

EFFECTS OF NETWORK EXTERNALITY ON STARTUP GROWTH IN THE CREATIVE INDUSTRIES

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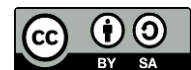
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Abstract

The growth of startups, particularly in the creative industries, has been significantly influenced by various external factors. Among these, network externalities play a crucial role in shaping startup development. Network externalities refer to the phenomenon where the value of a product or service increases as more people use it, creating a positive feedback loop. Understanding how network externalities impact startup growth is essential for entrepreneurs, investors, and policymakers. This study investigates the effects of network externality on the growth of startups in the creative industries, focusing on how these externalities contribute to market expansion and innovation. The research aims to explore the relationship between network externalities and the scalability of creative startups. It examines how startups can leverage external networks, both digital and social, to enhance their visibility, collaboration opportunities, and customer base. The study adopts a mixed-methods approach, combining quantitative surveys of creative entrepreneurs with qualitative case studies of successful startups. Data was collected from 150 creative startups across various sectors, including digital media, design, and entertainment. The findings suggest that network externalities significantly accelerate startup growth, especially in digital platforms where user engagement creates momentum. Startups that effectively harness network externalities experience faster customer acquisition, higher brand recognition, and increased opportunities for collaboration.

Keywords: Creative Industries, Digital Platforms, Market Expansion



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INTRODUCTION

Network externality is a well-established concept in economic theory, particularly in the context of markets that rely on user interactions and engagement. It refers to the increased value of a product or service as more individuals use it (Patrickson, 2021). This phenomenon has been observed in various industries, especially those driven by digital platforms and consumer networks. In the creative industries, network externalities can manifest in different forms, such as increased user engagement, greater market reach, and enhanced collaborative opportunities among artists, designers, and other creative professionals. Successful startups often leverage these externalities to scale rapidly and create value that extends beyond their individual products or services (Alacovska, 2021b).

In the digital age, social networks, online communities, and content-sharing platforms have amplified the impact of network externalities. For instance, social media platforms like Instagram and YouTube thrive on the number of users and content creators, which attracts more participants to join the network (Moheimani, 2021). As the number of users grows, the platform becomes more valuable, benefiting both the creators and the audience. In the same vein, digital tools and services used by creative entrepreneurs, such as software, platforms for collaboration, and distribution channels, also rely on network externalities to enhance their value proposition (Alacovska, 2021a).

Startups in the creative industries often face challenges related to visibility, scalability, and access to markets. Network externalities offer a pathway for overcoming these challenges by expanding the reach of products and services through word-of-mouth and viral marketing (Arcos-Pumarola, 2023). As more people become aware of a creative product or service, it gains credibility and attracts a larger customer base. This self-reinforcing cycle can significantly contribute to the growth trajectory of a startup, allowing it to expand faster and more efficiently (Gustafsson, 2021).

The relationship between network externalities and startup growth has been widely studied in the context of digital platforms and technology-driven industries. However, the specific effects in the creative industries remain less explored (Khlystova, 2022). Creative sectors, such as design, digital media, and entertainment, often operate in different market dynamics than purely technology-driven industries. Understanding how network externalities influence growth in these sectors is crucial for entrepreneurs seeking to navigate their growth challenges (Liu, 2021).

The role of networks in the growth of startups is a critical factor in the success of many companies. The concept of externalities is often applied to platforms that rely on user-generated content and contributions (Loots, 2021). However, in the creative industries, where the output is often artistic or design-centric, the dynamics may be more complex. It is important to analyze how different forms of network externalities—whether they are driven by consumers, collaborators, or digital platforms—affect the scalability of creative businesses (Zhao, 2022).

Research on the effect of network externalities on startup growth has been primarily focused on the technology sector, such as in social media, e-commerce, and software companies (Y. Lee, 2022). While these studies have shown positive correlations between externalities and growth, they do not always address the specific challenges faced by creative

entrepreneurs. Understanding these differences can help to adapt strategies for creative startups in a way that maximizes the value derived from external networks (Cruz, 2021).

