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# Closing the Investment Conversion Gap: An Integrative Framework for Regional Capability and Competitiveness Development

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**ABSTRACT**

**Purpose** – This conceptual article examines the gap between investment realization and the development of productive capabilities that can be retained by firms, workers, suppliers, and institutions in a region. It asks how investment-related opportunities may be converted into locally embedded capability rather than assuming that capital inflows automatically produce broad development.
**Design/methodology/approach** – The article develops a conceptual synthesis across literature on absorptive capacity and learning, supplier development and local linkages, place-based regional development, implementation governance, and digital monitoring. The article is a theory-building conceptual synthesis, not a systematic review or statistical aggregation of effect sizes.
**Finding/Results** – The article proposes the Regional Investment Conversion Debottlenecking Model (RICDM), an adaptive architecture linking investment inputs, conversion mechanisms, governance through an Investment Conversion Compact (ICC), digital execution, and the monitoring of outputs, capability outcomes, and longer-term regional impacts. The framework distinguishes project-level delivery from firm- and worker-level capability changes and from downstream regionaloutcomes.
**Originality/Value** – The contribution is to define investment conversion as an intermediate, multi-actor process and specify how its mechanisms, governance arrangements, boundary conditions, and outcome levels can be investigated. RICDM is a conceptual proposition requiring empirical validation, not a demonstrated causal intervention.

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## 1. Introduction

Investment has consistently been recognized as an important mechanism for promoting economic growth, industrial development, productivity improvement, and employment creation. Both developed and developing economies compete to attract investment because capital inflows can expand production capacity, introduce technological resources, improve market connectivity, and stimulate structural transformation. Foreign and domestic investment are often positioned as strategic instruments for strengthening regional competitiveness because they provide financial resources and opportunities for participation in broader economic networks.

However, the presence of investment does not automatically generate sustainable regional development outcomes. A region may successfully attract large-scale investment projects while obtaining limited long-term benefits for local economic capability. Investment facilities may operate efficiently but remain dependent on external suppliers, imported technology, and foreign expertise. Employment opportunities may increase in quantity but fail to improve workforce capability and career advancement. Similarly, technological resources introduced through investment projects may not generate meaningful knowledge transfer if local firms and institutions lack the capacity to absorb and apply new knowledge.

This condition creates an important distinction between investment realization and investment conversion. Investment realization refers to the process through which capital enters a region, regulatory requirements are completed, and investment projects become operational. Conventional investment policies frequently evaluate success through indicators such as investment value, project completion, production capacity, and employment generation. These indicators are important because they demonstrate whether investment activities have been implemented. However, they provide limited information regarding whether investment generates durable productive capabilities that remain embedded within the regional economy.

Investment conversion represents a subsequent process in which operational investment activities are transformed into locally embedded capabilities. This process involves knowledge absorption, workforce development, supplier upgrading, technology learning, institutional coordination, and local economic integration. Therefore, the effectiveness of investment should not only be assessed based on the amount of capital entering a region but also based on the capabilities created because of that investment.

The importance of this distinction is supported by previous studies on investment spillovers and regional development. The absorptive capacity perspective argues that external knowledge does not automatically generate innovation or productivity improvements. Organizations and regions require sufficient prior knowledge, human capital, learning capability, and institutional readiness to identify, assimilate, and exploit external knowledge (Cohen & Levinthal, 1990). Empirical work also cautions that spillovers depend on the channels through which multinational firms interact with domestic suppliers, rather than following automatically from foreign ownership (Javorcik, 2004). Recent empirical studies also demonstrate that the benefits of foreign direct investment depend on regional absorptive capacity and local conditions. (Sheng et al., 2024) found that absorptive capacity influences the extent to which foreign investment contributes to regional innovation, while (Saito & Matsuura, 2025) showed that foreign investment generates stronger productivity upgrading when domestic firms possess adequate capabilities to participate in production networks.

A similar argument appears in global value chain literature. Investment contributes to regional economic development when local firms are able to participate in production networks through supplier relationships, subcontracting, service provision, and technological collaboration.

(Gereffi et al., 2005) emphasize that participation in global production systems provides development opportunities, but these benefits depend on the ability of local firms to improve their capabilities and meet production requirements. Learning opportunities also vary with value-chain governance and the strength of local innovation systems ((Humphrey & Schmitz, 2002); (Pietrobelli & Rabellotti, 2011)). Consequently, local participation should not be understood merely as a procurement obligation but as a process of capability upgrading.

The place-based development perspective provides another explanation for differences in regional investment outcomes. Regions do not possess identical institutional structures, economic resources, infrastructure conditions, and learning capabilities. Therefore, similar investment projects may generate different development effects depending on local characteristics and governance capacity (Barca et al., 2012). (Bailey et al., 2023) further emphasize that regional development strategies require alignment between intervention mechanisms and territorial capabilities because economic transformation depends on local institutional and productive conditions. This is consistent with the argument that place-based policy must respond to spatially differentiated constraints rather than assume that identical interventions work equally well everywhere (OECD, 2023).

In addition, digital transformation literature highlights the growing importance of information systems and governance mechanisms in improving coordination, transparency, and accountability. Digital technologies can support investment monitoring, stakeholder coordination, and evidence-based decision-making. However, digital adoption alone does not create competitiveness. The value of digital transformation emerges when organizations redesign processes and develop adaptive capabilities around technology utilization ((Hanelt et al., 2021); (Kraus et al., 2022)).

Although these theoretical perspectives provide important explanations, existing approaches remain fragmented. Each theoretical stream explains a specific part of the investment-development relationship. Absorptive capacity theory explains how knowledge is acquired and utilized. Supplier development literature explains how local firms participate in production networks. Place-based development explains why regional outcomes differ. Digital governance explains how coordination and monitoring can be improved.

However, these perspectives provide limited explanation regarding the conversion process that connects operational investment with regional capability formation. Existing approaches often examine individual mechanisms separately, while the practical challenge faced by regions is how these mechanisms can operate collectively after investment projects begin. A region may have investment facilities, but without workforce capability, supplier readiness, institutional coordination, and effective monitoring systems, investment may produce limited local economic transformation.

This limitation represents the research gap addressed in this study.

The first gap is a conceptual integration gap. Previous studies have provided strong explanations of investment attraction, knowledge spillovers, supplier upgrading, and regional development, but limited attention has been given to how these mechanisms interact as a continuous conversion process. The investment-development relationship requires an analytical bridge explaining how investment resources become embedded capabilities.

The second gap is a governance gap. Investment outcomes involve multiple stakeholders, including government agencies, investors, local firms, universities, and supporting institutions. However, investment policies frequently focus on facilitating entry and operational implementation, while less attention is given to coordinating responsibilities after investment

realization. Without clear governance arrangements, capability-building activities may become fragmented and produce limited impact.

The third gap is a measurement gap. Traditional investment evaluation commonly emphasizes input-oriented indicators such as investment value, number of projects, and employment quantity. These indicators do not sufficiently capture whether investment generates supplier capability, technology learning, productivity improvement, employment quality, and long-term regional competitiveness.

To address these gaps, this study develops the Investment Conversion Framework for Regional Capability Development. The framework introduces investment conversion as an intermediate analytical mechanism between investment realization and regional development outcomes. The framework does not replace existing theories but integrates their complementary mechanisms into a coherent analytical structure.

The proposed framework consists of five main components. First, conversion bottleneck identification examines constraints that prevent investment from generating capability development, including skill shortages, supplier limitations, infrastructure constraints, technology gaps, and coordination problems. Second, capability building focuses on strengthening workforce competence, organizational learning, supplier capability, and technology absorption. Third, local value capture explains how investment benefits become embedded within regional economic systems through supplier relationships and local business participation. Fourth, digital governance support provides monitoring, coordination, and accountability mechanisms. Fifth, outcome monitoring and evaluation distinguishes immediate implementation outputs from longer-term capability and competitiveness outcomes.

The framework also introduces the Investment Conversion Compact (ICC) as a governance mechanism that clarifies stakeholder responsibilities. Government institutions provide regulatory coordination and supporting infrastructure. Investors contribute technical requirements, knowledge-sharing opportunities, and market access. Local firms participate through capability improvement and supplier upgrading. Knowledge institutions contribute through training, research support, and evaluation activities.

The theoretical contribution of this study lies in positioning investment conversion as a distinct analytical mechanism. Unlike investment attraction, which focuses on bringing capital into a region, investment conversion explains what occurs after investment becomes operational. Unlike spillover theory, which focuses on possible knowledge benefits, investment conversion explains the organizational and governance conditions required for those benefits to become embedded within regional capabilities. Unlike supplier development, investment conversion incorporates supplier upgrading as one element within a broader capability-building process.

Based on this perspective, this study addresses the following research questions:

RQ1: Why does investment realization not automatically generate sustainable regional productive capabilities?

RQ2: What mechanisms enable operational investment activities to be transformed into locally embedded capabilities?

RQ3: How can governance arrangements and measurement systems support effective investment conversion?

By addressing these questions, this study contributes to the literature on investment policy, regional development, and capability formation by providing a conceptual explanation of how investment can move beyond capital accumulation toward sustainable regional competitiveness.

