BİLİŞİM VADİSİ

Creative and Cultural Industries Technology and Scaling Meetings

Music, Audio Technologies, and Sonic Innovation: Creative Ecosystems and Scaling Dynamics

SESSION REPORT

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Session Report

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This roundtable meeting was designed to bring together actors operating at different layers of the music, sound technologies and sonic innovation ecosystem. Participants were selected from academia, the music industry and digital marketing, production and publishing, independent creative practice, sectoral representation, and institutional structures focused on creative industries. The objective was to evaluate production, technology development, and scaling in the field of music and sound technologies through perspectives emerging from different layers of the ecosystem. Below, the participating institutions and the areas they represent are presented in consideration of their position within the ecosystem.

Academia and Research

ITU Turkish Music State Consevatory, Department of Music Technologies

Participants: Prof. Can Karadoğan

Yıldız Technical University, Department of Music, Sound Arts Design Program

Participants: Prof. Arda Eden

Music Industry, Marketing & Management

Greatif Media Consulting

Participants: Rıfat Öztop

Turkuvaz Media Magazine Group

Participants: Berna Özyurt

Production

PB Music Production Ltd.

Participants: Hakan Kurşun

Independent Production and Applied Practice

Participants: Engin Kanatlar (independent sound designer, composer)

Structural and Sectoral Representation

Creative Industries Council Association (YEKON)

Participants: Engin Akıncı

TOBB Creative Industries Council

Participants: Dr. Funda Lena

EXECUTIVE SUMMARY

The second session of the Creative and Cultural Industries: Technology and Scaling Meetings examined music, sound technologies, and sonic innovation along the technology–entrepreneurship–scaling axis. The session emphasized that music production is not only a cultural activity but a multi-layered ecosystem shaped by data infrastructures, software systems, hardware development processes, and platform economies.

Discussions highlighted that shortcomings in music data management, metadata standardization, and digital distribution infrastructures are directly linked to the sector's scaling capacity. It was stated that for entrepreneurial practices to evolve into sustainable revenue models, organizational structures, intermediary mechanisms, and interdisciplinary matching processes need to be strengthened.

The academy–industry relationship demonstrated that although the technical capacity of human capital is strong, it requires more systematic integration with data management, business model development, and institutional organization. It was also emphasized that hardware- and software-based projects operate under different support dynamics and that existing support models should take these differences into account.

The session revealed that music and sound technologies occupy both a cultural and technological layer within the creative industries ecosystem, and indicated that interdisciplinary interfaces and hub models may constitute a structural threshold for scaling.

Overall, the session comprehensively addressed the defined discussion axes and provided an analytical framework for understanding how technology-driven transformation in the field of music and sound may advance through specific structural dimensions.