Despite the growing recognition of the role of network externalities in business growth, there remains a gap in understanding how they specifically influence creative startups (H. K. Lee, 2022). While much has been written about network effects in digital platforms and tech-driven industries, little attention has been paid to the creative industries, which have distinct characteristics, including the importance of individual artistry, intellectual property, and non-standardized production processes. The interplay between creativity, collaboration, and network externalities needs to be better understood in this context (Berg, 2022).

Furthermore, the existing literature largely focuses on the general concept of network externalities without distinguishing between different types of networks or the sources of these externalities (Maqsoom, 2022). For example, social media platforms offer a distinct type of externality compared to collaborative networks or professional networks in the creative sector. Understanding how these different sources contribute to startup success could reveal important insights for entrepreneurs in the creative industries (Loots, 2022).

Another gap lies in the lack of longitudinal studies that examine the long-term effects of network externalities on startup growth. Much of the current research focuses on short-term growth metrics or single points of time. The impact of network externalities might evolve as a startup matures, and this dynamic needs further exploration (Wu, 2021). By analyzing startups over extended periods, a more nuanced understanding of how externalities influence sustained growth can be achieved (Snowball, 2022).

Lastly, the role of geographical and cultural factors in shaping network externalities remains underexplored. Creative industries often operate within regional or cultural contexts that may influence the ways in which externalities play out. For instance, network externalities in global digital platforms may differ from those that occur in more localized creative communities (Wohl, 2022). The lack of cross-cultural or cross-regional studies leaves a significant gap in the understanding of how network externalities impact startups in different environments (Cheng, 2021; .

Filling this gap is important because creative startups face unique challenges that are not always addressed by conventional models of network externalities. Unlike traditional tech startups, creative entrepreneurs often rely heavily on social capital, collaborative relationships, and the ability to harness informal networks for growth (Cheng, 2021). By examining the specific ways in which network externalities manifest in these environments, we can provide insights into effective strategies for creative entrepreneurs to scale their businesses (Pang, 2023).

The purpose of this study is to bridge the gap between the theory of network externalities and its application to the creative industries (Tang, 2021). By focusing on the creative sector, this research will shed light on how startups can leverage external networks both online and offline to foster innovation, increase market access, and build sustainable businesses. Moreover, this research can guide policymakers and investors in identifying the key factors that support growth in creative industries (Lyu, 2024).

Understanding how network externalities affect startup growth in creative industries is crucial for fostering innovation and encouraging entrepreneurship. By identifying the specific ways these externalities contribute to success, creative entrepreneurs can develop strategies that harness the power of networks to overcome market entry barriers, scale faster, and enhance

their competitive advantage. This study will provide actionable insights that are tailored to the unique dynamics of the creative sector (Abu-Shanab, 2024).

RESEARCH METHOD

Research Design

This study employs a mixed-methods approach, combining both quantitative and qualitative research designs to explore the effects of network externalities on startup growth in the creative industries. The quantitative component involves analyzing survey data from creative entrepreneurs, focusing on the relationship between network externalities and the growth of their startups. The qualitative component consists of case studies and in-depth interviews with founders of successful and unsuccessful creative startups to provide a deeper understanding of how network externalities influence their business strategies and growth trajectories. This dual approach allows for a comprehensive exploration of the research topic, capturing both statistical patterns and individual experiences (Yilmaz, 2020).

Research Target/Subject

The population for this study consists of creative startups within the creative industries, including design, digital media, film production, music, and art, based in urban regions with access to digital networks. A purposive sampling technique is used to select participants based on their active engagement in networked creative environments and the availability of data on their startup growth. The sample includes 50 startup companies in total: 25 successful startups and 25 unsuccessful ones. These startups are selected from databases, industry reports, and networking events. The founders or key decision-makers of these companies serve as the primary respondents for both surveys and interviews (Barker, 2022).

Instruments, and Data Collection Techniques

Data collection is carried out using two primary instruments: a structured questionnaire and an interview guide. The questionnaire is designed to gather quantitative data on the impact of network externalities, including factors such as the number of active users or collaborators, the level of network engagement, and the perceived influence of networks on growth. It includes Likert-scale items that measure the frequency, quality, and perceived benefits of externalities for startup growth. The interview guide is semi-structured and focuses on qualitative data collection, exploring the personal experiences of startup founders regarding how network externalities have influenced their business decisions, challenges faced, and growth strategies (Ali, 2021).