## 2. Literature Review and Hypothesis Development

Investment has been widely studied as a driver of economic development, productivity improvement, and structural transformation. However, recent discussions increasingly recognize that investment outcomes are heterogeneous across regions. Similar investment projects may generate different economic effects depending on the ability of local actors to absorb knowledge, develop production linkages, and coordinate development processes.

This study argues that the relationship between investment and regional competitiveness should not be understood as a direct relationship. Instead, investment contributes to regional development through a series of intermediate capability-building mechanisms. These mechanisms determine whether investment remains as external capital input or becomes embedded within the regional economic system.

Based on this argument, this section develops the theoretical foundation of investment conversion by integrating four complementary perspectives: absorptive capacity, local linkage and supplier development, place-based capability formation, and digital governance. The objective is not to replace existing theories but to explain how these perspectives interact within a conversion process.

### 2.1 Investment Spillovers and Regional Absorptive Capacity

The relationship between investment and economic development has traditionally been explained through the concept of knowledge spillovers. Foreign and domestic investment can introduce new technologies, managerial practices, production standards, and market knowledge into host regions. However, the existence of external knowledge does not guarantee that local firms and institutions will benefit from these resources.

(Cohen & Levinthal, 1990)) introduced the concept of absorptive capacity to explain why organizations differ in their ability to recognize, assimilate, and apply external knowledge. According to this perspective, knowledge acquisition requires prior knowledge, skilled human resources, organizational learning capability, and internal mechanisms that support innovation. Within regional development contexts, absorptive capacity extends beyond individual firms. Regional capability depends on interactions among companies, workers, universities, government institutions, and supporting organizations. A region with strong learning institutions and capable local firms is more likely to transform investment presence into technological improvement and productivity growth.

Recent empirical studies support this argument. (Sheng et al., 2024) demonstrate that absorptive capacity influences the effectiveness of foreign direct investment spillovers by determining whether regions can transform external knowledge into innovation outcomes. Similarly, (Saito & Matsuura, 2025) show that foreign investment generates stronger upgrading effects when domestic firms possess sufficient capability to participate in production networks.

However, absorptive capacity theory alone does not fully explain how capability development is organized after investment realization. The theory explains why some actors can absorb knowledge, but it provides limited explanation regarding how investment stakeholders coordinate capability-building activities.

Therefore, this study positions absorptive capacity as one mechanism within the broader investment conversion process.

Investment conversion occurs when external investment resources are combined with regional learning capability to create locally embedded productive knowledge.

Based on this argument:

Proposition 1: Absorptive Capacity Conversion Proposition

Regional absorptive capacity positively influences investment conversion effectiveness by strengthening the ability of firms, workers, and institutions to transform external investment resources into knowledge, technology, and productivity capabilities.

**2.2 Local Linkages, Supplier Development, and Regional Value Capture**

Investment projects create stronger regional economic effects when they become connected with local production systems. Without effective linkages, investment activities may operate as isolated economic entities that generate limited benefits beyond direct employment and capital expenditure.

Global value chain literature explains that local firms can benefit from participation in international production networks through supplier relationships, subcontracting arrangements, and knowledge exchange (Gereffi et al., 2005). However, participation does not occur automatically. Local suppliers must develop capabilities related to quality management, production consistency, certification, technology adoption, and organizational improvement.

This distinction is important because local participation should not be interpreted simply as increasing procurement from domestic firms. Mandatory local procurement without capability improvement may create temporary economic participation but does not necessarily produce sustainable competitiveness.

Supplier development therefore represents a capability-building process. Investors may create market opportunities, but local firms require support to meet technical standards and participate in long-term production relationships.

Recent evidence supports the importance of capability-based linkage formation. (Nguyen et al., 2024) demonstrate that foreign investment can improve domestic firms when local companies are able to establish productive relationships with multinational enterprises. (Qiao et al., 2024) similarly highlight the importance of external linkages in supporting regional diversification through multinational enterprise networks.

Within the investment conversion perspective, local value capture represents the mechanism through which investment benefits become embedded within regional economic systems.

The conversion pathway can be described as:

**Figure 1.** Conversion pathway for local value capture




*Source: Authors (2026)*

Therefore:

Proposition 2: Local Value Capture Proposition

The capability level of local firms strengthens the relationship between investment realization and regional value capture by enabling local suppliers to participate sustainably in investment-related production networks.

**2.3 Place-Based Capability Formation and Conversion Bottlenecks**

Regional development research emphasizes that economic transformation is shaped by territorial characteristics. Regions differ in institutional capacity, infrastructure availability, workforce quality, industrial structure, and innovation systems. Consequently, investment outcomes cannot be separated from regional conditions.

The place-based development perspective argues that development strategies should consider local assets and institutional contexts rather than applying uniform interventions across regions (Barca et al., 2012). (Bailey et al., 2023) further explain that regional competitiveness depends on the interaction between productive capabilities and institutional arrangements.

This perspective provides an important explanation for why similar investment projects may generate different outcomes. However, place-based policy literature often focuses on regional strategy design and territorial development rather than the operational mechanisms through which individual investments generate capability accumulation.

Investment conversion introduces the concept of **conversion bottlenecks** to explain this missing process.

Conversion bottlenecks represent constraints that prevent investment activities from becoming regional capabilities. These constraints may include: workforce skill shortages; limited supplier capability; infrastructure constraints; technology adoption barriers; weak institutional coordination.

Unlike conventional investment facilitation, which primarily focuses on removing barriers to investment entry, conversion bottleneck management focuses on barriers that emerge after investment becomes operational.

Therefore, the framework expands the concept of debottlenecking from investment entry facilitation toward capability transformation.

The relationship is formulated as:

Proposition 3: Conversion Bottleneck Proposition

The presence of unresolved conversion bottlenecks negatively affects the ability of investment activities to generate regional capability outcomes by limiting knowledge transfer, supplier participation, and local economic integration.

**2.4 Digital Governance as an Enabling Conversion Infrastructure**

Digital transformation has become increasingly relevant in investment governance because complex investment ecosystems require effective coordination, information exchange, and monitoring systems.

However, digital technology should not be considered as a direct source of competitiveness. Digital systems generate value when they support organizational transformation, improve decision-making processes, and strengthen accountability mechanisms.

(Hanelt et al., 2021) explain that digital transformation involves organizational adaptation rather than technology adoption alone. (Kraus et al., 2022) similarly highlight that digital transformation influences business performance through changes in processes, capabilities, and strategic management practices.

Within the investment conversion framework, digital governance is positioned differently from capability mechanisms. Absorptive capacity and supplier development directly influence capability formation, whereas digital governance provides enabling infrastructure that supports coordination and evaluation.

Digital governance may support: investment progress monitoring; bottleneck resolution tracking; workforce development monitoring; supplier upgrading assessment; outcome evaluation.

Therefore, digital governance strengthens the effectiveness of conversion mechanisms by improving visibility, coordination, and accountability.

Based on this argument:

Proposition 4: Governance Enablement Proposition

Digital governance capability strengthens investment conversion by improving coordination, transparency, and monitoring among stakeholders involved in capability formation processes.

**2.5 Investment Conversion Framework and Regional Competitiveness**

The previous discussions demonstrate that investment conversion emerges from the interaction of multiple mechanisms. Investment alone represents an economic input, not a guaranteed development outcome.

The proposed framework distinguishes four analytical stages:

Stage 1: Investment Input

Investment projects provide capital, technology, market access, and production opportunities.

Stage 2: Conversion Mechanisms

Investment resources are transformed through: absorptive capacity; supplier development; workforce upgrading; bottleneck reduction.

Stage 3: Capability Formation

The conversion process produces: improved firm capability; technology learning; stronger production networks; better employment quality.

Stage 4: Regional Outcomes

Capability accumulation contributes to: productivity improvement; regional competitiveness; broader economic welfare.

This framework addresses a limitation in previous approaches. Existing theories often explain individual mechanisms but do not explain the transition from investment realization to regional capability formation.

Therefore:

Proposition 5: Investment Conversion Outcome Proposition

Investment conversion mechanisms contribute to regional competitiveness through the accumulation of productive capabilities, rather than through investment volume alone.

**Table 1.** Theoretical Position of Investment Conversion Framework

| Theoretical Perspective | Main Explanation | Limitation | Contribution of Investment Conversion |
|---|---|---|---|
| Investment spillover theory | Explains knowledge and productivity effects from investment | Does not fully explain conversion process | Explains how spillovers become embedded capabilities |
| Absorptive capacity theory | Explains ability to acquire external knowledge | Limited governance explanation | Positions learning capability as conversion mechanism |
| Supplier development theory | Explains local production linkage | Focuses mainly on suppliers | Integrates supplier upgrading into regional capability |
| Place-based development | Explains territorial differences | Limited project-level mechanism | Connects investment projects with regional conditions |

| Theoretical Perspective | Main Explanation | Limitation | Contribution of Investment Conversion |
|---|---|---|---|
| Digital governance | Explains coordination and monitoring | Does not explain capability creation | Provides enabling infrastructure for conversion |

*Source: Authors (2026)*

## 3. Methodology

### 3.1 Research Design

This study uses a conceptual synthesis to develop a theoretically grounded framework for explaining how investment-related activity may contribute to regional productive capabilities. The analysis connects literature on absorptive capacity and knowledge learning, supplier development and local linkages, place-based development, implementation governance, and digital monitoring. The approach is theory-building rather than a statistical review of effect sizes. The study does not aim to estimate causal relationships or test the effectiveness of a policy intervention. Instead, it seeks to identify, organize, and integrate theoretical mechanisms explaining the transition from investment realization toward capability formation.