1. INTRODUCTION

INTRODUCTION

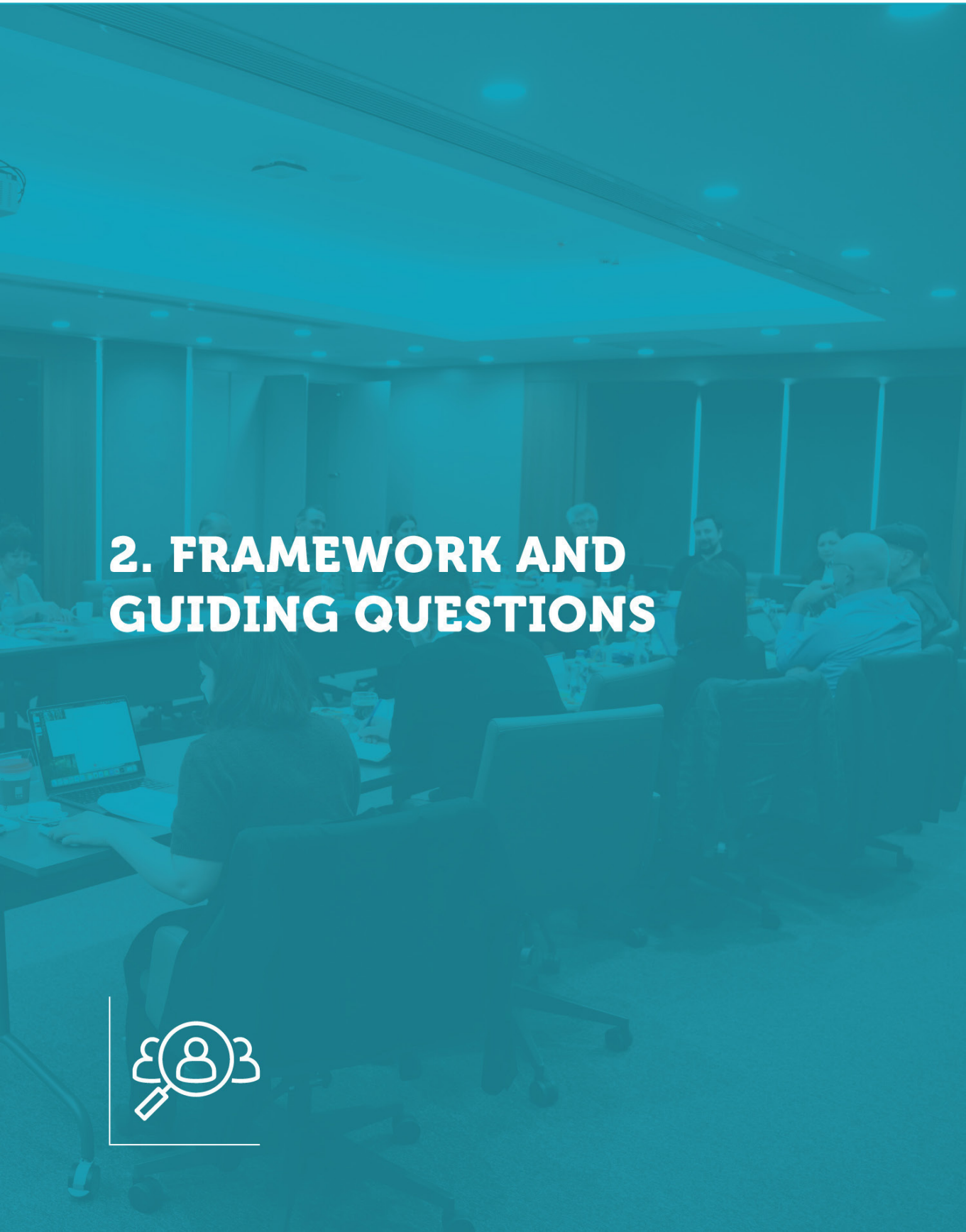
Bilişim Vadisi does not limit its role within Türkiye's technology and innovation ecosystem to advanced technology production and entrepreneurship activities alone. It approaches the creative and cultural industries as an integral and transformative component of this ecosystem. In a context where digital production forms are rapidly diversifying and interdisciplinary interaction has become increasingly decisive, fields such as gaming, interactive media, music and sound technologies, design, audiovisual production, and cultural content are generating new value domains intertwined with technology-driven innovation. Bilişim Vadisi positions these fields not as peripheral subcategories attached to the technology ecosystem, but as production practices that redefine perspectives on scaling, impact, and sustainability.

In line with this approach, the second session of the **Creative and Cultural Industries: Technology and Scaling Meetings** was organized under the title **Music, Sound Technologies and Sonic Innovation: Creative Ecosystems and Scaling Dynamics**. The session examined the digital transformation of music and sound production through the relationship between production practices and technology, entrepreneurial models, and scaling dynamics. Discussions indicated that this field should be evaluated not merely as a cultural production domain, but as an ecosystem shaped by data, software, and platform economies, positioned within global competitive conditions.

The evaluations conducted during the session particularly focused on deficiencies in domestic software and service infrastructures related to the compilation, storage, metadata management, and institutional distribution of musical data content. It was stated that this structural gap in managing consumer-and institution-driven content flows is closely linked to the sector's scaling capacity. The development of such infrastructures was assessed as presenting a strategic opportunity to strengthen the operational capabilities of the domestic music sector both nationally and internationally.

Participants noted that production in the field of music and sound technologies exhibits a fragmented structure distributed across academic knowledge production, independent creative practices, production and publishing processes, and institutional representation mechanisms. Within this structure, it was emphasized that developing scalable models along the technology–entrepreneurship–innovation axis requires consideration not only of artistic production but also of data management, digital distribution, intellectual property strategies, and institutional infrastructures. In this context, it was also stated that software-and hardware-based projects operate under different production and support dynamics, and that scaling discussions should take these differences into account.

