their LinkedIn profiles, NGOs, and other social media websites. We reached around 20 persons, of whom 7 took part in the interviews. In two interviews, we had two people (a working pair). We conducted five interviews: two with creative support centres, one with a creative ICT centre, and two with practising professionals. One interviewee was male, and six were female. The interviews were in English after a long discussion with the research team. We selected English because most of the research team members do not know Russian or Estonian, but we knew the interviewees were fluent in English. The interviews lasted for one hour and were carried out and recorded via the Zoom virtual environment due to the pandemic; the recordings were saved to a computer and moved to an external hard drive. After that, the interviews were transcribed and anonymised for further analysis by using the Atlas.ti software (Version 22.2.2). Consent forms were signed (according to the Ethics Committee of Tallinn University).

3.2. Co-Design Workshops

During the co-design sessions, we followed a participatory approach from Refs. [40,41], using design probes from Ref. [38] to enhance tangibility and imagination. It is critical to involve artefacts called probes during the design process [38]. The facilitators provided workshop probes to the participants, thus allowing them to express their implicit, tacit, and habitual practices. Co-design workshops were selected to flesh out the interview findings in a concrete manner from the practitioners themselves to further understand the learning, collaboration, and ecosystem-building potential and preferences.

We created initial co-design workshops for local creatives based on the information gathered from the semi-structured interviews and the preliminary analysis by three researchers. The goal of these workshops was to learn about the details of the creative processes of individual professionals: (a) what tools they were currently using, (b) what they would like to learn to use, (c) what skills they had, (d) what skills they lacked or deemed underdeveloped, (e) how they learned, and (f) what their ways and reasons for collaboration were.

The workshop was structured as follows. First, the workshop's structure and research team (who acted as facilitators), the workshop's goals, and the participants were introduced (20 min). We used a canvas with inspiration cards for the participants to fill with post-its. We designed the inspiration cards and offered these to the participants to enhance the filling of the canvas. The cards were designed based on the DESI (EU Key Dimensions of the European information society) [39], the literature, and the interviews. The cards had images on one side and questions on the other (see Figure 3). We designed the canvas to represent the main topics to be understood in-depth, placed in three broad themes (60 min), enabling reflection together on the outcome of the canvas (40 min). The workshop lasted for around three hours. The participants were divided into pairs. Each pair received a big blank paper canvas and a set of drawing/writing tools: post-it notes, markers and pens, and stickers.

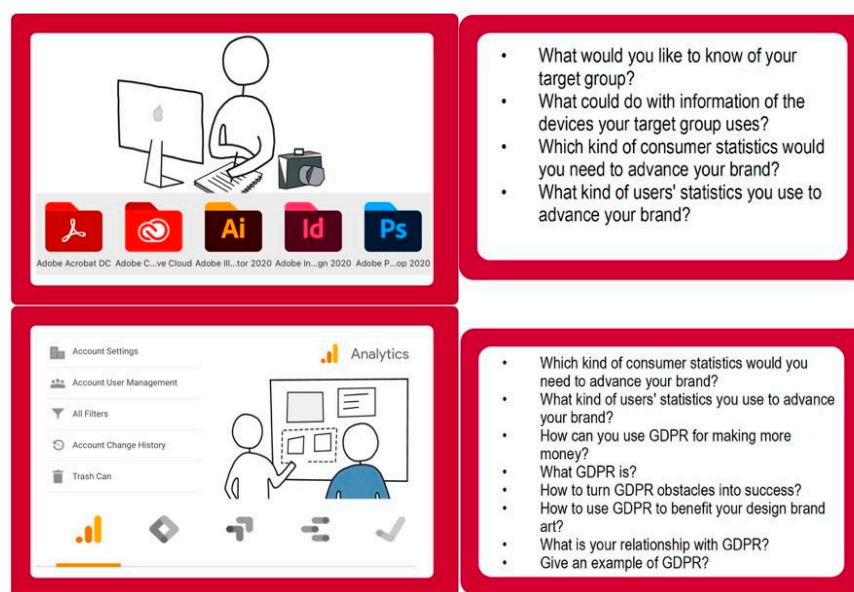


Figure 3. Examples of inspiration cards and cards for provoking thoughts (all cards provided upon request).

The participants reflected on three different aspects of their artistic practices:

- **Tools and skills** they used and the ones they would like to learn to use. The term “tool” here does not necessarily mean physical tools or artefacts but has a broader meaning. The term skills refers to the skills they had at the time and the ones they

lacked or wanted to obtain. We asked the participants to reflect on any skill that helped them during their artistic work, even if it was seemingly unrelated to art;

- **Learning manner refers to the ways** they learned and where they learned, as well as what supported and what hindered their learning;
- **Collaboration and ecosystems** refers to how and where they preferred to collaborate, and what ecosystem meant for them.

Once filled, the co-design canvases served as the basis for reflective practices where the participants could elaborate on their contributions. After the co-design workshops, the canvases were carefully preserved and stored for further analysis.

We used our networks and the extended network provided by the interviewees from the semi-structured interviews. The sample of Estonian creatives comprised 16 people (five men and eleven women) divided into groups of 4–6 participants who were invited to three workshops. The creatives represented the creative sub-areas of fine arts (3), photography (2), podcasting (2), illustration (2), gaming and concept art (2), music composition and production (1), Indy art (1), merchandise design (1), ceramics (1), and graphic design (1). The participants were selected based on their self-identification with their artistic practices: they all perceived their creative activities as their main income source or a primary part of their professional life (not a hobby).

All workshops took place face-to-face. The participants were invited a few weeks in advance, with a reminder sent one day before the workshop. Consent forms were signed and gathered on site (according to the Ethics Committee of Tallinn University). The co-design workshops were recorded and transcribed. The recordings and transcriptions were stored in an external hard drive and kept in a closed locker at Tallinn University, just like the semi-structured interview transcriptions and recordings. We anonymised the data for the analysis in Atlas.ti (Version 22.2.2).

3.3. Analysis Methods of the Collected Data

Next, we describe the data collection, the analysis methods, and the units of analysis used for the semi-structured interviews, the discussions at the participatory co-design workshops [42], and the data from the post-it note activities—three datasets.

For data collection, we used triangulation based on Ref. [43]. First, three researchers coded and analysed the data in iterations. After each iteration, the researchers discussed the outcomes. We collected data from the semi-structured interviews, the co-design workshops, the reflection discussions, and the participants' activities. We mainly collected qualitative data and less quantitative data. All the data were digitised and anonymised as much as possible. We placed special care on the semi-structured interview and reflective discussion data as Estonia is scarce in population, and individuals might have been recognised based on aspects other than the typical anonymised aspects of name, age, gender, profession, and location.