Conceptual synthesis is appropriate when relevant explanations are distributed across several theoretical domains and the objective is to clarify constructs and relationships rather than estimate a pooled effect (Snyder, 2019). Here, the synthesis is used to specify the proposed investment-conversion process and its conceptual boundaries.

The methodological objective is therefore not to aggregate statistical findings but to identify theoretical mechanisms, conceptual relationships, and implementation dimensions that explain how investment can generate sustainable regional capabilities.

This is a conceptual theory-building article rather than a systematic literature review. The analysis is bounded by the theoretical sources cited in the manuscript and is intended to clarify constructs, mechanisms, levels of analysis, and propositions. It does not claim exhaustive coverage of all relevant publications, a reproducible database search, or a source-by-source systematic appraisal.

The analytical logic follows the relationship:

### 3.2 Conceptual Scope and Literature Domains

The conceptual domains were informed by scholarship on investment spillovers and absorptive capacity, supplier development and value chains, place-based regional development, governance, and digital transformation. The manuscript does not report a database-search protocol because a complete, reproducible search record is not part of the present conceptual design.

The four thematic clusters below define the intellectual scope of the framework. They are organizing domains for conceptual reasoning, not a record of database queries or a claim of exhaustive literature coverage.

The conceptual scope concerns mechanisms through which investment may contribute to learning, supplier capability, institutional coordination, and regional productive capability.

The intended conceptual scope is organized into four thematic clusters:

Cluster 1: Investment Spillover and Capability Development

Illustrative search concepts: “foreign direct investment,” “investment spillover,” “knowledge transfer,” “technology learning,” and “absorptive capacity.” These terms describe the intended topic coverage; they are not a verified verbatim database query.

Purpose:
To identify studies explaining how external investment resources generate knowledge and capability improvements.
Cluster 2: Local Linkage and Supplier Development
Illustrative search concepts: "supplier development," "local linkage," "backward linkage," "local value capture," and "global value chain." These terms describe the intended topic coverage; they are not a verified verbatim database query.
Purpose:
To identify mechanisms through which investment creates economic relationships with local firms.
Cluster 3: Regional Capability and Place-Based Development
Illustrative search concepts: "regional capability," "place-based development," "territorial development," "regional competitiveness," and "local economic development." These terms describe the intended topic coverage; they are not a verified verbatim database query.
Purpose:
To examine why investment outcomes, differ across geographical contexts.
Cluster 4: Digital Governance and Monitoring
Illustrative search concepts: "digital governance," "digital transformation," "monitoring system," "accountability," and "implementation evaluation." These terms describe the intended topic coverage; they are not a verified verbatim database query.
Purpose:
To identify governance mechanisms supporting coordination and measurement.

**Table 2.** Thematic Domains of the Conceptual Synthesis

| Thematic cluster | Intended conceptual coverage | Illustrative search concepts | Verification status |
|---|---|---|---|
| Investment and capability formation | Spillovers, learning, absorptive capacity | foreign direct investment; investment spillover; knowledge transfer; absorptive capacity | Conceptual scope only; exact executed queries and exports unavailable |
| Supplier and local linkages | Supplier development, local value capture, value chains | supplier development; backward linkage; local value capture; global value chain | Conceptual scope only; exact executed queries and exports unavailable |
| Regional and place-based development | Territorial capability and regional competitiveness | regional capability; place-based development; regional competitiveness | Conceptual scope only; exact executed queries and exports unavailable |
| Governance and digital monitoring | Coordination, accountability, implementation monitoring | digital governance; accountability; implementation evaluation | Conceptual scope only; exact executed queries and exports unavailable |

*Source: Authors (2026)*

### 3.3 Conceptual Selection Logic

Sources and concepts are considered for their relevance to the article's central question: how and under what conditions investment-related activity may be converted into locally embedded

productive capability. This is a conceptual selection logic, not a retrospective account of a completed screening exercise.

Stage 1: Identification

The article draws on established theoretical and empirical publications that help explain the mechanisms in scope. It does not report a numerical identification count because the purpose is conceptual integration rather than systematic evidence enumeration: peer-reviewed journal articles; policy reports; academic books; conceptual publications.

The relevant material is considered in terms of its contribution to explaining the investment-to-capability process; no numerical screening flow is claimed.

Stage 2: Duplicate Removal and Initial Screening

The article does not claim a completed deduplication or record-level screening procedure. Its analytical boundary is defined by the relevance criteria and theoretical domains described here.

The intended relevance checks concerned:

a. relevance to investment conversion mechanisms;
b. connection between investment and development outcomes;
c. theoretical contribution;
d. availability of complete publication information.

Studies were excluded when they focused only on: investment volume statistics; investment announcement trends; capital inflow measurement without capability analysis.

These criteria define the conceptual boundary of the discussion; they should not be interpreted as a record of completed title, abstract, or full-text screening.

Stage 3: Full-Text Eligibility Assessment

The intended full-text eligibility questions were:

Criterion 1

Does the study explain a mechanism connecting investment activities with economic or regional outcomes?

Criterion 2

Does the source offer theoretical or empirical discussion relevant to knowledge transfer, capability development, supplier linkages, governance coordination, or regional development?

Criterion 3

Does the source offer a construct, mechanism, indicator, or implementation implication relevant to the proposed investment-conversion framework?

Conceptual scope and reporting boundary

The article develops an integrative framework from the theoretical domains identified above. It makes no claim about the total number of publications reviewed and does not present a systematic-review corpus as an empirical result.

The table below summarizes how the article's conceptual scope is bounded.

**Table 3.** Conceptual Scope and Analytical Boundary

| **Analytical dimension** | **Role in the conceptual article** |
|---|---|
| Investment-to-capability process | Defines the intermediate process between operational investment and locally embedded productive capability |
| Conversion mechanisms | Examines learning and absorptive capacity, supplier upgrading, local linkages, and bottleneck reduction |
| Governance and execution | Explains how commitments, coordination, digital information, and escalation may support implementation |

| Analytical dimension | Role in the conceptual article |
|---|---|
| Outcome boundaries | Separates project outputs, firm/worker capability outcomes, and longer-term regional impacts |

Source: Authors (2026)

**3.4 Scope and Relevance Criteria**

The conceptual discussion prioritizes publications that explain mechanisms connecting investment activity with learning, supplier relationships, governance, and regional capability. These criteria guide the argument; they are not presented as a completed systematic screening protocol.

**Table 4.** Inclusion and Exclusion Criteria

| Category | Inclusion Criteria | Exclusion Criteria |
|---|---|---|
| Topic relevance | Studies examining investment-development relationships | Studies focusing only on investment volume |
| Theoretical relevance | Studies discussing capability, linkage, learning, or governance mechanisms | Studies without connection to capability formation |
| Publication quality | Peer-reviewed articles, credible reports, academic references | Non-academic commentary and unsupported publications |
| Analytical contribution | Studies providing mechanisms, indicators, or conceptual explanations | Studies only reporting descriptive investment statistics |

*Source: Authors (2026)*

**3.5 Critical Appraisal of the Literature**

The cited literature is assessed critically at the level of its explanatory role and conceptual limitations. Because this article is not a systematic review, it does not assign standardized quality scores to every publication or claim a completed source-by-source appraisal.

a. Theoretical relevance

The discussion considers whether a theoretical perspective explains how investment-related opportunities may support capability formation and identifies the mechanism involved.

Questions included:

- Does the study explain how investment creates capability?
- Does it identify mechanisms connecting investment and development outcomes?

b. Methodological credibility

Where empirical studies are discussed, attention is given to research design, clarity of constructs, evidence strength, and the limits of inference. Findings are not treated as interchangeable across contexts or methods.

Evaluation included: research design clarity; empirical evidence quality; theoretical consistency.

c. Conceptual contribution

The appraisal also considers whether a perspective clarifies a RICDM component, a boundary condition, or a measurable intermediate outcome.

The evaluation focused on: absorptive capacity; supplier upgrading; regional capability; governance mechanisms; measurement systems.

These dimensions inform the critical synthesis in the manuscript; they are not a claim that every relevant publication has been scored using a formal quality-assessment instrument.

**Table 5.** Quality Assessment Framework

| Dimension | Evaluation Question |
|---|---|
| Theoretical relevance | Does the study explain investment conversion mechanisms? |
| Methodological credibility | Does the study provide reliable analytical or empirical evidence? |
| Conceptual contribution | Does the study contribute to capability formation understanding? |

*Source: Authors (2026)*

**3.6 Conceptual Mapping and Framework Development**

The conceptual mapping connects each theoretical domain to the specific mechanism it helps explain and to the RICDM component that operationalizes that mechanism. The mapping is interpretive and theory-building; it is not a source-by-source evidence matrix or a statistical synthesis.

