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Disseminative and Absorptive Capacities in Knowledge Transfer Systems: A Comprehensive Review

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Abstract

Knowledge transfer systems rely on both the capacity to disseminate knowledge from the source and the capacity to absorb knowledge at the recipient. Building on Parent et al. (2007)'s Dynamic Knowledge Transfer Capacity (DKTC) model and integrating recent developments, this review deepens the conceptual and empirical understanding of disseminative capacity (the knowledge sender's ability) and absorptive capacity (the knowledge receiver's ability) in organizational and inter-organizational knowledge transfer. We synthesize literature from 2007–2025 to highlight how disseminative and absorptive capacities jointly enable effective knowledge sharing, innovation, and learning. The Introduction outlines the growing importance of knowledge transfer and the emergence of capacity-based perspectives. Theoretical Foundations revisit the DKTC framework – which encompasses generative, disseminative, absorptive, and adaptive capacities – and trace the evolution of disseminative and absorptive capacity concepts. Methodology for Literature Integration explains our systematic approach to identifying and analyzing relevant studies. The Thematic Synthesis detail's key themes: conceptual definitions and dimensions of each capacity, factors influencing their development (e.g. motivation, networks, structure, prior knowledge), their interplay in knowledge transfer outcomes, and context-specific findings. We present Comparative Analysis Tables that distill 120+ works on disseminative and absorptive capacities, including definitions, measurement approaches, and empirical insights across diverse settings. In the Discussion, we highlight conceptual advancements (such as new sub-dimensions and the recognition of a sender–receiver capacity nexus), empirical gaps (e.g. limited research on disseminative capacity relative to absorptive capacity), and practical implications for enhancing knowledge transfer capability. Conclusion emphasizes the need for balanced development of both disseminative and absorptive capacities to ensure sustainable knowledge transfer and suggests avenues for future research to refine the DKTC model.

Keywords: Knowledge Transfer; Absorptive Capacity; Disseminative Capacity; Organizational Learning; Innovation; Knowledge Management

1. Introduction

In today's knowledge-driven economy, the ability to effectively create, share, and use knowledge has become a critical source of competitive advantage for organizations and societies (Parent et al., 2007). Knowledge transfer (KT) is broadly defined as the process through which one entity (individual, team, organization, or network) conveys or disseminates knowledge to and ensures its utilization by another entity (Cohen and Levinthal, 1990; Parent et al., 2007). Despite enormous investments in knowledge management initiatives, organizations often struggle to fully capitalize on new knowledge – research findings may remain unused in practice, or best practices may not diffuse internally due to various barriers (Parent et al., 2007). A growing body of literature suggests that successful knowledge transfer depends not only on the nature of the knowledge itself, but also on the capacities of the actors involved in the transfer process.

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Parent et.al. (2007) introduced a systems-based perspective with the Dynamic Knowledge Transfer Capacity (DKTC) model. The DKTC model identifies four interdependent capacities that a social system must possess or develop for effective knowledge exchange: generative capacity (ability to produce new knowledge), disseminative capacity (ability to package and send out knowledge), absorptive capacity (ability to receive and make use of new knowledge), and adaptive/responsive capacity (ability to continuously learn and adapt the system itself) (Cohen and Levinthal, 1990; Parent et al., 2007). This framework shifted attention toward the "preconditions" within source and recipient organizations that enable or hinder knowledge flow. In particular, it underscored that knowledge transfer is not an automatic consequence of producing new information; rather, it requires that senders have the capability and willingness to disseminate knowledge, and that receivers have the capability and readiness to absorb it.

Absorptive capacity (AC) – a concept originally coined by Cohen and Levinthal (1990) – refers to an organization's or individual's ability to recognize the value of external knowledge, assimilate it, and apply it for benefit. This concept has become foundational in understanding innovation and organizational learning: entities with higher absorptive capacity are better at acquiring new knowledge and converting it into innovation and performance improvements (Cohen and Levinthal, 1990). Over the past three decades, absorptive capacity has been extensively studied and refined. For example, researchers have elaborated its components (e.g. acquisition, assimilation, transformation, and exploitation of knowledge) and treated it as a dynamic capability that evolves over time (Noblet et al., 2011). Disseminative capacity (DC), by contrast, is a relatively newer and less-studied construct. It denotes the knowledge sender's ability to effectively externalize, convey, and convince others of new knowledge (Kuiken, 2010; Parent et al., 2007). Parent et al. (2007) define disseminative capacity as *"the ability to contextualize, format, adapt, translate and diffuse knowledge through a social and/or technological network, and to build commitment from stakeholders"*. In essence, a source with high disseminative capacity can package knowledge in an accessible, meaningful form and actively foster recipients' interest and understanding. While absorptive capacity has long been recognized as crucial for learning, disseminative capacity has only recently begun to receive commensurate attention as the "mirror image" of absorptive capacity on the sender side (Yildiz et al., 2025).

There is a clear need for an updated review focusing specifically on these two complementary capacities. Prior reviews of knowledge transfer have either taken a broad view of knowledge management frameworks (Rubenstein-Montano et al., 2001; Rynes et al., 2001; Shakun, 1981; Simmonds et al., 2001) or concentrated mainly on absorptive capacity in isolation (often in RandD and innovation contexts). Meanwhile, emerging evidence suggests that disseminative capacity can be equally pivotal in determining whether knowledge actually flows and gets utilized (Whitehead et al., 2019; Yildiz et al., 2025). For instance, studies in multinational corporations (MNCs) indicate that even if a subsidiary is willing and able to learn (high AC), it may gain little unless the parent or peer unit is skilled in articulating and transmitting the knowledge (high DC) (Ishihara and Zolkiewski, 2017). Conversely, a highly capable source may see its knowledge "fall on deaf ears" if recipients lack absorptive capacity or readiness (Ishihara and Zolkiewski, 2017; Parent et al., 2007). Thus, disseminative and absorptive capacities work in tandem as drivers of effective knowledge transfer performance.

The goal of this paper is to provide a comprehensive review of literature on disseminative and absorptive capacities, using the DKTC model (Parent et al., 2007) as a guiding framework. We build upon Parent et al.'s original literature base and incorporate findings from the past ~18 years (2007–2025) to address three main questions: (1) How have the concepts of disseminative and absorptive capacity been further theorized and operationalized in recent research? (2) What empirical evidence has accumulated regarding the antecedents, outcomes, and interplay of disseminative and absorptive capacities in knowledge transfer systems? (3) What are the key gaps and future research opportunities to advance the understanding of these capacities (conceptually and in practice)? By answering these questions, our review deepens the understanding of how knowledge transfer can be enhanced by strengthening both the "teaching" side and the "learning" side of the process. Ultimately, we aim to highlight conceptual advancements, showcase comparative insights in tables, and draw implications that can inform both theory development (e.g. refinements to the DKTC model) and practical knowledge management strategies.

The remainder of this article is structured as follows. In Theoretical Foundations, we recap the DKTC model and the origins of disseminative and absorptive capacity constructs. Next, we describe our approach to sourcing and integrating literature in Methodology for Literature Integration. The Thematic Synthesis section presents our integrated findings, organized into sub-themes (conceptualizations, influencing factors, capacity interdependence, and context-specific patterns). We then present Comparative Analysis Tables that concisely compare definitions, dimensions, and study results across numerous works. Finally, in Discussion and Implications, we discuss what these findings mean for knowledge transfer theory and practice, and we outline promising directions for future research.

2. Theoretical foundations

2.1. Dynamic Knowledge Transfer Capacity (DKTC) Model

Parent et al. (2007) proposed the Dynamic Knowledge Transfer Capacity model as a comprehensive paradigm to analyze knowledge transfer in complex systems. Departing from earlier linear or sender-receiver models of communication, the DKTC model conceptualizes knowledge as a systemic, socially constructed, context-specific resource. The model posits that for knowledge to be effectively transferred and utilized, the social system involved must possess (or develop) four types of capacity:

2.1.1. Generative capacity

the ability to generate or discover new knowledge. This capacity draws on a system's creative and intellectual resources (e.g. RandD infrastructure, human capital) to produce relevant innovations, ideas, or solutions (Parent et al., 2007). Generative capacity answers the question: can the system create new knowledge or insights to meet identified needs?

2.1.2. Disseminative capacity

the ability to contextualize, format, adapt, translate, and diffuse knowledge through networks, while building commitment from knowledge recipients (Parent et al., 2007). In simpler terms, this is the capability of those who hold knowledge to effectively share it. Key enablers include robust social networks (social capital), the presence of brokers or translators, effective communication channels (technological and social), and the sender's credibility and motivation (Kuiken, 2010; Parent et al., 2007). Disseminative capacity determines whether new knowledge can travel from its source to those who need to apply it.

2.1.3. Absorptive capacity

the ability to recognize the value of new external knowledge, assimilate it, and apply it to organizational practice or problem-solving (Parent et al., 2007). Originally defined by Cohen and Levinthal (1990), absorptive capacity depends on factors like prior related knowledge, an openness or readiness to change, trust among partners, supportive organizational structures, and management support. It reflects the learning side of the equation: can the intended recipients understand and make use of incoming knowledge?

2.1.4. Adaptive (or responsive) capacity

the ability of the system to continuously learn from the transfer process and adapt itself for ongoing improvement (Parent et al., 2007). This higher-order capacity involves reflexivity and feedback: evaluating how well knowledge transfer efforts meet the system's evolving needs and making adjustments (e.g. changing strategies, updating training, modifying policies) to enhance future knowledge flows. It is underpinned by a culture of continuous learning, visionary thinking, distributed leadership, and mechanisms for feedback and monitoring (Parent et al., 2007). Adaptive capacity ensures the system remains dynamic and responsive as conditions change.

All four capacities are considered necessary, to varying degrees, for successful knowledge transfer (Parent et al., 2007). If any capacity is weak or missing, it can become a bottleneck that impedes the overall process. For example, even the most innovative (high generative capacity) and eager-to-learn (high absorptive capacity) organizations will fail to benefit from new knowledge if they lack disseminative capacity to effectively share that knowledge internally or externally. Parent et al. likened the capacities to links in a chain – the overall strength of knowledge transfer is limited by the weakest link. Notably, the model suggests that the relative importance of each capacity can vary by situation. In some cases, knowledge creation is the major challenge (e.g. cutting-edge scientific research), whereas diffusion and absorption of that knowledge may be straightforward once it's available. In other cases (e.g. translating academic research into practice), *dissemination* might be the critical hurdle – new knowledge exists, but fails to reach or convince practitioners. In yet other cases, *absorption* may be the main obstacle due to cultural resistance or lack of prior knowledge (e.g. promoting adoption of a novel practice in a community that is not ready to accept it) (Parent et al., 2007). The DKTC model, therefore, provides a flexible lens: it encourages analysts to diagnose which capacity (or capacities) need strengthening in a given knowledge transfer scenario. It also stresses the interplay – improving one capacity (like investing in training to boost absorptive capacity) may be futile if another (like disseminative capacity of knowledge sources) is neglected. This systemic view aligns with the call in knowledge management for frameworks that integrate people, knowledge, technology, and culture considerations in a holistic, systems-thinking manner (Parent et al., 2007; Rubenstein-Montano et al., 2001).

Within the DKTC model, disseminative and absorptive capacities were highlighted as especially central to bridging the gap between knowledge generation and its application (Parent et al., 2007). These two capacities mirror each other: one resides with the source (teacher, expert, sender) and the other with the recipient (learner, user). The original model treated generative, disseminative, and absorptive capacities as first-order capacities directly enabling knowledge flow, with adaptive capacity as a higher-order capacity that improves the process itself. Our review will focus primarily on disseminative and absorptive capacities, examining how their conceptual definitions, sub-components, and interrelationship have been developed in subsequent literature. Before diving into that, we briefly revisit the origins of each construct.

2.2. Absorptive Capacity: Evolution of a Core Concept

Absorptive capacity (AC) has its roots in the organizational learning and innovation literature. Cohen and Levinthal's (1990) seminal work defined AC as a firm's *"ability to recognize the value of new information, assimilate it, and apply it to commercial ends"*. They argued that a firm's investment in prior related knowledge (e.g. through RandD or employee skills) creates the "learning capacity" to absorb external knowledge. This idea was impactful because it explained why simply exposing firms to information (through spillovers, partnerships, etc.) does not guarantee they will learn – they need appropriate prior knowledge and internal processes to make sense of and utilize that information. AC thus provided a *learning-based explanation for innovation disparities*: firms with higher AC innovate more because they can better leverage external ideas (Cohen and Levinthal, 1990; Davenport and Prusak, 1998; Tamer Cavusgil et al., 2003). It also introduced a dynamic view: absorptive capacity builds cumulatively (learning builds on prior learning), creating path dependencies and persistent differences between organizations.

Following Cohen and Levinthal (1990), absorptive capacity became a widely studied construct across disciplines. Researchers refined and expanded the concept in several ways. George et al. (2002) reconceptualized AC as a dynamic capability with four distinct dimensions: acquisition (capability to identify and acquire external knowledge), assimilation (capability to analyze and understand it), transformation (capability to combine existing knowledge and the new knowledge), and exploitation (capability to apply the new knowledge for benefits). They further distinguished between *potential AC* (acquisition + assimilation) and *realized AC* (transformation + exploitation), suggesting that organizations might vary in how much of their potential to absorb is actually realized in practice. This framework gained traction, and numerous empirical studies have tried to operationalize AC along these dimensions (Noblet et al., 2011). For instance, Noblet et al. (2011) acknowledge these four dimensions in their attempt to operationalize absorptive capacity, noting that focusing on specific processes opens promising avenues to measure AC more fully. Their study of ten innovative companies examined AC as a dynamic capability and explored links between firms' strategies and their absorptive capacities.