The unit of analysis for the transcriptions was discussed at length. The first iteration was executed to extract the shortest string of text to represent an idea or topic. When discussing, we concluded that the shortest possible string of text was only sometimes a good choice as it changed the meaning of the original discussion. Thus, we settled that some units needed to be longer to capture the original meaning. We were fortunate in the loquaciousness of the interviewees and the co-design workshop participants. The shortest unit was one word, for instance, the name of a supporting agent or event, and the longest was 12 lines. We also cut off some filler words and names or personalised expressions to shorten the quotations and add anonymity. These cuts are marked with [. . .].

Within the iterations of analysis, the researchers first coded the data and grouped them separately to belong to themes. Then, we discussed the themes and the codes, discarded some, and agreed on the themes and naming. After the third iteration, we finished the themes and selected quotations—the units of analysis.

We will first present the collected data through the methodological categories. The order of presenting the data is the following: Section 4.1., Semi-Structured Interview Data;

Section 4.2., Post-It Note Data from the Co-Design Workshops; and Section 4.3., Data from the Co-design Workshop Discussions. After this, we will analyse and discuss all in Section 5, Analysis and Discussion. The datasets are discussed using the framework of 21st-century skills and the cross-sectoral ecosystem themes in Figure 2. The ecosystem elements are knowledge (including 21st-century skills, digital skills, learning, and reflection/critical thinking), business (including communication, funding, business, and artistic strategies) and innovation (including creativity and problem-solving).

4. Results

4.1. Semi-Structured Interview Data

The semi-structured interview data provided themes discussing business strategies, business (in general), attitudes, learning, collaboration, creative and artistic events, difficulties, digital skills, ecosystems, Estonian peculiarities, existing players, funding and associations, and projects. Table 1 presents the units found in each interview. The coding of the interviews in Section 5, Analysis and Discussion, follows the logic of the interviews and is coded as semi-structured interview participant (SP). The number indicates which interview is in question, and the number in brackets indicates the unit of analysis (quotation).

Table 1. The table lists the themes that emerged from the data. There were 13 categories in total. The interview is marked as SP, and the number tells the order 1–4. The numbers in the brackets after the SP1–4 indicate the number of quotations (units), and the numbers within the table in brackets are the percentages (%) (access to Atlas.ti or the spreadsheet from Atlas.ti can be provided upon request).

	SP1 (96)	SP2 (23)	SP3 (21)	SP4 (36)	SP5 (24)	Total
Attitude	4 (100)					4, 100%
Business	15 (45.45)		7 (21.21)	10 (30.30)	1 (3.03)	33, 100%
Business strategies	4 (36.36)	2 (18.18)		2 (18.18)	3 (27.27)	11, 100%
Collaboration	16 (72.73)	1 (4.55)		3 (13.64)	2 (9.09)	22, 100%
Creative, artistic events	8 (80.00)	2 (20.00)				10, 100%
Difficulties	6 (75.00)			2 (25.00)		8, 100%
Digital skills		1 (8.33)	7 (58.33)	4 (33.33)		12, 100%
Ecosystems	2 (22.22)		1 (11.11)	4 (44.44)	2 (22.22)	9, 100%
Estonian peculiarities	2 (33.33)		2 (33.33)	2 (33.33)		6, 100%
Existing players	29 (58.00)	6 (12.00)		6 (12.00)	9 (18.00)	50, 100%
Funding, associations					3 (100)	3, 100%
Learning	12 (54.55)		2 (9.09)	3 (13.64)	5 (22.73)	22, 100%
Project		9 (75.00)	1 (8.33)	2 (16.67)		12, 100%
Total	98 (48.51)	21 (10.40)	20 (9.90)	38 (18.81)	25 (12.38)	202, 100%

The threshold for taking a theme into discussion was that there were more than 11 units (mentions). We exempted the “Estonian peculiarities” and included them in the analysis because they brought insight to the current practices. We also left out the Project category as these were outside the current research scope, because the projects mentioned were mainly research projects and not directly related to the CE. The discussions on business and business strategies were emphasised in the data (33 and 11 units); to enhance businesses and their digital skills are also among the aims of the Estonian Business and Innovation Agency (EAS). The aims of EAS also follow the Environmental, Social, and corporate Governance (ESG)’s goals for increasing export [44] (see Table 1). It is notable that during

the data collection (2021), aspects of sustainability were not included in the Estonian Business and Innovation Agency's strategy. Collaboration, or rather the difficulties of collaboration, were also discussed (22 units). Digital skills came up in manifold ways (but had only 12 units). Digital skills are being pushed forward by the strategies of Estonia [27] and the Organisation for Economic Co-operation and Development (OECD) [45]. Learning appeared considerably, which is surprising as it is not explicitly mentioned in any strategies. Mentions of learning—the difficulties, examples, and successes—appeared in 22 units. The description of the existing players enhanced the view of the Estonian creative economy.

The existing players (intermediaries) ranged from creative companies and platforms (creative agencies were mentioned in 7 instances, and platforms were mentioned once), museums (museums, galleries, and festivals were mentioned in 13 instances), funding (funding agencies, incubators, and ministries were mentioned in 12 instances), and learning institutions (2 instances) to towns (2 instances). Considering the size of Estonia and its population, it is fair to say that culture plays an essential part in its society. Notably, no one mentioned any ecosystems.

4.2. Post-It Note Data from the Co-Design Workshops

The co-design activity of adding post-it notes into the three areas of Tools and skills, Learning manners, and Collaboration and ecosystems provided the following themes: (a) the skills the creatives had, (b) the skills they would like to learn, (c) how, (d) where, and in which manner they learned, and (e) their values. The post-it notes on the canvases served as the raw data. We digitised the post-it notes into six tables on the above themes. The summaries of the tables are displayed in Appendix A. As a summary, the topic of which tools/skills the participants wished to learn or use had 74 comments; the topic of the skills that the participants felt they had had 91 comments; the topic of the skills they wished to have or learn had 89 comments; the topic of how the participants learned had 30 comments; the topic of where the participants learned had 37 comments; and the topic of the values and wishes of the participants had 44 comments.