The framework was developed through five analytical moves:

**Step 1: Organizing the Theoretical Domains**

The discussion organizes the cited literature around knowledge absorption, supplier linkages, regional capability, and governance coordination.

**Step 2: Clarifying Established Mechanisms**

The study identified existing relationships between:

investment → knowledge transfer

investment → supplier upgrading

investment → regional development

digital governance → coordination effectiveness

**Step 3: Identification of Theoretical Limitations**

Step 3: Identifying the Unresolved Process Problem

A central theoretical issue is that these mechanisms are often studied separately. RICDM proposes a process architecture for examining their transitions and interactions; the claim is conceptual and requires further empirical assessment.

**Step 4: Connecting Mechanisms to RICDM Components**

Each theoretical mechanism was connected to a framework component.

**Table 6.** Illustrative Mapping of Theoretical Streams to RICDM Components

| Theoretical Stream | Main Mechanism | RICDM Component |
|---|---|---|
| Absorptive capacity | Knowledge absorption and learning | Capacity building |
| Supplier development | Production linkage and upgrading | Local value capture |
| Place-based development | Territorial capability differences | Bottleneck mapping |
| Digital transformation | Coordination and monitoring | Digital execution |

Source: Authors (2026)

**Step 5: Formulating Conceptual Propositions**

The framework integrates established mechanisms into a testable conceptual architecture. It does not claim that all mechanisms have been empirically validated as a unified model.

The resulting framework contains five connected components:

a. Bottleneck mapping;
b. Capacity building;
c. Local value capture;
d. Digital execution;
e. Outcome monitoring and evaluation.

These components form the conceptual foundation for explaining how investment activities are transformed into regional capabilities.

## 4. Results and Discussion

### 4.1. The Investment Conversion Gap: From Capital Entry to Capability Formation

The synthesis distinguishes investment realization from investment conversion. This distinction is analytical rather than a claim that the two stages are always sequential: capability-building activities may begin during project preparation, but their effects can only be assessed over time as investment operations create opportunities for learning, linkage formation, and local value retention. Investment realization concerns whether capital is committed, regulatory and operational requirements are met, and the project becomes operational.

Typical indicators include committed and realized investment value, project completion, production capacity, operational status, and capital expenditure. These measures establish implementation progress, but do not establish whether local firms, workers, or institutions have acquired capabilities that persist beyond the project. These measures should therefore be interpreted as implementation outputs, not as evidence of regional development impact.

These indicators remain important for evaluating project delivery. Their limitation is not that they are uninformative, but that they measure a different construct from capability formation.

Investment realization is thus an enabling condition rather than a sufficient condition for regional capability formation. Investment conversion is the intermediate process through which opportunities created by an operating investment may become locally embedded and reusable productive capabilities. For this study, investment conversion refers to a multi-actor process in which investment-related resources and market opportunities are translated into observable learning, workforce competence, supplier upgrading, technology application, and durable local linkages: Change in real output or value added per worker/hour

Investment realization and conversion must be assessed separately. A project can meet its operational targets while local capabilities remain unchanged, or capability outcomes may emerge only after a substantial lag.

For example, a facility may operate at planned capacity while relying on imported inputs, external technical expertise, and suppliers located elsewhere. The project may contribute to output and exports, yet generate few learning opportunities for regional firms. Conversely, a project with more modest initial scale may create stronger local capabilities if it develops suppliers, transfers applicable knowledge, and sustains workforce learning.

For example, an industrial facility may operate successfully but still depend heavily on external suppliers, imported expertise, and external technology providers. In such conditions, investment contributes to production expansion but creates limited local capability accumulation. The investment conversion gap is the distance between operational investment activity and the extent to which related opportunities generate sustained, locally retained productive capabilities. It is a process problem, not a single numerical ratio unless its inputs, outcomes, denominators, and time horizon are explicitly defined.

The investment conversion gap can therefore be defined as:

The concept does not replace spillover, absorptive-capacity, supplier-development, investment-aftercare, or place-based theories. It focuses on the transitions between these mechanisms and asks where, why, and under what conditions investment opportunities become durable capabilities. Its theoretical value is to make the intermediate conversion process explicit and open to measurement, including cases where implementation succeeds but capability formation is weak.

### 4.2. RICDM as an Adaptive Conversion Architecture

On this basis, the study proposes the Regional Investment Conversion Debottlenecking Model (RICDM) as a conceptual architecture for diagnosing and improving the process through which operational investment may contribute to regional capability.

RICDM is not a deterministic or one-way pipeline. Capability development is iterative: new constraints may emerge after earlier bottlenecks are resolved, and learning may alter supplier requirements, workforce needs, and the feasible scope of local sourcing.

The model separates five analytical elements that should not be conflated:

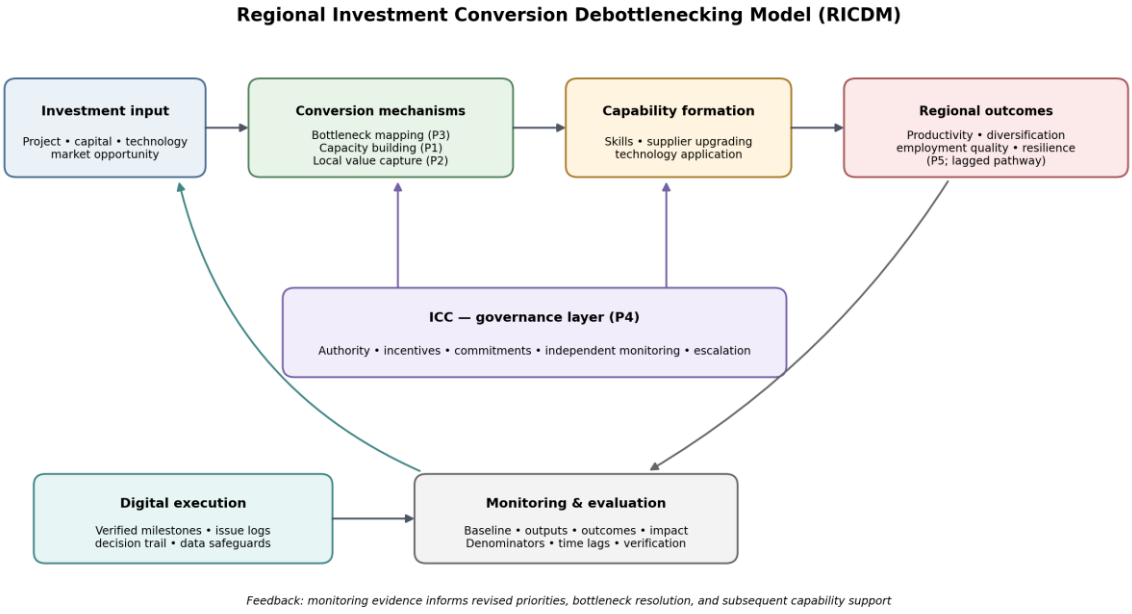
a. investment input and project context
b. conversion mechanisms
c. governance through the Investment Conversion Compact (ICC)
d. digital execution as enabling infrastructure
e. outputs, capability outcomes, and longer-term regional impacts

These elements interact through feedback. Monitoring evidence can trigger revised priorities, additional capability support, or escalation of unresolved constraints.

For example, supplier access may reveal quality-control constraints; training may reveal that workers need supervised practice; and technology adoption may require organizational redesign. The framework therefore treats adaptation as part of conversion rather than as an exceptional correction.

The model describes a testable process logic, not a claim that every component is necessary or sufficient in every context. The relative importance of each mechanism is expected to vary by sector, regional institutions, initial capabilities, technological distance, and investment duration.

**Figure 2.** Definitive conceptual architecture of RICDM




*Source: Authors (2026)*

### 4.3. Structural Logic of RICDM

For conceptual clarity, RICDM distinguishes the investment input, conversion mechanisms, governance layer, enabling infrastructure, immediate outputs, intermediate capability outcomes, and longer-term impacts. These are different analytical categories rather than interchangeable indicators.

**Table 7.** Analytical Structure of RICDM

| Analytical Level | Component | Function |
|---|---|---|
| Input | Investment project | Provides economic resources and market opportunity |
| Conversion mechanism | Absorptive capacity | Enables local actors to recognize, assimilate, and apply external knowledge |
| Conversion mechanism | Local linkage development | Creates opportunities for regional suppliers and workers to participate and retain value |
| Conversion mechanism | Bottleneck reduction | Identifies, assigns, and resolves constraints that interrupt conversion |
| Governance mechanism | Investment Conversion Compact (ICC) | Coordinates commitments, accountability, monitoring, and escalation |
| Implementation support | Digital execution | Enables reliable information flow, verification, and documented corrective action |
| Output | Training, supplier upgrading, technology activities | Immediate deliverables; not proof of capability change |
| Outcome | Productivity, employment quality, supplier participation | Intermediate capability outcomes assessed against baseline and over a defined period |
| Impact | Regional competitiveness and welfare | Longer-term impacts requiring lagged observation and cautious attribution |

*Source: Authors (2026)*

This structure clarifies that:

- Capacity building, local linkage development, and bottleneck reduction are conversion mechanisms.
- ICC is the governance layer that assigns commitments, coordinates actors, and provides escalation and accountability.
- Digital execution supports information flow and verification; technology adoption alone is not evidence of improved capability.
- Project outputs, capability outcomes, and regional impacts must be measured separately and with appropriate time lags.