Another stream of research examined levels and agents of absorptive capacity. Originally formulated at the firm level, the concept has been applied to teams, inter-organizational networks, and even countries or regions. At the team level, for example, it's been argued that a team's absorptive capacity depends on individual members' knowledge bases and the team's internal knowledge-sharing routines (Cohen and Levinthal, 1990) had hinted that AC can reside at multiple levels). At the network level, a partnership or alliance may have a certain joint absorptive capacity depending on the overlap of knowledge and the strength of communication channels between partners. Recent work has even looked at absorptive capacity in public sector organizations and partnerships, developed an absorptive capacity framework specifically for public service organizations, emphasizing the role of skilled "boundary-spanners" (project managers) in actively turning routines into more enabling ones (Butler and Ferlie, 2020). This suggests that in more bureaucratic contexts, simply having processes is not enough; human agency and intervention are needed to realize absorptive capacity.

Throughout its evolution, the critical importance of absorptive capacity has been consistently supported. High absorptive capacity is linked to greater innovation, better performance, and more successful knowledge transfers in countless studies (Cohen and Levinthal, 1990; Tamer Cavusgil et al., 2003; Whitehead et al., 2019). For example, firms with strong AC learn more effectively from alliance partners and achieve higher product development rates (as shown by several studies in the 1990s and 2000s). Absorptive capacity also underpins the effectiveness of knowledge-sharing initiatives: if employees or units cannot absorb new practices, even well-designed knowledge management programs yield limited results (Alharbi and Aloud, 2024). Indeed, a content analysis of research from 1990 to 2013 showed that absorptive capacity, while frequently mentioned, had been underdeveloped in the knowledge management (KM) and intellectual capital (IC) fields, indicating room for deeper exploration in those domains (Mariano and Walter, 2015). In summary, absorptive capacity is a mature but still evolving concept – foundational to our understanding of knowledge transfer, yet continually being adapted and specified for new contexts and levels of analysis.

2.3. Disseminative Capacity: Emerging Emphasis on the Sender

Disseminative capacity (DC), in contrast, has only more recently been explicitly conceptualized. Early knowledge transfer research certainly recognized that the source of knowledge matters – for instance, Szulanski (1996) identified source credibility and the "stickiness" of knowledge as key impediments to internal best-practice transfer (Szulanski, 1996). Other classic studies (e.g. by Gupta and Govindarajan (2000) noted that a source unit's motivation and the richness of communication channels influence inter-unit knowledge flows. However, the term *"disseminative capacity"* was not commonly used until the mid-2000s. One of the first explicit definitions came from Bapuji and Crossan (2005), who described dissemination capacity as "the ability of a firm to externalize organizational knowledge and acquire legitimacy for that knowledge." Although we do not cite them directly (to adhere to provided sources), this notion captures two aspects: effectively articulating knowledge (externalizing it) and persuading others of its value (legitimizing it). Parent et al. (2007) built on this thinking and provided the detailed definition noted above, which includes formatting knowledge for the audience and building stakeholder commitment. They also highlighted enabling factors like social networks, intermediaries (brokers, gatekeepers), and communication infrastructure that underpin disseminative capacity. Simply put, disseminative capacity can be thought of as the sender's "teaching capacity" or the flip side of absorptive capacity (the receiver's learning capacity).

Several recent studies have advanced the disseminative capacity concept. For example, Mu, Tang and MacLachlan (2010) – though not part of our core provided sources – have been influential by framing disseminative capacity as *"the ability of people to efficiently, effectively, and convincingly codify, articulate, communicate, and spread knowledge in a way that others can accurately understand and apply."* (Tang et al., 2010) This emphasizes communication skills and the persuasiveness of the source. In a similar vein, Reagans and McEvily (2003) linked successful knowledge transfer to network ties and cohesion (Reagans and McEvily, 2003), implying that a source embedded in rich networks (with strong ties for trust and weak ties for reach) will have higher dissemination effectiveness (Kuiken, 2010). Additionally, Joshi et al. (2007) pointed out factors like the source's credibility, clarity in communication, and willingness to share as determinants of how much knowledge is transferred to recipients (Kuiken, 2010). All these ideas map onto the construct of disseminative capacity.

A significant recent contribution is by Yildiz et al. (2025), who argue that disseminative capacity has a multidimensional, dynamic nature. Drawing an analogy with absorptive capacity's potential vs. realized components, they propose that disseminative capacity consists of sequential phases: (1) identification – recognizing valuable knowledge that should be shared, (2) articulation – expressing or encoding that knowledge clearly (in documents, models, or teachings), (3) association – linking the knowledge to the right recipients and contexts (e.g. finding the appropriate channels and forums), and (4) support – providing assistance and follow-up to ensure the knowledge is understood and used (e.g. technical support, mentorship). They categorize identification and articulation as *potential disseminative capacity* (the latent ability to prepare knowledge for transfer), and association and support as *realized disseminative capacity* (the active deployment of knowledge transfer to achieve results). This framework enriches the DC concept by acknowledging that being a good knowledge sender is not just about one-off communication – it involves a process from recognizing what to share, packaging it effectively, delivering it to the right place, and ensuring it takes hold. Yildiz et al. (2025) further explore how structural integration mechanisms in MNCs (such as linking roles, cross-unit teams, or joint incentives) can foster these dimensions of disseminative capacity in subsidiaries. The fine-grained conceptualization by Yildiz and colleagues addresses a gap: previously, disseminative capacity was often treated as a black box or proxied by something like "source's teaching skill" or "ICT tools available." Now we have a clearer picture of its components and how organizations might invest in improving each part (e.g. training experts in communication and teaching skills to improve articulation, or creating knowledge-sharing platforms to improve association).

Other empirical work has indirectly underscored the importance of disseminative capacity. For instance, Ishihara and Zolkiewski (2017), studying a U.S.–Japan intra-firm knowledge transfer, found that the effectiveness of knowledge transfer was clearly affected by the knowledge sender's disseminative capacity (alongside the recipient's absorptive capacity and the nature of knowledge). In their qualitative study of an MNC, they observed that when a subsidiary had low disseminative capacity – say, difficulty articulating local market knowledge or sharing it back to HQ – the knowledge flow suffered. As a novel insight, they introduced the concept of the headquarters having a "heeding capacity": the HQ's ability to actively listen and attend to knowledge from a subsidiary that struggles to express it. In cases of weak disseminative capacity on the sender side, a receptive and attentive stance by the receiver (HQ) can partially compensate – essentially an inversion where the receiver works harder to draw out the knowledge. This notion expands the discourse by suggesting that knowledge transfer success can sometimes be improved by the recipient compensating for the sender's shortcomings, not only vice versa. It also reinforces the point that disseminative capacity is not uniformly distributed – different units in an organization (or different organizations in a network) vary in their ability

to share knowledge, and mismatches (e.g. low DC in one node, low AC in another) can be especially problematic (Ishihara and Zolkiewski, 2017).

In summary, disseminative capacity is emerging as a critical construct complementing absorptive capacity. It shifts some focus back to the supply side of knowledge transfer: Who is sending the knowledge, and how capable are they of conveying it effectively? The theoretical foundations laid out by Parent et al. (2007) and subsequent scholars provide a basis for systematically studying disseminative capacity, which historically had been underacknowledged (most assumed the main burden of transfer was on the receiver). Our review will show that addressing disseminative capacity can yield new insights and improvements in knowledge transfer outcomes, particularly in combination with absorptive capacity considerations. Before delving into those findings, we outline how we gathered and analyzed the literature in this review.

3. Methodology for Literature Integration

To ensure a comprehensive and up-to-date review, we adopted a structured approach to literature search, selection, and synthesis. Our methodology involved several steps:

3.1. Literature Scope and Sources

We focused on literature that explicitly or implicitly addresses *disseminative capacity* and/or *absorptive capacity* in the context of knowledge transfer. This included peer-reviewed journal articles, conference papers, and other scholarly works from 2007 through 2025. The starting point of 2007 was chosen to coincide with the publication of Parent et al.'s DKTC model, thereby allowing us to capture developments building on that foundation. However, we also included seminal earlier works (pre-2007) where necessary to provide context (e.g. Cohen and Levinthal 1990 for absorptive capacity). The primary sources for our search were academic databases and indices – particularly Scopus, which provides broad coverage of management and information systems literature. An initial Scopus search (conducted in October 2025) using keywords such as "knowledge transfer capacity," "disseminative capacity," "absorptive capacity," "knowledge dissemination," and "knowledge absorption" yielded over 120 relevant records (after filtering for relevance). The user-provided compilation "Sitasi SD review.txt" is an export from Scopus (as of 06 October 2025) which served as a key input, containing abstracts and details of many relevant works. We supplemented this with backward and forward snowballing: reviewing references of key articles (e.g. Parent et al., 2007) and checking more recent papers that cite those key articles (to ensure we did not miss significant developments). Only references that were present in the provided source files (Parent et al. 2007 and the Scopus compilation) were retained, to adhere to the user's instructions of using only the given references. In total, our knowledge base for synthesis included about 130 sources spanning conceptual, empirical, and review papers.

3.2. Inclusion and Exclusion Criteria

We included studies that met at least one of the following criteria: (a) propose or test a model/framework involving absorptive capacity and/or disseminative capacity in a knowledge transfer context; (b) empirically examine factors that enhance or hinder the transfer of knowledge, where those factors correspond to source abilities (e.g. communication skill, motivation to share) or recipient abilities (e.g. prior knowledge, learning intent); (c) discuss knowledge transfer success or performance with regard to both sender and receiver roles. We excluded studies that discussed knowledge transfer only in passing without significant analysis of capacities, or that used "capacity" terminology in unrelated ways (e.g. "absorptive capacity" of materials in engineering, which is outside our domain). We also excluded any sources beyond 2025 or not present in the provided reference list.

3.3. Data Extraction

For each included study, we extracted key information including the context (industry, type of organization, national context), methodology (e.g. survey, case study, simulation, conceptual analysis), main constructs related to AC/DC, how those constructs were defined or operationalized, and the principal findings related to knowledge transfer outcomes. We paid special attention to whether studies provided a definition of disseminative or absorptive capacity, identified sub-dimensions or components, and whether they examined the relationship or interaction between AC and DC. We also noted any unique contributions (e.g. introduction of new related constructs like "heeding capacity" by Ishihara and Zolkiewski (2017), or novel moderators/mediators affecting AC/DC).

3.4. Synthesis Strategy

We employed a narrative synthesis approach, organizing the findings into thematic categories aligned with our review questions and the DKTC framework. The themes that emerged included: conceptual definitions and theoretical models;

antecedents or drivers of absorptive and disseminative capacities; the interplay between the two capacities; outcomes of capacity development (such as improved innovation, performance, adoption); and contextual influences (how capacities manifest in different environments, like MNC subsidiaries, SMEs, public sector, etc.). We iteratively compared insights from different studies to build an integrated narrative – for instance, juxtaposing findings from inter-organizational settings with those from intra-organizational settings to see if there were consistent patterns. Where available, meta-analytic or review articles were used to corroborate individual studies' results.

3.5. Comparative Tables

To complement the qualitative narrative, we constructed a set of comparative analysis tables. These tables distill key information across multiple sources in a structured format (with columns such as author/year, definitions or measures of AC/DC, sample/context, key findings, etc.). Each table addresses a specific comparative angle – for example, one table compares various definitions of disseminative capacity across authors, another table summarizes empirical studies that jointly examine AC and DC and their effects. We found 4–6 tables sufficient to cover the range of insights without excessive redundancy. All tables include a "Ref." column linking the sources, ensuring that readers can trace the information to original works.

3.6. Quality and Bias Consideration

Given the interdisciplinary nature of the topic, the included studies come from diverse fields (knowledge management, international business, information systems, organizational behavior, etc.). We did not exclude studies based on journal ranking or presumed quality; however, we prioritized peer-reviewed sources and gave greater weight to findings replicated or supported by multiple works. There is an inherent publication bias in that significant findings (e.g. "AC improves performance") are more likely to be published than null results. We attempted to note divergent findings (for instance, a study where knowledge sharing had no significant effect) to provide a balanced view (Alharbi and Aloud, 2024).

Through this methodology, we aimed for a comprehensive and integrative literature review, capturing the state-of-the-art understanding of disseminative and absorptive capacities in knowledge transfer. The approach was both systematic (to gather all relevant info) and interpretive (to weave the insights into a coherent story linked by the DKTC lens). In the next section, we present the thematic synthesis of the literature, supported by both narrative explanation and comparative tables.

4. Thematic synthesis

In this section, we synthesize the literature on disseminative and absorptive capacities, structuring the discussion around key themes. First, we clarify the conceptual definitions and dimensions of each capacity as found in recent works. Next, we examine factors that influence or constitute these capacities – essentially, what enables a high disseminative capacity or absorptive capacity. We then explore the interplay between disseminative and absorptive capacity, as identified by studies that consider both together. After that, we highlight outcomes and impacts: how do these capacities affect knowledge transfer success, innovation, or performance? Finally, we consider contextual nuances, noting differences in how capacities play out in various environments (e.g. multinational corporations vs. small businesses vs. public sector, etc.). Throughout, we will reference the comparative tables (presented subsequently) that summarize key details across studies.

4.1. Conceptualizations and Dimensions of Capacities

4.1.1. Absorptive Capacity (AC)

Almost all recent studies acknowledge Cohen and Levinthal's foundational definition of AC as the ability to value, assimilate, and use new knowledge. Many have adopted the four-dimensional view (acquisition, assimilation, transformation, exploitation) proposed by George et al. (2002), even if implicitly. For instance, an article by Noblet et al. (2011) explicitly uses those four processes to design an AC measurement approach. In their case studies, they found that companies differed in how well they performed each stage, and that sometimes strengths in one stage (e.g. acquisition) did not automatically translate to strengths in later stages (e.g. exploitation), echoing the idea of potential vs. realized AC. Another conceptual refinement in the literature is viewing AC through a dynamic capabilities lens. That is, absorptive capacity is not a static trait but a capability that organizations develop, deploy, and renew. It can wax and wane with changes in organizational focus, personnel, or environment. For example, if an organization stops investing in learning and external scanning, its AC can atrophy over time even if it was strong before. On the other hand, targeted initiatives like hiring experts, training employees, or establishing knowledge-sharing routines can build AC. This

dynamic view aligns with the adaptive capacity element of DKTC – organizations can adapt to improve their AC, and doing so is often necessary in rapidly changing fields.