4.3. Data from the Co-Design Workshop Discussions

The discussions and reflections of the co-design workshop are presented in Table 2. Most units of analysis (mentions) fell under the following themes: (a) current skills (12), (b) how they learned (27), (c) social media (15), (d) what the creatives wanted to learn (30) and (e) ecosystems (13). Most of the discussion took place in workshop 1 (WS1). The workshops are coded as WS1, WS2, and WS3. The participants who spoke are not separated in the quotations for anonymity. Like the semi-structured interview data, the codes have running numbers in brackets. In total, we gathered 119 quotes and 11 themes. We discuss those that received 11 mentions or more, with some exceptions, such as Non-Fungible Tokens (NFT), because of their relevance to the study. The new theme of social media, which emerged from the data, is notable. Another surprise was the high number of units (mentions) in the ecosystem category, as well as that of what the participants wished to learn. We combined the tools and skills into the theme of current skills as these were intertwined when the co-design workshop participants talked.

In Section 5, we will describe the quotations from the semi-structured interviews and co-design workshops, relate these to the post-it note data, and discuss these in light of the 21st-century skills and ecosystem elements according to the model in Figure 2.

Table 2. The table presents the coding in Atlas.ti. regarding the themes that the researchers grouped together. Most quotations (units) fell under the themes of what the participants wanted to learn (30), how the participants learned (27), and social media (15).

	WS1 (76)	WS2 (21)	WS3 (23)	Total
Current skills	6 (50.00)	1 (8.33)	5 (41.67)	12, 100%
Skills everyone should learn	3 (75.00)		1 (25.00)	4, 100%
How we learn	20 (74.07)	5 (18.52)	2 (7.41)	27, 100%
NFT	2 (100)			2, 100%
On collaboration	2 (28.75)	3 (42.88)	2 (28.57)	7, 100%
Social media	15 (100)			15, 100%
Values		1 (25.00)	3 (75.00)	4, 100%
What we want to learn	15 (50.00)	9 (30.00)	6 (20.00)	30, 100%
Where we want to learn		2 (100)		2, 100%
Who should collaborate	3 (100.00)			3, 100%
About ecosystems	9 (69.23)		4 (30.77)	13, 100%
Total	75 (63.03)	21 (17.65)	23 (19.33)	119, 100%

5. Analysis and Discussion

The analysis follows the structure of the created framework: (A) knowledge creation, including (a) digital skills, (b) learning, and (c) reflection; (B) innovation, following (a) creativity and (b) problem-solving; and (C) business, including (a) communication, (b) funding, and (c) business and artistic strategies.

We will also reflect on where to add, for instance, the themes that emerged from the data, such as the use of social media. We will discuss the three datasets to determine if the combined model works and to see if the co-design workshop participants—the creatives from the field—had the same view as the representatives in the semi-structured interviews. We call the semi-structured interview persons interviewees or experts on CE and the participants of the co-design workshops participants or creatives.

5.1. Analysis Using the Combined Model

(A) Knowledge creation, including (a) digital skills, (b) learning, and (c) reflection.

The experts on the CE understood digital skills as creative tools, and marketing and business skills. SP5(8) mentioned that most artists know the tools and master the skills for their creative processes but lack marketing, strategy, and business skills, and are reluctant to learn them. *“Most creative companies are very, very strongly connected to any visual material that they create. And most of the computer skills that people are mostly focusing on, [...] using various Adobe programs to alter the photos or a little bit of maybe graphic design, as well, to do. But it’s mostly for like creating the brand image and marketing materials. [...] The programming part is used for designing processes as well. I feel that maybe other companies don’t use the software as much for the creation process of their product or service. But advertising their product is the main focus where the programmes come in. [...] Then, they go back to the pen and paper, I guess because it’s quicker and easier. For the time being, before they’re growing.”*—SP5(8).

The same view comes from the creatives (participants). All participants knew many digital tools and used the tools in creative processes at a professional level. In addition, they were constantly upscaling, improving, and learning more about their artistic and creative practices. (See Appendix A, Tables A1 and A2).

During the reflection discussion, the participants mentioned the following:

“All the art stuff”—WS1(1); *“practical, drawing, painting. . .”*—WS2(2); *“Skills of creative thinking, creative things [...] Resilience”* —WS1(3); *“creative development, Good listener, nurturing person, open-minded, patient, resilient, talker, communicator”*.

WS3(4)

The skills that were lacking were in marketing and communication, as well as in building, maintaining, and changing artistic and business strategies (see Appendix A, Tables A2 and A3).

“Like to have marketing, AD, [...] Communication: [...] Time management, it stops me most, extra hours, and, i.e., management skills, not good at time management, [...] I am not using it well, not learning as much as I want,—Prioritising is part of it [...] Would be nice, someone else selling, so much better passionate about selling thing, but they keep saying that one should do Itself”.

WS1(5)

“I need marketing skills, project management—time management—someone taking off my social media count, write something about what this artist is about”.

WS2(8)

“Marketing—we all do have the need” [...] “What post, when I feel, I post, when not feel to, I do not, so no strategy”.

WS1(13)

The experts on the CE mentioned that the learning methods provided for creatives include two-year programs, workshops, and mentoring, and that these methods aim for strategy training:

“two-year programme, where the company gets a consultant. And throughout this period, they can take part in different training courses. We have 45 mentors who are experts in their specific field [...] to understand marketing and kind of the technical side behind that. [...] like using Google Analytics and the coding part of it and how you can enhance your appearance online by actually implementing some behind-the-scenes programming. [...] Photoshop and Illustrator, and those skills to edit photos are always something they’re keen on learning more about.” [...] Their stock and management of their materials also is something that most of them are doing on paper, and you know, it’s loose in their head; I guess they could use software for that, that would definitely make it more efficient for them”.

SP5(9)

“We should focus, we should have this strategy, we should move forward with this one and leave others behind, and then these kinds of strategies are really difficult to integrate into the companies because of the lack of resources”.

SP1(10)

However, it is worth mentioning the training costs. The participants mentioned learning in various forms, such as self-directed learning, learning from peers, and learning by doing or imitating. Learning occurs everywhere, at home, online, in school, in workshops, and while practising the profession (see Appendix A, Tables A3 and A4).

“school”—WS2(7); “Study groups, courses, [...] Workshops”—WS1(8); “Manage full-time smaller workshops, time managing better, own time, not dependent on the other private workshop.”—WS1(9); “Outdoors as well, breakfast brunch, informal setting, VR—learning through VR”.