This separation prevents circular claims for example, defining conversion as regional competitiveness and then treating competitiveness as proof that conversion occurred. Regional competitiveness should instead be assessed through explicit, multidimensional indicators rather than a single proxy (Borsekova et al., 2024).

### 4.4. The Five Components of RICDM

#### 4.4.1. Bottleneck Mapping

Bottleneck mapping identifies constraints that interrupt the transition from investment activity to local learning and capability. It extends beyond entry barriers to include constraints that arise during operations, such as skills gaps, supplier qualification, infrastructure reliability, unclear institutional responsibility, limited access to technology, and weak coordination.

Each bottleneck should be recorded with a defined category, severity, date identified, responsible owner, agreed action, deadline, and verification rule. A constraint is not considered resolved merely because an activity was completed; evidence should show that the barrier was reduced against a pre-specified criterion.

Relevant bottleneck categories may include:

Regulatory barriers

Examples include: licensing delays, institutional coordination problems

Infrastructure barriers

Examples include: logistics limitations, connectivity problems

Capability barriers

Examples include: insufficient workforce skills, weak supplier capability

Technology barriers

Examples include: limited technology absorption capacity

The operational purpose is to turn diagnosis into accountable action by assigning: responsible actors, completion targets, measurable indicators

This design makes bottleneck resolution observable and comparable over time, while acknowledging that some constraints such as national infrastructure or systemic skill shortages may require action beyond the authority of an individual project.

#### 4.4.2. Capacity Building

Capacity building concerns whether workers, local firms, and relevant institutions can acquire and apply knowledge associated with investment. The mechanism is consistent with absorptive-capacity theory: exposure to external knowledge is more likely to generate learning when actors have prior related knowledge, opportunities for practice, and incentives to apply what they learn.

Support may include:

- workforce competence
- supplier capability
- institutional support

Training participation is an output, not proof of capability change. Evidence should include demonstrated competency, verified application in work processes, quality improvement, technology adoption, or other outcomes defined before intervention.

The required support depends on baseline capability and the distance between existing practice and investor requirements. Where the capability gap is large, staged training, mentoring, and repeated assessment may be more appropriate than one-off instruction.

RICDM therefore treats capacity building as a mechanism whose effectiveness must be assessed through both the learning process and subsequent application.

Possible indicators include:

**Table 8.** Capacity Building Indicator

| Dimension | Indicator |
|---|---|
| Workforce | Share of targeted workers completing training and passing a predefined competency assessment; report baseline, target population, and reassessment interval. |
| Skills | Share of assessed workers meeting the specified competency threshold after support, compared with baseline. |
| Technology | Share of planned learning activities resulting in verified application or adoption within the stated follow-up period. |
| Institution | Number and share of collaboration commitments completed and independently verified within the reporting period. |

***Source: Authors (2026)***

**4.4.3. Local Value Capture**

Local value capture concerns the extent to which investment-related economic activity creates durable opportunities for qualified regional firms and workers. It is not synonymous with maximizing local procurement at any cost, nor does a higher local-spending share alone demonstrate upgrading.

The analytical focus is on feasible and mutually beneficial linkages: transparent technical requirements, supplier assessment, feedback, staged improvement plans, certification where relevant, and commercial relationships that persist when suppliers meet required standards.

Supplier upgrading is the mechanism; procurement participation and contract continuity are observable outcomes, while productivity and quality improvement provide stronger evidence of capability change.

The mechanism consists of:

Measurement should use explicit denominators and eligibility criteria. For example, local procurement can be expressed as the value of eligible procurement from qualified local suppliers divided by total addressable procurement in the same period. The definition of "local," the treatment of intermediaries, and excluded categories should be fixed before comparison.

**Table 9.** Local Value Capture Indicator

| Dimension | Indicator |
|---|---|
| Supplier capability | Share of assessed local suppliers meeting predefined quality, delivery, certification, or productivity thresholds after support. |
| Linkage | Value of eligible procurement from qualified local suppliers divided by total addressable procurement in the same period; define "local" and exclusions. |
| Market access | Share of qualified suppliers receiving contracts and the proportion of relationships sustained over a specified period. |
| Upgrading | Share of supported suppliers achieving predefined certification or verified performance improvement relative to baseline. |

*Source: Authors (2026)*

**4.4.4 Digital Execution as Governance Infrastructure**

Digital execution is an enabling infrastructure rather than a direct conversion mechanism. Its value depends on whether it improves the timeliness, accuracy, accessibility, and use of information for decisions.

A dashboard does not itself create skills, supplier capability, or productivity. Its contribution should be demonstrated by traceable links between information, decisions, responsible actors, and corrective action.

Digital systems can support: coordination, transparency, monitoring, accountability

A project dashboard may record: investment progress, bottleneck status, training activities, employment indicators, outcome indicators

This interpretation is consistent with research emphasizing that digital transformation creates value through organizational and process change, not technology adoption alone (Hanelt et al., 2021). Data access, confidentiality, cybersecurity, and independent verification should be addressed in the system design.

**4.4.5 Outcome Monitoring and Evidence-Based Evaluation**

Outcome monitoring prevents evaluation from stopping at administrative completion. It should establish a baseline, specify a reporting period, identify a data owner, define the denominator and verification method, and distinguish implementation outputs from capability outcomes and longer-term impacts.

Three temporal layers should be assessed separately:

Level 1 Implementation outputs: whether agreed activities were delivered, such as bottlenecks addressed, workers assessed, or suppliers receiving support.

Outputs describe delivery, not whether capability improved.

Examples include: number and severity of bottlenecks verified as resolved, workers completing training and competency assessment, suppliers receiving documented diagnostic or upgrading support

Level 2 Capability outcomes: whether the targeted firms, workers, or suppliers changed in measurable ways after a plausible learning period.

Outcome indicators should be compared with baseline values and, where feasible, with suitable comparison units.

Examples include:

- Change in real output or value added per worker/hour
- share of eligible procurement awarded to qualified local suppliers
- verified application of specified technologies or processes
- changes in wages, contract stability, safety, or skills progression

Level 3 Regional impacts: whether changes in capability are followed by wider changes in productivity, diversification, employment quality, or welfare.

Regional impacts are influenced by many forces beyond one project and require longer observation windows and stronger attribution strategies.

Examples include:

- regional competitiveness
- income improvement
- welfare outcomes

Before after comparisons alone cannot establish causation. Depending on data availability, researchers may use longitudinal panels, matched comparison projects or regions, quasi-experimental designs, or contribution analysis that tests the expected mechanisms and rival explanations.

Appropriate approaches may include:

- before-after comparison
- matched comparison projects
- panel data analysis

- contribution analysis

RICDM offers an evaluation architecture and a set of testable expectations; it does not establish causal effects in the absence of empirical validation.

**4.5. Investment Conversion Compact (ICC) as Governance Mechanism**

The Investment Conversion Compact (ICC) is proposed as the governance layer connecting RICDM components. It is a coordination arrangement, not a new statutory body and not a guarantee of successful conversion. Its rationale is that authority, information, incentives, and resources are often distributed across actors, while capability outcomes depend on their coordinated action.

The ICC should complement existing mandates and avoid duplicating established institutions. Each commitment should identify the responsible actor, deliverable, deadline, resources, indicator, verification method, and escalation route.

Government

Responsibilities:

- regulatory coordination
- infrastructure support
- policy alignment

Investors

Responsibilities:

- technical standards
- market requirements
- technology-learning opportunities

Local Firms

Responsibilities:

- capability upgrading
- quality improvement
- share of eligible procurement awarded to qualified local suppliers

Universities and Knowledge Institutions

Responsibilities:

- training
- research support
- evaluation

The proposed compact rests on five governance principles:

Authority: identify an actor with a legitimate mandate to coordinate and resolve the relevant issue.

The coordinating role should match actual legal authority and available resources.

Incentive alignment: make the expected benefits and costs of participation sufficiently clear to participating actors.

The arrangement should recognize that actors may have different objectives and time horizons.

Accountability: convert broad intentions into specific, time-bound and verifiable commitments.

Progress should be reported against predefined indicators and evidence standards.

Independent monitoring: use credible review or verification where self-reporting creates conflicts of interest.

Monitoring should be proportionate and protect confidential information.

Escalation mechanism: specify how unresolved or recurrent constraints are referred to an actor able to act.

Review meetings should document decisions, responsible owners, and follow-up dates.

