

# Developing a Business Ecosystem for the Creative Culinary Economy in Sukabumi

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Article Info	ABSTRACT
<p><b>Article history:</b></p> <p>Received Jul, 2025 Revised Aug, 2025 Accepted Aug, 2025</p> <hr/> <p><b>Keywords:</b></p> <p>Business Ecosystem; Creative Economy; Culinary Sector; Digital Architecture</p>	<p>The culinary industry, as a creative sector of the economy, plays a crucial role in building local economic resilience in Sukabumi City. While it carries great potential, this industry is hampered by continuing issues such as fragmented actor relationships, undeveloped digital infrastructure, a lack of institutional support, and an underdeveloped business ecosystem. This research aims to develop business ecosystem architecture that enables the establishment of an inclusive sustainable food industry through a five-step descriptive qualitative approach: (1) boundary delineation of ecosystems, (2) value mapping of actor roles, (3) value proposition, (4) analysis of interactions, and (5) verification of architecture. Data were collected through in-depth interviews and document review of government, culinary entrepreneur, academic, media, and community stakeholders via the Penta Helix framework. Results show that the existing ecosystem remains structurally uncoordinated and functionally inefficient, particularly in terms of data integration, funding avenues, and service accessibility. Applying the five-step model—establishing ecosystem boundaries, mapping actor roles, value propositions, interaction analysis, and architecture verification—a digitally integrated ecosystem design is proposed in this research. The design emphasizes collaborative governance, digital transformation, and actor orchestration to facilitate effective mobilization of resources, information exchange, and co-creation of value. The results contribute to the literature in business ecosystem models and provide local governments, as well as stakeholders, with practical recommendations for strengthening the culinary creative economy industry.</p> <p><i>This is an open access article under the <a href="#">CC BY-SA</a> license.</i></p> <div></div>

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## 1. INTRODUCTION

The international development context of the creative economy means that the industry has become a prominent driver of modern economic transformation. The

creative economy produces values through innovation and creativity and is a strategic sector in generating employment opportunities as well as national competitiveness [1]. The industry is growing

hugely with advancements in digital technology, which expands market access using digital mediums like e-commerce, social media, and more [2]–[4]. On the global scale, the share of GDP generated by the creative economy is significant, such as in the United Kingdom, South Korea, Brazil, and Russia [5]–[7]. In Indonesia, the culinary, fashion, crafts, and digital application sub-sectors are competitive and high export value [8], [9]. Nevertheless, a variety of challenges such as low digital literacy levels, inadequate protection of intellectual property rights, and limited access to finance continue to limit the development of this sector [10]–[12].

At the level of the nation, the creative economy has received institutional and regulatory support, including the enactment of Law No. 24 of 2019 on the Creative Economy, which establishes the industry as a mainstay of intellectual property-driven growth. Statistics published by Bekraf and the Ministry of Tourism and Creative Economy indicate that the share of the creative economy in the GDP of Indonesia is above 7%, with an export value of USD 12.36 billion for the first half of 2024. The food and beverage sector has the highest contribution to the GDP of the non-oil and gas manufacturing industry, at Rp1.24 quadrillion (BPS, 2025). However, digital adoption constraints, protection of intellectual property rights, and market access are major challenges, particularly for small and medium enterprises [13]–[15]. These are more pronounced in the city regions, like Sukabumi City, which while having significant potential within the food sector, has been facing stagnant growth in MSMEs and weak coordination of creative ecosystem actors [16], [17].

For Sukabumi City, the food industry is a highly potential creative economy sub-

sector but hasn't developed to its full potential due to the absence of a well-built and sustainable business ecosystem architecture. The number of culinary firms grew in 2024, but district changes indicate the absence of stability that supports long-term expansion (Sukabumi City BPS, 2025). Despite Sukabumi City's registration of tourist arrivals growth and tremendous market potential, structural problems such as weak intellectual property rights protection, digital divides, and limited stakeholder cooperation still greatly limit the development of the culinary sector [18], [19]. Previous studies have been dominated by sectoral or subsector single issues without taking into account the importance of overall business ecosystem development. Therefore, this study tries to bridge this gap by developing a business ecosystem framework that can support the creativity culinary industry to survive in Sukabumi City by integrating institutional, digital, funding, and actor collaboration [20]–[23].