Within this framework, the session opened for discussion the layers at which innovation emerges in music and sound technologies, how entrepreneurial dynamics are shaped, and which structural thresholds must be overcome for sustainable scaling at the global level. The evaluations obtained provide an analytical ground for examining the technology-driven transformation of the music ecosystem and for reconsidering its position within the broader creative industries landscape.



2. FRAMEWORK AND GUIDING QUESTIONS

FRAMEWORK AND GUIDING QUESTIONS

The discussions conducted within the second session of the Creative and Cultural Industries: Technology and Scaling Meetings were structured within an analytical framework addressing music, sound technologies, and sonic innovation through production practices, digital infrastructures, entrepreneurial models, and scaling dynamics. The experiences of participants representing different layers of production and institutional representation enabled recurring structural issues within the music ecosystem to be examined collectively.

Throughout the session, the guiding questions aimed to render visible the relationship between music and sound production and technology, the impact of data and distribution infrastructures on the sector, the conditions under which entrepreneurial and innovation practices become scalable, and the structural thresholds within the ecosystem. During the discussion, these questions were approached from multiple perspectives, expanded, and deepened through concrete examples. The discussion framework was structured around five main axes, which also form the conceptual foundation of the analytical sections that follow in this report.

DIGITAL INFRASTRUCTURES AND THE MUSICAL DATA ECONOMY

Under this axis, discussions revealed that music and sound production are increasingly shaped by data-driven infrastructures. In particular, deficiencies in domestic software and service infrastructures related to the compilation, storage, metadata management, and digital distribution of musical content were examined. Participants emphasized that these infrastructures are not merely technical requirements but strategic components directly affecting the sector's scaling capacity. It was underlined that digital distribution networks, data visibility, and rights management processes should be evaluated in conjunction with global competitive conditions. The data management and reporting capacities of globally operating integrated digital distribution services were assessed as a comparative reference point for the domestic ecosystem.

ENTREPRENEURSHIP, BUSINESS MODELS AND DISTRIBUTION DYNAMICS

This axis focused on the business models that shape entrepreneurial practices in the field of music and sound. The transformation from traditional production and distribution mechanisms to digital platform-based models was examined. Participants stated that independent producers now have greater access to global platforms; however, transforming this access into sustainable revenue models requires structural knowledge, data literacy, and strategic positioning. It was emphasized that business models depend not only on content production but also on data management, distribution strategy, and institutional capacity. The contribution of interdisciplinary matching mechanisms and short-term intensive production formats (such as hackathon-like models) to the entrepreneurial ecosystem was also evaluated under this heading.

ACADEMIA, PRODUCTION PRACTICES AND HUMAN CAPITAL

Under this heading, the relationship between academic knowledge production and sectoral practices was examined. The capacity of conservatories, university programs, and applied production environments to cultivate human capital for the sector was assessed. Participants emphasized the importance of strengthening the link between technical knowledge and sectoral dynamics. It was underlined that production practices should be addressed not only in terms of artistic competence but also through technology literacy, data knowledge, and entrepreneurial perspective. It was also discussed that transitions between academia and the sector largely progress through individual efforts, and that institutional interfaces between artists and engineers remain limited.

SCALING THRESHOLDS AND STRUCTURAL BARRIERS

This axis examined how scaling in the field of music and sound is defined and under which conditions these thresholds can be surpassed. The tension between the opportunities offered by the digital platform economy and local infrastructural deficiencies was discussed. Participants emphasized that scaling is directly related to content production, as well as to institutional capacity, data management, distribution strategy, and international positioning. It was stated that infrastructural and managerial thresholds must be overcome to build globally competitive structures. It was also highlighted that hardware-and software-based projects operate under different financial and operational dynamics, and that support mechanisms should take these differences into account.

THE POSITION OF MUSIC AND SOUND WITHIN THE CREATIVE INDUSTRIES

The final axis evaluated the position of music and sound production within the broader creative and cultural industries ecosystem. The relationships between music and sound technologies and gaming, audiovisual production, and other digital content fields were discussed. Participants stated that this field is not limited to content production alone but forms part of a broader ecosystem shaped by data, technology, and platform infrastructures. In this context, the transformation taking place in music and sound was assessed as progressing in parallel with structural changes across the creative industries. It was also noted that hub and interface models capable of bringing together production and technology development processes may play a determining role in the positioning of this field.

