

# Creative Space Foundation Metaverse

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**Abstract.** Creative spaces have become important places that encourage innovation, collaboration, and imagination in various fields. This study investigates the complex dynamics of creative spaces by studying physical, social, and psychological aspects. We do this from the perspective of different disciplines and designs and see how special characteristics and creative processes interact with each other. We investigate the influence of spatial confirmation, atmosphere, and accessibility on individual creativity and productivity in this setting using mixed methods, including qualitative case studies and quantitative analysis. Our results show that design components such as layout flexibility, natural lighting, and aesthetic appeal influence how people think and interact with others. All this forms a broad creative experience. In addition, this research investigates how organizational culture, leaders and community dynamics play a role in building and maintaining creative ecosystems in these places. By explaining the complex relationship between the physical environment and human behaviour our research offers insights for practitioners, policy makers, and educators who want to create better creative spaces for collaboration and innovation. Using the Visualization of Similarities (Vos Viewers) tool, this research uses qualitative and bibliometric techniques. Using Vos Viewers you can search 992 articles by entering keywords such as; creative space; digital space; customer experience; and metaverse reduction. The results of the analysis show scientific mapping and potential for future research regarding creative spaces as a new marketing world. These results can be used as recommendation variables for researchers conducting further research.

**Keywords:** Creative Space, Customer Experience, Digital Space, Metaverse Reduction.

## 1 Introduction

Basically, humans are born alonewhich begins with individualism. Where a person lives independently and is not dependent on other humans. However, humans are still social creatures who have the instinct to live together with other humans. So for goodness sake Fulfilling these social needs is what drives these humans to live in groups. It involves individuals' interactions with their social environment, including family, peers, and society at large. This includes the formation of social bonds, development of social skills, and understanding of cultural norms and values.

Apart from a sense of mutual need, these groups emerged because of the desire to interact and communicate with other people. Unconsciously, people create their own groups (social groups). One example of a social group in society is a community. Social community according to Sauders (1991) defines a community as a place or group of people or a social system[1]. The community that is now growing among the public is the creative community. Creative communities now often hold creative events or activities, ranging from exhibitions and art markets to seminars, performances, presentations, and so on. Creativity emerges from time to time, and technology is not only limited to traditional art but also develops in a more modern and creative direction using currently developing technology.[2].

The development of the creative industry has experienced a positive increase, seen from the existence of various kinds of creative activities such as presentations, exhibitions, music and workshops which are often carried out by the community. As time goes by, activities related to creativity are increasing with the existence of painter, design, photography, fashion, advertising and film communities. With the development of creative communities, there is an increasing need for creative spaces that are able to accommodate all this creativity so that communities can realize their work, therefore a forum is needed for these communities to be able to realize their ideas. These creative activities can be used as a forum to develop and produce new work and also positive things. Creating this creativity certainly requires space that can provide inspiration for ideas and freedom of expression. "Creative space" is the meaning of

Creative space, according to the Big Indonesian Dictionary (2017) creative has the meaning of being (containing) or having creative power, while space has the main meaning of beginning or ending (various affairs, things, etc. ).

Researchers are now continuing to conduct research to control, predict, explain and improve understanding of creative space as the foundation of the metaverse. Without this research, the existence of science is no longer relevant for understanding the ever-changing micro and macro environment. Therefore, further review is needed to find out how far research and trends related to creative space as a foundational landscape for the metaverse have developed[3].

## 2 Literature Review

Metaverse can be defined as an immersive virtual environment where users, through the utilization of immersive technology, can interact with each other in a three-dimensional environment, allowing businesses and individuals to expand their reach and connect with others in the virtual world known as the metaverse, through avatars for social purposes, economics, or education[4]. The Metaverse has been a turning point in the way people interact with technology, companies, and each other[5].

Some individuals have limitations in communicating both directly and indirectly. Not only that but also in terms of establishing relationships with other individuals. These limitations make these individualists think about how they can gradually socialize with outside society without putting aside their pride or fear of socializing.[6]. In the metaverse, they can communicate, play, and even carry out daily activities without having to physically meet, but instead use avatars in the 3D space that the metaverse has created for users. From here new relationships or communities can be formed not only directly but also through the metaverse.