This research aligns with Sukabumi City's Long-Term Development Plan (RPJPD) 2025–2045 to strengthen regional competitiveness, expand job opportunities, and develop priority sectors based on local potential, for instance, the culinary sector. From a perspective of digital business ecosystem through collaboration among different stakeholders (penta helix), the research aligns with the vision of establishing Sukabumi City as a sustainable, inclusive, and highly competitive city. This is also aligned with the Indonesia Emas 2045 Vision and the West Java 2045 Vision, where Sukabumi City has set its vision as “Sukabumi: Creative, Excellent, Cultured, and Sustainable City” for the next two decades as a shared development direction.



Figure 1. Vision Sukabumi City

This study reinforces the long-term development path of Sukabumi City toward its vision of becoming a “Creative, Excellent, Cultured, and Sustainable City” by 2045 by positioning the culinary business as a strategic pillar in job creation, local cultural identity, and inclusive economic development within the context of limited natural resources. Through a collaborative penta helix framework for a digital business ecosystem involving the government, academia, businesses, the community, and the media, the development of this sector is projected to support indicators of the Regional Medium-Term Development Plan (RPJMD), such as growth in the Gross Regional Domestic Product (GRDP) in the accommodation and food services sector, entrepreneurship development, and a reduction in the unemployment rate. However, the food and beverage sector in Sukabumi City still faces many structural challenges, such as limited access to capital, low stakeholder collaboration, and weak digital infrastructure, thereby requiring an enhanced integrated ecosystem strategy. This study aims to identify Sukabumi through five main steps: mapping ecosystem boundaries, identifying actors and roles, analyzing value propositions, analyzing interactions between actors, and verifying the ecosystem architecture design.

## 2. LITERATURE REVIEW

### 2.1 Business Ecosystem and Ecosystem Architecture

The business ecosystem theory borrows from the biological theory surrounding communities of living organisms and their environment [24], and [25] had adapted this to the managerial context as an economic community with linked firms and individuals collaborating to create value. This network comprises actors such as producers, competitors, suppliers, and consumers [26], [27], and has been of different forms such as entrepreneurial ecosystems [28], innovation ecosystems [29], and knowledge ecosystems [30]. Innovation focuses on collective value propositions [31], [32], while entrepreneurship is concerned with regional dynamics and institutional capacity [33], [34]. One feature of business ecosystems is mutualistic relationships in the absence of a single hierarchical structure [27], [35]. Its form is realized through a business ecosystem architecture approach that maps components, value streams, and stakeholder interactions [36], supported by multilayer network (MLN) models and simulations for verification of dynamics

and sensitivity to environmental change [37], [38].

## 2.2 The Penta Helix Approach

The Penta Helix is a collaborative approach that has five strategic elements: government, business, academia, community, and media [39]. It emerged from the Triple Helix by integrating social and communication elements to promote innovation and inclusive and sustainable development [40]. In creative economy, it supports role distribution and synergistic sharing of knowledge between stakeholders [41]. The government is a regulator facilitator; the businesses as value creators and innovators; academics as knowledge providers; communities as local participation promoters; and media as public visibility facilitators [42], [43]. This model is effectively applied in the development of the tourism, transportation, and food industries in various regions of Indonesia [44], [45], and supports the SDGs agenda. Penta Helix also facilitates an innovation ecosystem responsive to technological and societal changes [46], [47], and local competitiveness through research, digital storytelling, and citizen empowerment [48], [49]. In the food sector, the model is a strategic instrument for planning a collaborative ecosystem of locality and sustainable added value.

## 2.3 Previous Research

Previous studies on business ecosystem architecture are scarce, especially in the creative economy and local settings such as in Sukabumi City. [36] and [50] suggested a five-step method for designing business ecosystems, including identifying actors, roles, interactions, and value flows. Conversely, [51] and [52] emphasize the requirement of taxonomy and ecosystem identity as primary conceptual drivers in digital platform ecosystem formation. Further evidence shows the importance of systemic modeling [53], [54] and co-literate literacy [55] for advancing orchestration of digital transformation

[56] In a bibliometric study, [57] revealed that business ecosystem research is still dominated by qualitative studies and fails to discuss the adaptive change dynamics. This study will, therefore, attempt to add to the agenda by synthesizing the penta helix approach and business ecosystem architecture within the food sector in developing nations to relieve theoretical and pragmatic gaps on cross-sector collaboration in designing resilient and competitive business ecosystems.