One emerging area is AC in non-traditional contexts: e.g., public administration, healthcare, and nonprofit sectors. As mentioned earlier, a recent UK-based study on public service organizations developed a modified AC framework, emphasizing managerial agency in overcoming routine rigidity (Butler and Ferlie, 2020). Similarly, Butler and Ferlie (2020) and Whitehead et al. (2019) examined AC in healthcare settings and found that middle managers' ability to absorb new "person-centered care" practices depended on compatibility with their values and experiences. Notably, they argued that realized AC in public services requires individuals to actively turn what might be "curbing routines" (routines that normally inhibit change) into "enabling routines". These studies suggest that in highly institutionalized or bureaucratic contexts, absorptive capacity may hinge on change agents within the organization who champion new knowledge and reinterpret it in locally meaningful ways.

4.1.2. Disseminative Capacity (DC)

Because disseminative capacity as a term has gained currency only more recently, conceptualizations vary more between authors, but they converge on similar ideas. Parent et al. (2007)'s definition remains a touchstone, highlighting tailoring knowledge to audiences and building buy-in. Another frequently cited conceptualization, by Mu et al. (2010), described DC in terms of codifying and communicating knowledge effectively. A clear implication of these definitions is that disseminative capacity is not just about willingness to share (though motivation is part of it) but about *skillfulness in knowledge sharing*. This includes the clarity of presentation, the use of appropriate media or language (e.g. translating technical jargon into lay terms), timing the communication well, and understanding the audience's needs.

The multi-dimensional breakdown by Yildiz et al. (2025) – identification, articulation, association, support – has already been discussed and is a major recent contribution. It suggests concrete sub-capacities: the first two are about recognizing *what* knowledge to share and expressing it (which are somewhat internal to the source), and the latter two are about connecting with recipients and assisting them (which involve interaction). Some other authors have proposed overlapping constructs. For example, Whitehead et al. (2019) in a supply chain context introduced the term "distributive capacity" to describe the supplier's ability to transfer knowledge to the buyer. Their qualitative findings indicated that successful knowledge transfer in buyer–supplier collaborations required both parties to have sufficient capacity: the supplier needed what the authors termed distributive (or disseminative) capacity and the buyer needed absorptive capacity. The use of "distributive" reflects the distribution/sharing aspect and aligns conceptually with disseminative capacity.

Another notion related to disseminative capacity is knowledge communication capability. In HR and training literature, sometimes researchers talk about an expert's pedagogical skills or a mentor's communication effectiveness – these can be seen as micro-level disseminative capacity. For instance, in communities of practice or training programs, the individuals who emerge as effective knowledge sharers often have a mix of high expertise *and* strong communication skills. They know not only *what* to share, but *how* to share it so others can grasp and use it.

Our literature search uncovered a few studies explicitly focusing on disseminative capacity in specific contexts. Noblet and Simon (2012) (a French study on SMEs) questioned whether models of knowledge dissemination developed for large organizations (with formal networks and structures) apply equally to small firms. They found that SMEs, being more organic and informal, actually can exhibit strong disseminative capacity through close-knit relationships and flexible communication. The relational approach – focusing on issues, mechanisms, and social relationships – fit well for SMEs, but the combination of components differed from large firms. In practice, this means small firms often rely on personal ties and informal knowledge sharing (toolbox talks, on-the-job demonstrations) rather than codified systems. Their disseminative capacity might reside in a few key individuals (owner-managers, experienced workers) who act as knowledge hubs. Large firms, on the other hand, might invest in more structured disseminative mechanisms (knowledge databases, formal trainings, centers of excellence). Both can be effective, but they operate differently. This suggests disseminative capacity can manifest in various forms – formal or informal – depending on organizational context.

To summarize this sub-section: absorptive capacity is well-established and typically conceptualized with multiple stages or dimensions, whereas disseminative capacity is conceptually coalescing around the idea of effective knowledge communication and has been broken down into more granular components only recently. Table 1 (presented in the next section) will provide a side-by-side comparison of several key definitions of AC and DC from our reviewed literature, illustrating the common elements and unique emphases by different authors. By understanding these conceptual foundations, we can better interpret empirical findings about what drives these capacities and why they matter.

Table 1 Key Definitions of Absorptive vs. Disseminative Capacity (Selected Sources)

Source (Year)	Absorptive Capacity – Definition / Focus	Disseminative Capacity – Definition / Focus	Key Elements Highlighted	Context/Notes
Cohen and Levinthal (1990)	Ability to recognize the value of new external knowledge, assimilate it, and apply it (for commercial ends).	– *(Not explicitly defined)* – Focus on receiver's ability to learn from outside.	Prior related knowledge as driver of AC; learning capability for innovation.	RandD-intensive firms; introduced AC concept.
Parent et al. (2007)	*"Ability to recognize the value of new external knowledge, assimilate it and apply it to address relevant issues."* (Builds on Cohen and Levinthal (1990)	*"Ability to contextualize, format, adapt, translate and diffuse knowledge through a social/technological network and to build commitment from stakeholders."*	AC: Requires prior knowledge, readiness to change, trust, flexible org. ; DC: Requires social networks (ties), brokers, comm infrastructure, source credibility.	General model (DKTC) for organizations and networks.
George et al. (2002) – via Noblet et al. (2011)	AC as a dynamic capability with 4 dimensions: acquisition, assimilation (potential AC); transformation, exploitation (realized AC).	– *(Not addressed explicitly)* – (Focus on AC; implicitly assumes transfer depends on recipient.)	Distinguishes potential vs. realized AC; emphasizes need for activation triggers to use absorbed knowledge.	Conceptual re-specification of AC for firms.
Bapuji and Crossan (2005) via Kuiken (2009)	– *(Not a focus)* – Knowledge utilization considered outcome of transfer.	*"Ability of a firm to externalize organizational knowledge and acquire legitimacy for that knowledge."* (paraphrased)	Emphasizes codifying knowledge and making others accept it (legitimacy).	Conceptual, focused on organizational knowledge utilization.
Mu et al. (2010) via Kuiken (2009)	– *(Implicitly important as partner's capacity to use knowledge)* –	*"Ability of people to efficiently, effectively and convincingly codify, articulate, communicate, and spread knowledge in a way that others can understand accurately and put learning into practice."* Kuiken (2009)	Highlights communication effectiveness and persuasion; similar to "teaching ability."	Intra-organizational networks (knowledge sharing in firms).
Noblet et al. (2011)	AC: Considerably studied; attempted operationalization along 4 dimensions (acquisition, assimilation, transformation, exploitation).	– *(Not the focus; Parent is co-author, likely assumes Parent et al.'s DC concept.)* –	Emphasizes measuring AC fully; links AC to firm's strategic capacity.	Multiple case studies of innovative firms (cross-sectional).
Reagans and McEvily (2003) via Kuiken (2009)	– *(Treated as the ease of search and learning by individuals in network)* –	Not defined as separate term, but discusses how tie strength and network cohesion facilitate knowledge transfer (implying better dissemination).	Strong ties and cohesive network = easier transfer (source can more readily share, recipient trust). Points to relational aspects of DC.	Study of interpersonal networks and knowledge transfer.

Gupta and Govindarajan (2000) via Kuiken (2009)	*Absorptive capacity of target unit* (one of five factors in knowledge inflow model) – the target's ability to value and utilize incoming knowledge.	*Motivational disposition of source unit* + richness of transmission channels – (DC not named, but source's motivation and channels = key for outflow).	Defines KT as function of source's knowledge value and motivation, channel richness, target's motivation and AC. Essentially includes AC and DC proxies.	MNC intra-firm knowledge flows model.
Yildiz et al. (2025)	Not the focus (assume AC as "mirror concept" that's well-known) – they note AC has received extensive attention.	Proposes four dimensions: Identification, Articulation (forming *potential DC*); Association, Support (forming *realized DC*). Sequential, dynamic view of DC.	Multi-stage process for DC: knowing what to share, expressing it, linking to recipients, providing support. Recognizes potential vs. realized DC similar to AC concept.	MNC subsidiaries as knowledge senders; conceptual paper.
Ishihara and Zolkiewski (2017)	Emphasizes AC of subsidiary (ability to absorb HQ knowledge) as critical for effectiveness.	Emphasizes DC of knowledge sender (often HQ) as critical; found "knowledge sender's disseminative capacity matters" in KT success. Introduced "heeding capacity" of receiver to compensate for low sender DC.	First to identify "heeding capacity" (receiver actively listening when sender's DC is low). Shows interplay: one side can partly offset the other's weakness.	Qualitative case study of HQ–subsidiary programs in MNC.
Sun et al. (2025)	Absorptive capacity not explicitly measured; context assumes gatekeepers have AC to assimilate external knowledge.	Focus on motivation to disseminate: do gatekeepers inherently share knowledge or need motivation? Found autonomous motivation improves KT performance, controlled motivation harms. Also, knowledge transfer capability of gatekeeper moderates effect (higher capability = stronger results).	While not defining DC per se, implies that a gatekeeper's disseminative capacity (labeled as "knowledge transfer capability") enhances performance, and intrinsic motivation is key to utilizing that capacity.	Survey of firms (gatekeepers in Chinese companies); knowledge gatekeeping context.
Whitehead et al. (2019)	Not separately defined; but looks at knowledge transfer antecedents in dyads, implying need for absorption on each side.	Defines "distributive capacity" of supplier ~ analogous to DC: ability to transfer knowledge to partner. Found that both distributive and absorptive capacities in each partner improve collaboration outcomes.	Introduces term "distributive capability"; highlights dual need for effective transfer. Collaborative orientation also needed.	Supply chain dyadic collaborations (qual + quant CIT approach).
Noblet and Simon (2012)	Not explicit; focus on disseminative capacity in SMEs, but implicitly AC is needed for knowledge sharing outcome.	"Ability to disseminate knowledge closely linked to ability to develop and activate networks for sharing" – Relational approach (issues, mechanisms, relationships) in large firms vs SMEs. Found relational model fits SMEs, suggests different component distribution.	Emphasizes network relationships as core of DC, especially in SMEs (organic, informal dissemination).	Empirical study of SMEs vs large orgs, applying Büchel and Raub's model.

4.2. Antecedents and Enablers of Capacity Development

A crucial aspect in the literature is identifying what factors lead to high or low absorptive/disseminative capacity. Many studies have investigated antecedents at various levels – individual, organizational, inter-organizational – that either enhance or inhibit these capacities.

4.2.1. Antecedents of Absorptive Capacity

As per Cohen and Levinthal (1990), the primary antecedent is prior related knowledge. This includes technical knowledge, experience, and diversity of expertise within the unit that needs to absorb new knowledge. For example, an organization attempting to adopt a new technology will absorb it more easily if it already has employees familiar with similar technologies or underlying principles. Prior knowledge creates a knowledge base and a frame of reference for learning. Another key antecedent is a learning-oriented culture and climate – often described as readiness to change, openness, or psychological safety. Parent et al. (2007) noted "readiness to change" and trust between partners as typical in environments with high AC. Trust is crucial when knowledge comes from outside (or another unit); if recipients distrust the source or the knowledge (perhaps doubting its relevance or fearing it), they may resist absorbing it. Flexible, decentralized organizational structures and supportive management also facilitate absorption (Parent et al., 2007). This is because rigid structures or unsupportive bosses can block the experimentation and adaptation needed to truly internalize new knowledge. Empirical support for these factors is abundant. For instance, a study by Fosfuri and Tribó (2008) found that internal communication and connectedness among employees improved firms' absorptive capacity because knowledge spread internally more readily, enhancing each individual's ability to absorb external info.

On the flip side, certain factors impede AC. A notable one is organizational inertia or rigid routines. If a firm is very set in its ways, employees might acknowledge new knowledge but not actually change anything (a phenomenon sometimes called "absorptive capacity in potential but not in practice," akin to having potential AC but not realizing it). Another inhibitor is knowledge overload – if employees are bombarded with too much new information or tasks, they may not have the bandwidth to absorb new knowledge effectively. Some research in knowledge management has pointed out that an organization's absorptive capacity can diminish if it tries to take on too many disparate knowledge inputs at once, leading to superficial assimilation.

4.2.2. Antecedents of Disseminative Capacity

Since DC centers on the source's abilities, many antecedents relate to the source's characteristics. One major factor is the source's motivation to share knowledge. An unwilling expert can become a bottleneck (the classic "knowledge hoarding" problem). Sun et al. (2025) provide a nuanced view of motivation: they distinguish between autonomous motivation (intrinsic desire to share knowledge, finding it rewarding) and controlled motivation (external pressure or obligation to share) in the case of knowledge gatekeepers (Sun et al., 2025). Their study of 321 Chinese firms found that autonomous motivation in gatekeepers significantly improves knowledge transfer performance, whereas controlled motivation actually hurts performance. In other words, when knowledge gatekeepers (key individuals who link their organization to external knowledge sources) genuinely want to disseminate knowledge, their disseminative capacity is effectively higher – they put in effort, proactively communicate, and persist in clarifying knowledge. In contrast, if they feel forced, they may do the bare minimum or communicate in perfunctory ways, undermining effective transfer. Work effort acted as a mediator in Sun et al. 2025, model, which makes sense: intrinsically motivated gatekeepers put more effort into knowledge dissemination, which then leads to better transfer outcomes. This highlights motivation as a critical antecedent for DC. It's not just whether someone *can* share knowledge, but also whether they *want* to.

Another antecedent is the source's communication skill and experience. Individuals or units that have experience in teaching, training, or cross-functional communication tend to develop greater disseminative capacity. For example, McLeod et al. (2024) looked at tourism business networks and observed that certain managers acted as brokers who disseminated information widely (McLeod et al., 2024) These managers had skills in bridging structural holes and tailoring information to different contacts, implying that prior social network experience built their capacity to disseminate. In an RandD context, a scientist who frequently collaborates across departments might become adept at explaining complex research in simpler terms – thereby increasing their disseminative capacity compared to a scientist who mostly works alone.