The community that is growing in the current era is the creative community, namely communication that is formed due to shared hobbies and an interest in something creative[6]. Creative communities are groups of people who come together to share and develop creative ideas. they can come from various backgrounds such as visual arts, music, literature, technology, and more. As time goes by, the creative community experiences an increase in which they ultimately need a "space" that can accommodate their creativity so that they can be more productive in their work.[6]. The space in question is "Creative Space" or in other words Creative Space.

Creative space is a place, both physical and virtual, that brings together communities or creative people which provides space and support for community gathering, business development and other fields such as the creative, cultural and technological sectors.[7]. The aim of Creative Space is to provide facilities and services for meetings, discussions, meetings of an organization as well as skills training and global opportunities both in the short and long term and also as a facilitator between creative communities or people and development institutions and creative institutions.

Creative space is also the foundation of the metaverse because in creative space there is an Online Platform: connecting with fellow communities only through online media, Studio: providing work space for individuals or small groups in the form of Co-working space. Where these two elements can be used as a foundation for the metaverse to run effectively[7].

One of the key factors in the design and implementation of metaverses in the 'creative space' is the gaming industry. If we talk about games, one thing that stands out the most is in the community formation section. Most games can bring a community in a large scope. A gaming community is a group of people who both like games of the same type, genre, or specific games. This means that the community discusses everything related to the game itself.

Gaming communities don't just bring together a group of people who like a particular video game. This group can be very useful for game developers to create effective and budget-saving promotional media. When a community is formed, this creates a good ecosystem for game development. The more people who like it, the more people will not hesitate to invite and indirectly promote the games they play. The gaming community has an important and profitable role for game developers and gamers themselves[8]. Gaming companies are spending a lot of money on research and development to create new and innovative ways to bring games to the metaverse. Metaverse games are growing in popularity because they provide players with a more realistic and immersive gaming experience[9].

Metaverse can still be created using several platforms that already simulate virtual worlds. One of them is Roblox, a fun three-dimensional virtual world game that allows users to create adventures, play games, play role-play, and learn with friends in a fun way. Users are dominated by children aged 13 years and under. The use of metaverse technology is also for the education sector, namely with AR and VR as learning tools, and in this game or Roblox platform which is used by one high school to be used as a school promotional tool[10]. One thing that makes Roblox interesting is the concept of freedom to play. Because users can access various free games that have been created by other developers, or they can choose to create their own games. Then, in the game, users can not only control their characters but also design environments, buildings and other rules. In other words, this is what the community needs

to express their creative ideas in this Roblox game. In other words, Roblox can be used as a creative space for the creative community to express their brilliant ideas into Roblox as a place for their creativity.[11].

Usually, online games are designed as multimedia games that do not require the presence of players in one place, Roblox allows users to communicate online via chat rooms. The desire to join and be recognized as a member of a group motivates the desire to have new friends in one of the roblox user informants. So the players can feel or act as imaginary or real characters and work together to build a story together. A strong desire to make friends, get to know and play with other people encourages people to try to improve their position in the Roblox game environment[12].

The experience that customers can get and feel is that playing Roblox can be a fun activity and can even be entertainment to unwind after activities. All the experiences mentioned, such as satisfaction and challenges if you can complete it to completion, as well as simple chats that make Roblox players laugh when playing the game[12].

Bibliometric analysis originates from the field of library science and informatics and is the basic methodological basis of research analysis. Several publications in the literature provide comprehensive bibliometric analyzes for various research areas, such as management. Bibliometric methods use mathematics and statistics to analyze books and other information tools[3]. By considering the characteristics and progress of certain scientific disciplines, bibliometric indicators can provide a higher level of development of scientific disciplines[13].

Two main factors influence the reliability of bibliometric indicators, the first is that the selection of this database can include many bibliometric, multidisciplinary or other databases related to a particular field. The second is identification of publications based on the author's address. Bibliometric indicators are less effective for evaluating individuals or small research teams, but more effective for analyzing patterns in large groups (large teams).[13].