## 2.4 Conceptual Framework

This study uses a systematic approach constructed by Ma et al. (2021), consisting of five steps: (1) identification of business ecosystem boundaries; (2) identification of actors and roles; (3) value proposition; (4) relationships among actors; and (5) verification of ecosystem architecture design. This model is found applicable to the open, collaborative, and dynamic food industry and aligned with the Penta Helix approach that embodies the role of five strategic players in a holistic and integrative manner [58]. By adopting this approach, the research aims to create a culinary sector business ecosystem map in Sukabumi City that reflects the dynamics of actors, value flows, and forms of adaptive collaborative interactions. It also serves to integrate innovation and digitalization for strengthening the resilience and competitiveness of the culinary ecosystem in a sustainable manner within the creative economy of the city.

# 3. METHODOLOGY

## 3.1 Research Design

The study utilized qualitative descriptive research in highlighting describing and understanding the architecture and dynamics of Sukabumi City's culinary business ecosystem. The primary areas of interest of the research include establishing the boundary of an ecosystem, actors and roles, value propositions, relationships among actors, and collaboration-based business

ecosystem architecture design. Sukabumi City, West Java, was selected as the location for the study through purposive sampling due to its high potential in the food sector to trigger local creative economic growth and regional policy involvement and cross-sector players. The informants of the current study are stakeholders of the culinary ecosystem chain, including local government officials, owners of culinary businesses, local culinary communities, academia, local media, and local financial institutions (Perumda BPR).

### 3.2 Data Collection Techniques

Two major data collection methods were employed: in-depth interviews and document studies. The interviews were conducted in a structured manner to obtain contextualized understanding of the actors' role, interaction, and experience within the culinary business system, i.e., Sukabumi City Youth, Sports, and Tourism Office officials, Perumda BPR Sukabumi City, Sagara Culinary Community, InfoSMI Media, and Nusa Putra University professors. Informants were selected using purposive sampling based on their direct involvement in the cultivation of the culinary and creative economy sector in Sukabumi.

Document research was conducted to support and strengthen field data, including local regulations such as Regional Regulation No. 65 of 2020 on the Organizational Structure and Workflow of the Youth, Sports, and Tourism Office (Diskumindag), Regional Regulation No. 66 of 2020 on the Organizational Structure and Workflow of the Youth, Sports, and Tourism Office (Disporapar), Regional Regulation No. 61 of 2020 on the Organizational Structure and Workflow of the Youth, Sports, and Tourism Office (Dkp3), Regional Regulation No. 67 of 2020 on the Organizational Structure of the (Dpmpstsp), and the Regulation of the Mayor of Sukabumi No. 15 of 2023 on the Provisions for the Income of the

Supervisory Board and Directors of the Perumda BPR City of Sukabumi. Moreover, documentation is comprised of institutional records, statistics, and relating activity reports.

### 3.3 Data Analysis Techniques

Data analysis was done during data reduction, data presentation, and conclusion drawing. All interview data were word-for-word transcribed and analyzed in a thematic manner using the Miles and Huberman (1994) method, which includes pattern, relationship, and meaning establishment from the informant's narrative. Secondly, the data are categorized based on five dimensions of business ecosystem architecture: ecosystem boundaries, actors and roles, value propositions, forms of interaction, and visual design of the ecosystem. The data are also tested through source and method triangulation by confirming interview findings and documentation and conducting verification with key informants.

## 4. RESULTS AND DISCUSSION

### 4.1 Identification of Ecosystem Boundaries

Defining ecosystem boundaries is a good step towards creating a culinary business system architecture for Sukabumi City. Not only does this tracing of geographical coverage identify the geographical boundaries, but it also encompasses knowledge of the dynamics of the interactions between the stakeholders within a complex framework. The five broad boundaries discussed—geographical, sectoral, social and community, digital and technological, and regulatory and institutional—are the frameworks that influence the manner in which the ecosystem functions. Geographical boundaries, for example, do not limit to administrative areas but extend operatively, such as Ayam Bunut, extending to customers outside the city, or Sagara community that includes members from outside the area. It shows

that business activities follow social networks, value chains, and virtual connections rather than formal boundaries. Sectoral boundaries, however, illustrate weak connections between companies and support sectors such as finance, education, media, and technology. Social and community boundaries accordingly mirror the absence of institutional provisions for collaboration and teamwork and collective innovation, whereas existing interactions remain localized and informal. At the technology level, there still remains a broad deficit in digital take-up despite cautious literacy efforts by scholars and the media. Institutional and regulation barriers also mirror policy fragmentation preventing access to services from institutional breakdown.