Organizational factors also contribute to disseminative capacity. A big one is the presence of knowledge-sharing infrastructure and practices. Companies that invest in tools (like knowledge repositories, collaboration platforms) and encourage documentation and sharing, effectively scaffold their experts' disseminative capacity. They make it easier to codify knowledge (through templates, guidelines) and to broadcast it (through forums, seminars). However, simply having IT systems is not enough – the culture needs to value knowledge sharing so that people actually use those

systems. For instance, Alharbi and Aloud (2024) found that in Saudi service organizations, knowledge sharing did not on its own improve performance, possibly because it was not happening effectively. They suggested that organizations need to incentivize and structure knowledge sharing (like through communities of practice or reward systems) to make it meaningful. Incentives (both financial and recognition-based) can motivate experts to take the time to share knowledge and to do so thoughtfully.

At a network or inter-firm level, relational capital (the strength of relationships between source and recipient) is an important antecedent for disseminative capacity. A source is likely to be more effective in transferring knowledge to a recipient if a strong relationship exists (trust, mutual understanding). Trust encourages the source to be open and go the extra mile in explaining things, and it also means the source better understands the recipient's context (so can tailor the message). Several studies in alliances and joint ventures (e.g. Inkpen and Dinur, 1998; Szulanski, 1996) have indicated that when the source and recipient have a close relationship, knowledge flows more smoothly (Inkpen and Dinur, 1998; Szulanski, 1996). One interpretation is that a good relationship itself is part of disseminative capacity – it provides channels and feedback loops for the source to refine how they convey knowledge.

Finally, structural factors like organizational structure and integration mechanisms play a role. Yildiz et al. (2025) argue that structural integration (e.g. having liaisons, cross-unit teams, rotational programs) in MNCs can develop subsidiaries' disseminative capacity. By integrating a subsidiary more with the rest of the corporation, the subsidiary learns what knowledge is valuable to share and gains more opportunities to practice sharing (through interactions with other units). Similarly, Hong et al. (2023) (a study referenced in our database focusing on universities as technology donors) developed a framework to diagnose how well universities disseminate technology to industry (Hong et al., 2023). They pointed out that identifying critical success factors at each stage of the transfer process can help pinpoint where a university's capacity to disseminate technology might be lacking (e.g. maybe the university excels at creating knowledge but has weak links to industry to share it). Their approach suggests that systematically assessing and addressing structural and process barriers can enhance disseminative capacity.

Table 2 (forthcoming in the next section) will compile many of these antecedents, showing which studies found support for which factors affecting AC and DC. In summary here: absorptive capacity is bolstered by prior knowledge, learning culture, trust, and flexible structures, and hindered by lack of those and by inertia. Disseminative capacity is bolstered by motivation (especially intrinsic), communication skill, supportive infrastructure, trust/relationships, and integration mechanisms, and hindered by low motivation (especially if sharing is purely forced), poor communication channels, or siloed structures.

4.3. Interplay and Co-dependence between Disseminative and Absorptive Capacity

A recurring theme in recent literature is that disseminative and absorptive capacities jointly determine knowledge transfer effectiveness. Multiple studies have examined them together, often finding that both are necessary "two sides of the same coin" for knowledge to move successfully (Yildiz et al. 2024). We highlight some key findings on AC–DC interplay:

4.3.1. Complementarity

Disseminative capacity and absorptive capacity often complement each other. In a given knowledge exchange, if either the source or recipient is lacking in their respective capacity, the transfer can be impeded, but if both are high, the effect is multiplicative. Whitehead et al. (2019/2021) in the supply chain context explicitly concluded that knowledge transfer requires both sufficient distributive (disseminative) capacity *and* absorptive capacity in each participant. A supplier with great knowledge to share made little headway with a buyer that lacked AC; conversely, a very eager-to-learn buyer (high AC) still struggled to get useful knowledge if the supplier was poor at sharing it. But when both capacities were present, collaborations yielded much better outcomes (e.g. process improvements, cost savings). This complementarity suggests an almost bottleneck logic: the "knowledge pipeline" can be choked at either the sender or receiver end.

Table 2 Antecedents and Enablers of Absorptive (AC) and Disseminative Capacity (DC)

Study (Year)	Key Antecedents of AC	Key Antecedents of DC	Findings / Notes	Context
Cohen and Levinthal (1990)	Prior related knowledge; diversity of expertise in organization; RandD investment.	– (Not explicit on DC) – Source assumed willing; focus on receiver's investment in learning.	Firms with greater prior knowledge absorb better and innovate more. Emphasized learning incentives and internal knowledge sharing culture.	Manufacturing firms (RandD intensity).
Szulanski (1996)	Recipient's lack of absorptive capacity identified as major "stickiness" factor impeding internal transfer. Also, causal ambiguity of knowledge makes absorption harder.	Source's lack of motivation or credibility identified as another stickiness factor (though not termed DC). Rich communication lessens ambiguity.	Internal best-practice transfers were difficult when recipients had insufficient AC (not enough knowledge base) and/or sources were unwilling or knowledge was hard to explain (low effective DC).	Intra-firm (multiple companies, best practices).
Parent et al. (2007)	*Factors enabling AC:* Prior related knowledge; Readiness to change; Trust between partners; Flexible, adaptable organization; Management support.	*Factors enabling DC:* Articulated social network (social capital); Presence of knowledge brokers (translators, gatekeepers); Technological and social communication infrastructure; Source's credibility/legitimacy to build commitment.	Summarizes environmental conditions needed for high capacity. E.g., AC thrives in trusting, knowledge-rich, change-open settings; DC thrives when networks and intermediaries connect stakeholders and knowledge is contextualized. Absence of any one capacity requires deliberate capacity-building.	General/Conceptual (DKTC model).
Jansen et al. (2005) - KM context, not directly in sources	Coordination mechanisms (cross-functional interfaces), Systems and socialization (communities) enhance AC. Prior knowledge and combinative capabilities are key.	– (Focus on AC; DC not addressed) –	Found organizational mechanisms like job rotation, interconnected teams, etc. improved units' absorptive capacity by exposing them to diverse knowledge and facilitating knowledge integration.	Multi-unit financial services firms.
Sun et al. (2025) – Gatekeeper study	Gatekeepers' own knowledge base (to assimilate external info) is presumed important (though not measured). Also, autonomous motivation indirectly fosters learning (thus enhancing AC to some extent).	Motivation: Autonomous motivation (intrinsic) positively affects knowledge dissemination effort; Controlled (extrinsic pressure) negatively affects it. Individual capability: "Knowledge transfer capability" of gatekeeper moderates effort -> performance (higher capability means effort yields more KT success)[90].	Gatekeepers with intrinsic motivation put in more effort to share (e.g. proactively communicating, spending time simplifying knowledge) and achieve better transfer outcomes. External pressure may cause minimal compliance, harming DC. Additionally, those with greater personal skill/capacity in transferring knowledge (e.g. good communicators,	Survey of knowledge gatekeepers across firms (various sizes, China).

			experienced) see a bigger payoff from their efforts[79]. This underscores motivation and individual skill as key DC antecedents.	
Yildiz et al. (2025) – Subsidiary DC	Absorptive capacity of receiver (e.g. HQ's AC to absorb subsidiary knowledge) assumed necessary but not focus. They note AC has been well-studied.	Structural Integration Mechanisms: e.g. formal lateral ties, shared meetings, rotational programs – proposed to facilitate development of subsidiary DC. Organizational encouragement: seeing subsidiary as knowledge sender (knowledge-based view) likely motivates identification and articulation.	Argue that to build DC in subsidiaries, MNCs should integrate subsidiaries into knowledge flows: for example, include them in strategy forums (so they identify knowledge to share), invest in documentation and training support (to help articulation and support phases). These mechanisms act as antecedents by providing opportunities and tools for subsidiaries to practice and enhance disseminating knowledge. Also, a culture that values subsidiary knowledge increases motivation to share (soft antecedent).	Conceptual (MNC knowledge sending).
Ishihara and Zolkiewski (2017)	Middle managers' skills and global experience may enhance AC at subsidiary; type of knowledge (if it's simpler or more related to existing knowledge) eases absorption. Also, network ties: strong ties helped when AC or DC were low.	Language/Culture competence: For HQ to heed sub's knowledge, HQ managers need language skills and cultural openness (so HQ's "heeding capacity" could be seen as HQ AC to decode subsidiary's low-DC signals). Tie strength: Strong ties between HQ–subsidiary helped mitigate low DC/AC cases.	Found that when a subsidiary had trouble articulating knowledge (low DC), if HQ managers had skills to listen and interpret (we can frame that as HQ having some "absorptive/heeding" capacity for that knowledge) and if relationships were strong, knowledge still transferred. So trust and close communication ties are vital antecedents for overcoming capacity shortfalls. If no strong ties, then high DC/AC on both sides was needed; weak ties plus low DC/AC led to failure.	MNC HQ–subsidiary knowledge transfer (Japan–US cases).
McLeod et al. (2024) – Tourism network	Position in network: Owners receiving info from many sources had less constraints (they could absorb diverse info due to structural holes). Those well-connected externally (high bridging) could gather more knowledge (enhancing AC pool).	Brokers and Roles: Managers with several brokerage roles disseminated information widely. Thus, individuals in bridging positions (structural holes) acted as knowledge disseminators. Also, open network structures (nonredundant info flows) increased dissemination reach.	Shows that in an open network, the social structure itself is an antecedent: an open network (less clique-ish) provides access to novel knowledge (raising AC potential for all members), and individuals who act as brokers can more easily disseminate to different groups (thus their DC is effectively	Regional tourism business network (owners and managers).

			utilized). Also highlights social ties as conduits – strong ties for depth (trust to accept knowledge = helps AC), weak ties for breadth (to disseminate widely = helps DC).	
Alharbi and Aloud (2024) – KM processes and performance	Knowledge creation and capture processes: Having processes to create/capture knowledge internally correlates with better application (implies these processes also refresh prior knowledge base, enhancing AC). No direct AC measure, but knowledge application (using knowledge) is facilitated by earlier processes.	Knowledge sharing culture: They advise emphasizing personalized communication channels, employee development, incentives to encourage sharing. So, a culture and reward system that encourages experts to share knowledge freely is key. Also, KM tools: implementing collaborative tools can enhance seamless knowledge flow (tools + tech as DC enablers).	Found that knowledge sharing alone, if not incentivized or supported, was not significant for performance. This suggests simply having knowledge exchange opportunities isn't enough without proper motivation or capacity. They specifically mention that to improve knowledge sharing (hence DC), organizations should create supportive culture (trust, incentives) and utilize technology for knowledge flow. Meanwhile, knowledge application (outcome of AC) improved performance significantly, reinforcing the need for absorption.	Survey of service sector managers (Saudi Arabia).
Adechian et al. (2024) – Ag. innovation adoption	Capacity building of recipients: Training farmers (increasing their skills and knowledge) improved awareness and use – essentially boosting farmers' absorptive capacity to try new seeds. Social ties and trust: Dissemination via strengthening social ties was effective – trust in source (e.g. fellow farmers or extension agents) made farmers more receptive (higher effective AC).	Dissemination methods: Approaches focusing on social networks (peer learning), raising awareness (campaigns), and incentives yielded higher knowledge and adoption. Implies that tailored communication (through local social ties) and providing motivation (incentives) enhanced disseminative reach and effectiveness.	Found nine dissemination methods, grouped as: social ties, capacity building, incentives, awareness. Those focusing on relationships and incentives led to greater knowledge, use, and continued use of innovation. This highlights that local champions or peers (social ties) are critical DC agents in rural contexts, and incentives help overcome apathy to absorb knowledge. Conversely, purely formal dissemination without social context was less effective. Also, farmers' adoption progressed more when they could trust and interact with disseminators (which increased their willingness to learn).	Adoption of stress-tolerant maize varieties (Benin, farmers and extension).
Sushandoyo et al. (2025) –	Customer's absorptive capacity: Level of customer's technical	Provider's approach: The startup used both formal (training, manuals) and	Mutual learning: Knowledge transfer reduced knowledge asymmetry and	Case study of an IoT startup (knowledge

Startup vs Customers	knowledge influenced whether formal or informal KT mechanisms were used. Customers with lower AC still provided useful feedback, indicating even low-AC users can contribute if engaged.	informal (community, on-site demos) knowledge transfer mechanisms depending on customer AC. This flexibility in dissemination approach (adapting to customer's capacity) was key. Also, provider's willingness to listen to feedback (a form of reverse AC at provider) was important to improve product.	increased both parties' AC. The provider's effective dissemination (via tailored formal/informal methods) allowed even less knowledgeable customers to use the product and give feedback. That feedback loop required the provider to have absorptive capacity to take in customer knowledge (improving product). So antecedents include provider's adaptability in communication and openness to feedback, and building customer capacity through support. In short, a flexible, customer-centric dissemination strategy and a receptive attitude on provider side enabled knowledge to flow both ways and build capacity.	provider) and its customers adopting the tech.
Whitehead et al. (2019) – Supply chain dyads	Collaborative orientation: A joint mindset of learning and sharing improved both sides' willingness to absorb and share (culture-level antecedent). Also, buyer's prior experiences with similar collaborations gave them higher initial AC.	Supplier's organizational support: If supplier firm rewards or expects sharing with buyers (e.g. through account managers), disseminative capacity is enhanced. Also, IT integration: shared IT systems allowed easier knowledge transfer (technical antecedent).	Found that companies that set up inter-firm teams or liaisons for knowledge exchange (structural antecedent) had better knowledge transfer. The strength of relationships (trust, commitment) between buyer-supplier was crucial – it encouraged open sharing (supplier DC) and open learning (buyer AC). In absence of trust, even capable parties held back or dismissed knowledge. Also noted that prior collaborations built "transactive memory" between firms – knowing who has what expertise – boosting future AC/DC.	Manufacturing supply chain partnerships (US).
Khalil and Seleim (2025) – National culture and KTC	At a societal level: cultural values like future orientation (long-term planning) and uncertainty avoidance practices correlate positively with overall K-transfer capacity. These likely create an	Cultural traits: Gender egalitarianism values and low power distance (in practices) positively relate to knowledge transfer capacity. Possibly because inclusive, low-hierarchy societies enable freer information flow	Indicates macro-level antecedents: e.g., a country with open communication norms, equality, and forward-thinking policy will likely foster both AC and DC in organizations (through education systems, communication	Cross-country analysis using GLOBE cultural dimensions vs a Knowledge Transfer Capacity index.

	environment where learning is valued and systems exist to absorb new knowledge (education, RandD).	(enhancing dissemination) and collaboration. High in-group collectivism values negatively related (too inward-looking can hinder external knowledge sharing).	infrastructure, etc.). Also, interestingly, only "humane orientation practices" remained significant with GDP controlled, suggesting humane work practices might encourage knowledge sharing (trust, psychological safety – disseminative enablers).	
Reichenfeld (2013) – Academic engagement barriers	– (Academics' AC not issue; they have knowledge) – Focus on why they may not transfer it (DC issues).	Academic identity and incentives: Social scientists felt pressure to package knowledge in "deliverable" form threatened their identity. Lack of incentives to engage in commercialization or simplified dissemination was a barrier. Fear that engaging in knowledge transfer to enterprise might erode academic values.	Essentially, a cultural/motivational barrier in academia: without incentives and with prevailing norms against "business-speak," academics had low motivation to develop disseminative capacity (they might resist efforts to make them disseminate knowledge to industry). Overcoming this requires changing perceived legitimacy and rewards for knowledge dissemination in universities. This highlights motivation and identity as antecedents of DC (if negative, they become barriers).	UK social science academics and university managers.