3. DISCUSSION AND ANALYSIS

DIGITAL INFRASTRUCTURES AND THE MUSICAL DATA ECONOMY

Discussions under this heading focused on deficiencies in software infrastructures related to the compilation, storage, metadata management, and institutional distribution of musical data content within the music sector. Participants expressed the need for a domestic software and service model capable of systematically managing consumer-and institution-driven musical data flows.

It was stated that there is a lack of an integrated structure in the organization of metadata related to musical works and in the processes of transferring such data to digital platforms. This deficiency was noted as complicating operational processes while also limiting the sector's institutional management capacity. In particular, the necessity of standardizing musical data content and managing it through a centralized system was emphasized. Shortcomings in metadata and data standardization were also identified as factors that may hinder effective rights tracking, revenue reporting, and royalty management processes.

Participants referred to globally operating services such as Believe, Tunecore, The Orchard, and Distrokid, which provide integrated solutions for content upload, metadata management, digital distribution, and reporting. In contrast, it was stated that no comparable comprehensive structure currently exists within the domestic music ecosystem.

It was underlined that data infrastructure is not merely a technical background component but is directly connected to rights management, revenue tracking, and international visibility processes. In this context, strengthening digital infrastructure was identified as a critical threshold for the sector's sustainability and scaling capacity.

OZAN SARIER

SEZEN GÜNGÖR

CAN KARADOĞAN

ENTREPRENEURSHIP, BUSINESS MODELS AND DISTRIBUTION DYNAMICS

Discussions under this heading focused on how the relationship between production and the market in the field of music and sound is structured through digital platforms. Participants stated that as traditional production and distribution mechanisms have evolved into platform-based structures, the way content producers relate to the market has been transformed. While digital distribution channels provide direct access to audiences, it was emphasized that such access does not automatically translate into a sustainable economic structure.

It was noted that independent producers and small-scale publishers can technically access global markets through digital platforms. However, gaining visibility on these platforms does not automatically generate economic value. Beyond uploading content, effective management of distribution processes, data literacy, and institutional organizational capacity were identified as decisive factors. The distance between achieving visibility and generating sustainable revenue was described as often dependent on strategic positioning and planning capacity.

It was stated that the transition from idea to prototype and ultimately to product often progresses through small teams or individual initiatives. Development teams frequently operate with voluntary contributions or limited resources until securing investment. Rather than functioning within a structured R&D chain, processes were described as often relying on personal resilience and commitment. During the prototyping stage, technical knowledge and equipment requirements were identified as significant cost factors, and imbalances between time and funding were noted as directly affecting project sustainability.

A recurring issue highlighted in entrepreneurial processes was the lack of planning at different stages of development. Projects initiated without a clear roadmap and programming process may experience loss of direction. The absence of vision and structured guidance was identified as potentially leading to inefficient use of time and resources. Mistakes in technical team selection were also mentioned as factors that can disrupt project flow.

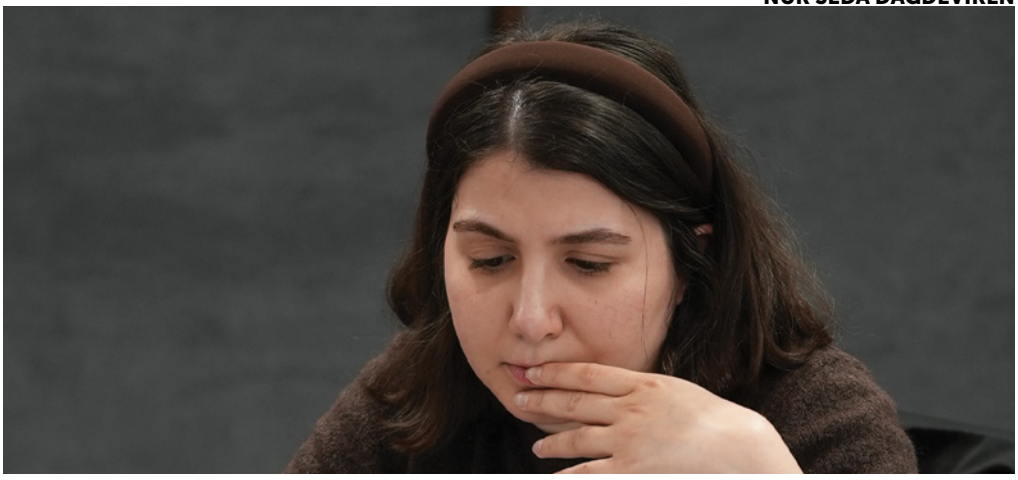
Discussions emphasized that entrepreneurship in the music and sound field should not be understood solely through artistic production, but also through intermediary roles such as content management, catalog management, and digital rights tracking. It was stated that the link between production and revenue is strengthened through such managerial and intermediary capacities. Business model design was described as dependent not only on content production but also on distribution strategy, revenue model selection, and market positioning.