#### **4.2 Identification of Actors and Their Roles within the Ecosystem**

Setting up a food business ecosystem in Sukabumi City involves various actors in a penta helix structure—government, business players, academics, people, and media—and includes financial institutions as strategic allies. Government and technical entities such as Disporapar, Diskumindag, Dpmpstsp, and Dkp3 act as policymakers, facilitators of programs, and cross-sectoral synergy drivers through training, promotion, legalization, and value chain strengthening. Business players such as Ayam Bunut are lead value producers who also utilize the use of public services for digital adaptation and business innovation. Partners and suppliers such as local farmers provide raw materials, though their availability is uncertain. Perumda BPR provides microfinance and financial education to non-bankable enterprises. Scholars such as Universitas Nusa Putra conduct training, research, and policy recommendations. Community such as Sagara Inovasi strengthens solidarity and disseminates programs, while media such as InfoSMI enable promotion and shape public

perception. All the players complement each other in a dynamic and sustainability-driven collective process.

1. The Sukabumi City Government sets policy directions and encourages cross-sector collaboration to strengthen the culinary ecosystem.
2. The Sukabumi City Youth, Sports, and Tourism Office promotes culinary tourism, organizes training, and facilitates events and MSME bazaars.
3. The Sukabumi City Cooperative, Micro Business, Industry, and Trade Office provides entrepreneurship training, legal assistance, halal certification, and distribution support for culinary products.
4. The Food Security, Agriculture, and Fisheries Agency of Sukabumi City is mentoring farmers and fishermen to ensure a sustainable supply of culinary ingredients.
5. The Investment and One-Stop Integrated Service Agency of Sukabumi City provides business licensing services and issues Business Identification Numbers through the OSS system.
6. Academics contribute through applied research, training, MSME mentoring, and policy development support.
7. Culinary Communities strengthen solidarity among actors, disseminate information, and organize collective activities.
8. Media promotes culinary MSMEs, shapes public opinion, and serves as a channel of communication between actors.
9. Culinary Business Actors are the main producers, innovate in their businesses, and utilize programs and services from various parties.
10. Sukabumi City Regional Credit Bank provides microfinance, People's Business Credit programs, and financial literacy education.

11. Business Partners provide technical support such as packaging design services, logistics services, payment technology, and digital promotion.
12. Raw Material Suppliers such as farmers, fishermen, and livestock farmers provide high-quality and sustainable local raw materials.
13. Consumers provide feedback on product quality, build market loyalty, and strengthen the existence of local cuisine.

#### **4.3 Identification of Actor Value Propositions**

Each actor in the culinary business ecosystem of Sukabumi City has a complementary value proposition, starting from the City Government and technical agencies that provide regulations, training, legalities, and access to financing through Perumda BPR, to business actors who create product and service innovations. Suppliers and business partners ensure smooth supply chains and support technology and promotion, while academics provide research-based guidance, and communities strengthen collaborative networks among stakeholders. Local media also expand exposure and build a positive image for local cuisine. This collaboration of values strengthens an inclusive, adaptive, and sustainable culinary ecosystem.

1. Sukabumi City Government: Directing policies, coordinating across agencies, and building infrastructure to support a collaborative ecosystem.
2. The Sukabumi City Youth, Sports, and Tourism Office: Conducting digital marketing training, promotion through events, and strengthening local culinary branding.
3. The Sukabumi City Cooperative, Micro Business, Industry, and Trade Office: Supporting legality, certification, entrepreneurship training, and trade access.

4. The Food Security, Agriculture, and Fisheries Agency of Sukabumi City: Fostering farmers/fishermen, maintaining raw material quality, and providing food safety education.
5. The Investment and One-Stop Integrated Service Agency of Sukabumi City: Simplifying licensing and encouraging business formalization through OSS.
6. Academics: Providing research, training, SME mentoring, and data-driven policy contributions.
7. Culinary Community: Promoting solidarity, collective promotion, and program information distribution.
8. Media: Enhancing product visibility, digital promotion, and building SME narratives.
9. Culinary Business Actors: Providing innovative products, superior services, and technology adaptation in the culinary business.
10. Perumda BPR Kota Sukabumi: Providing microfinance, financial literacy, and inclusive access for business actors.
11. Business Partners: Providing technology services, packaging, logistics, and digital payment systems.
12. Raw Material Suppliers: Ensuring quality supply and supporting business cost efficiency.
13. Consumers: Benefit from products and drive the market through preferences and loyalty.