WS3(10)

“Alone learning mostly (the diver), an artist sees things tuned [...] self-directed learning [...] Through experimentation, analysing others’ work, getting to the end result, [...] experiments, experiences [...] learning from other artists, from experience, like by doing—learn again, start over again, backup files, from mistakes I learn to do it right [...] Investigate it about, trying to build it and then try and then again, like a process, you know that you need to do this thing, research approach to investigate [...] Meeting new people, listening to their experiences, they can tell me, I do not have to make the same mistake”.

WS1(11)

The ability to acknowledge one's weak and strong points and to understand how, where, and in which way one learns the best shows that the participants reflected considerably on their practices. All participants mentioned learning from mistakes when reflecting on their practices or analysing others. An interesting point is the need for curiosity (see Appendix A, Table A3). It is well known to support learning, but coming intuitively as a skill that the participants had, or wanted to enhance, indicated well-practised self-reflection [46]. The learning skills were well-mastered (transversal skills), and the participants knew their knowledge gaps and needs in the creative economy. However, the top-down accelerators, training centres, and incubators might have to respect the voices from the field more, since the above quotations demonstrate a mismatch between learning habits and the support provided for learning.

The co-design workshop participants felt that marketing, communication, and strategy creation should be something to delegate. Some had already tried, but it had not worked. The discourse in the literature, which some interviewees also raised, is that funding and training are directed towards teaching managerial and entrepreneurial skills to creative economy people. Based on the current study, training and funding should be directed towards supporting professional growth and hiring specialists for marketing and strategy building.

(B) Innovation—(a) creativity and (b) problem solving.

The interviewees did not specifically talk about creativity; it was taken more or less for granted, nor was problem solving discussed intensely. However, the participants mentioned creative thinking, intuition, curiosity, and creative writing (Appendix A, Tables A2 and A4).

"Skills of creative thinking, creative things in our brain see some things other people do not see and small things in everyday life, those small things are beautiful to mean a lot" —WS1(3); *"creative development"* —WS3(4). Various examples of making mistakes, trial and error, systematising thinking, stubbornly pushing forward, being lazy, and recognising what others do not (e.g., WS1(11), above) were demonstrated. Thus, they discussed the creative and problem-solving processes. Both of these processes included reflection in a myriad of forms.

Adopting the core 21st-century digital skills—technical knowledge, information processing, communication, collaboration, critical thinking, and problem-solving skills [16]—is well-achieved and acknowledged by the interviewees and the participants. However, there is a visible gap in the interviewees' understanding of the wide variety of creative people's forms of learning. We gathered from the above (A) and (B) framework directions that the creatives preferred self-directed learning or learning with peers and were also highly reflective, mastering critical and creative thinking [34].

(C) Business—Ecosystems—(a) communication and collaboration, (b) funding, and (c) business and artistic strategies.

From the experts on the CE, it is worth mentioning the statements emphasising the differences between the formal learning context and the real-life creating of a business:

"It's totally two different worlds. In the university, they are like; we have this boutique university. This is also like a good thing but a bad thing as well. Because they have a lot of teachers per one or two students, so they're well guided, they're protected [...] they have really good mentors, and they are taking them as their children. So, you know that creative people are a little bit maybe sensitive, but on the outside, they face the real world. [...] and they don't push you to work together with the teams [...] This is my personal opinion, why the companies are small and don't have competitive advantages, because of their smallness, they don't have resources, they don't have resources for selling. [...] Yes, we are not cooperating a lot. And we are afraid or don't trust each other".

SP1(1)

Being small and not having resources was also expressed by SP5(2). *"A lot of businesses in the creative industry, they're really [...] the money is [...] it's very limited. So, every expense is counted for [...] It can sometimes be two people" working in a team, staying small in size, and having limited resources."*

Estonia, as a tiny country in size and population, “lacks niche markets”—SP1(3); “And you are not an expert on one field, you are a little bit expert on every field.”—SP2(4). Being unprepared for the CE may contribute to the reluctance for collaboration. Two other reasons that were also provided were the unsuccessful funding for export, and the reduced willingness for future collaboration and applying for funding:

“Companies who applied for money to try to develop the export field failed, and the Agency (name changed) asked for their money back, and then they went bankrupt. I think companies are afraid to take this path because of the examples, and they see how difficult it is to be successful outside of Estonia”.

SP1(6)

Large companies are dominating the field and attempting to merge the smaller ones into them, which does not accord with the creative people’s values of freedom, respect, acceptance, and reliability (see Appendix A, Table A6).

“It’s, unfortunately, the big software companies still getting along with each other and as architects and other players are using a different tool if they are not from the one source company”.

SP2(7)

The peculiarities of Estonia explained some of the problems that the co-design workshop participants mentioned in their need to improve communication, marketing, and artistic and business strategies (e.g., Appendix A, Table A3). Nevertheless, it is not in a form that was suggested in the literature, and was partially suggested by the experts on the CE as courses and two-year programmes. Instead, there should be shared, self-regulated learning in different forms, elevated from the bottom-up. Collaboration, on the other hand, was seen to work more or less well:

“Interdisciplinary it is done, but it is just invisible; it used to be less than now. I wish there could be more; everything can be collaborative with Artists, stage design, costumes, etc., out of the field are programmers. [. . .] How do you collaborate, clients—communication does not work any other way than having mutual respect; they have to understand each other, and you need common ground; otherwise, it is not going to work out if there is a foundation, you can throw the ball back and forth, and that provides good outcomes and collaboration to the end. Friendship can even be built through collaboration, face-to-face to meetings”.

WS2(17)

In addition, the participants discussed the diverse needs for collaboration. The participants mentioned that respect, shared values, and expertise are essential for collaboration and ecosystems. It is worth mentioning that these values support diversity and the sharing of resources; we could say that these imply sustainable values. “Universal income, transparent teams would help with the gender gap, teams with a different team (diverse) backgrounds such as education; business is better with diverse—natural successful diversity, psychological help for companies. [. . .] Common values, or base, reliability, you can rely on these people, reduce costs between these people, a crucial point for the ecosystem to be successful and stable” [. . .] “One recommends another—do me a favour, e.g., I do not have to do the marketing.”—WS3(20).

The co-design workshop participants had an extensive list of professionals with whom collaboration could occur, such as dentists, assistants, psychologists, people with vans, salespeople, copywriters, barristers, IT specialists, web page designers, and metal workers, as well as people in the transport, carpentry, and printing industries:

“Investor s— money people, that is where to collaborate with other sectors. Mathematicians, builders or art festival artists together program the theme where others can be combined. I wish there would be more of it; it is not done as much as it could be” [. . .] sales persons, assistants [. . .] Transport people with vans, salespeople, copywriters, someone who knows the law, someone dealing with the webpages and all that IT”.