Bibliometric analysis focuses on objective data such as the number of publications and citations, occurrences of keywords and topics, and massive data such as hundreds or even thousands. However, its interpretation often relies on subjective evaluations such as thematic and objective analyzes (such as performance research) made through informed techniques and procedures [13].

**Table 1.** External Stimulus Factors

Factor	Description	Source
Creative Space	To support the creation of a work or idea, you need a forum or place to develop it	[14]
Metaverse	create these creative ideas, so that what is called creative space emerges. Metaverse refers to a virtual reality that exists outside of reality. Metaverse is a new beginning to create something new, as happened in the early days of the internet. Metaverse as a connection point from the real world and virtual reality.	[15]
Customer Experience	Customer experience is the experience that customers feel when they come into contact when they use products and services.	[16]
Community	A community is a group of individuals or social groups who live or interact together in a certain area or in a certain context.	[17]

**Table 2.** Cognitive Response Factors

Factor	Description	Source
Benefit	Creative Space provides benefits, namely as a forum or shelter for creative people to share information with each other.	[18]
Experience	creative space provides an experience to its users such as finding a space for them to rediscover the skills, inspiration, goals and dreams you want to build. They can also meet more communities and inspirational figures.	[19]
Obstacle	Obstacles in this creative space can come from various sources, including internal and external factors. The following are some common barriers to creativity, such as: fear of failure, conformity is like a pressure to follow social norms which can inhibit creative space, routine or dependence on other people.	[20]
Challenge	The challenges faced are the low level of public appreciation for creative professions and technological changes. Advertising, printing, film, video and radio are particularly vulnerable to technological change. Technology investment in this subsector is relatively high, and when technological changes emerge with more sophisticated technology and entrepreneurs are required to change their technology so as not to be less competitive. The challenge faced is that the	[21]

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	technology we have is not yet capable of being used, this is because Indonesian technology is not yet equivalent to technology in other countries.	
Opportunity	1. Can increase the number of start-up companies 2. Using a co-working space in a creative space can provide word of mouth marketing to colleagues, friends and family.	[22]

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### 3 Method

To determine the development or mapping of metaverse research as a digital marketing tool, this research uses a qualitative approach with a historical approach. This research was carried out in two steps. First, data is collected and compiled for publication in papers published in quality international journals[3].

The next step is to carry out bibliographic analysis to analyze the collected papers. Bibliographic analysis is used to determine current trends and discover potential research topics. This analysis helps understand the latest developments and mapping of metaverse research as a marketing instrument. Therefore, research findings can also help future researchers in choosing research subjects and variables. Therefore, research content analysis was carried out to find sources of bibliographic data. Nine studies were conducted. VOS viewer is used to obtain bibliographic data and then used to analyze data sources because it allows visual mapping. Finally, a conceptual model is proposed based on the research findings[3].

#### 3.1 Method Collection Data

Data collection consists of research papers from well-known journal publishing groups: 1) Elsevier, 2) Emerald, 3) Springer, 4) Taylor and Francis, 5) Atlantis Press. articles were collected from accessible databases from six journal publishing groups. Article search by Publication or Binas (PoP) This software helps you find papers on related research topics. The stages of data collection with Publish or Perish are:

Open the Publish or Perish software, enter the appropriate phase keyword using the retrieved title “Metaverse” “Digital Marketing”, “Universe *New Marketing* “The combination of words used consists of 5 combinations, namely [Metaverse; Metaverse marketing; Digital Marketing; New Marketing Universe; Generation z] Next, the articles are collected based on the keywords used, to be used as data processing material. Limit publication years to 2000-2024[3].

Articles that will be used as research material are analyzed for completeness of their contents related to their existence “keywords”, “title” and “abstract”. The selection of articles to be processed must pay attention to; publishing journal, DOI, GS Ranking, Author, Widespread, and Cites Per Author.

There are 940 articles obtained through Publish or Perish. With a combination of keywords and title visible in the table.