#### **4.4 Identification of Value Proposition**

Interactions between actors in Sukabumi's culinary business ecosystem form interconnected and dynamic value streams. The government, businesses, communities, media, academics, and financial institutions exchange contributions through five main streams: goods/services (orange), Monetary Value (pink), Information (blue), Data (green), and Intangible Value (gray). These color codes help map the functions and contributions of each actor in creating

shared value (value co-creation) for the sustainable strengthening of the ecosystem.

Table 1. Interaction Actor

From Actor/Object	Role	Interaction Content	Type	Code	Role (To)	To Actor/Object
1. Sukabumi City Government	Policy Director	Establish strategic direction and policies for the development of the creative economy.	Services	1A	Executor of Creative Economy Regulations, Facilities, and Training	Disporapar
		Establish strategic directions and policies, especially for coaching and mentoring MSMEs.	Services	1B	Executor of Regulation, Assistance, and Coaching of MSMEs	Diskumindag
		Set strategic direction and policies for food security.	Services	1C	Implementation of Food Security and Quality Regulations	DKP3
		Setting strategic directions and policies for legality and business licenses	Services	1D	Executor of Legality and Business License Regulations	Dpmptsp
		Set strategic direction and policies for MSME capital.	Services	1E	MSME Financial Capital Provider and Inclusion	Perumda BPR



From Actor/Object	Role	Interaction Content	Type	Code	Role (To)	To Actor/Object
2. Disporapar	Executor of Creative Economy Regulations, Facilities and Training	Facilitate IPR issuance, and support compliance with local regulations.	Services	2A	Culinary Business Implementer	Business
		Organizing training, mentoring, business incubation, culinary festivals.	Services	2B	Culinary Business Organizer	Business
		Manage a database of culinary business actors.	Data	2C	Culinary Business Executive	Business
		Local culinary branding and promotion campaign.	Intangible Value	2D	Culinary Business Organizer	Business
3. Diskuminda g	Regulatory Implementation, Assistance and Guidance for MSMEs	Technical assistance and coaching on business license, halal, BPOM.	Services	3A	Culinary Business Implementer	Business
		Guidance on packaging, labeling, and product quality.	Services	3B	Culinary Business Executive	Business
4. Dpmtsp	Implementing Food Security and Quality Regulations	Controlling food prices and food safety.	Services	4A	Culinary Business Implementer	Business

From Actor/Object	Role	Interaction Content	Type	Code	Role (To)	To Actor/Object
5. Dkp3	Executor of Legality Regulations and Business Permits	Issuance of NIB, location permit, and business environment permit.	Services	5A	Culinary Business Implementer	Business
6. Academics	Research and Policy Analysis	Training and consultation to business actors through community service and research.	Services	6A	Culinary Business Implementers	Business
		Study-based recommendations.	Data	6B	Creative Economy Regulation, Facility and Training Implementer	Disporapar
7. Media	Promotion Channel and Market Expansion	Free promotion of local culinary MSMEs.	Services	7A	Culinary Business Implementation	Business
		Paid promotion of culinary MSMEs	Funds	7B	Culinary Business Organizer	Business
		Coverage of inspirational stories of business people.	Information	7C	Culinary Business Executive	Business
		Digital trend insights for MSME strategies.	Data	7D	Culinary Business Executive	Business
8. Culinary Community	Collective Initiative Implementer	Community forums and networks between actors.	Intangible Value	8A	Culinary Business Implementers	Business

From Actor/Object	Role	Interaction Content	Type	Code	Role (To)	To Actor/Object
		Training and sharing digitalization experience.	Information	8B	Culinary Business Executive	Business
		Festivals, promotional collaborations, community events.	Services	8C	Beneficiaries and Reciprocity	Consumer
		Informal advocacy to government.	Intangible Value	8D	Creative Economy Regulation, Facility and Training Implementer	Disporapar
9. Business	Culinary Business Executive	Food/beverage production and sales.	Item	9A	Beneficiaries and Reciprocity	Consumers
		Access to training, financing, and promotion.	Information	9B	Implementation of Creative Economy Regulation, Facilities and Training	Disporapar
10. Perumda BPR	MSME Financial Capital and Inclusion	Micro business loans for culinary entrepreneurs.	Fund	10A	Culinary Business Implementers	Business
		Basic financial literacy.	Information	10B	Culinary Business Executive	Business
		Trust-based social relationship with business actors.	Intangible Value	10C	Culinary Business Executive	Business
		Offering MSME-friendly financial products.	Information	10D	Culinary Business Executive	Business