WS1(19)

The participants also pondered the need for ecosystems. The pondering on ecosystems directed the discussion toward social media and the difficulties of understanding and using the algorithms so that they could be exploited effectively for artistic purposes, inspiration, and gaining followers:

“If you post once or twice a year, no one knows.” [...] “Really hard to stand out and gain followers” [...] “Instagram and FB page, Tumblr home page, I do not have a strategy either, it does not work, most of the sales are from Instagram”.

WS1(14)

“I do not like that social media does the filtering for us; I should be doing the filtering [...] I do not like TikTok; too many ads and I am too sceptical [...] Instagram is about videos and reels; you cannot find anything you want to see, and people pay for their posts to show, and the ones you used to follow disappear, so it ... Tik Tok, problematic, fast action, fast earning”.

WS1(15)

The participants would like to have modifiable algorithms for the potential ecosystem platform; for instance, filtering can be carried out by oneself, choosing one's channels and creating algorithms on one's own.

“I do not like that social media does the filtering for us [...] Algorithms—create your own. Switch between algorithms. What I do not like about Instagram is that it only shows you the images of the people you visit frequently, so it does not show those who post rarely but are very good posts”.

WS1(21)

In addition, the participants required guidance on NFT and GDPR use. *“GDPR, IT talking, I would ask my IT friends”*—WS1(16). Support was also requested for “green BFT” or how to detect greenwash.

The ecosystem should be built on shared values, universal income, transparency, diversity, and reliability for sharing experiences and trading (WS3(20)). The setting up of an ecosystem needs scaffolds for long-term funding, novel algorithms respecting the values of the ecosystem members, and heterogenous forms of learning and collaborating.

The values that the participants mentioned differ from the current aims for growth; the values presented by the workshop participants come closer to degrowth values and are related to sustainability, which the participants wished for [12,15,26]. The values mentioned were the following (Appendix A, Table A6): simplicity, connecting with nature, a sense of belonging, open-mindedness, safety, diversity, and acceptance. Ecosystems should be grounded on mutual benefits, reliability, cost reduction, flexibility, creativity, and freedom.

5.2. Answering Research Questions

RQ1: What kind of needs, skills, and learning habits exist among creatives?

We can state that the skills of the creative economy professionals were multiform in their area of expertise—the “artistic stuff” (WS1(1)). The most mentioned tools and skills have been listed in Appendix A, Tables A1 and A2, and include the following: art/craft tools and techniques (15 comments), digital art tools (Adobe Suite, Procreate, and other Adobe tools) (11), marketing and self-promotion (8), computer skills (8), 3D software and printing (5), craft skills (9), music and singing skills (6), photography/video editing and production (9), communication and people management (8), drawing and painting (7), creativity/creative thinking (6), painting (6), digital art tools, Adobe suite and Procreate (6), fashion and sewing (5), time management and effectiveness (5). In total, the participants listed 165 comments.

Those related to entrepreneurial and transversal skills are communication, learning, time management, learning tools, and intuition (mentioned only once). The skills accord with the skills mentioned by the experts on the CE.

What *skills and tools* the workshop participants *would want to learn* included marketing and self-promotion (9); craft skills (8); photography/video editing and production (8); speaking, communication, and languages (6); self-regulation and mindfulness (6); digital art tools, Adobe suite, and Procreate (5); business and project management (5); fashion and sewing (5); creative writing (4); 3D skills and sculpture (4); time management and effectiveness (3); audio, music, and singing skills (4); drawing and painting (3); information and data processing (2); being curious (2). In total, 89 skills were mentioned.

It took much work for the participants to separate skills and tools. Thus, some overlap is visible. The list is focused on the entrepreneurial skills that are pushed by accelerators and training centres. As discussed above, within the ecosystem theme, learning marketing and business strategies takes much time away from the actual work—an assistant would be better. Van Laar et al. [17] found that managers could not mention how skills should be learned; however, in our study, the practitioners knew how and where they learned.

Learning habits are diverse. The following methods were listed: through practice and experience (7); through networks, or from friendly masters/older professionals or teachers (6); with colleagues (3); from watching videos (3); through creativity (3); and through trial and error (3). The topic had 30 comments in total.

Where participants learn provided the following list: social media such as Instagram, or courses, workshops, and master classes (4); and separately also mentioned YouTube, and blogs (e.g., tutorials from Google) (7); work environment/colleagues (3); in transit/during travels (3); from university (3); online courses (2); at home (3); in nature, in public, or everywhere (3). In total, there were 37 post-its for this topic.

Compared to the experts on the CE that offered mentoring, courses, programmes, and workshops, the creatives described multitudinous possibilities for learning.

RQ2: How and why do creative practitioners see that they can share, collaborate, and learn from one another and from other sectors?

Collaboration and sharing resources, knowledge, and skills are discernible in the participants' learning habits and places. The following indicates how the creatives prefer to practise knowledge transfer: through networks, or from friendly masters/older professionals and teachers (6); with colleagues (3); through courses, workshops, and master classes (4); from communication with other artists, through exhibitions by analysing works, from work colleagues, or hanging with peers (mentioned one time). The list presents many informal ways of creating knowledge together. In the discussion, the following was mentioned: "*common values, common vision, ethics for collaborations, some kind of level of expertise, work with people better than you otherwise how can you grow, you can also teach your knowledge then you also grow yourself.*"—WS3(18). It relates to diversity, open-mindedness, better communication between people, and helping people live their own lives. There were wishes from the creatives that the facilitators of the workshops would "*create this kind of support club for us to talk together*"—WS3(22).

The other issues that were discussed were trading and providing favours for each other. As discussed above, the list of professions with whom trading and sharing is possible is endless. The participants also felt that artistic and creative people could collaborate with everybody else (WS1(19)). The aspects that can make collaboration and ecosystems sustainable are shared values, a common vision, ethics for collaborations, and a level of expertise (WS3(18)). In recent studies, a shared vision is critical to keep ecosystems growing [47]. However, WS2(17) also mentioned the need for common ground and mutual respect. The participants' values back up their visions of collaboration and ecosystems. These are, for instance, community, a common vision, more use of social artwork, safety to make the audience more mindful and liberal, acceptance, flexibility, creativity, and freedom. It has commonalities with the conceptual discussion of Pratt [12] on the similarities between the circular economy and creative ecosystems.