**Table 3.** Combination of Search and Number of Articles

Keywords	Amount
Creative space; digital space; customer experience; metaverse reduction.	992 Articles

#### 3.2 Method Analysis Data: Bibliometrics

To display the results of this bibliometric analysis in the form of mapping data, the Vos viewers application is used. Using an integrated mapping and clustering approach, Similarity Visualization (Vos viewers) can extract and analyze data to explore networks by identifying relevant combinations of concepts and variety of elements. It is the implementation of analytics that brings co-occurrence to life. The research results are used to organize repeat and make a bibliography. By using Vos viewer, you can access the latest information about the research being carried out in this area[13].

### 4 Result and Discussion

A creative space is an environment or place that is intended to encourage innovation, creativity and collaboration. It can be a physical space dedicated to people working together, sharing ideas, and creating creative projects. The main goal of a creative space is to create an environment where people can try new things, experiment with new concepts,

and collaborate with others. Therefore, in this case many researchers are conducting research on creative space as the basis of the metaverse, both for article titles and keywords in an article. From 2017 to 2024 there were 258 discussions regarding this creative space. The following is a data table related to the article:

**Table 4.** Amount Year Rise 2017-2024 :

Year	Publication
2017	1
2022	28
2023	143
2024	86
TOTAL	258

The value continues to increase every year. Technological developments are not always positive. This technological development has advantages and disadvantages. With the emergence of the advantages and disadvantages of the metaverse, researchers are motivated to conduct research on it in order to explain, control and utilize it well to reduce its disadvantages. You will have the opportunity to do so.

#### 4.1 Analysis Writer

The authors used Google Scholar (GS) rankings to conduct their analysis; GS carries out the same task as Thomson ISI Web of Knowledge, namely producing the Journal Impact Factor (JIF). GS has the distinct advantage of having free access to articles. This provides an opportunity for researchers to use it as a reference.

**Table 5.** Publication Active Per Year 2017-2024

Writer's name	Title	Rating G.S
M Guo, X Li, Y Wei (2024)	Bibliometric analysis of the art market: from art prices to market efficiency	362
A Tlili, R Huang, B Shehata, D Liu, J Zhao(2022)	Is the Metaverse in education a blessing or a curse: a combination of content and bibliometric analysis	21
Y Zhang, Y Xie, L Li, Y Liang, H Yu (2024)	How does the public discussion reflected in the WeChat article differ from scientific research in China? An empirical study of the metaverse	129
L Yang, ST Ni, Y Wang, A Yu, JA Lee, P Hui (2024)	Metaverse Interoperability: A Digital Ecosystem Perspective Overview	168
X Wang, L Cai, Y Xu (2023)	A new media art creation mechanism that combines artificial intelligence and internet of things technology in a metaverse environment	181
Y Wang, L Wang, KL Siau (2024)	Human-Centered Interaction in Virtual Worlds: The New Era of Generative Artificial Intelligence and the Metaverse	433
X Wang, X Feng, J Zhao	Research on influencing factors and governance of the spread of disinformation on science and technology topics: an empirical study on the topic "metaverse"	622
Y Qian, J Wang, Y Cai (2023)	Revolutionizing the educational landscape: A systematic review of Metaverse applications, paradigms, and emerging technologies	266
X Feng, X Wang, Y Su (2024)	Analysis of the current status of metaverse research based on bibliometrics	3
J Leng, W Sha, B Wang, P Zheng, C Zhuang, Q Liu, T Wuest, D Mou, L Wong (2022)	Industry 5.0: Prospects and retrospections	584
Z Wei, Q Ge, X Jia, Y Zhang, MHan, X Chen (2023)	Metaverse Standardization: System Planning,Current Status and Prospects	539