From Actor/Object	Role	Interaction Content	Type	Code	Role (To)	To Actor/Object
11. Business Partner	Business Support and Cooperation Provider	Provides business support such as packaging and others.	Services	11A	Culinary Business Implementer	Business
12. Raw Material Supplier	Supply and Quality Assurance	Quality and standardized raw materials.	Item	12A	Culinary Business Executives	Business
		Cooperation and financial contracts.	Funds	12B	Culinary Business Executive	Business
13. Consumer	Beneficiary and Reciprocal	Purchase and consume culinary products from business actors.	Goods	13A	Culinary Business Operator	Business
		Provide feedback, reviews, and recommendations on products and services.	Intangible Value	13B	Culinary Business Organizer	Business

Source: Results processing data (2025)

- a. Flow of Goods or Services: Entails physical product exchange such as raw materials, package, production tools, and promotional media. The players involved in this interaction are business players, suppliers, communities, and business partners that ensure the sustenance of daily operations.
- b. Monetary Flow: Includes the flow of economic value such as financing, charges, incentives, or direct payment between actors. The state through support schemes, financial institutions such as BPR, as well as business actors and customers, is engaged in retaining capital and economic transactions.
- c. Information Flow: Involves sharing information, education, training, promotion, and public communication. Stakeholders such as experts, media, communities, and custodian agencies help strengthen the capacity of business players and visibility of products.
- d. Data Flow: Linked to formal records, the OSS licensing system, MSME databases, and field observations to aid evidence-based policy making. The government, business players, experts, and communities help to produce and apply data in a strategic way.
- e. Intangible Value Flow: Includes unobservable trust, solidarity,

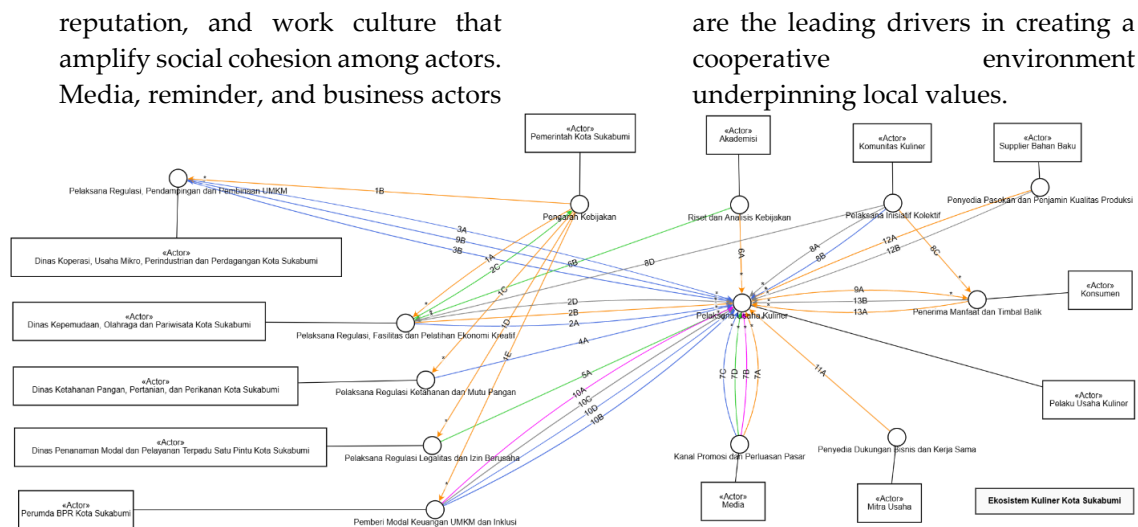


Figure 2. Identification of Current Actor-to-Actor Interactions  
Source: Results processing data (2025)

#### 4.5 Verification of Ecosystem Architecture Design

Verification of the culinary business ecosystem architecture design for Sukabumi City is a prerequisite to confirm that the design coincides with reality and existing issues. Although actors such as the government, business actors, communities, media, academics, and financial actors have taken part in the production chain to promotion, this study shows that formal cooperation has not yet been optimized. Verification entailed investigating the boundaries of the ecosystem, actor roles, value propositions, and interaction patterns for addressing problems such as low digital literacy, inadequate synergy, and inadequate institutional support. Digital transformation is a key enabler in accelerating business legality, information spread, and communication efficiency. A basic ecosystem framework with four key elements—business stakeholders, local authorities, society, and media—is enforced as the standard before it transitions to a fully collaborative system. The medium- and long-term approach prioritizes human resource development, digitalization, institutional integration, and common promotion with phase-wise transition through role mapping, program alignment, and

institutionalization of inter-sector cooperation using the ADDIE framework. All these activities are meant to create an adaptive, integrated, and sustainable food ecosystem that amplifies the capabilities of local players.