### 4.6. Operational Indicators for Empirical Validation

**Table 10.** Proposed Investment Conversion Indicators (with operational definitions and data sources)

| Construct | Definition | Indicator | Data Source |
|---|---|---|---|
| Absorptive capacity | Ability to acquire, assimilate, and apply external knowledge | Baseline-adjusted share of targeted workers passing competency assessment; verified adoption of specified process/technology | Training assessments and firm/project records; baseline and follow-up dates |
| Local value capture | Extent to which investment-related activity generates durable regional supplier linkages | Qualified local procurement / total addressable procurement; supplier contract persistence; verified supplier upgrading | Procurement and supplier records; eligibility and "local" definitions fixed in advance |
| Bottleneck reduction | Reduction in constraints that interrupt conversion | Median days to resolution; share resolved within service standard; recurrence rate | Dated government/project issue log with owner and independent verification |
| Digital execution | Use of reliable digital information to support coordination and corrective action | Share of milestones updated and verified on time; share of flagged issues followed by documented action | Dashboard audit trail, decision logs, access controls, and verification records |
| Employment outcome | Change in the quality and stability of work | Baseline-adjusted real wage, contract stability, safety, working hours, and skills progression (report selected dimensions separately) | Administrative and employer records, worker surveys where feasible; defined observation window |
| Productivity outcome | Change in productive efficiency | Real output or value added per worker/hour, with consistent price basis and reporting period | Firm records and official statistics; account for sector and business-cycle differences |
| Regional welfare | Longer-term change in regional economic and social conditions | Predefined measures such as real household income, employment quality, diversification, or resilience | Official statistics and repeated observations; comparison strategy and rival explanations documented |

*Source: Authors (2026)*

### 4.7. Comparative Contribution and Conceptual Boundaries of RICDM

**Table 11.** Analytical Position of RICDM Compared with Existing Approaches

| Framework | Main Focus | Contribution | Remaining Limitation |
|---|---|---|---|
| Investment facilitation | Investment entry | Removes barriers for capital entry | Limited focus on post-entry capability |
| Investment aftercare | Investor retention | Supports operational continuity | Less emphasis on regional capability |
| Supplier development | Local firm upgrading | Strengthens production linkage | Often limited to supplier dimension |

| Framework | Main Focus | Contribution | Remaining Limitation |
|---|---|---|---|
| Place-based policy | Territorial capability | Addresses regional differences | Less project-level accountability |
| RICDM | Investment-to-capability conversion process | Makes intermediate transitions, governance, feedback, and multi-level outcomes explicit | Conceptual propositions; operationalization and causal claims require empirical validation |

*Source: Authors (2026)*

These limitations point to five priorities for further research: (1) complete and publish a reproducible conceptual-review audit trail and study-level evidence matrix; (2) validate the construct of investment conversion and distinguish it empirically from spillover realization, aftercare, supplier upgrading, and regional capability formation; (3) test the propositions with longitudinal, multi-level data and explicit moderators; (4) pilot standardized yet sector-sensitive indicators with baselines and defined denominators; and (5) compare conversion pathways across manufacturing, extractive, service, infrastructure, and digital investments. Such research can establish where the framework is useful, where it requires adaptation, and whether the proposed mechanisms are associated with sustained capability development.

Fourth, regional impacts are difficult to attribute to an individual investment or governance arrangement. Economic conditions, other policies, infrastructure, migration, and external demand can affect the same outcomes. Longer follow-up periods may improve observation of capability retention but also increase the number of competing explanations. Future studies should select methods according to data and identification conditions, and distinguish causal effects from observed associations or plausible contributions.

Third, the operational indicators proposed here require piloting. Data availability, reporting incentives, inconsistent definitions of local suppliers, confidentiality restrictions, and differences in accounting practices may limit comparability. Absolute counts and self-reported activity measures can overstate progress if they are not paired with denominators, baseline values, verification rules, and evidence of sustained change. Sector-specific measurement protocols and transparent treatment of missing data will be needed.

The conceptual article does not claim exhaustive coverage of the literature or a reproducible systematic-review process. Future work may extend the framework through a separately designed and documented evidence review, with transparent search procedures and source-level appraisal.

Several limitations qualify the framework. First, the study is conceptual and does not estimate the magnitude or causal direction of the proposed relationships. The propositions should therefore be understood as theoretically derived expectations that require testing. Second, the framework draws together different bodies of literature whose constructs, units of analysis, and outcome measures are not always directly comparable. The proposed integration is analytical rather than a statistical synthesis of effect sizes.

### 4.8. Discussion and Policy Implications

#### 4.8.1. Theoretical Contribution: Defining Investment Conversion as an Intermediate Process

The central contribution of this study is to conceptualize investment conversion as an intermediate process linking the operationalization of an investment project to the formation of productive capabilities that can be retained and reused within a regional economy. The concept does not imply that investment spillovers, absorptive capacity, supplier development, or place-

based policy are new. Rather, it identifies a specific analytical problem that these perspectives, when considered separately, do not fully resolve: how the resources and opportunities associated with an operating investment are translated into cumulative local capabilities through coordinated actions across firms, workers, public institutions, and knowledge organizations.

Investment conversion is therefore defined here as a temporally extended, multi-actor process—not as a single outcome or a synonym for regional development. It begins after, or alongside, project implementation and concerns the extent to which investment-related activity produces observable learning, organizational upgrading, supplier capability, and locally retained value. Conversion effectiveness refers to the degree to which these intermediate changes occur relative to a defined baseline, investment scale, and observation period. Regional competitiveness and welfare are downstream outcomes that may follow, but they are not part of the definition of conversion effectiveness itself. This separation avoids circular reasoning in which conversion is declared successful merely because positive regional outcomes have already been observed.

The distinction from related concepts is consequential. Investment facilitation primarily concerns reducing barriers to entry and enabling projects to proceed; investment aftercare supports an investor's continued operation and expansion. Spillover research examines whether knowledge or productivity effects extend beyond the investing firm, while absorptive-capacity theory explains why actors differ in their ability to recognize, assimilate, and apply external knowledge (Cohen & Levinthal, 1990). Supplier-development approaches focus on the upgrading of firms participating in production networks, and place-based policy explains why interventions and outcomes depend on territorial conditions ((Barca et al., 2012); (Gereffi et al., 2005)). Investment conversion connects these concerns by asking whether, through which mechanisms, and under what conditions project-level opportunities become persistent capabilities among local actors. It does not replace these theories; it specifies the process and governance problem that arises between investment operation and capability accumulation.

The proposed mechanism is sequential but not strictly linear. Investment provides resources and market opportunities; local actors must have, or develop, the capacity to learn; linkages create opportunities to apply and retain learning; governance arrangements coordinate responsibilities and resolve constraints; and monitoring feeds evidence back into the next round of decisions. The mechanism can fail at any transition. For example, training may be delivered without resulting in verified skill application, supplier contracts may increase without improving quality or productivity, and digital reporting may expand without changing corrective action. These are not merely weak final outcomes: they are identifiable breaks in the conversion process.

RICDM's theoretical distinctiveness consequently lies in treating conversion as a process capability distributed across an investment ecosystem. It is not an efficiency ratio alone, because the numerator and denominator require context-sensitive definitions; it is not simply a governance outcome, because capability development can occur through firm-level learning; and it is not a single regional stock, because conversion unfolds over time and across levels of analysis. It is an intermediate process whose quality can be assessed through separately measured outputs and capability outcomes.

**4.8.2. Multi-Level Causal Logic and Boundary Conditions**

RICDM links several analytical levels, but it does not assume that change at one level automatically produces change at another. At the project level, outputs include completed training, supplier assessments, technology-learning activities, and resolved bottlenecks. At the firm and worker levels, outcomes concern demonstrated skill application, process improvement, supplier reliability, technology adoption, and job quality. At the regional level, outcomes may include a more diversified supplier base, stronger inter-firm knowledge exchange, productivity

growth, and more resilient economic networks. Wider welfare effects such as sustained income improvement or reduced regional vulnerability are longer-term impacts influenced by many factors beyond any single investment project.

The transition between levels requires explicit aggregation mechanisms. Project outputs can contribute to firm-level change only when participants apply new skills or practices and when firms have incentives and resources to sustain them. Firm-level improvements can contribute to regional capability when local firms remain connected to production networks, knowledge circulates beyond a single contractual relationship, and gains are not confined to a small group of firms. Regional capability can contribute to welfare when productivity and value creation translate into durable employment, income, and opportunity. Each transition is therefore a theoretical expectation to be tested, not an automatic consequence of the preceding stage.

The framework is expected to operate differently across contexts. Institutional quality may influence whether commitments are enforced and coordination failures are resolved. Initial absorptive capacity may determine how much support local actors need before they can use new knowledge. Sectoral characteristics shape the relevant conversion pathway: manufacturing may offer repeated supplier and process-learning opportunities; extractive projects may create substantial infrastructure and service demand but may have limited local production linkages; service investments may depend more heavily on workforce skills and customer-facing capabilities; infrastructure investments may generate indirect capabilities through procurement, maintenance, and connectivity; and digital investments may require complementary organizational change and data skills. Investment duration, technological distance between investors and local firms, market structure, and the stability of demand may also affect the pace and reach of conversion.

These conditions imply that RICDM should be used as a contingent analytical framework rather than a universal recipe. A weak conversion result should be interpreted in relation to the mechanisms actually available, the baseline capabilities of local actors, the time required for upgrading, and the sector's feasible linkage opportunities. Comparisons across projects or regions should therefore normalize indicators where appropriate and document contextual differences rather than rank projects solely by absolute counts.