Z Xu, G Chen, R Zhang (2024)	Boosters of the metaverse: a review of brain-computer based interfacesaugmented reality	629
ZS Chen, JY Chen, YH Chen, WPedrycz (2024)	Construction metaverses: Application frameworks and adoption barriers	244
A Zarifis, L Efthymiou, Cheng (2023)	Sustainable Digital Transformation in Finance, Tourism, Transportation, Entertainment and Social Innovation	866
Chen, Y Ye, M H Wen (2023)	Metaverse efficiency on improving green procurement policies in semiconductor supply chains – based on a behavioral perspective	830
N Xi, J Chen, F Gama, H Korkeila, J Hamari (2024)	Metaverse acceptance: a laboratory experimentabout augmented reality and virtual reality shopping	624
J Xu, PH Shi, X Chen (2024)	Exploring digital innovation in smart tourism destinations: insights from 31 major tourist cities in digital China	768
P Wu, D Chen, R Zhang (2024)	Prevalence of deep Metaverse topics and trendshealth services: Bibliometric analysis	50
ZS Chen, JQ Ruan (2024)	The metaverse healthcare supply chain: A frameworkconceptual and barrier identification	678
Y Geng, X Zhang, J Gao, YYan, L Chen (2024)	Bibliometric analysis of sustainable tourismusing CiteSpace	641
PK Chen, Y Ye, X Huang (2023)	Metaverse in the context of knowledge sharing and supply chain resilience: An empirical investigation of factors influencing adoption and acceptance	257
Z Zhou, Z Chen, XL Jin (2023)	Literature review on metaverse: definition,technology, and user behavior	840
S Chen, ICC Chan, S Xu, RLaw(2023)	Metaverse in tourism: drivers and barriers ofstakeholder point of view	309
Z Chen (2023)	Metaverse Office: Exploring the future of remote work models	96
X Cheng, S Zhang, S Fu, W Liu, CGuan (2022)	Exploring the metaverse in the digital economy: an overviewgeneral and research framework	296
J Sun, W Gan, Z Chen, J Li, PS Yu (2022)	Big data meetsmetaverse: A survey	652
M Guo, X Li, Y Wei (2024)	Bibliometric analysis of the art market: from art price efficiency in the market	362
A Bedard, Q Zhang (2023)	Building an Inclusive Metaverse: Opening the Door to a Brighter Digital Future	657
H Huang, Q Zhang, T Li, Q Yang, X Luo, Z Yin, J Wu, J Zhu, J Wu,, Z Zheng (2023)	How Economic Systems Enable the Metaverse: Circulation of Value in the Metaverse via Web3	834
N Singh, PK Panigrahi, Z Zhang, S Jasimmudin (2024)	Cyber-physical systems: bibliometric analysis of the literature	638

Y Zhang, Y Xie, L Li, Y Liang, H Yu (2024)	How does the public discussion reflected in the WeChat article differ from scientific research in China? An empirical study of the metaverse	129
Z Sun, R Zhang, X Zhu (2024)	Advances and trends in digital twin research over the past 20 years: A bibliometric-based visualization analysis	666
Z Xu, G Chen, R Zhang (2024)	Boosters of the metaverse: a review of augmented reality-based brain-computer interfaces	629
P Wu, D Chen, R Zhang (2024)	Prevalence of Metaverse topics and trends in healthcare: A bibliometric analysis	50
Y Geng, X Zhang, J Gao, Y Yan, L Chen (2024)	Bibliometric analysis of sustainable tourism using CiteSpace	641
J Zhang, Z Liu (2023)	The role of science fiction perceptions in innovators: integrating the theory of planned behavior and social support network theory	894
J Zhang, F Quoquab, J Mohammad (2024)	Metaverse tourism and Gen-Z and Gen- Y motivations: “will you travel virtually or not?”	461
H Huang, Q Zhang, T Li, Q Yang, Z Yin, J Wu (2022)	Economic systems in the metaverse: Basics, state-of-the-art, and challenges	823
Y El Archi, B Benbba (2024)	New Frontiers in Tourism and Hospitality Research: An Exploration of Current Trends and Future Opportunities	609
SE Lu, B Moyle, S Reid, E Yang, B Liu (2023)	Technology and museum visitor experiences: a four-stage evolutionary model	804
S Sun, D Nan, SP Che, JH Kim (2022)	Investigating the knowledge structure of research on massively multiplayer online role-playing games: A bibliometric analysis	31
Y Zhou, AN Ahmed (2023)	Cryptocurrencies and digital currencies based on blockchain-enabled IoT: a bibliometric literature review	615
M Guo, X Li, Y Wei (2024)	Bibliometric analysis of the art market: from art prices to market efficiency	362
Z Pan, J Yan, H Takeda, H Lu, S Liu, W Huang, J Mou (2024)	Data-and driven by management metaverse research	373
W Xia, Z Liu (2022)	User Experience Research in China: A 15-Year Bibliometric Analysis	59
X Liu (2022)	Application of the Metaverse in Ecological Education	616
HJM Kim, S Chakraborty (2024)	Exploring digital fashion diffusion and the role of social influencers in the Metaverse: a network analysis of Twitter hashtags	226
H Kim, H Lee (2023)	The performing arts metaverse: The effects of perceived distance and subjective experience	377
R Chengoden, N Victor, T Huynh-The, G Yenduri, H. Jhaveri (2023)	Metaverse for healthcare: a survey of potential applications, challenges, and future directions	401