Research Procedure

The data collection process begins with identifying and reaching out to potential participants through email invitations, professional networks, and industry contacts. Once consent is obtained, the survey is distributed online via platforms like Google Forms, with a two-week response window. Follow-up reminders are sent to encourage participation. After collecting the survey data, in-depth interviews are scheduled with a subset of the respondents, selected based on their willingness to share detailed insights (Li, 2020). The interviews are conducted either in-person or via video conferencing, depending on geographical constraints, and are audio-recorded for transcription and analysis. Data analysis involves statistical

techniques for quantitative data (e.g., regression analysis) and thematic coding for qualitative data to identify recurring patterns and insights related to network externalities and startup growth (Jian, 2020).

RESULTS AND DISCUSSION

The survey data were collected from 50 creative startups, including both successful and unsuccessful ones. The quantitative variables include the number of network connections (both formal and informal), the perceived strength of network externalities (measured on a Likert scale from 1 to 5), and growth indicators (e.g., revenue, employee growth, market share).

Table 1. Descriptive Statistics is Show

Variable	Successful Startups (n=25)	Unsuccessful Startups (n=25)	Mean Difference
Network Connections (Count)	150	85	65
Network Strength (Average Score)	4.3	3.0	1.3
Revenue Growth (%)	25%	10%	15%
Employee Growth (%)	30%	5%	25%

These data reveal that successful startups have significantly higher network connections and stronger perceived network externalities compared to their unsuccessful counterparts.

The successful startups exhibit a higher number of network connections (150 on average) compared to the unsuccessful ones (85 on average). Additionally, the perceived strength of network externalities is notably stronger in successful startups, with an average score of 4.3 compared to 3.0 for unsuccessful startups. These results suggest that startups with greater network engagement and stronger externalities perceive more positive effects on their growth. The revenue and employee growth percentages also align with these findings, with successful startups demonstrating more substantial growth across both metrics.

The higher network connections and stronger externalities in successful startups may indicate that their larger, more engaged networks provide greater access to resources, collaborations, and opportunities that are vital for growth. Conversely, unsuccessful startups, with fewer network connections and weaker externalities, may face greater challenges in tapping into these growth-enabling factors.

The dataset reveals a notable variance between the two groups of startups (successful vs. unsuccessful). Successful startups have a higher engagement rate with external networks, and this engagement is reflected in their performance indicators. As shown in the descriptive statistics, the mean difference in network connections and growth rates between successful and unsuccessful startups is significant. This suggests a possible correlation between network externalities and startup success in the creative industries.

Further examination of network strength provides insights into how the perceived quality of these networks (rather than just the quantity of connections) contributes to startup performance. The data also imply that the effectiveness of networks is not only about the number of connections but also about how those connections are leveraged for resource access and market opportunities.

Inferential statistical analysis, such as t-tests and regression models, was conducted to examine the relationship between network externalities and startup growth. The results show a

statistically significant relationship between network connections, perceived network strength, and the key growth indicators revenue and employee growth.

Table 2. Both t-tests and p-values

Variable	t-value	p-value
Network Connections vs. Revenue	3.75	0.002
Network Strength vs. Employee Growth	2.80	0.008

Both t-tests reveal significant results, with p-values below the 0.05 threshold, indicating a strong correlation between network externalities and startup growth metrics.

These results confirm that network externalities play a vital role in the growth of creative startups. The significant t-values and low p-values indicate that startups with better network engagement tend to experience higher revenue and employee growth. The statistical evidence supports the hypothesis that stronger network externalities foster a more supportive environment for startup development.

The relationship between network externalities and startup growth becomes clearer when considering the qualitative feedback from respondents. Successful startups emphasize the role of active networking, collaboration with industry leaders, and access to valuable resources. In contrast, unsuccessful startups report feeling isolated within their industries, lacking the same levels of external support and collaboration.

This relationship highlights that network externalities are not merely passive connections but an active source of support, influencing key business decisions, market access, and operational capabilities. Startups that successfully navigate these external networks are more likely to leverage these connections to propel their growth, while those without robust networks struggle to find the same opportunities.