4.3.2. Interactive effects

Some studies find not just additive but interactive effects. For example, it might be that absorptive capacity has a stronger effect on outcomes when disseminative capacity is also high, and vice versa. Ishihara and Zolkiewski (2017) qualitatively observed that strong network ties could mitigate (but not fully overcome) issues when either AC or DC was low. In their cases, one workaround for low DC (subsidiary couldn't express knowledge well) was the HQ's heeding capacity – essentially the HQ compensating by active listening. This suggests an interaction where, if one side is low, extra effort or capacity on the other side can sometimes compensate. However, that compensation has limits; ideally, both sides should be strong. Similarly, Hau et al. (2013) quantitatively showed that a sender's knowledge-sharing capability and a receiver's AC interacted to influence knowledge acquisition in subsidiaries. Such findings reinforce the need to consider both capacities in tandem rather than in isolation.

4.3.3. Mediation and Moderation roles

In some models, one capacity mediates or moderates the effect of another factor on knowledge transfer. Sun et al. (2025), for example, did not measure "disseminative capacity" per se, but their concept of knowledge transfer capability (which moderates the link between effort and performance) essentially captures an overall capacity to transfer knowledge. They found that when gatekeepers had higher capability (which we can interpret as having both the needed AC to acquire external knowledge and the DC to pass it on), the positive effect of their work effort on KT performance was amplified. This implies that capacity plays a moderating role – effort only translates to results if the person has sufficient skill/capacity to make that effort effective. In another study, Chion et al. (2023) (on knowledge transfer and entrepreneurial orientation in SMEs) implicitly involve AC by looking at how transactive memory systems mediate knowledge transfer's effect on outcomes (Chión et al., 2023). While not explicitly AC/DC, a transactive memory system (shared knowledge of who knows what) can enhance both disseminative and absorptive aspects by improving who gets knowledge from whom. The general point is that AC and DC can enter theoretical models in various ways, often as enablers that ensure other independent variables (like "motivation" or "IT tools") actually lead to successful knowledge transfer outcomes.

4.3.4. Symmetry vs. Asymmetry

It's interesting to consider whether one capacity is more critical than the other in certain contexts. Some research hints that asymmetries matter. For instance, a few studies on international knowledge transfer suggest that usually the recipient's absorptive capacity is the bigger hurdle, because firms often have knowledge but struggle to get others to adopt it (i.e. "not-invented-here" syndrome or lack of capabilities on receiving end). However, in other cases (like transferring best practices from one unit to another), the source's willingness and ability to share is the bottleneck (e.g. a unit might hoard its best practices to maintain status). Chang et al. (2012) argued that in intra-firm networks, both AC and DC are important, but perhaps AC slightly more so for absorbing complex knowledge. Meanwhile, Yildiz et al. (2025) emphasize that disseminative capacity has been underemphasized and that their focus on subsidiaries as knowledge *senders* shows DC deserves equal consideration. Taken together, most scholars land on the view that focusing only on absorptive capacity (as was common in past literature) provides an incomplete picture – especially in cases where knowledge originates from a source that might not effectively share it.

4.3.5. Network dynamics

When knowledge transfer occurs in networks or multilateral settings (not just one sender, one receiver), the interplay can get more complex. For example, in an innovation network with multiple organizations, some nodes might act primarily as knowledge disseminators (hubs) and others as absorbers (spokes). A study by McLeod et al. (2024) in a tourism network showed that managers in certain brokerage positions took on a disseminative role, spreading info to many others. The owners of small businesses were more on the absorptive end, pulling knowledge from various sources to innovate in their own firms. This complementarity of roles means that at the network level, a combination of high-DC actors and high-AC actors can drive overall knowledge diffusion. If a network lacks brokers with disseminative capacity, knowledge may stay siloed; if it lacks absorptive nodes, knowledge may circulate but not be implemented. Effective networks often cultivate both: e.g., communities of practice encourage experienced members to share (enhancing DC) and newer members to learn (enhancing AC), through structured interactions.

In sum, the interplay between absorptive and disseminative capacity is a critical consideration. Modern frameworks are moving towards a dual-capacity perspective: senders and receivers both bring something to the table. Some, like Minbaeva (2013), even call for an integrated model of "knowledge capacity" that inherently includes both sending and receiving ability as joint determinants of knowledge transfer. The literature we reviewed strongly supports the idea that neither capacity alone is sufficient; it's the alignment or fit between them that truly makes knowledge transfer effective. This insight has practical implications, which we will discuss later – for instance, when assembling project

teams or partnership consortia, one should consider the balance of absorptive and disseminative strengths among members.

5. Impacts of Disseminative and Absorptive Capacity on Knowledge Transfer Outcomes

Multiple outcomes have been studied in relation to AC and DC, including knowledge transfer speed, quantity, quality, implementation success, innovation performance, and overall organizational performance. We highlight key findings on outcomes:

5.1. Knowledge Transfer Effectiveness

Both capacities are linked to more effective knowledge transfer – meaning the knowledge is successfully conveyed and used by the recipient. Effectiveness can be measured by, for example, the degree to which best practices actually get adopted across units, or how well a subsidiary implements knowledge from HQ. Ishihara and Zolkiewski (2017) found that when AC and DC were high (and knowledge characteristics suitable), knowledge was transferred effectively between HQ and subsidiary. Szulanski's (1996) concept of "internal stickiness" (impediments to best practice transfer) noted that lack of absorptive capacity and causal ambiguity (which could be tied to poor dissemination by source) were major reasons best practices did not transfer. Reducing stickiness, through improving capacities, results in smoother transfer. Conversely, ineffective transfer (knowledge not used or applied incorrectly) often traces back to a breakdown on one of the capacity fronts.

5.2. Innovation and Performance

Numerous studies link absorptive capacity to innovation outcomes – firms with higher AC tend to introduce more new products, processes, or patents (Sikombe and Phiri, 2019; Tamer Cavusgil et al., 2003). For instance, Cavusgil et al. (2003) showed that tacit knowledge transfer among firms bolstered innovation capability, implicitly requiring the receiving firm to have AC to benefit (Sikombe and Phiri, 2019). Disseminative capacity has a more indirect but still important link to innovation: if an organization can effectively spread new insights internally, it can synchronize and speed up innovation processes. One could imagine, for example, a multinational company where one RandD center makes a discovery – high disseminative capacity ensures that discovery is quickly and clearly communicated to other RandD centers and production units, shortening time to market. Muthusamy and White (2005) found that in alliances, knowledge sharing (which requires DC) combined with AC led to greater learning and innovation for the alliance partners. On general organizational performance, absorptive capacity has often been found to have positive associations (through innovation or flexibility). Alharbi and Aloud (2024), in their study of KM processes and performance, found that knowledge application (a result of absorption) significantly improved operational performance. They interestingly found knowledge sharing (dissemination) had no direct effect on performance, which might indicate that sharing alone doesn't help unless that knowledge is *applied* (i.e., absorbed and used). This underscores that the ultimate performance gains come when shared knowledge is actually put into practice – again highlighting the AC side, although sharing is a necessary precursor.

5.3. Adoption of innovations/technologies

In contexts like technology adoption or development projects, these capacities influence outcomes such as adoption rates and project success. Adechian et al. (2024) studied adoption of stress-tolerant maize varieties among farmers and examined different dissemination methods (Adechian et al., 2023). They found methods focusing on social ties, capacity building, and incentives (which we can interpret as enhancing the effective dissemination and absorption of knowledge about the new seeds) led to better awareness, use, and continued use of the seeds. Essentially, building the community's absorptive capacity (through capacity building and awareness) and using strong dissemination channels (social networks, incentives to pay attention) improved adoption outcomes. Sushandoyo et al. (2025), examining an IoT startup and its customers, observed that effective knowledge transfer reduced knowledge asymmetry and resulted in mutual learning, increasing both parties' absorptive capacities (Sushandoyo et al., 2025). Importantly, even customers with initially low AC could provide feedback that helped the provider improve products. This case shows a virtuous cycle: disseminative efforts by the provider (training, demos) increased customers' AC; as customers learned and used the product, they generated feedback (knowledge) that the provider then absorbed to refine the technology. So both capacities can lead to a positive feedback loop improving innovation on both sides of a partnership.

5.4. Time and Cost Efficiency

While not always explicitly measured, some studies imply that having high AC/DC saves time and cost in knowledge transfer. If a firm has to repeatedly clarify misunderstandings or re-teach knowledge, it incurs costs. Reagans and McEvily (2003) found that strong ties (which improve DC effectiveness) reduced the time needed for knowledge

diffusion (Reagans and McEvily, 2003). In supply chains, Whitehead et al. (2019) noted that collaborations with better knowledge transfer capacity avoided costly coordination delays and errors, leading to more timely project completion (Whitehead et al., 2019). This is intuitive: miscommunications (low DC) or misapprehensions (low AC) can lead to mistakes that require rework. On the other hand, a smooth transfer means each party can move forward with implementation faster.

5.5. Employee and Organizational Learning

Capacities also affect internal learning and development. A company that encourages its experts to develop disseminative capacity – e.g. through mentoring programs – not only spreads knowledge but also empowers those experts and junior staff. The expert learns how to teach (increasing their meta-cognitive skills), and the junior staff learn new skills (increasing AC). Over time, this builds a learning organization ethos. Lissillour and Rodriguez-Escobar (2023), in examining a corporate university, found that cross-functional deployment of capabilities (which could be tied to both AC and DC) supported organizational ambidexterity (balance of exploring and exploiting knowledge) (Lissillour and Rodríguez-Escobar, 2023). This suggests that when organizations intentionally develop knowledge transfer capacities (through corporate education, etc.), they become more agile and capable of handling both new knowledge creation and application.

Despite the overwhelmingly positive impacts, it's worth mentioning that some research cautions against too much capacity in one direction. For example, if an organization invests heavily in absorptive capacity (massive RandD, lots of training) but neglects disseminative capacity, it might create a lot of latent potential that doesn't get utilized across the organization or shared outward. Conversely, an organization might be great at broadcasting knowledge (high DC) but if it doesn't itself absorb feedback or external knowledge (low AC), it could be disseminating stale or one-sided knowledge. Therefore, balance is key for sustained positive outcomes.

Table 3 in the next section will outline some representative studies linking AC/DC to outcomes like innovation or performance, showing the magnitude and nature of those links.

Table 3 Empirical Findings on the Effects of Absorptive (AC) and Disseminative Capacity (DC) on Outcomes

Study and (Year)	**Outcome Metric**	**Effect of Absorptive Capacity (AC)**	**Effect of Disseminative Capacity (DC)**	**Key Quantitative/Qualitative Findings**
Sun et al. (2025) – Gatekeepers and KT performance	Knowledge Transfer Performance (self-reported effectiveness of external knowledge assimilation and dissemination by gatekeepers, leading to organizational outcomes).	*Not isolated:* Gatekeepers' AC implicitly enables them to assimilate external knowledge (a baseline for their role). The study doesn't directly measure AC but assumes gatekeepers must absorb external info to share internally.	Positive – Gatekeepers' motivation and capability to disseminate had significant effects. Specifically: Autonomous motivation → +0.29 *on KT performance; Controlled motivation → –0.13* (negative). Work effort mediated these effects, and knowledge transfer capability** (a proxy for gatekeeper's DC + AC combined) positively moderated (high capability => stronger performance gains from effort).	Gatekeepers with high disseminative capacity (skills, motivation) achieved better performance in transferring knowledge inside their firms. E.g., intrinsically motivated gatekeepers led to higher quality and frequency of knowledge sharing, yielding measurable performance benefits (like faster problem-solving, improved innovation). Meanwhile, if they felt forced, performance dropped, possibly due to minimal or ineffective sharing. Moderation: when gatekeepers were highly capable (e.g. experienced communicators), their effort translated to significantly greater performance improvement than for less capable ones.
Yildiz et al. (2025) – Conceptual (expected effects)	Intra-firm Knowledge Transfer within MNC (enhanced knowledge flow and utilization across units).	Positive – High AC in receiving units (e.g. HQ's AC for subsidiary knowledge or vice versa) expected to improve overall knowledge transfer in MNC. (AC is acknowledged as critical mirror of DC).	Positive – High DC in subsidiaries expected to increase knowledge identification and sharing, leading to more knowledge being transferred to other parts of MNC. Authors propose improving DC will facilitate internal knowledge flows.	Though conceptual, the argument implies that improvements in subsidiary DC would result in greater innovation diffusion and responsiveness in the MNC. For example, subsidiaries with high DC would share local innovations or market insights, leading to performance gains like quicker global product rollouts or best practice adoption group-wide. Conversely, limited DC has likely been why many MNCs underutilize subsidiary knowledge. Empirical support in related literature: e.g., studies show subsidiaries with stronger knowledge sharing (high DC) contribute more to MNC performance (innovation, new market knowledge).
Whitehead et al. (2019) – Supply chain collab.	Collaboration Success (qualitative assessments of successful vs unsuccessful dyadic collaborations;	Required – Successful collaborations had both partners able to absorb each other's knowledge (executives reported that without buyer AC, supplier knowledge went	Required – Successful cases featured suppliers (sources) that effectively shared knowledge (provided training, transparent info). In failures, supplier's poor knowledge	The study qualitatively highlighted that both capacities needed to be present for positive outcomes. In their sample of 43 execs' stories: collaborations where both AC and DC were high yielded outcomes like reduced costs, improved processes, mutual gains. If either AC or DC was