- Flow of Goods or Service:** The reorganization of service transactions involves the computerization of all the previously scattered services, such as licensing by the Investment and Integrated Services Agency, training by the Youth, Sports and Tourism Agency and the Food Security, Agriculture and Fisheries Agency, and certification of quality by the Cooperative, Micro, Industry, and Trade and the Regional Handicraft Council (Dekranasda). These services are now proposed to be accessed through a consolidated online platform. Business operators need to register once in order to access multiple business services, monitor processes in real-time, and receive automatic notifications regarding the service status. This process increases efficiency and expands the reach of services among business operators who are remotely located.
- Monetary Flow:** To date, funding interactions in Sukabumi City food

economy have been based on the city budget (APBD) and traditional schemes of assistance based on proposals. Under the new arrangement, assistance requests and fund disbursements are proposed in a clear, documented electronic process. Data on recipients, types of assistance, and program results are maintained electronically. Perumda BPR is also engaged in guiding microfinance schemes after training or after business registration as an inclusive financing partner.

- c) **Information Flow:** Information interaction transformations are designed to establish a system of formal communication in the form of a digital dashboard that supplants casual communication channels like social media or chat forums. This system provides an official avenue of information dissemination on training, business facilitation, and program marketing in real-time to all concerned—business operators, communities, and the government.

This helps make communication responsible, documented, and enables active participation by all stakeholders in ecosystem development.

- d) **Data Flow:** Data transformation of data interaction in Sukabumi City's food ecosystem is carried out by integrating business actor data systems that were spread over a number of agencies such as Investment and Integrated Services Agency, training under the Youth, Sports and Tourism Agency and Food Security, Agriculture and Fisheries Agency, and Dekranasda. The recommended restructuring of the ecosystem is in favor of creating a single integrated digital platform for storing data on business identities, places, product types, legal status, and training history in a central way. It enables easy data updates and utilization between agencies and prevents duplicate entry of information by business actors.

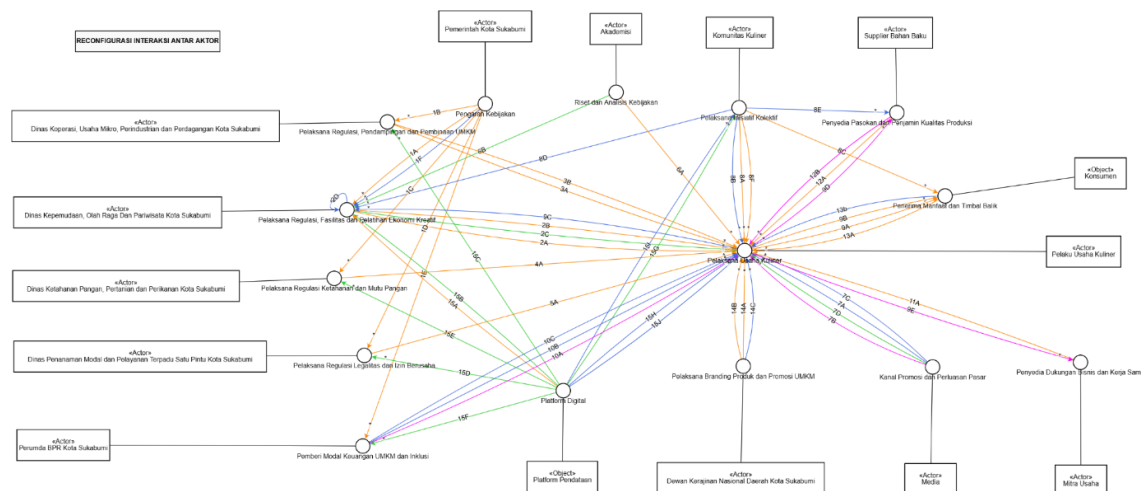


Figure 3. Reconfiguration of Interactions Between Actors

## 4.6 Discussion

This study provides empirical insights into the fragmented culinary creative economy business ecosystem in Sukabumi City. Although there are key actors in the Penta Helix—government institutions, MSMEs, academics, communities, media, and financial

institutions—their activities remain fragmented and strategically uncoordinated, and are not supported by adequate digital infrastructure. This is consistent with the theoretical proposition of [59], that it is not only actors that determine the health of an ecosystem, but also the types of interactions, value

creation through one another, and adaptive coordination.