Through the GS ranking, it can be seen from the author's contribution in producing articles each year. Based on the data collected, there are around 66 active writers. The table discussing writers who contribute articles each year by looking at the GS rating.

## 4.2 Analysis Quote

This citation analysis will help determine how many papers are cited and whether The paper is useful for other researchers. The number of researchers discussing creative space as the foundation of the metaverse continues to increase, especially in 2022, and is expected to continue to increase in the future.

**Table 6.** Top Authors and Articles Cited in Creative Space Publications in the Metaverse.

Writer's name	Publisher	City Frequency
J Leng, W Sha, B Wang, P Zheng, C Zhuang, Q Liu, T Wuest, D Mou, L Wong (2022)	Journal from Manufacturing System	413
A Tlili, R Huang, B Shehata, D Liu, J Zhao(2022)	cyberspace	376

Z Allam, A Sharifi, SE Bibri, DS Jones, J Krogstie L Ante (2023)	Smart City	335
AAlam, A Mohanty (2022)	The Economy of Innovation and New Technology	200
Z Liu, L Ren, C Xiao, K Zhang, P Demian (2022)	International Conference on Intelligence Innovation	146
F Yang, L Ren, C Gu (2022)	International Journal	96
AM Al-Ghaili, H Kasim, NM Al- Hada, ZB Hassan(2022)	Heliyon	80
MRH Polas, AA Jahanshahi, AI Kabir(2022)	IEEE	72
Y Chen, D Huang, Z Liu, M Osmani, P Demian (2022)	Open Innovation	66
MK AL-GNBRİ (2022)	Continuity	60
J Han, G Liu, Y Gao (2023)	Metaverse journal	40
B Crowell (2022)	Education Science	38
HE Zainab, NZ Bawany, J Imran, W Rehman (2022)	Linguistic and Philosophical Investigations	28
Partner S (2023)	IT Professional	26
X Hui, SH Raza, SW Khan, U Zaman, EC Ogadimma (2023)	Metaverse Journal	25
	Continuity	17

### 4.3 Analysis Bibliometrics

#### 4.3.1 Coauthoring Analysis

The results of the analysis show that there is collaboration between authors regarding creative space as the basis of the metaverse Wang collaborates with X Feng.