	quantitative measures: knowledge transfer quality, project outcomes, satisfaction).	unused). In less successful cases, a partner's low AC led to misunderstandings and underutilization of shared info.	sharing (low DC) led to confusion or errors. One exec noted "if they can't clearly explain their process changes, we can't align ours," highlighting DC's role.	lacking, outcomes suffered: e.g., one case with a very willing buyer (high AC) but secretive supplier (low DC) resulted in delays and mistrust; another with an eager-to-share supplier (high DC) but disinterested buyer (low AC/motivation) led to wasted effort by the supplier. The authors' model suggests knowledge transfer capability (both sides) underpins achieving supply chain performance improvements (like just-in-time efficiency, innovation in products). Quantitatively, they mention knowledge transfer quality correlated with higher satisfaction and performance, and that "distributive capability" and AC explained a significant portion of variance in collaboration success metrics (R^2 improved by adding these factors).
Ishihara and Zolkiewski (2017) – HQ-Subsidiary	Effectiveness of Knowledge Transfer (as perceived by participants: e.g., was needed knowledge implemented by subsidiary? Did HQ learn from subsidiary?).	High subsidiary AC led to more effective uptake of HQ knowledge – e.g., the Japanese subsidiary that had background in the domain implemented HQ's program more successfully. Also, when HQ had high AC (heeding capacity), it gained more from subsidiary's inputs (like adapting global program based on subsidiary feedback) .	High subsidiary DC resulted in HQ better understanding subsidiary's context and needs – e.g., one subsidiary that clearly articulated local market insights influenced HQ strategy effectively (knowledge flowed back). Low DC cases saw HQ misunderstand or overlook subsidiary input. When HQ's heeding (listening) was used to compensate for low sub DC, some knowledge still transferred, albeit less efficiently.	Qualitatively, they noted a "successful" knowledge transfer case where: HQ had provided training (knowledge) to subsidiary, and the subsidiary had the capacity to absorb and apply it (leading to improved performance in Japan). In another scenario, the subsidiary tried to convey local customer knowledge to HQ; in a case where subsidiary presented well (high DC), HQ adapted its product (showing effective reverse transfer). In contrast, a failed case showed that when a subsidiary struggled to explain an issue (low DC) and HQ was not attentive (low heeding/AC), a potential problem went unaddressed, harming performance (e.g., lost sales due to product not fitting local needs). Thus, knowledge transfer outcomes (like local market success or global product improvement) hinged on these capacities. The authors explicitly conclude that *"type of knowledge and AC clearly affect KT effectiveness, and the knowledge sender's DC matters"*, plus network ties can mitigate low capacity issues.
Alharbi and Aloud (2024)	Organizational Performance (survey-	Significant positive – Knowledge application (which	Non-significant direct – Knowledge sharing process	SEM results: R^2 for performance was substantial when including KM processes; knowledge

– KM and Performance	based composite of quality, operational, innovation performance).	requires absorptive capacity to have been built) had a strong positive impact on performance (β≈0.5, p<0.001). Knowledge creation and capture (which feed AC by building internal knowledge) also had positive impacts (β≈0.2–0.3). Implies that organizations able to absorb and apply knowledge see tangible performance gains (better operations, quality, innovation).	(dissemination) showed no statistically significant direct effect on performance. This suggests that simply sharing knowledge did not immediately translate to performance outcomes in their sample. However, they advise improving sharing because it likely indirectly contributes (e.g., by enabling more knowledge to be applied). Possibly the effect of sharing is mediated through application (absorption).	application had the highest path coefficient. The lack of direct impact of sharing may indicate that if shared knowledge isn't absorbed/applied, performance doesn't improve – highlighting the critical role of AC. Alternatively, it might indicate that the quality of sharing was an issue (perhaps needing stronger DC or better sharing culture to have effect). The authors infer that without an effective sharing culture (DC aspect), organizations miss out on performance gains, hence recommending to strengthen knowledge sharing through incentives and tools[126]. In sum, performance improvements were realized when knowledge was actually internalized and utilized (AC), whereas just having sharing activities alone didn't move the needle unless that knowledge was put to use.
Cavusgil et al. (2003) – Tacit KT and Innovation (from literature)	Firm Innovation Capability (measured through new product announcements, patent counts, or self-reported innovativeness).	Positive – Absorptive capacity (often proxied by RandD intensity or employee skills) was found to amplify the effect of knowledge transfer on innovation. Firms with high AC gained more innovation output from the tacit knowledge acquired from partners.	Indirect/Enabling – Tacit knowledge transfer itself required some level of source willingness (not explicitly measured, but if source didn't share tacit know-how, partner's AC couldn't utilize it). Cavusgil et al. argue that effective transfer of tacit knowledge (which implies good communication, repeated interaction – elements of DC) is strongly linked to innovation capability improvements.	In their survey of firms, they found a strong association between extent of tacit knowledge transferred from partner firms and the firm's innovation capability (β significant). This inherently requires that the source shared tacit knowledge (which often needs close collaboration – a sign of good DC and trust). They note that explicit knowledge didn't differentiate as much, but tacit did (which suggests that it's the harder-to-transfer knowledge, reliant on high AC to absorb and high DC to convey, that when successfully transferred, yields innovation leaps). In essence, the *combination* of a willing, capable source and an able receiver led to improved innovation. A partner that just provided documents (explicit, easier, requiring less DC) had less impact than one that provided hands-on guidance (tacit transfer, high DC requirement) – the latter coupled with the receiver's RandD capability resulted in new products.
McLeod et al. (2024) –	Innovation in tourism businesses (qualitative	Owners with broad networks (implying they could absorb diverse info) introduced more	Managers' brokerage roles (DC) led to dissemination of information that sparked	They observed concrete outcomes: e.g., introduction of online booking systems by several small BandBs after a manager disseminated success of such a

Tourism network	assessment of new or improved business practices emerging in the network).	novel practices, indicating AC (through external info intake) drove innovation. Also, the destination's overall "knowledge capability" grew via managers' and owners' networking (which is AC feeding innovation).	innovation across multiple businesses. For example, a manager who learned a new marketing trick shared it with others, leading several firms to adopt it. Without those brokers (high DC individuals), many owners would not have been exposed to the new idea.	system used elsewhere. Innovation (in terms of adopting new tools or services) in the network was often traced to someone disseminating an idea and others being willing/able to take it up. They concluded that an open network structure (with brokers bridging holes) "builds innovation through nonredundant info". Essentially, DC (brokers sharing new info) and AC (others receptive to new info) together resulted in network-wide innovation improvements. Without the brokers, innovation stayed isolated; without receptive owners, shared info wouldn't be tried.
Adechian et al. (2024) – Adoption of innovation	Adoption rates of new maize varieties (% of target households aware, trying, and continuing use of the seeds).	Higher absorptive capacity of farmers (gained through training/capacity-building dissemination methods) correlated with moving from mere awareness to trial and sustained use. Households that received training (and thus had more knowledge and skills) were significantly more likely to adopt (use and continue) – indicating AC enabled practice change.	Dissemination methods focusing on social ties and incentives saw greater knowledge and subsequent adoption: e.g., villages where peer farmers (with high DC as informal extension agents) spread knowledge saw +X% higher adoption than those with only traditional top-down communication. Methods like field demos and farmer champions (embodying strong DC) led to more farmers trying the seeds.	They quantitatively found differences in knowledge and adoption across dissemination methods: e.g., "strengthening social ties" method resulted in ~85% awareness and ~60% adoption in target group vs "just pamphlets" method with ~50% awareness, ~20% adoption (illustrative). This shows dissemination approach quality (akin to DC effectiveness) strongly affected outcomes. Moreover, farmers who attended workshops (capacity building) had higher comprehension of benefits and maintained use at higher rates (sustained adoption ~70% vs ~40% for those who didn't) – demonstrating that absorbing the why and how (AC) led to continued use. Overall, the combination of effective dissemination plus building user capacity led to the best outcomes (knowledge→adoption→appropriation). If dissemination was poor or AC not built, adoption languished despite availability of innovation.

6. Contextual and Domain-Specific Insights

Research on AC and DC spans various contexts multinational corporations, small and medium enterprises (SMEs), supply chains, public sector organizations, academia-industry knowledge transfer, and more. Some patterns and differences emerge when comparing across these domains

6.1. Multinational Corporations (MNCs)

MNC research has strongly highlighted disseminative capacity at different levels (HQ vs subsidiary). Often, HQ is seen as a knowledge source (e.g., disseminating best practices or innovations to subsidiaries) and subsidiaries as recipients, but also as sources when reverse knowledge transfer is considered. Yildiz et al. (2025) focus on subsidiaries as knowledge senders within MNCs and argue that corporate mechanisms (like structural integration) can nurture their disseminative capacity. The implication is that MNCs should not only ask "do subsidiaries have the absorptive capacity to learn from HQ?" but also "does HQ have the capacity to learn from subsidiaries and do subsidiaries have capacity to share local knowledge?" Ishihara and Zolkiewski (2017) finding about "heeding capacity" of HQ underscores that HQs might need to actively compensate when a subsidiary's DC is low. Many MNC studies (e.g., Gupta and Govindarajan 2000) have used the term "knowledge flow" between units, effectively considering both AC of receiving unit and DC of source unit as determinants. A practical takeaway for MNCs is to invest in training both HQ managers and subsidiary staff in cross-cultural communication, create liaison roles, and establish knowledge networks so that both disseminative and absorptive capacities are bolstered across the network. Notably, Minbaeva et al. (2013) found that subsidiaries' AC (through HR practices) and HQ's willingness to share both influenced knowledge transfer in MNCs – aligning with our broader review conclusions despite not being in our provided list.

6.2. SMEs and Entrepreneurship

Smaller organizations might lack formal RandD or training departments (which build AC) or formal knowledge management systems (which aid DC), but they often have closer social relationships and more fluid roles. As mentioned with Noblet and Simon (2012), SMEs can leverage their organic nature to disseminate knowledge via informal networks. In entrepreneurial settings, absorptive capacity might manifest as the entrepreneur's personal learning ability and the firm's agility to pivot based on new information. Disseminative capacity might show up as the entrepreneur's networking and pitching skills – the ability to communicate the business idea, get buy-in from investors or partners (which is essentially disseminating knowledge about the venture). Indeed, knowledge transfer in entrepreneurial networks often depends on a few central individuals (mentors, advisors) who have high disseminative capacity, and startups with high absorptive capacity to take advice and knowledge on board. One study in our sources by Chion et al. (2023) indicated that knowledge transfer combined with a transactive memory system boosted small firms' entrepreneurial orientation. We can interpret that as: when SMEs develop internal processes to know who knows what (TMS) and effectively share knowledge internally, they become more innovative and proactive (entrepreneurial orientation).

6.3. Public and Nonprofit Sector

In government or nonprofit agencies, formal structures and risk aversion can dampen both AC and DC. However, there is growing interest in improving knowledge mobilization in these sectors (for example, getting research evidence into policy or practice). Khalil and Seleim (2025) took a macro perspective and examined how national culture relates to societal knowledge transfer capacity (KTC) (Khalil and Seleim, 2012). They found that cultural factors like high future orientation and low power distance correlate with higher knowledge transfer capacity at the country level. This suggests that even at a societal level, the environment can foster or impede knowledge sharing and absorption (e.g. an open, forward-looking culture vs. a hierarchical, traditional one). Within public organizations, concepts akin to AC/DC are being recognized – such as the idea of "absorptive capacity for evidence" in healthcare systems (ability of a health system to absorb new medical research) and "knowledge brokering capacity" (ability of individuals to bridge research and practice). Udod et al. (2025), in a protocol for studying health system leadership during COVID-19, reference using a framework (Geerts' imperatives and possibly DKTC) to examine how leaders share and absorb knowledge in crisis (Udod et al., 2025). The urgency of the pandemic highlighted how crucial rapid knowledge dissemination and absorption were (e.g. sharing new clinical guidelines and having hospitals absorb them quickly).

6.4. Academia-Industry Knowledge Transfer

Disseminative and absorptive capacities are central in innovation ecosystems connecting universities and firms. Universities need disseminative capacity to translate academic research into industry-applicable knowledge (technology transfer offices partially fulfill this, but as Hong et al. (2023) noted, universities need diagnostic frameworks to improve their role as technology *donors* (Hong et al., 2023). Firms, on the other side, need absorptive capacity to pick

up and utilize university research. Misalignment in these capacities is a known challenge – e.g., a university might produce a great invention (generative capacity) and even attempt to disseminate it (patents, publications), but if industry lacks the absorptive capacity or the interface (like collaborative relationships), the knowledge may languish. Reichenfeld (2013) in our sources discussed barriers to academics engaging in enterprise – one of which is academics' reluctance (low motivation) to package their knowledge in "deliverable" forms for industry. That indicates a disseminative capacity issue (and also a motivational one). Efforts to build "third mission" activities in universities, like training researchers in communication and entrepreneurship, are essentially boosting disseminative capacity of academia. Meanwhile, firms often engage in open innovation initiatives or send scouts to universities to boost their absorptive capacity for external science.

Domain specifics: Some domains emphasize certain capacity aspects. For example, in IT and software development teams, absorptive capacity might involve learning new technical knowledge quickly, and disseminative capacity might involve good documentation practices and knowledge-sharing tools. A study by Lucas et al. (2010) suggested that improved knowledge transfer in IS development requires both documentation (for dissemination) and social integration of new team members (for absorption). In manufacturing, production teams often rely on tacit know-how transfer (e.g. master to apprentice), where disseminative capacity could mean the ability to demonstrate and coach, and absorptive capacity the ability to learn by doing. In such contexts, experience and hands-on training are key antecedents for both capacities.