One of the most striking findings is the very low level of digital capability in culinary SMEs, especially in marketing, customer relations, and supply chain coordination. Although some actors have begun using social media or basic e-commerce platforms, these activities are often carried out independently, temporarily, and lack institutionalization. This supports [60], [61] argument that a digital entrepreneurship ecosystem requires more than just access to tools; it needs a sustainable learning environment for SMEs to effectively leverage digital access to become innovative and competitive.

Institutionally, this study confirms that program fragmentation among government agencies—such as Disporapar, Dkp3, Diskumindag, and Dpmptsp—has led to duplication of efforts and inefficiency in building the ecosystem. In line with [62], who argues that successful ecosystems require coordination, where influential players (usually the government) align incentives, facilitate data exchange, and facilitate cross-border governance. The absence of a shared database or roadmap among agencies in Sukabumi illustrates the weakness of institutional silos, which hinder the synergies needed for sustainable ecosystem development. Another significant observation is the contrast between official ecosystem planning and the informal contributions of actors, particularly communities and the media. Although these actors play an important role in branding, storytelling, and cultural activation of food products, they are rarely recognized in official development planning. This is in line with the findings of [63], which highlight that ecosystems thrive where formal and informal institutions are aligned to enable inclusive participation and mutual legitimacy.

Trust also emerges as a fundamental yet underaddressed aspect of ecosystems. Entrepreneurial distrust and distrust of financial institutions—such as microfinance institutions (MFIs)—hinder access to credit and long-term investment. This underpins [26] argument that the architecture of participation in ecosystems must not only provide structural alignment but also cultural dynamics, such as trust, reciprocity, and shared identity. The conceptualized ecosystem architecture addresses these gaps through five key steps: identifying boundaries, mapping actors, structuring value propositions, analyzing interactions, and validating the architecture. This framework is built upon [36], who conceptualizes business ecosystems as co-evolving systems, and extends it by incorporating local sociocultural forces such as community-based promotion, informal learning circles, and place-based identity. The framework is also aligned with the logic of ecosystem orchestration [57], in which public actors clarify roles, minimize friction, and motivate synergistic collaboration through digital platforms.

More importantly, this study develops ecosystem theory for emerging economies and secondary cities, which are often neglected in global discussions on innovation ecosystems. This model provides a context-based response to the criticism of [64], who argue that all dominant ecosystem models focus on technology and ignore institutional, social, and local infrastructure realities. The current model, in contrast, integrates capacity building, e-governance, and access to financing into well-integrated pathways for ecosystem creation. Medium- and long-term policy reforms, including in the 2025–2045 Regional Medium-Term Development Plan (RPJPD), are required in order to enable system integration, implementation of adaptive technologies such as QRIS and OSS, and the promotion of the culinary

industry as a pivotal sub-sector of the regional creative economy.

## 5. CONCLUSION

This study concludes that establishing a resilient and adaptive business ecosystem in Sukabumi City's food industry requires more than structural change; it requires active orchestration, digital change, and cross-stakeholder engagement. Although the pentahelix actors—government, companies, academia, society, media, and finance institutions—are present, exchanges among them remain fragmented, informal, and not institutionally sustainable yet. Key problems include low digital skills, limited access to finance, replicating bureaucratic services, and inadequate sectoral integration. These are solved by the suggested ecosystem architecture with solutions offered through data-driven reorganization of relationships, shared digital platforms, and well-functioning public support systems.

### a. Academic Contribution

The research contributes to ecosystem literature through integrating the Penta Helix model and digital ecosystem architecture in the context of a local creative economy. The research extends previous models by incorporating social trust, informal collaboration, and institutional fit that is particularly relevant to secondary cities in emerging economies.

### b. Practical Contribution

To practitioners and policymakers, the study offers a framework for digital integration, financial inclusion, and structured cooperation among sectors. It offers actionable knowledge for building ecosystem-based programs that facilitate SMEs and coordinate public-private activities more effectively.

### c. Limitation

The study is limited to one sector and region, qualitative focus that can limit extensive applicability. Its broader application in other settings would be enabled by comparative or quantitative research.

### d. Future Research Direction

Future studies are invited to apply this model to other sectors or metropolitan areas and examine the application of emerging digital technologies (e.g., blockchain, AI) in coordinating ecosystems. Quantitative validation and longitudinal impact measurement are invited.

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