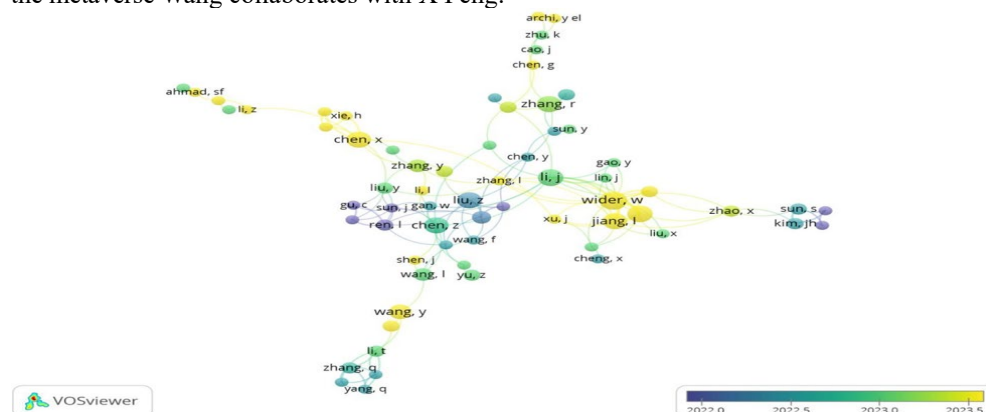


Figure 1. Author network

The authors' collaboration demonstrates a strong commitment to continuing research on creative spaces as a foundation for the metaverse. This is the name of the research conducted by the author of the study.

Table 7. Author collaboration

Writer	Title
X Wang, X Feng (2024)	Research on influencing factors and governance of the spread of disinformation on science and technology topics: an empirical study on the topic “metaverse” Analysis of the current state of metaverse research it is based on bibliometrics



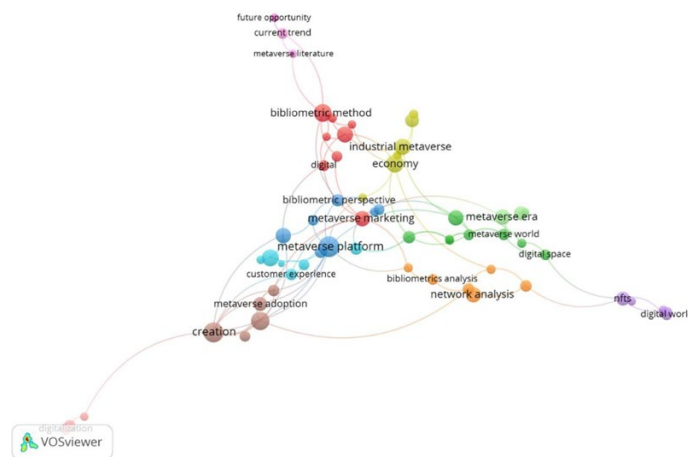
### 4.3.2 Analysis Visualization Network Bibliometrics

Based on the results of the analysis using VOS Viewer which carries out co-occurrence analysis, found 182 keywords related to metaverse as the New World of Marketing. To get more specific keywords, keyword frequency is limited to 3 occurrences. From these limitations, 63 keywords were obtained which were divided into 11 clusters.

**Table 8.** Bibliometric Network Visualization Analysis Results

Clusters	Say key
Cluster 1	Bibliometric methods, bibliometric techniques, digital, generative, artificial intelligence, imagination, metaverse marketing, new concepts, software
Cluster 2	Digital space, digital twin technology, economic activity, economic system, metaverse ecosystem, metaverse world, virtual environment, web3
Cluster 3	Bibliometric perspective, business models, digital era, edu metaverse, processes innovation, metaverse development, metaverse platform
Cluster 4	Bibliometric mapping analysis, economic growth, economy, reality expanded, industry metaverse, innovation activities, asset metaverse
Cluster 5	Creative industries, current state, digital world, future prospects, users metaverse, nfts
Cluster 6	Conceptual design, customer experience, digital innovation, innovation education, innovation theory, metaverse applications
Cluster 7	Bibliometric literature review, bibliometric analysis, behavior consumer, digital economy, iot, network analysis
Cluster 8	Bibliometric indicators, business model innovation, conceptual framework, creation, adoption of metaverse
Cluster 9	Current trends, future opportunities, metaverse literature, ongoing innovation
Cluster 10	Digitalization, meta, metaverse space
Cluster 11	Blockchain technology, metaverse era, metaverse perspective

The results of the Network Visualization Analysis show that there are still many small nodes that represent keywords obtained from an analysis. This visualization shows that there are still nodes with long reach or many are not yet connected. For example, the “Metaverse Perspective” node is not yet linked to “Metaverse Era” and the “digital world” node is not yet linked to “Metaverse Users”.