**4.8.3. Interpreting the Propositions as Testable Relationships**

The propositions developed in the earlier sections should be interpreted as hypotheses derived from conceptual synthesis, not as findings established by this study. For empirical clarity, each relationship should be assessed at a stated unit of analysis, over a specified period, and with outcomes that are not used to define the explanatory construct itself. The following interpretation clarifies the intended causal logic and the conditions under which each proposition may be examined.

Proposition 1: Absorptive-capacity mechanism. At the firm or participating-organization level, higher baseline absorptive capacity is expected to be positively associated with subsequent improvement in the application of investment-related knowledge, controlling for initial capability, sector, firm size, and exposure duration. The mechanism is the ability to recognize, assimilate, and apply external knowledge. Suitable outcomes include verified process adoption, quality improvement, or productivity change not training attendance alone. A plausible boundary condition is technological distance: where the gap between investor technology and local capability is very large, the relationship may depend on staged learning and sustained support.

Proposition 2: Local value-capture mechanism. At the project–supplier relationship level, stronger supplier capability-development support is expected to be positively associated with

the proportion of eligible procurement awarded to qualified local suppliers and with the persistence of those relationships over time. The mechanism is the alignment of investor requirements with supplier learning, certification, quality, delivery, and cost improvements. Procurement value should be assessed against total addressable procurement, with the eligibility definition stated in advance. Sectoral sourcing constraints and the availability of capable local suppliers are important boundary conditions; local procurement growth alone is not evidence of capability upgrading.

Proposition 3: Bottleneck mechanism. At the project or regional implementation level, a greater number or severity of unresolved conversion bottlenecks is expected to be negatively associated with the rate at which planned capability-building activities are completed and with subsequent capability outcomes. The mechanism is the interruption of learning, supplier participation, infrastructure access, or coordination. Bottlenecks should be recorded using predefined categories, severity ratings, dates opened and resolved, and responsible actors. Institutional quality and the authority of the assigned problem owner may moderate this relationship.

Proposition 4: Governance-enablement mechanism. At the project-ecosystem level, clearer stakeholder commitments and more effective governance routines are expected to be positively associated with timely coordination and implementation of conversion activities. The mechanism is not that governance directly guarantees competitiveness, but that it improves information exchange, responsibility allocation, escalation, and corrective action. Governance quality should be measured independently for example, by the proportion of commitments with named owners, deadlines, and verified completion while outputs and capability outcomes are measured separately. Digital tools may support this mechanism but should not be treated as equivalent to governance quality.

Proposition 5: Conversion-to-regional-outcome pathway. At the regional or project-portfolio level, stronger prior improvements in firm capability, supplier linkages, and workforce outcomes are expected to be associated with later improvements in regional productivity, diversification, or employment quality. This relationship is expected to be mediated by the persistence and spread of capabilities across local actors and moderated by institutional quality, sectoral structure, project duration, and the scale of local economic linkages. The proposition must be tested with time-lagged data and suitable comparison strategies; it must not be evaluated by defining successful conversion in terms of the very regional outcomes it is intended to explain.

Together, these propositions distinguish antecedent conditions, conversion mechanisms, immediate outputs, intermediate capability outcomes, and longer-term impacts. Their empirical evaluation would require longitudinal observations and, where feasible, matched comparison projects, panel models, quasi-experimental designs, or contribution analysis. A conceptual paper cannot determine effect sizes or establish causal identification; its contribution is to make the proposed relationships sufficiently explicit for subsequent testing.

**4.8.4. Operationalization, Measurement, and Attribution**

For empirical replication, each indicator should be defined before data collection and reported with its numerator, denominator, baseline, observation window, data owner, and verification method. Absolute counts are useful for project management but are not directly comparable across projects of different sizes. Rates, proportions, per-worker measures, and changes from baseline are generally more informative when the denominator is substantively appropriate. The choice of denominator must also be justified: for example, local procurement should be divided by addressable procurement rather than total spending when some inputs are unavailable locally or are not realistically substitutable.

A proposed operational protocol is as follows. Workforce development can be measured as the share of targeted workers who complete training and demonstrate the specified competency in an independent or standardized assessment, with the baseline skill profile and reassessment interval recorded. Supplier upgrading can be measured as the share of assessed local suppliers meeting predefined quality, delivery, certification, or productivity thresholds after support, relative to the number assessed at baseline. Local procurement can be measured as the value of eligible procurement from qualified local suppliers divided by total addressable procurement during the reporting period; both eligibility and local-supplier status should be defined consistently. Technology learning can be measured by the share of planned learning activities that lead to verified adoption or application, not merely the number of workshops held. Bottleneck management can be measured through median resolution time, the share resolved within the agreed service standard, and the recurrence rate. Digital execution can be measured by the proportion of required milestones updated on time and independently verified, together with evidence that flagged issues trigger documented decisions or corrective action.

Productivity and employment outcomes require separate definitions. Productivity may be measured as real output or value added per worker or hour, using a consistent price basis and reporting period. Employment quality may include real wage change, contract stability, working hours, occupational safety, and access to skills progression; the selected dimensions should be stated rather than collapsed into an unspecified composite. Regional outcomes should be assessed with indicators suited to the research question, such as sector-adjusted productivity, supplier-network diversification, real household income, or employment quality. Data should be disaggregated where appropriate by firm size, worker group, gender, location, and supplier tier, subject to data availability and privacy safeguards.

Measurement should distinguish four temporal layers: (1) inputs and project conditions at baseline; (2) implementation outputs during delivery; (3) firm-, worker-, and supplier-level outcomes after a plausible learning period; and (4) regional impacts over a longer horizon. The observation window should reflect the investment's sector and technology cycle. A short reporting period may capture completed activities but miss capability retention; a long period may capture regional change but make attribution more difficult. Baseline values, repeated observations, and a clearly documented theory of change are therefore essential.

Attribution must remain cautious. Regional productivity, wages, and diversification are influenced by macroeconomic conditions, infrastructure, other public policies, migration, and market changes. Before–after comparisons alone cannot isolate an investment's effect. Where data and design permit, researchers should use matched comparison projects or regions, panel data with appropriate controls, quasi-experimental strategies, or contribution analysis that tests whether the predicted mechanisms occurred and considers rival explanations. Findings should be reported as associations or contributions unless the design supports a stronger causal claim.

**4.8.5. The Investment Conversion Compact as a Governance Arrangement**

The Investment Conversion Compact (ICC) is proposed as a practical governance arrangement within RICDM, not as a new statutory institution or a guarantee of successful conversion. Its theoretical role is to address the coordination problem that arises when relevant resources, authority, knowledge, and incentives are distributed across different actors. The compact makes interdependencies explicit by translating general development objectives into commitments that can be assigned, monitored, reviewed, and revised.

Government bodies can coordinate regulations, infrastructure, and public services within their mandates; investors can communicate technical standards, forecast demand, provide appropriate learning opportunities, and clarify supplier qualification requirements; local firms

can identify capability gaps and implement agreed improvements; and universities or other knowledge institutions can contribute training, applied research, independent assessment, and evaluation. Responsibilities should be negotiated according to actual authority and capacity, rather than presumed from an idealized stakeholder map.

For the ICC to support conversion, each commitment should specify the responsible actor, deliverable, deadline, resources, indicator, verification method, and escalation route. Incentive alignment matters because actors may otherwise prioritize their own short-term targets over shared capability outcomes. Independent monitoring can improve credibility, while an escalation mechanism allows unresolved constraints to be referred to an actor with the authority to act. Digital dashboards may make commitments visible and preserve an audit trail, but they are useful only when the information is reliable, access is appropriately governed, and monitoring leads to decisions.

The ICC is thus a proposed coordination mechanism whose performance should itself be evaluated. Potential measures include the share of commitments with named owners and verified completion, time taken to resolve cross-agency issues, frequency of evidence-based review meetings, and the proportion of flagged issues followed by documented corrective action. These are governance-process indicators, not proof of regional impact.

**4.8.6. Policy Implications as Propositions for Practice**

The policy implications of RICDM are derived from conceptual synthesis and should be treated as propositions for implementation and evaluation, rather than as demonstrated policy effects. First, investment agencies could complement traditional measures of investment value, project completion, and employment quantity with indicators of capability formation. This would make it possible to distinguish operational success from the development of skills, suppliers, technology use, and durable local linkages.

Second, public agencies and investors could use an ICC-style arrangement to assign responsibility for post-implementation capability objectives. Such an arrangement is most likely to be useful where responsibilities are fragmented and where no single actor controls all the resources needed to resolve a bottleneck. Its suitability should be assessed against existing legal mandates and coordination structures to avoid duplicating institutions.

Third, supplier policies could emphasize readiness assessment and staged upgrading rather than relying solely on local-content targets. Procurement opportunities are more likely to support durable capability when local firms receive clear technical requirements, feedback, realistic improvement milestones, and access to appropriate learning support. The framework does not imply that all procurement can or should be localized; feasibility, quality, safety, cost, and supply resilience remain relevant constraints.