Taken together, context influences which capacity might be relatively more challenging and what mechanisms are effective to improve them. However, the underlying principles of AC and DC remain applicable across contexts: *people need the ability and motivation to share knowledge, and people need the ability and motivation to learn and use knowledge.* The balance and methods to achieve these may vary, but the dual-capacity lens is broadly useful. We will encapsulate some of these context-specific notes in Table 4, which compares how AC/DC manifest in different settings (corporate, SME, public, etc.), and Table 5, which might list example studies by context.

Having synthesized the literature thematically, we now present a series of comparative tables that distill these insights and provide quick-reference comparisons of key concepts and findings across the body of work.

Table 4 Contextual Variations in Disseminative and Absorptive Capacity

Context	Disseminative Capacity Considerations	Absorptive Capacity Considerations	Key Observations	Example Sources
Multinational Corporations (HQ and Subsidiaries)	– HQ as knowledge source: needs DC to transfer best practices/strategies to subs (e.g. clear documentation, training programs). – Subsidiary as source (reverse transfer): often lower power, so DC involves articulating local knowledge in terms HQ values (and overcoming language/culture barriers). – Structural integration (cross-unit teams, liaison roles) boost DC by giving channels to share. – Trust in HQ-sub relationship encourages subs to share (psychological safety to disseminate "upwards").	– Subsidiary AC: ability to absorb HQ knowledge (often fostered by prior experience, local training, similarity of context). HQ often invests in building sub's AC via expatriates, manuals, etc. – HQ AC (or "heeding capacity"): ability to listen to and incorporate subsidiary knowledge, requiring openness and cross-cultural understanding. – Staff rotation between HQ and sub can increase mutual AC (each side understands other's context better).	*MNCs often initially focused on subsidiary AC (knowledge receiver role), but recent emphasis shows HQ's capacity to absorb from subs and subs' capacity to send are equally important.* Cases of failed transfers include HQ sending tons of info that subs couldn't absorb (low sub AC), or subs giving input HQ ignored (low HQ AC/DC). Successful MNCs cultivate a "dual capacity": e.g., Unilever's transfer of innovations from emerging market subsidiaries succeeded by training HQ managers to appreciate those insights (HQ AC) and giving subsidiaries platforms to present them (sub DC).	– Ishihara and Zolkiewski (2017) – Yildiz et al. (2025) – Gupta and Govindarajan (2000) (knowledge flow factors)
Small and Medium Enterprises (SMEs)	– Often informal processes: DC may rely on key individuals (owner/manager) sharing knowledge via personal interactions (meetings, on-the-job guidance). – Fewer formal KM systems, so SMEs leverage social networks (friends, local business associations) for disseminating new ideas (e.g., one SME owner learns about a tool and tells peers). – Resource constraints mean less dedicated "trainers," so disseminative capacity might be lower unless the culture is very collaborative.	– SMEs may have limited AC due to less specialized staff or RandD; they rely on external sources (consultants, customers) to build knowledge. – Learning-by-doing is key: SMEs absorb knowledge when it's practically demonstrated (they benefit from hands-on dissemination). – High adaptability of SMEs can mean once they grasp knowledge, they implement changes faster (agility can compensate for lower initial AC). – Owner's education and openness strongly influence SME	*SMEs with tight-knit teams can have quick informal knowledge flows (if one person learns something, everyone hears about it over coffee – a form of disseminative capacity). However, if the owner hoards knowledge or isn't receptive, capacity on both sides suffers.* Many SMEs report learning from peer SMEs (one mechanic shop learns a new technique and informally teaches others in town – community DC). Government or NGOs often target SME absorptive capacity via workshops, but unless SME owners are convinced (which requires effective dissemination of benefits), adoption remains low.	– Noblet and Simon (2012) – Adechian et al. (2024) (small farmers as SMEs) – McLeod et al. (2024) (tourism SMEs)

	– External mentors or government extension services can act as disseminators to SMEs (filling DC gap).	AC (since they often drive whether new knowledge is sought and embraced).		
Supply Chain / B2B Partnerships	– Suppliers need DC to educate buyers about new technologies or processes (e.g., providing technical manuals, on-site support). A supplier with low DC might deliver a product without proper instructions, causing buyer difficulties. – Trust and openness in partnerships encourage more knowledge sharing by the source (DC improved by relational capital). – Sometimes third-party consultants mediate knowledge between firms (outsourced DC if either side lacks it).	– Buyers need AC to integrate suppliers' knowledge (e.g. understanding how a component works to use it effectively). Firms invest in supplier development programs to raise suppliers' AC to handle knowledge from the buying firm (reverse in some cases). – Joint training sessions between companies can boost mutual AC. – Prior collaboration experience builds a "knowledge base" about each other, improving AC for future exchanges (each knows how to work with the other).	*In closely coupled supply chains (like automotive), disseminative capacity of suppliers (sharing design specs, improvements) and absorptive capacity of buyers (incorporating supplier innovations) directly affect product quality and time-to-market.* Many OEMs have programs to enhance suppliers' AC (teaching them lean practices) and to ease suppliers' DC (providing feedback on what knowledge is useful). Conversely, arms-length relations with low trust often see poor knowledge flow (supplier holds back improvements, buyer doesn't learn from supplier expertise). Successful SCM often cited Toyota: they actively share knowledge with suppliers (high DC) and learn from them (high AC), leading to continuous improvement.	– Whitehead et al. (2019) –Faye et al. (2021) knowledge transfer models in inter-org. – Sobrero and Roberts (2002) on inter-firm knowledge flow requires mutual capacities).
Public Sector / Government and Non-profits	– Dissemination often formal (reports, guidelines) but DC may be low if communication is too top-down or not audience-tailored (e.g., policy reports full of jargon). – Knowledge brokers (e.g., extension agents, liaisons between researchers and policymakers) are crucial to increase DC – they translate knowledge into actionable terms. – Government culture can be siloed; cross-department knowledge sharing (DC) may need incentives or mandates.	– Absorptive capacity varies: front-line staff need training to absorb new policies or practices. High bureaucracy can reduce AC as organizations resist change. – Creating learning organizations in government (fostering continuous improvement, feedback loops) is essentially boosting AC. – Public orgs often rely on external knowledge (research). AC in this context involves ability to find, evaluate, and apply research evidence (which may	*Public sector examples:* A health department's ability to implement new treatment protocols (absorptive capacity) depends on training (knowledge provided) and willingness to change routines. If leadership lacks disseminative capacity (poor communication of the "why" and "how"), staff won't absorb changes. Also, public sector has unique challenge: high turnover and political shifts can disrupt capacity building. However, some studies (e.g., Faye et al., 2021 in Quebec) show when legal obligations force knowledge application, even without full buy-in, it can ensure some transfer (though possibly with compliance mindset rather than true	– Udod et al. (2025) (leaders using DKTC during COVID). – Faye et al. (2021) (collaboration and coercion in knowledge transfer with legal mandate). – Rashman et al. (2009) (AC in public orgs often underdeveloped).

	– During crises (e.g. COVID-19), leaders' disseminative capacity (clear, transparent communication) hugely affects policy implementation and public compliance.	require partnerships with academia). – If AC is low, policies based on evidence may not be adopted uniformly (some regions don't implement due to lack of understanding or skills).	absorption). This indicates sometimes mandate can override low AC to a degree, but sustainable improvement likely needs genuine capacity building.	
Academic-to-Industry Knowledge Transfer	– Academics often publish (explicit knowledge dissemination), but effective DC may require simpler communication, prototypes, or consulting. Many academics lack incentives or skills for that, so Technology Transfer Offices (TTOs) act as disseminators. – Patents are a form of codified knowledge dissemination, but without further explanation or development, companies might not pick them up (patent = limited DC, needs additional marketing). – Personal relationships (researcher-entrepreneur ties) improve academic DC because info flows informally beyond publications. – University culture is shifting to encourage faculty engagement (to raise DC, e.g., through training in entrepreneurship or recognizing applied work).	– Companies require AC to scan academic output and integrate it. Large firms may have dedicated "scouts" or RandD that monitor academia (absorptive capacity for external science). – SMEs often lack this AC, so they depend on intermediaries or collaborations to gain from academia. – Joint industry-university projects build mutual AC: industry learns academic language, academia learns practical needs. – Public programs (grants encouraging knowledge transfer) often aim to boost industry AC (by funding collaborative research or knowledge transfer partnerships).	*Observations:* The "Valley of Death" in innovation (between research and commercialization) is partly a gap in DC (academic results not in a user-friendly form) and AC (firms not equipped to understand research). Successful tech clusters (e.g., Silicon Valley) thrive because many individuals have dual capacity (academics turned entrepreneurs = high DC, industry scientists reading journals = high AC). Also, fields differ: in pharma, companies have high AC (they track journals, trials) and academics often partner with them, so knowledge flows. In contrast, in social sciences, practitioners may not even read academic work (low AC) and academics may not package it for them (low DC). Efforts like plain-language summaries, collaborative research with stakeholders are attempts to improve DC from academia and AC in practice.	– Reichenfeld (2013) (barriers in academic dissemination). – Hong et al. (2023) (tech donor diagnosis framework to improve univ. knowledge transfer). – Bozeman (2000) (papers on tech transfer stress AC of recipient).

Table 5 DKTC Model Applications and Extensions

Study/Source	DKTC Model Usage	Findings / Modifications	Implications for AC/DC
Parent et al. (2007) – original DKTC	Introduced DKTC with four capacities (Generative, Disseminative, Absorptive, Adaptive). Used literature review to build model[9].	Found model apt for complex, multi-stakeholder systems (like national knowledge networks). Suggested need to empirically test and refine in various contexts.	Positioned AC/DC as central to organizational knowledge use. Highlighted that absence of any capacity hampers KT. Provided foundational definitions for AC/DC still used.
Denusik et al. (2023) – Virtual program in healthcare (COVID context)	Used a "modified Dynamic Knowledge Transfer Capacity model" as a framework to deductively analyze interview data.	Identified themes in virtual service delivery experiences corresponding to DKTC components (e.g., participating from home – related to adaptive capacity; accessing program – absorptive capacity issues; SLP–caregiver relationship – disseminative aspects).	DKTC proved useful in analyzing which capacity was challenged in virtual context. E.g., building commitment and translating knowledge (disseminative) was done via online tools; absorbing by parents required certain supports. Authors likely recommend enhancing certain capacities (e.g., more support = increase absorptive outcome for parents).
Faye et al. (2021) – Knowledge transfer with legal obligation (Quebec)	References inter-organizational transfer models (likely including capacity concepts) in context of accident investigation knowledge recommendations. Not explicitly DKTC, but similar variables (collaboration, coercion) investigated.	Found that when receivers are legally obligated to implement knowledge (coercion), and when collaboration exists, knowledge application effectiveness improved despite typical model assumptions of voluntary transfer.	Suggests that external enforcement can in part substitute for low intrinsic absorptive motivation—organizations applied knowledge because they had to. However, long-term learning (adaptive capacity) might be limited if coercion is the only driver. Highlights that classical transfer models (assuming unidirectional voluntary transfer) might not account for such contexts; adding factors like "mandatory absorption" can override capacity gaps temporarily.
Khalil and Seleim (2025) – Societal KTC	Not DKTC per se, but posits a macro Knowledge Transfer Capacity (KTC) at country level and examines cultural determinants.	Treated KTC as an aggregate outcome of systems' capacities. Found specific cultural practices correlate with higher KTC. Possibly conceptualizes that a society with better AC/DC across institutions yields better overall knowledge transfer (e.g., innovation diffusion nationally).	Extends "capacity" concept to national competitiveness: absorptive capacity of a nation (through education, openness) and disseminative capacity (through media, communication norms) collectively form societal KTC. Implies DKTC ideas can be scaled up – need to ensure not only firms, but countries, have the infrastructure and culture to generate, share, absorb knowledge (e.g., national innovation systems).
Noblet and Simon (2012) – Disseminative	Tested a model of knowledge dissemination (based on Büchel and Raub 2002 networks model) in SME	Found that relational approach (issues, mechanisms, relationships) fits SMEs, but components combine differently. SMEs	Reinforces DKTC notion that context alters relative importance of capacities. In SMEs, disseminative capacity is highly relational (who knows who) – so

capacity model in SMEs	context. Compared components of dissemination networks in large vs small org.	disseminate via organic social networks; initial model needed adaptation for scale and informality (e.g., fewer formal mechanisms, more reliance on personal ties).	building social capital is key to dissemination. This might suggest for DKTC in SMEs, emphasis on social network structure under DC column, whereas large firms might list technology platforms under DC. So, framework must be applied flexibly.
Ishihara and Zolkiewski (2017) – Proposed adding "Heeding capacity"	Using a transfer framework with AC, DC, tie strength, they found a missing piece and added Heeding capacity (HQ's capacity to listen).	Heeding capacity = HQ's ability to detect and act on subsidiary's attempt to transfer knowledge even when sub's DC is low . This is like a meta-absorptive capacity focusing on weak signals. It broadened the model beyond just AC/DC of sender/receiver, indicating a more interactive capacity.	Suggests an extension to DKTC: perhaps a fifth capacity in certain contexts, like a receiver's proactive listening capacity beyond normal AC. However, one could also frame heeding as part of AC (sensing weak external knowledge signals). Regardless, it alerts practitioners that if the sender is weak in expressing knowledge, the onus shifts to receiver to extract it. For theory, it highlights asymmetry considerations – models may introduce capacities for specific roles (HQ vs sub) rather than one-size AC for any receiver.
Cameron et al. (2011) – Knowledge brokering in healthcare	Not explicitly DKTC, but examined knowledge broker role in facilitating evidence use. Many themes align with capacities (e.g., broker helps increase practitioners' AC by translating evidence; broker's networking is DC).	Found administrators valued brokers for making knowledge use efficient and effective ("Stimulating peer learning" – disseminative; "Efficient and Effective" – result of good transfer). But funding and evidence of effectiveness were barriers to continuation (lack of adaptive capacity to sustain new role).	Provides empirical support that introducing intermediary roles (brokers) can enhance both disseminative and absorptive sides in a healthcare org: brokers disseminate evidence in accessible ways and foster AC by creating learning environments. It also underscores that without organizational adaptive capacity (to integrate and fund new knowledge roles), improvements might not sustain. This case implicitly validates DKTC – they had added a resource (broker) to boost DC/AC, saw improvements in use of evidence (KT success), but long-term needed adaptive changes (funding, routine creation) to keep that capacity.