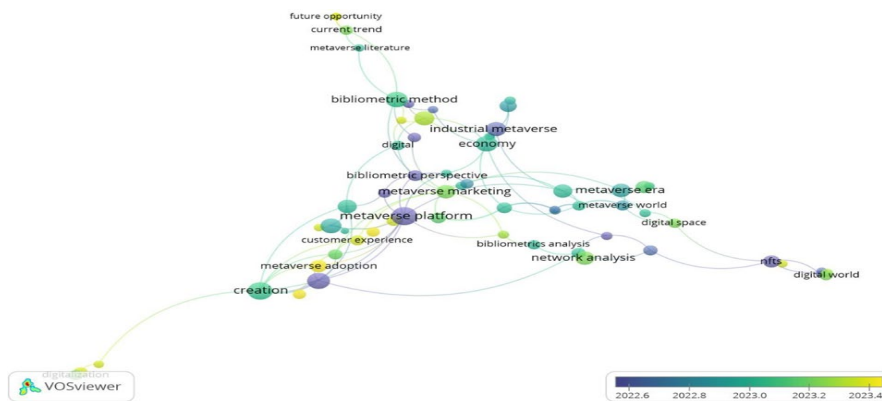


**Figure 2.** Network visualization in digital transformation publications

### 4.3.3 Analysis Visualization Overlays

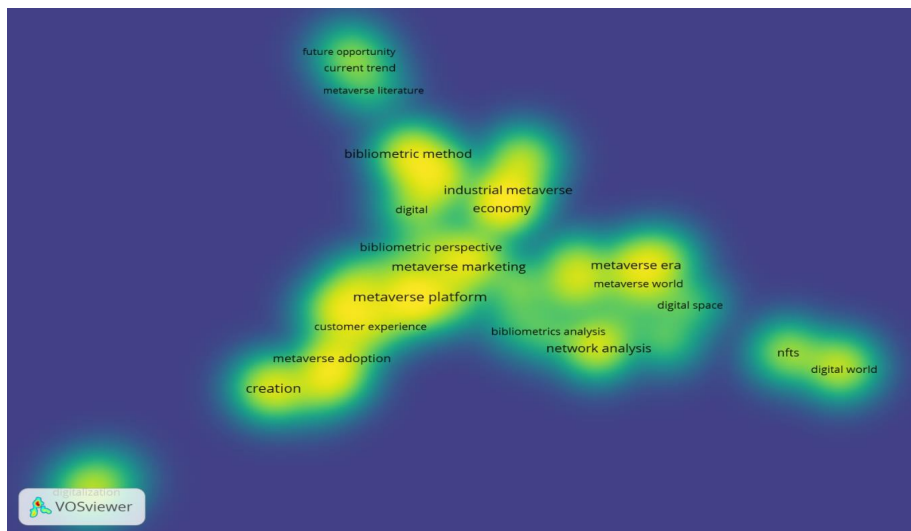
As a result of the visual analysis of the overlay, most of the themes have a blue node color. Most articles released in 2022 will also be blue. The results of this analysis show that topics related to creative space as the basis of the metaverse are the newest topics.

Based on the Overlay Visualization above, it can be concluded that the latest research is about creative space as the foundation of the metaverse. This finding is in line with previous findings which show that since 2017, this research has experienced a significant increase in the market.



**Figure 3.** Overlay Visualization on Digital Transformation Publications

#### 4.3.4 Analysis Visualization Density



**Figure 4.** Density Visualization in Digital Transformation Publications

According to Density Visualization Analysis, there is research on creative space as the foundation of the metaverse. This is indicated by the yellow focus in the Density Visualization output. Each variable usually has a lighter color. In other words, researchers have investigated this subtopic.

In addition, this confirms the results of the Network Visualization Analysis and Overlay Visualization Analysis. This visualization shows how important research on creative spaces is as a foundation for the metaverse; Based on these results, this research helps in developing information about creative spaces as the basis of the metaverse.

## 5 Conclusion

These variables or topics come from selected articles published during 2022–2024. Bibliometric analysis shows that in a marketing context, many people have not studied advertising materials. Researchers will then be given recommendations for conducting creative space research as a basis for the metaverse. Several themes are proposed to investigate the world of creative space as the foundation of the metaverse.



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