It is a promising direction for the future of ecosystems. However, the existing players need to acknowledge the creatives' needs more in Estonia. From the existing players (intermediaries), those who should be offering some funding, training, and support for

cross-sectoral ecosystems that are worth mentioning are museums, galleries, festivals (13), funding agencies, incubators, ministries (12), educational institutions (2), and towns (2).

Oksanen et al. [5] stress the importance of non-sequential processes, which can emerge and transform into several emerging and existing business ecosystems. It means that an acknowledged bottom-up approach is needed that would be more robust than the one currently visible in Estonia. In addition, dependency relationships lead to feedback loops of causality and enable self-organisation where a shared vision is crucial. The support should be continuing and the funding should be long-term. These needs align with the imaginative basis of ecosystems of the participatory co-design workshop participants, for instance, universal income, transparency, reliability, shared values, and common ground.

5.3. Discussion and Limitations of the Study

There are similarities in the structures of the intermediaries that train, fund, and connect with policy-makers within the context of the local, regional, and national ecologies, as described by Dent et al. [13]. Our study involved the significant Estonian players in the field of intermediaries. In addition to the repertoire of services, most activities are similar; they provide training, networking, funding, and the gathering of feedback on the success of the training and networking. However, when listening to creatives' needs, more attention should be paid to the Estonian context. It is important to provide the training and network activities as usual and check if they are fulfilled, as well as which kinds of activities the creatives would see as beneficial. The study data revealed that while training is directed towards teaching managerial and entrepreneurial skills to creative economy actors, they themselves preferred to learn how to gain the resources to hire someone to carry out the managerial work, which conforms with the finding from Van Laar et al. [17]. Training and networking should be directed towards supporting professional growth and hiring specialists for marketing and strategy building. Another area for improvement was seen in the participants' perceived skills and learning habits. Learning is directed towards enhancing the profession rather than towards acquiring entrepreneurial skills. Therefore, some of the funding and training are not meeting the actual needs of the creatives. Dent et al. [13] (p. 13) studied Central Europe, especially the Netherlands and the United Kingdom (UK), and found an important difference: creatives in Central Europe receive more national funding support than those based in the UK, Eastern Europe, and Greece, which rely more on self-funding models. The self-funding model is strong in Estonia, too.

The values that the participants mentioned differ from the current aims for growth; the values presented by the workshop participants come closer to degrowth values [12,15,47]. The values that were mentioned were the following (Appendix A, Table A6): *Simplicity, connecting with nature, sense of belonging, open-mindedness, safety, diversity and acceptance. Ecosystems should be grounded on mutual benefits, reliability, cost reduction, flexibility, creativity, and freedom.* Concerning the ecosystems, the workshop participants mentioned the following: *"common values, common vision, ethics for collaborations, some kind of level of expertise, work with people better than you otherwise how can you grow, you can also teach your knowledge then you also grow yourself."*—WS3(18). These aspects relate to diversity, open-mindedness, better communication between people, and helping people live their own lives. It is a promising direction for the future of ecosystems. From the intermediaries, those who should be offering some funding, training, and support for cross-sectoral ecosystems are museums, galleries, festivals (13), funding agencies, incubators, ministries (12), educational institutions (2), and towns (2). In addition, conceptual thinking should be extended towards the "immaterial dimensions of culture, its formations and transformations; and the sustainability of the skills, craft, practices and techniques (their teaching and training) that also animate all making." [12] (p. 7).

Oksanen et al. [5] stress the importance of non-sequential processes, which can emerge and transform into several emerging and existing business ecosystems. It means that an acknowledged bottom-up approach is needed that is more robust than the one currently visible in Estonia. In addition, dependency relationships lead to feedback loops of causality and enable self-organisation where a shared vision is crucial. The support should be

continuing and the funding should be long-term. These needs align with the imaginative basis of ecosystems of the participants of the participatory co-design workshop, for instance, universal income, transparency, reliability, shared values, and common ground. Dent et al. [13], de Bernard et al. [15], and Lin [11] also recommend long-term strategies and funding. Our study found the same challenge. Most funding, training, and networking are sporadic; they are aimed at specific current issues, whereas it would be beneficial to have a long-term strategy. It is good to have training on marketing, managing, and providing networking, but these should be tied to a strategy of structural changes and 21st-century skills and sustainability. However, focusing on structural changes might demand societal changes, which is not easy, but is implied by the results of our study.

The practical findings were that the creatives wished to know more about novel technologies such as artificial intelligence and NFTs. Also, both are challenging in their societal values. As mentioned, the creatives had values such as diversity, equality, sharing, and recycling, which align with degrowth ideas and universal income. These were connected to resource sharing in the form of ecosystems. We see it is related to what Comunian et al. [47] state in de Bernard et al. [15] as a “restrictive nature –for giving priority to neo-liberal growth-oriented accounts of culture and creativity compared to not-for-profit or community-driven ones” (p. 338). They also pointed out that “the top-down policy-led framings can fail to recognise the messy realities of cultural and creative activity and the diversity of ways in which culture and creativity are part of people’s lives.” [15] (p. 338). It nicely describes what our study revealed. Many emerging ecosystems are built from the bottom-up, but what are officially called ecosystems are—for instance, the Estonian Start-up Ecosystem—top-down constructions. It provides an intriguing future research direction on the values of creative economies regarding environmental challenges [47–49]; that is, the CE not as an instrumental value but also a value in itself, which HERA has announced in Crisis—Perspectives from the Humanities.

On limitations, the qualitative data are abundant, but they are local, and thus generalising the results and conclusions cannot be directly applied to other countries. However, the results provide a well-grounded direction for other countries and cultures. Another limitation is that the gender division is favourable for females. In the co-design workshops and semi-structured interviews, females were dominant. In total, we had six men and seventeen females. In the co-design workshops, we had five men and eleven women, and one male and six females in the semi-structured interviews. It is impossible to say which kind of bias this might have provided, but as it is known, it should be kept in mind when investigating the recommendations and results of other countries and cultures. The number of participants could have been more significant. Nevertheless, it was saturated for Estonia, as we ended up with the same person through different paths. Another aspect is that the participatory approach aims for empowerment and insight [41]. Thus, success is measured by the novel insights gained and the empowerment of the participants. We can safely state that we achieved both insight and empowerment, since one of the wishes was to “create this kind of support club for us to talk together”—WS3(22).

Yet, another limitation was that, on average, the participants were under 50 years old, except for one person. Our participants were potentially more digitally inclined than the older generation. Nevertheless, the one person over fifty was highly knowledgeable about current and emerging technologies.