Participants indicated the need for more systematic matching mechanisms between music producers and software developers. Models that combine musical production with software development capacity were described as carrying significant potential, particularly for technology-based service and product development. In this context, intensive and project-oriented collaborative formats that accelerate interdisciplinary production—such as hackathon-like models—were identified as mechanisms that can support the emergence of new ideas.

It was stated that positioning local production within the global platform economy constitutes an important threshold for scaling. Although global access is technically possible, it was emphasized that this alone is insufficient for competitiveness. Differentiation, brand positioning, and target market strategies were identified as determining factors. It was noted that investors often view the field as a niche market, and that its scaling potential can be enhanced through appropriate positioning and integration strategies.

Overall, the discussions under this heading demonstrate that entrepreneurial practices in the field of music and sound extend beyond the production process itself and must be addressed together with business model design, distribution organization, digital rights management, planning capacity, and institutional structure.

NUR SEDA DAĞDEVİREN



GÖRKEM YILMAZ

ACADEMIA, PRODUCTION PRACTICES AND HUMAN CAPITAL

Discussions under this heading focused on the relationship between academic structures in the field of music and sound technologies and sectoral production practices. Participants stated that conservatories and university programs provide an important foundation for both technical and artistic production. Within this framework, the way in which technical production processes transition into professional market structures was also examined.

It was noted that, in the domestic context, human capital in music and sound technologies is often cultivated through fragmented and non-systematic channels. Field experience acquired in media and studio environments provides a significant learning space; however, this model was described as frequently producing technical proficiency that reproduces existing production patterns. This situation was identified as potentially limiting in terms of technological depth and original production capacity.

It was stated that there are strong individual competencies in sound technologies and music production, particularly in recording, sound design, and production processes. Technical interest in emerging technologies such as spatial audio and object-based sound production was described as increasing. Nevertheless, it was emphasized that the relationship between this technical production capacity and digital distribution, rights management, data literacy, and business model development processes requires more systematic integration.

It was expressed that academic programs are largely focused on production and technical application, while engagement with the sector often progresses through individual initiatives and project-based relationships. Knowledge and experience transfer between academia and industry were described as taking place predominantly through individual efforts, with limited institutionalization. It was also noted that transitioning from educational environments to professional production contexts involves adaptation to organizational structures, decision-making responsibility, and real-world production conditions characterized by uncertainty.

Hybrid profiles, such as artist–technologist, were described as emerging from sectoral necessity rather than from a planned educational system. Thus, a single individual may be required to undertake multiple roles, including composition, sound design, arrangement, and at times software or game design. While this situation may increase individual competence, it was identified as creating structural challenges in terms of sustainable specialization and deep expertise.

Independent production practices were also addressed within this context. Freelance composers and sound designers operate within the digital platform economy; however, their relationship with institutional structures is often lacking continuity. The project-based nature of engagement with sectoral organizational structures was identified as potentially limiting long-term institutionalization. Professional networks and representation mechanisms were highlighted as playing an important role in ensuring the continuity of human capital. It was also noted that institutional interfaces enabling collaborative production between artists and engineers remain limited, and that strengthening collaboration mechanisms between these two domains is of critical importance.

Overall, the evaluations under this heading demonstrate that while music and sound technologies possess strong technical production capacity in terms of human capital, this capacity requires more holistic and systematic integration with entrepreneurship, institutional organization, data management, and market processes.