Fourth, digital systems should be judged by whether they improve the quality and timeliness of decisions, not by the existence of a dashboard or the volume of data collected. A practical system should link milestones, evidence, responsible actors, risk flags, and corrective actions while protecting commercially sensitive and personal information. Finally, evaluation plans should be designed at the beginning of an investment project so that baseline data, comparison strategies, and follow-up periods are not improvised after outcomes have occurred.

**4.8.7. Empirical Research Agenda**

Future research can assess RICDM through longitudinal project studies that track the sequence from investment realization to implementation outputs, firm and worker capability changes, and later regional outcomes. A project-level panel could combine administrative records, supplier procurement data, workforce assessments, and firm productivity measures. Such a design

should account for project size, sector, ownership, regional conditions, and exposure duration, while protecting confidential business information.

Comparative case studies could examine why similar investments generate different conversion pathways in regions with different institutional capacity, supplier bases, or skill systems. Mixed-method designs would be particularly useful for tracing mechanisms: quantitative measures can establish whether changes occurred, while interviews and documentary evidence can help determine how coordination, learning, and bottleneck resolution contributed. Where a credible comparison group and suitable pre-intervention data exist, quasi-experimental approaches may strengthen causal inference. Where they do not, contribution analysis can assess the plausibility of the proposed pathway without overstating attribution.

A further research priority is to validate the measurement model. Researchers should test whether the proposed indicators are reliable, comparable across sectors, and sensitive to meaningful capability change. They should also examine whether the five RICDM components operate as complements or whether particular combinations are sufficient under specific conditions. The framework should remain open to revision if empirical findings reveal that some mechanisms are redundant, context-specific, or weakly connected to downstream outcomes.

## 5. Conclusion and Suggestion

This study addresses the gap between investment realization and the development of productive capabilities that remain embedded in a regional economy. It proposes investment conversion as an intermediate, multi-actor process through which operational investment opportunities may be translated into learning, workforce competence, supplier upgrading, technology application, and local value capture. The central argument is that investment volume and operational completion are necessary indicators of project implementation, but they are insufficient on their own to establish whether durable regional capabilities have formed.

The Regional Investment Conversion Debottlenecking Model (RICDM) organizes this process through five connected components: bottleneck mapping, capacity building, local value capture, digital execution, and outcome monitoring and evaluation. The Investment Conversion Compact (ICC) is proposed as the governance arrangement for clarifying commitments and coordinating action among public agencies, investors, local firms, and knowledge institutions. Digital execution is treated as enabling infrastructure, while monitoring supplies feedback for adaptation; neither is assumed to generate capability automatically.

The framework's theoretical contribution is to distinguish conversion from investment entry, knowledge spillovers, supplier development, and regional competitiveness while explaining how these established concerns may connect across levels and over time. Conversion is not defined by the achievement of downstream regional outcomes. Instead, intermediate capability changes are measured separately, allowing researchers to investigate whether and under what conditions they contribute to broader development. The framework also specifies that the pathway may differ by sector, initial capability, institutional quality, investment duration, and technological distance.

RICDM remains a conceptual framework, and the propositions presented here are not empirically verified effects. The study does not establish that implementing the model will cause higher productivity, better employment, or improved welfare. Those claims require transparent evidence mapping, operationally defined indicators, baseline and follow-up data, and empirical designs capable of examining alternative explanations. The framework's value at this stage is to provide a more explicit and testable structure for research and policy learning.

For practice, the implication is not simply to attract more investment or to mandate more local procurement. It is to identify which capabilities can realistically be developed, specify who is responsible for enabling them, monitor whether learning and upgrading actually occur, and adapt interventions when evidence reveals persistent bottlenecks. The ultimate test of investment policy is therefore not only whether projects operate, but whether they contribute—through identifiable and measurable pathways to capabilities that local actors can sustain beyond the immediate project.

## 6. Limitations and Future Research

Several limitations qualify the framework. First, the study is conceptual and does not estimate the magnitude or causal direction of the proposed relationships. The propositions should therefore be understood as theoretically derived expectations that require testing. Second, the framework draws together different bodies of literature whose constructs, units of analysis, and outcome measures are not always directly comparable. The proposed integration is analytical rather than a statistical synthesis of effect sizes.

Third, the operational indicators proposed here require piloting. Data availability, reporting incentives, inconsistent definitions of local suppliers, confidentiality restrictions, and differences in accounting practices may limit comparability. Absolute counts and self-reported activity measures can overstate progress if they are not paired with denominators, baseline values, verification rules, and evidence of sustained change. Sector-specific measurement protocols and transparent treatment of missing data will be needed.

Fourth, regional impacts are difficult to attribute to an individual investment or governance arrangement. Economic conditions, other policies, infrastructure, migration, and external demand can affect the same outcomes. Longer follow-up periods may improve observation of capability retention but also increase the number of competing explanations. Future studies should select methods according to data and identification conditions, and distinguish causal effects from observed associations or plausible contributions.

Future research should (1) test and refine the investment-conversion construct against related concepts such as spillovers, aftercare, supplier upgrading, and regional capability formation; (2) evaluate the propositions using longitudinal and multi-level data with explicit boundary conditions; (3) pilot sector-sensitive indicators with baselines, defined denominators, and verification rules; (4) compare conversion pathways across manufacturing, extractive, service, infrastructure, and digital investments; and (5) distinguish causal effects from observed associations and plausible contributions using research designs suited to the available data.

## References

Bailey, D., Pitelis, C. N., & Tomlinson, P. R. (2023). Place-based industrial and regional strategy – levelling the playing field. *Regional Studies*, *57*(6), 977–983. https://doi.org/10.1080/00343404.2023.2168260

Barca, F., McCann, P., & Rodríguez-Pose, A. (2012). The Case For Regional Development Intervention: Place-Based VERSUS PLACE-NEUTRAL APPROACHES*. *Journal of Regional Science*, *52*(1), 134–152. https://doi.org/10.1111/j.1467-9787.2011.00756.x

Borsekova, K., Korony, S., & Lawson, C. W. (2024). In search of key performance indicators of regional competitiveness in the European Union. *Journal of Regional Science*, *64*(3), 961–986. https://doi.org/10.1111/jors.12692

Cohen, W. M., & Levinthal, D. A. (1990). Absorptive Capacity: A New Perspective on Learning and Innovation. *Administrative Science Quarterly*, *35*(1), 128. https://doi.org/10.2307/2393553

Gereffi, G., Humphrey, J., & Sturgeon, T. (2005). The governance of global value chains. *Review of International Political Economy*, *12*(1), 78–104. https://doi.org/10.1080/09692290500049805

Hanelt, A., Bohnsack, R., Marz, D., & Antunes Marante, C. (2021). A Systematic Review of the Literature on Digital Transformation: Insights and Implications for Strategy and Organizational Change. *Journal of Management Studies*, *58*(5), 1159–1197. https://doi.org/10.1111/joms.12639

Humphrey, J., & Schmitz, H. (2002). How does insertion in global value chains affect upgrading in industrial clusters? *Regional Studies*, *36*(9), 1017–1027. https://doi.org/10.1080/0034340022000022198

Javorcik, B. S. (2004). Does Foreign Direct Investment Increase the Productivity of Domestic Firms? In Search of Spillovers Through Backward Linkages. *American Economic Review*, *94*(3), 605–627. https://doi.org/10.1257/0002828041464605

Kraus, S., Durst, S., Ferreira, J. J., Veiga, P., Kailer, N., & Weinmann, A. (2022). Digital transformation in business and management research: An overview of the current status quo. *International Journal of Information Management*, *63*, 102466. https://doi.org/10.1016/j.ijinfomgt.2021.102466

Nguyen, C. V., Tran, T. Q., & Vu, H. Van. (2024). Does foreign direct investment benefit local firms? Evidence from a natural experiment study. *The World Economy*, *47*(3), 1191–1246. https://doi.org/10.1111/twec.13487

OECD. (2023). *Place-Based Policies for the Future* (OECD Regional Development Papers, Vol. 78). https://doi.org/10.1787/9b0b0107-en

Pietrobelli, C., & Rabellotti, R. (2011). Global Value Chains Meet Innovation Systems: Are There Learning Opportunities for Developing Countries? *World Development*, *39*(7), 1261–1269. https://doi.org/10.1016/j.worlddev.2010.05.013

Qiao, Y., Ascani, A., & Morrison, A. (2024). External linkages and regional diversification in China: The role of foreign multinational enterprises. *Environment and Planning A: Economy and Space*, *56*(4), 1077–1101. https://doi.org/10.1177/0308518X231223621

Saito, H., & Matsuura, T. (2025). Foreign Direct Investment and Quality-Upgrading Spillovers in Indonesia. *The World Economy*, *48*(5), 1127–1138. https://doi.org/10.1111/twec.13688

Sheng, Y., Yang, X., Chih, Y., & Zhang, J. (2024). Foreign direct investment spillovers and regional innovation in China: The spatial moderating role of absorptive capacity. *Review of Development Economics*, *28*(4), 1803–1837. https://doi.org/10.1111/rode.13122

Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, *104*, 333–339. https://doi.org/10.1016/j.jbusres.2019.07.039