5.4. Recommendations Based on the Study

The combination of 21st-century skills and ecosystem elements worked in analysing the three data sets (see Figure 2). Nevertheless, it also showed that the transversal skills cut across all the elements and cannot be divided to be more in one element than another (see Figure 4).

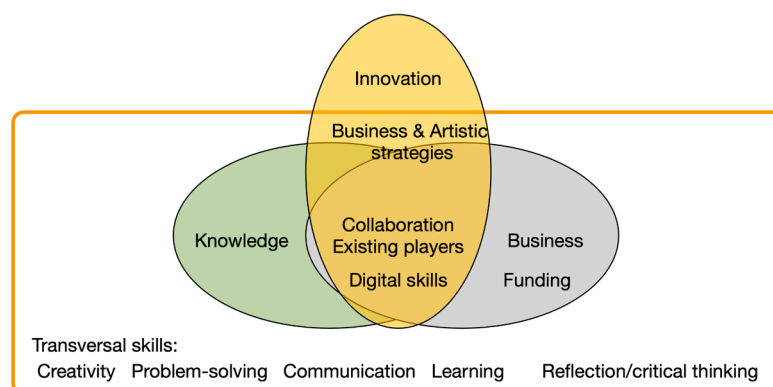


Figure 4. The transversal skills as the base on which the three elements of the ecosystems prosper.

We summarise our conclusion by dividing the transversal skills into the three main elements of ecosystems—knowledge, business, and innovation—providing recommendations based on the outcomes we gathered.

Under **knowledge**, we discussed digital skills, learning, and reflection, focussing on transversal skills. (1) The learning skills were well mastered, and the creatives knew their knowledge gaps and needs in the creative economy. (2) The co-design workshop participants felt that marketing, communicating, and strategy creation should be something to delegate. Some had already tried to delegate these skills, but it had not worked.

Recommendation:

- A. The top-down accelerators, training centres, and incubators might not have respected the voices from the field, and need to rethink their support for creatives to meet their needs by supporting self-directed professional learning, and providing support for hiring personnel for marketing and strategic work. **Innovation** focussed on creativity and problem solving. We gathered that the creatives preferred self-directed learning or learning with peers, and were also highly reflective, mastering critical and creative thinking [34].

Recommendation:

- B. Support is needed for organising self-directed learning and learning with peers. In the recurring events, creatives can exchange their experiences, and as highly creative, reflective and critical thinkers, they create innovations. **Business—Ecosystems focussed** on communication, collaboration, funding, business, and artistic strategies. (1) The results indicated that guidance is needed on NFT and GDPR use. (2) The ecosystem should be built on shared values, universal income, transparency, diversity, and reliability for sharing experiences and trading.

Recommendations:

- A. For professional skills to grow, support is needed in emerging technologies, such as blockchain, AI, and extended reality, with the knowledge of the related regulations and risk analysis.
- B. Training and funding should be directed towards building ecosystems where the marketing, communication, and strategy skills are provided to artists and creatives in a way they can afford. It means setting up an ecosystem that scaffolds on long-term funding, novel algorithms respecting the values of the ecosystem members, and heterogenous forms of learning and collaborating. Values include simplicity, a connection with nature, a sense of belonging, open-mindedness, safety, diversity, and acceptance. Ecosystems should be grounded on mutual benefits, reliability, cost reduction, flexibility, creativity, and freedom.

6. Conclusions

The approach of this study fits with co-design principles, where people express themselves and participate directly and proactively in the design development process [40–42]. Both research questions were successfully answered. This study found differences in the literature and the views of the experts on the CE compared to what the creatives expressed. For instance, the recent mapping of the Estonian creative economy stated that local creatives lack interdisciplinary collaboration, have limited entrepreneurship skills and competencies, and need more innovative approaches to processing tools and materials [14]. This study confirmed the lack of interdisciplinary collaboration, as well as limited entrepreneurship skills and competencies. It also found reasons for it, for instance, the finding that creative people upscale and continuously deepen their professional skills (digital and non-digital) in a lifelong learning manner [21]. Thus, the creatives frequently updated and innovated their professional processes and outcomes. CE experts provided insight into why companies are small and why there is a reluctance to apply for funding. The current study found that it is hard to specialise; one needs to know many areas of work to survive because of the lack of human resources, time, economic resources, and target audiences, partially because of the mistakes made in the support and funding schemes. Our study also found a culture of stamina and self-directed learning (see [36]). In addition, the study revealed that sustainability is innate in the creatives. De Bernard et al. [15] also demand an understanding of the various angles of the practices and values of the creative economy and that such value(s) should be considered in environmental and cultural analysis [12]. However, the workshop participants—the creatives—were also concerned about how “green” the digital means they used were, for instance, NFTs, social media, and other tools. Handcraft often uses very old methods, which is a symbol in itself; thus, changing such traditions is not always beneficial. Lin [11] mentions handcrafts, business models, and the other challenges that the CE has, but what was new in our study was the concern about the environmental effect of digital tools, productions, and usage. The workshop participants are one step forward from the government strategies that still need guidance on using digital tools for production, art creation, and communication in a sustainable (environmentally friendly) manner.

The acknowledgement of the importance of curiosity (Ref. [46]) by the creatives indicated that their learning skills were well mastered, and the creatives were aware of what they did not know. It means that creative people reflect on their work and are self-directed and motivated to learn when it comes to professional skills. The co-design workshop participants felt that marketing, communication, and strategy creation should be delegated. Some had already tried to delegate these skills but had been unsuccessful. Some interviewees saw that funding and training should be directed to teach managerial and entrepreneurial skills to creative economy people. However, based on this research, the training and funding should be directed towards building ecosystems where marketing, communication, and strategy skills are provided to artists and creatives in a way they can afford.

We received more information than expected on collaboration and ecosystem building, as well as the need for a sustained ecosystem for creative economy people. The framework created in our research worked on analysing the data. However, it also needed further fine-tuning (see Figure 4), as 21st-century skills (Refs. [16–19]) tend to cut across the three ecosystem elements of innovation, knowledge, and business.

Under the social media theme, the creatives discussed the difficulties related to how time-consuming marketing and strategy building are. Besides the creative economy, companies offer courses for their employees and try to motivate them to acquire new skills and update old skills. Nevertheless, when it is a question of the creative economy, it is taken for granted that people update, motivate, and pay themselves for their new, upscaled, and deepened skills. It further raises the question of the different values of the accelerators, funding agencies, incubators, and ministries. The data indicate that the values of creatives align with the short material chains and universal values of diversity, acceptance, and

community (belonging). We see a potential for ecosystems as pilots for the mindset change currently needed in the green transition [4,24].