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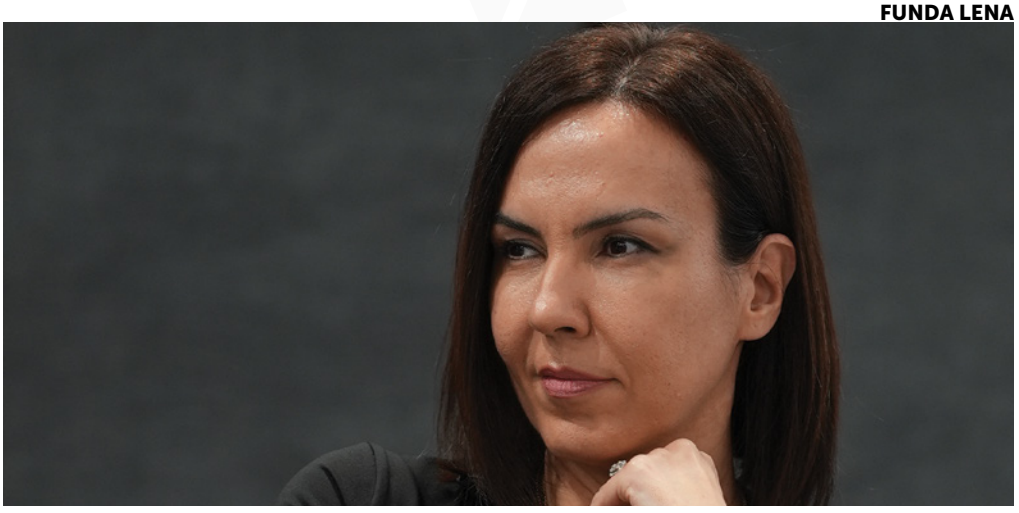

SCALING THRESHOLDS AND STRUCTURAL BARRIERS

Discussions under this heading focused on the conditions under which scaling is possible in the field of music and sound, as well as the structural constraints that limit this process. Participants stated that although digitalization has technically facilitated content production and distribution, this does not automatically translate into institutional growth or the establishment of sustainable organizational structures.

It was noted that actors in the sector largely operate within project-based and fragmented structures. This model was described as creating limiting effects both in terms of production continuity and the development of institutional capacity. Scaling was presented as contingent on strengthening organizational structures, clarifying role distribution, and systematically managing processes, rather than being a result of individual production success.

ENGİN KANATLAR

FATİH GÜRSOY

It was emphasized that hardware- and software-oriented projects should not be evaluated under identical support mechanisms. Hardware projects were described as facing distinct financial and temporal pressures due to prototyping requirements, physical production processes, and equipment costs, whereas software projects benefit from faster iteration cycles. Therefore, it was stated that support and evaluation models should be differentiated according to project type.

Discussions also addressed the limited presence of intermediary structures specialized in distribution, data management, and rights tracking within the context of scaling. The connection between production and market was described as often mediated through such interfaces, and the absence of these structures was noted as making it difficult to institutionalize the economic returns of production. It was emphasized that technical digital access alone does not lead to sustainable growth without intermediary mechanisms and institutional capacity.

It was stated that the field of sound technologies does not occupy a central position within existing technology and innovation programs and remains relatively limited in terms of investment and visibility. Financial and visa-related barriers affecting participation in international fairs and events were identified as factors constraining global visibility. This situation was described as directly influencing the field's capacity for international positioning and network development.

Participants also emphasized the importance of differentiation within the global competitive environment. Increasing content production alone was described as insufficient; long-term positioning, organizational continuity, and structural coordination were identified as decisive factors. Within the framework of the need for intermediary structures and interdisciplinary matching, the importance of institutional interfaces capable of bringing together production and technology development processes was highlighted. In this context, structures such as Bilişim Vadisi were described not merely as physical clusters, but as hub models that convene different disciplines and coordinate production processes.

Overall, the evaluations under this heading demonstrate that scaling in the field of music and sound is not solely related to production volume, but constitutes a multi-layered issue involving institutional organization, project-type-sensitive support mechanisms, intermediary structures, international access opportunities, and process management.

THE POSITION OF MUSIC AND SOUND WITHIN THE CREATIVE INDUSTRIES

Discussions under this heading evaluated the position of music and sound technologies within the creative and cultural industries through a multi-layered perspective. Participants stated that music and sound production should not be understood solely as cultural content creation, but as a production domain directly connected to data infrastructures, software systems, hardware development processes, and platform economies.

RIFAT ÖZTOP

SARE RABİA ÖZTÜRK

ENGİN AKINCI

The relationships between music and sound technologies and fields such as gaming, audiovisual production, performance, spatial design, and digital experience were examined. It was emphasized that in interactive systems, sound functions not merely as a complementary element but as a layer that constructs and directs the overall experience. Technologies such as spatial audio and object-based sound production were described as offering new opportunities both for creative production and for technical development processes.