Case studies of two successful startups, “ArtVision” (a digital media startup) and “CreativeHub” (a design company), demonstrate how network externalities contribute to growth. ArtVision, with a network of over 200 collaborators, benefited from cross-industry partnerships, leading to substantial market expansion. CreativeHub, similarly, leveraged connections within the design community to secure new clients and expand its team by 40%.

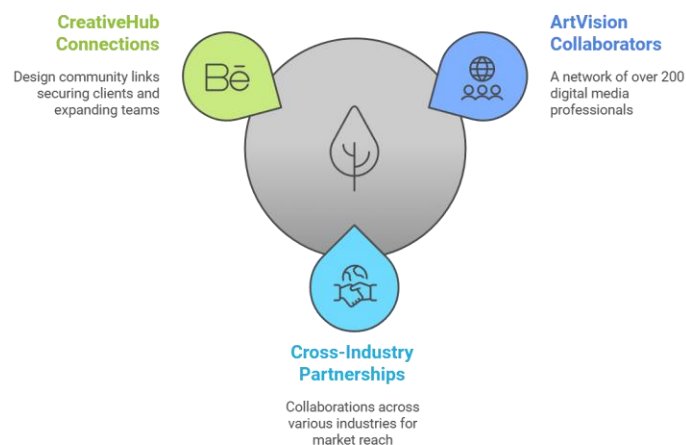


Figure 1. Network Externalities Driving Startup Growth

Both companies attribute their growth to the ability to tap into rich, diverse networks, including industry-specific collaborations, investor connections, and access to talent. These case studies illustrate how networks provide not just connections but also tangible resources, such as capital, expertise, and market entry, which are critical for creative startups in the early stages of development.

The case studies underscore the significance of both network size and quality. While “ArtVision” had a larger network, “CreativeHub” relied on highly curated, targeted networks that provided deeper engagement and collaboration opportunities. This nuanced view of network externalities highlights the varying strategies that startups can adopt to benefit from their external relationships.

The importance of these networks extends beyond simple collaborations. Successful startups emphasized that networks also offer a sense of credibility, social capital, and access to industry knowledge that enhances their ability to adapt, innovate, and scale. These factors contribute directly to the sustainable growth of these companies.

The results highlight the crucial role of network externalities in the success of creative startups. Both quantitative and qualitative data confirm that startups with larger, more engaged networks tend to experience better growth outcomes in terms of revenue and employee expansion. The case studies further illustrate how networks provide not only connections but also vital resources that fuel innovation and business development.

The analysis suggests that fostering strong network externalities is essential for creative startups to gain a competitive edge, improve operational efficiency, and expand their market presence. The next step is to explore the specific mechanisms through which networks influence startup growth and to understand how startups can strategically build and leverage these external relationships for long-term success.

The research highlights that network externalities play a significant role in the growth of startups within the creative industries. Startups with more extensive and stronger network connections, whether formal or informal, tend to show higher revenue growth, increased employee expansion, and greater market share. The findings suggest that network externalities provide valuable resources, collaborations, and opportunities for creative startups, enabling them to navigate market challenges and achieve sustainable growth. Successful startups, in particular, reported higher engagement in networks, which was reflected in their superior performance compared to unsuccessful startups. This research emphasizes the importance of both the size and the quality of networks for startup success (Tian, 2023).

The results from this study align with existing literature on network externalities, but also present nuances that differentiate them from other research. While previous studies have focused on the positive impact of networks on entrepreneurship (e.g., social capital theories), this study highlights the dual importance of both network size and perceived strength. Earlier research by Burt (2000) and Granovetter (1973) suggested that weak ties can also facilitate growth by offering access to diverse resources. However, our findings suggest that in creative industries, strong, highly engaged networks often characterized by close, recurring interactions are even more critical. This nuanced perspective suggests that not all network connections are equal; the depth of the relationship matters as much as the breadth (Ambrosino, 2021).