Our study confirms the cross-sectoral approach that Oksanen et al. [5] investigated. If we were able to create such an ecosystem, it would change value chains, turning them into value networks and connecting various actors.

This study successfully harvested an impressive body of qualitative and quantitative data, and the data confirmed the primary hypotheses regarding the state of affairs in the Estonian creative economy. Our future research is directed toward building an extended dynamic ecosystem that would support sharing, reduce costs by hiring marketing and strategy specialists, and enable different kinds of algorithms that exist to conform to the values expressed by creatives.

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Appendix A

Table A1. The tools/skills the participants wished to learn or use. (Total: 74 comments).

Tools/Skills	N°	Tools/Skills	N°
Art/craft tools and techniques	15	Digital art tools (Adobe suite, Procreate, etc.)	11
Marketing and self-promotion	8	Computer skills	8
3D Software and printing	5	Acrylic/water colour/airbrush	3
Photography/video editing and production	4	iPad, smartphone, camera	2
NFTs	2	Audio, music and singing	5
Hands	2	Power tools, other art-making media, assistants, mind—our imagination, calligraphy tools, printing in all different ways and at all levels, people, telephone, letters	1

Table A2. The skills the participants felt they had. (Total: 91 comments).

Skills	N°	Skills	N°
Craft skills	9	Music and singing skills	6
Photography/video editing and production	9	Communication and people management	8
Drawing and painting	7	Creativity/creative thinking	6
Painting	6	Digital art tools, Adobe suite, Procreate	6
Fashion and sewing	5	Time management and effectiveness	5
Sports	4	Organising things	3
Seeing something in nothing	2	Teamwork	2
Knowledge of nature and gardening	2	Alternative healing, being good with animals, parenting, cooking, knowing almost all the lyrics of songs that I heard, laziness, stenography, character design, intuition, programming at a beginner's level, building hardware	1

Table A3. The skills the participants wished to have or learn to master. (Total: 89 comments).

Skills	N°	Skills	N°
Marketing and self-promotion	9	Craft skills	8
Photography/video editing and production	8	Speaking, communication, languages	6
Self-regulation and mindfulness	6	Digital art tools, Adobe suite, Procreate	5
Business and project management	5	Fashion and sewing	5
Creative writing	4	3D skills and sculpture	4
Time management and effectiveness	3	Audio, music and singing skills	4
Drawing and painting	3	Information and data processing	2
Being curious	2	Making complex narratives into audio/text/picture format, research, interviewing, organisation skills, mentoring, concept development, creative insight from industry, creative direction, working in a big project with a big team leader, colour grading, printing skills, social media, making my web page, AI, marketing scripts in media narratives	1

Mentioned hindrances: self-doubt, poor communication, no feedback, “on-my-way society”, taking too much stuff (upon self).

Table A4. How the participants saw their learning (Total: 30 comments).

Manner of Learning	N°	Manner of Learning	N°
Through practise and experience	7	Network, friendly master/older professionals, teachers	6
With colleagues	3	From watching videos	3
Through creativity	3	Through trial and error	3
		Procreate, we learn the most through desire and passion, interesting books, try out alone and then with personal teacher, through thinking	1

Table A5. Where the participants learned (Total: 37 comments).

Learning Where	N°	Learning Where	N°
Courses, workshops, master classes	4	Social media, e.g., Instagram, YouTube, blogs (tutorial from Google)	7
Work environment/colleagues	3	In transit/during travels	3
From university	3	Online courses	2
At home	3	Nature, public, everywhere	3
Tutorials	2	School	2
Exhibitions, galleries, places with others' works	2	From the literature, from previously made works, practise until it works out, hanging with peers, work smarter not harder, we learn everywhere, we learn by observing, nature, other artists, making mistakes, communicating with other artists, travelling, doing something new, following own interests; our dreams	1

Table A6. Values and wishes mentioned by the participants (Total: 44 comments).

Values and Wishes	N°	Values and Wishes	N°
Simplicity	3	Community—sense of belonging—being part of something	3
Acceptance, openness, open-mindedness	3	Connecting with nature	2
Self-regulation and mindfulness	4	Communication, influencing others	5
Self-development and improvement	2	Freedom (of self-expression and in general)	3
Career development and productivity	4	Purpose grounding, creativity, diversity, safety, being outgoing, good attitude of people around me, professionalism, connecting to brands, I have time to choose main activity and thinking about the theme of my work; I love creator economy and happy to be a part of it—it gives me freedom; daylight in studio, my books were published, participate in exhibitions, communicating with art institutes	1

Appendix B

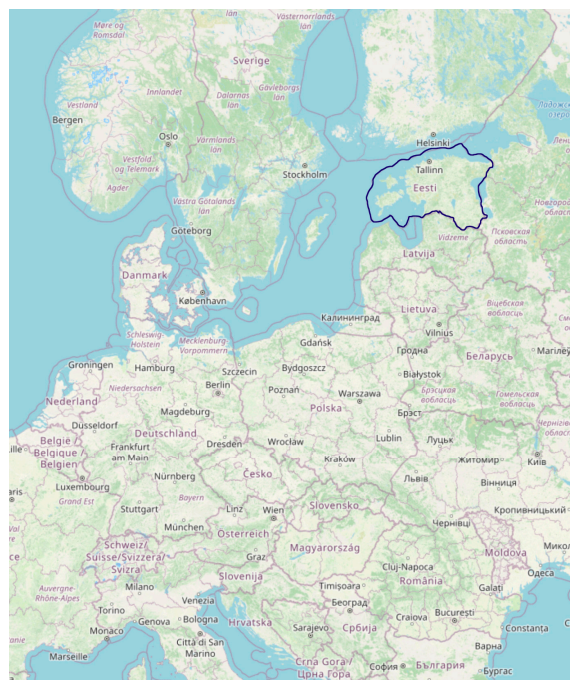


Figure A1. The OpenStreetMap is used as a base to visualise where Estonia is in Europe. Estonia is located between Finland and Latvia. Tallinn is the capital of Estonia. OpenStreetMap® is an open data source, licensed under the Open Data Commons Open Database License (ODbL) by the OpenStreetMap Foundation (OSMF). You are free to copy, distribute, transmit, and adapt our data if you credit OpenStreetMap and its contributors. Creative Commons Attribution-ShareAlike 2.0 license (CC BY-SA 2.0).

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