Discussions indicated that music and sound can occupy both a service-providing role and a position of generating original value within the creative industries ecosystem. In interdisciplinary projects, sound design may at times function as technical support and at other times be positioned at the core of the project; this positioning was described as varying depending on project type and organizational structure.

One of the prominent issues identified was the limited presence of interfaces between musicians and software developers, and between artists and engineers. Production and technology development processes were described as often progressing along separate tracks, with limited systematic integration between the two domains. This separation was identified as directly affecting the capacity for technology-based service and product development. Strengthening interdisciplinary matching mechanisms was described as a means of making the position of music and sound within the creative industries more visible and scalable.

Discussions concerning data infrastructures and digital distribution systems were also addressed within this broader framework. Deficiencies in metadata management, rights tracking, and digital distribution processes were described as affecting not only the music sector but also the overall competitiveness of the creative industries. The strengthening of the musical data economy was identified as directly influencing the global circulation of content and the value chain within the ecosystem.

It was further stated that the field of sound technologies does not currently hold a central position within existing technology and innovation programs, and remains relatively limited in terms of investment and visibility. This situation was described as constraining the full recognition of the field's potential within the creative industries ecosystem.

In this context, the position of music and sound technologies within the creative industries was addressed not merely as a content production domain, but in relation to technology development, data management, entrepreneurship, and interdisciplinary collaboration capacity. Participants stated that interface and hub models capable of bringing together production and technology development processes could strengthen the strategic role of this field within the creative industries ecosystem.

Overall, the evaluations under this heading demonstrate that music and sound technologies occupy both a cultural and technological layer within the creative industries. The sustainable strengthening of this field depends on the parallel development of data infrastructures, entrepreneurial capacity, human capital, and interdisciplinary matching mechanisms.

ARDA EDEN

SERTAÇ ERSAYIN

HAKAN KURŞUN

4. CONCLUSION AND FORWARD-LOOKING FRAMEWORK

CONCLUSION AND FORWARD-LOOKING FRAMEWORK

The second session of the Creative and Cultural Industries: Technology and Scaling Meetings demonstrated that the field of music, sound technologies, and sonic innovation must be evaluated not solely along the axis of cultural production, but together with data infrastructures, software systems, hardware development processes, and entrepreneurial models. The discussions revealed that the position of this field within the creative industries is characterized by a multidimensional structure in which technical, managerial, and economic layers are deeply intertwined.

The key evaluations emerging from the session indicated that deficiencies in musical data management and digital distribution infrastructures directly affect the sector's scaling capacity. Structural gaps in metadata standardization, rights tracking, and institutional distribution processes were identified not merely as operational challenges but as critical thresholds for international visibility and sustainable revenue generation. In this context, strengthening data infrastructure was assessed as one of the central components of the field's technology-driven transformation.

Discussions on entrepreneurship and business models demonstrated that the technical possibility of digital access alone does not ensure competitiveness. Scaling was emphasized as being directly linked to planning capacity, organizational structure, intermediary mechanisms, and interdisciplinary matching processes. It was further stated that hardware-and software-based projects operate under distinct dynamics, and that support and evaluation models must account for these differences.

Evaluations concerning human capital showed that despite strong technical production capacity, this capacity is not sufficiently integrated with data management, entrepreneurship, and institutional organizational processes. Transitions between academia and the sector were described as progressing largely through individual efforts, while interfaces between artists and engineers, and between musicians and software developers, remain limited. This situation was identified as constraining the strengthening of technology-based service and product development capacity at an institutional scale.

Scaling discussions also revealed that the field of sound technologies maintains relatively limited visibility within existing technology and innovation programs. Issues related to access to international networks, investment, and visibility were identified as directly affecting the field's global positioning. In this context, hub models that support interdisciplinary production and coordinate production with technology development processes were described as potentially functioning as structural thresholds.

Overall, the findings of this session demonstrate that transformation in the field of music and sound technologies cannot be addressed under a single heading; rather, data infrastructures, entrepreneurial practices, human capital structures, and institutional organizational capacity must be considered together. The music and

sound domain occupies both a cultural and technological layer within the creative industries, and strengthening this position appears contingent upon overcoming structural thresholds.

This report presents an analytical framework of the discussions conducted along the technology–entrepreneurship–scaling axis in the field of music and sound technologies. It also establishes a reference foundation for future sessions in the series, where discussions will be deepened through different creative domains.

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