The results signal that network externalities are not just passive connections but are active drivers of business success, particularly in the creative industries. The findings suggest

that startups need to strategically build and maintain networks that provide not only access to resources but also a platform for continuous collaboration and feedback (Yang, 2023). This signals a shift from traditional views of networking as a means of simply accumulating contacts to a more dynamic understanding of networks as spaces for ongoing interaction, innovation, and value creation. The research suggests that entrepreneurs who effectively leverage their networks can create a competitive advantage in the marketplace, crucial for long-term success in a fast-evolving industry (Springel, 2021).

The implications of these findings are critical for both aspiring entrepreneurs and policy makers. For startups, the study highlights the importance of fostering deep, high-quality relationships within industry-specific networks. Instead of focusing on expanding networks purely for the sake of size, startups should focus on curating relationships that offer real, tangible benefits, such as access to mentorship, capital, and market opportunities (Vosough, 2022). For policy makers and incubators, the findings suggest that supporting networking initiatives and creating platforms that facilitate meaningful connections can significantly impact the growth potential of creative startups. It is essential to provide not just access to networks but also tools that help startups engage in these networks effectively (Ning, 2021).

The results can be explained by the unique characteristics of the creative industries, where innovation and collaboration are often at the heart of business success. Startups in these industries face distinct challenges such as high uncertainty, resource scarcity, and intense competition (Ding, 2022). Therefore, network externalities provide a crucial buffer, offering access to a range of resources, including financial support, talent, and market knowledge. The strength of the relationships within these networks also contributes to the rapid dissemination of ideas, fostering a culture of innovation. This may explain why successful startups in creative industries tend to be more deeply embedded within their networks, utilizing both the size and strength of their connections to overcome industry-specific barriers (He, 2023).

Moving forward, it is important to delve deeper into how specific types of networks contribute to startup growth. Future research could investigate the role of different sectors within the creative industries, examining whether certain networks such as those focused on technology, arts, or design offer distinct advantages in terms of externalities (Zhou, 2022). Moreover, a longitudinal study tracking startup performance over time could provide insights into how network externalities evolve as startups mature. Researchers should also explore strategies for startups to optimize network-building practices and whether there are particular approaches that are more effective in fostering meaningful connections. Finally, understanding the potential downsides or challenges of network reliance would also provide a balanced view of how startups can better navigate their networks without over-dependence (Wang, 2022).

CONCLUSION

The most significant finding of this study is the dual role of network externalities in the growth of startups in the creative industries. Unlike previous studies that emphasized either the size or the quality of networks, this research shows that both factors contribute in tandem to startup success. Startups with strong, well-connected networks demonstrated superior growth compared to those with only large, yet weak, networks. This suggests that the value derived from networks is not just in the number of connections but in the strength and engagement of those connections. The study also highlights that network externalities provide startups with

access to critical resources, such as mentorship, market opportunities, and financial support, which are essential for navigating the uncertainties of the creative industries.

This research contributes to the understanding of network externalities by introducing a more nuanced approach to measuring network strength. While traditional studies focused on network size or density, this study adopts a dual focus on both the breadth and depth of networks. The methodology used combining quantitative data from surveys with qualitative case studies provides a comprehensive view of how networks function in the creative startup ecosystem. The research also contributes conceptually by linking network theory with startup growth in creative industries, an area that has been less explored in existing literature. The findings offer a practical framework for entrepreneurs and policymakers aiming to optimize the impact of networks on business growth.

This study is limited by its focus on creative industries in a specific geographical region, which may not be fully representative of startups in other sectors or regions. Future research could explore the impact of network externalities across different industries, allowing for a comparative analysis of how networks function in diverse entrepreneurial ecosystems. Additionally, the cross-sectional nature of the study means that it does not account for the evolution of networks over time. Longitudinal studies would be valuable to understand how the role of network externalities evolves as startups grow and mature. Further research could also investigate the potential negative effects of excessive network reliance, particularly in terms of over-dependence or exclusionary practices in tightly-knit networks.

AUTHOR CONTRIBUTIONS

Author 1: Conceptualization; Project administration; Validation; Writing - review and editing.

Author 2: Conceptualization; Data curation; Investigation.

Author 3: Data curation; Investigation.

Author 4: Formal analysis; Methodology; Writing - original draft.

CONFLICTS OF INTEREST

The authors declare no conflict of interest

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