7. Discussion and Implications

Our comprehensive review reveals significant advancements in understanding knowledge transfer capacities since Parent et al. (2007) first articulated the DKTC model. The dual focus on disseminative and absorptive capacity has proven to be a fruitful lens for both researchers and practitioners, offering nuanced insights into why some knowledge transfer efforts thrive while others falter. In this section, we discuss the conceptual developments, highlight remaining gaps, and draw implications for theory and practice.

7.1. Conceptual Advancements

One of the most notable developments is the further detailing of disseminative capacity, which had been relatively underconceptualized. Early work often treated knowledge transfer largely as a function of the receiver (absorptive capacity) (Yildiz et al., 2024, 2025). Our review shows that disseminative capacity is now recognized as a multi-faceted construct in its own right (Yildiz et al., 2025). The proposal by Yildiz et al. (2025) to break DC into identification, articulation, association, and support provides a clear agenda for future research: each of these dimensions can be measured and developed. This mirrors the evolution of AC two decades prior – from a monolithic idea to a set of processes (acquire, assimilate, etc.). Similarly, Ishihara and Zolkiewski (2017)'s introduction of heeding capacity (a sort of "listening capacity" of the receiver) adds depth to our conceptual toolkit. It suggests that capacity models might need to account for *asymmetries* and compensatory mechanisms: e.g., if sender's DC is weak, can the transfer still succeed if the receiver actively compensates? Future theoretical models could integrate such asymmetries, possibly by defining capacities for both sides rather than a one-size-fits-all.

Another conceptual trend is the application of the capacity lens at different levels of analysis. We see the notion of absorptive/disseminative capacity being applied not just at firm or unit level, but also to teams (e.g., transactive memory systems facilitating internal AC) (Chión et al., 2023), to networks (e.g., a network's overall knowledge transfer capacity depending on positions of brokers and existence of trust ties), and even to societal systems (Khalil and Seleim, 2012). This scalability of the concepts speaks to their fundamental nature – whether we talk about individuals in a team or organizations in a country, the ideas of being able to share knowledge effectively and learn effectively are universal. However, the operationalization and dominant enabling factors can differ by level, which scholars should carefully consider. For instance, societal absorptive capacity might be operationalized via RandD intensity at national level, education indices, etc., while societal disseminative capacity might relate to ICT infrastructure or a free press. These are different proxies than one would use at firm level (where AC might be measured via employee skill breadth, and DC via knowledge-sharing culture surveys). Conceptually, though, the extension of AC/DC to macro contexts like national innovation systems (as in Khalil and Seleim, 2025) is an exciting frontier that could yield insights for economic development policy (e.g., fostering a culture that supports knowledge exchange and learning across organizations).

7.2. Empirical Insights and Gaps

Empirically, there is robust evidence that both capacities strongly influence knowledge transfer outcomes across various settings. We saw that in supply chains, collaborations succeeded only when both supplier and buyer had sufficient capacity (Whitehead et al., 2019) . In internal transfers, studies repeatedly show that absorptive capacity without disseminative capacity (or vice versa) leads to suboptimal results. This mutual necessity is almost tautological now, yet many organizations still invest heavily in one side and neglect the other. For example, companies might pour resources into employee training (building AC) but not into knowledge-sharing systems or incentives (building DC), or vice versa. Our review underscores that a balanced investment is necessary. A notable empirical gap is in measurement of disseminative capacity. While absorptive capacity has established measures (e.g., George et al. scale, RandD proxies, etc.), disseminative capacity measures are still emerging. Some researchers have proxied DC by things like "number of best practices a unit exports" or survey items about how well a unit documents and shares knowledge. Yildiz et al. (2024) conceptual dimensions provide a basis for developing a formal measurement scale – e.g., items or indicators for each of identification, articulation, association, support. Developing and validating such a scale would fill a gap and allow more quantitative studies on DC. Additionally, longitudinal studies are needed to see capacity development over time. Many studies are cross-sectional; they link AC or DC at one point to outcomes at that point. But capacities can be built (or eroded) over time, and it would be valuable to capture these dynamics. For instance, does a firm's disseminative capacity improve after implementing a communities-of-practice program? Does absorptive capacity grow after a few cycles of external collaborations? Longitudinal evidence could inform how quickly capacity-building interventions yield results and whether improvements in one capacity lead to improvements in the other (are they mutually reinforcing over time? Some theorists speculate a co-evolution: successful knowledge transfer experiences could increase motivation to share (boosting DC) and also increase knowledge base (boosting AC) – essentially a learning-by-sharing feedback loop).

Another gap relates to context-specific variables that might moderate the importance of AC or DC. For example, the type of knowledge (tacit vs explicit) likely moderates the effect: tacit knowledge transfer is much more dependent on disseminative capacity (and absorptive capacity in the sense of learning-by-doing) than explicit knowledge transfer (Sikombe and Phiri, 2019). Some studies acknowledged this qualitatively; future research could explicitly model knowledge tacitness or complexity as a moderator. Similarly, cultural factors (both organizational culture and national culture) act as boundary conditions for how capacities operate (Khalil and Seleim, 2012). High power-distance cultures might inhibit disseminative capacity (if juniors fear speaking up, valuable knowledge might not be disseminated upward), whereas high collectivist cultures might enhance it (if there's a norm of sharing). Incorporating such moderators can refine the predictions of capacity models in global contexts. Our review touched on these but also reveals them as fertile ground for deeper empirical work.

7.3. Integration with Other Frameworks

It's worth noting that disseminative and absorptive capacities connect to other theoretical frameworks such as the Knowledge-Based View (KBV) of the firm and Dynamic Capabilities. Essentially, AC is often considered a dynamic capability (the ability to reconfigure and utilize external knowledge) and DC might be seen as part of a firm's knowledge orchestration capability (to distribute knowledge internally and externally). The DKTC model itself could be seen as a specialized view of dynamic capabilities focusing on knowledge flows (Noblet et al. , 2011). Recognizing these linkages, future research could integrate capacity constructs with, say, innovation capability (AC is a precursor to innovation capability) or network theory (DC could be enriched by network centrality metrics, etc.). Also, bridging to literature on learning organizations: Senge's Fifth Discipline (1990) emphasizes building an organization's learning capacity – clearly overlapping with AC – and "sharing vision" which overlaps with DC (sharing knowledge of goals). So, our refined understanding of AC/DC can inform and be informed by that broader literature on organizational learning and knowledge management. Notably, our review found instances of DKTC being used in practice (e.g. Denusik et al., 2023 in health leadership), which indicates its resonance beyond academia. This suggests that the model, and by extension AC/DC constructs, have high face validity for practitioners grappling with knowledge transfer issues. They provide a diagnostic structure: one can ask, "Do we have a problem with generating knowledge, disseminating it, absorbing it, or adapting as we do so?" – a very useful checklist that emerged from Parent et al. (2007) work and is validated by these subsequent applications.

7.4. Practical Implications

For knowledge-intensive organizations whether corporations, government agencies, or non-profits – the findings of this review carry several actionable insights:

7.4.1. Assess and Build Both Capacities

Organizations should conduct honest assessments of their disseminative and absorptive capacities. This could involve climate surveys (do employees feel knowledge is freely shared? do they feel equipped to learn new skills?), audits of knowledge flows (how many new best practices moved between units last year?), or benchmarking RandD and training investments (for AC) and knowledge-sharing investments (for DC). Tools from the literature, such as absorptive capacity scales or checklists for effective knowledge sharing practices, can be used. Based on assessments, targeted capacity-building should follow. For absorptive capacity, this might mean investing in continuous training, hiring for diversity of knowledge/skills, encouraging curiosity, and developing robust onboarding programs that bring in external knowledge (e.g., inviting guest experts, attending conferences). For disseminative capacity, organizations could train subject-matter experts in communication and teaching skills (Kuiken, 2010), establish knowledge broker roles or communities of practice, provide platforms (wikis, internal seminars) for sharing, and critically, reward knowledge sharing behavior (explicitly recognize teams or individuals who actively help others learn). The case of Buckman Labs (Buckman, 1998), for instance, famously showed that incentivizing knowledge sharing via an internal forum transformed the company's performance – essentially a testament to boosting DC.

7.4.2. Leverage Motivation and Culture

A recurrent finding is the role of intrinsic motivation for sharing and learning. Managers should strive to create an environment where employees *want* to share knowledge and *want* to learn. This ties into culture: a culture of trust, openness, and learning from failure will naturally enhance both DC and AC. For example, if employees trust that sharing their unique know-how won't make them expendable but rather will be valued, they are more likely to do so (addressing a common knowledge hoarding fear). If they see that management consistently acts on suggestions and new ideas (indicating the organization has absorptive capacity for employee knowledge), they'll be more motivated to contribute suggestions (thus further exercising DC). The negative effect of controlled motivation on performance in Sun et al. (2025) study is a caution: simply mandating people to share (through, say, strict KPIs on contributions to a knowledge

base) may backfire unless accompanied by genuine empowerment and autonomy. Instead, encouraging autonomy – giving employees slack time to explore and share improvements, supporting informal peer-to-peer learning, and aligning knowledge activities with personal development goals – can yield better outcomes.

7.4.3. Strategize Knowledge Transfers with Capacity in Mind

When planning any knowledge transfer initiative (be it implementing a new IT system, merging two organizations, launching a best-practice transfer program, etc.), practitioners should explicitly consider AC and DC of stakeholders. For instance, in a merger, the acquiring company's AC to absorb the acquired firm's knowledge base is crucial – but also the acquired firm's DC to convey its practices matters, especially if the acquirer wants to learn from the acquired's strengths. Integration teams in MandA could include "knowledge ambassadors" from the acquired firm (to ensure key tacit knowledge is disseminated) and "learning liaisons" in the acquiring firm (to ensure absorption). In implementing new technology, companies often focus on user training (building user AC) but should also ensure the tech experts have good change management and communication (tech team's DC) – a frequent gap illustrated by failed ERP implementations where IT spoke jargon and end-users never fully understood the new system (low DC issue). Tools like knowledge maps can help identify who holds critical knowledge (so one can bolster their disseminative capacity or pair them with a broker if they themselves aren't great at sharing).

7.4.4. Use Intermediaries and Integration Mechanisms

Our review highlights how various intermediaries – gatekeepers, boundary spanners, brokers – can effectively bridge AC and DC gaps. Organizations should identify natural knowledge brokers in their midst (or hire for such roles) and empower them. These could be senior engineers who mentor across departments, or customer-facing staff who bring outside insights to internal teams. Additionally, structural mechanisms such as cross-functional teams, communities of practice, job rotations, and joint innovation projects with partners serve to increase opportunities for knowledge exchange and mutual capacity development. For example, a rotational program sending HQ managers to a subsidiary for a stint can increase HQ's heeding capacity and the subsidiary's network for dissemination.

Monitor and Adapt: Echoing the adaptive capacity element, organizations should continuously monitor how well knowledge transfer is happening and be ready to adjust. Feedback loops can be instituted: after a knowledge transfer activity (e.g., a training or a best-practice webinar), get feedback on what was clear or not (did disseminators present well? did recipients grasp it?), and iterate. If a certain unit consistently fails to implement external knowledge, diagnose if it's an AC issue (not enough training, not invented here syndrome) or a DC issue (perhaps the knowledge was not shared in a context-relevant way). The findings of Faye et al. (2021) that legal mandates improved compliance suggest that in critical situations, adding carrots or sticks might force knowledge application, but long-term growth would come from internalizing the value of knowledge (turning external pressure into intrinsic motivation ideally). Organizations thus might use incentives or mandates as a short-term boost (especially for disseminative behaviors that folks are reluctant to do at first), but concurrently work on culture so that over time extrinsic levers can be relaxed as intrinsic engagement kicks in.

Implications for Future Research

While practitioners can act on these findings immediately, researchers have more to explore. We encourage future studies to address the identified gaps: develop robust measures of disseminative capacity, explore longitudinal capacity building, and examine interplay in new contexts (e.g., how do AC and DC function in digital communities or open-source projects? Possibly differently, since there is less formal hierarchy – maybe DC is manifested through online communication skill and AC through self-directed learning skill). Another intriguing area is the role of technology (AI, knowledge management systems) in augmenting capacities. Can AI tools increase an organization's absorptive capacity by quickly summarizing external information (helping recognize value) or increase disseminative capacity by facilitating easy knowledge capture (auto-documentation of tacit knowledge via video recordings and transcripts)? Early signs show technology can help but also requires human capacity to use it – a synergy worth exploring.

Limitations

It is important to note that our review was limited to references provided in two sources (Parent et al., 2007 and the Scopus compilation). While extensive (120+ works), this constraint meant we did not include some well-known studies outside those lists (e.g., some seminal AC papers by (Lane et al., 2006; Todorova and Durisin, 2007; Alharbi and Aloud, 2024). However, many of their insights are reflected in later works we did include. Another limitation is an implicit bias towards positive findings – few studies deeply examined cases where high capacity did not lead to transfer (though Alharbi and Aloud's finding on sharing not improving performance is one such nuance) (Alharbi and Aloud, 2024). There may be situations (perhaps involving politics or misaligned incentives) where even with high AC/DC, knowledge doesn't

transfer because of deliberate knowledge hiding or power issues – these sociopolitical factors were beyond our scope but merit attention.

8. Conclusion

In reflecting on the journey from Parent et al. (2007) seminal model to the present, it is evident that the twin concepts of disseminative and absorptive capacity have become cornerstone considerations in knowledge management and transfer research. The Dynamic Knowledge Transfer Capacity (DKTC) model's central message – that effective knowledge transfer requires certain capacities in the system – has been resoundingly supported and elaborated by subsequent literature (Parent et al., 2007; Whitehead et al., 2019). We now understand with greater clarity not only what those capacities entail, but how to cultivate them and how they interact.

The review emphasizes a fundamental shift: knowledge transfer is no longer viewed as a unidirectional gift from a knowledgeable party to a passive recipient, but rather as a co-created process requiring active capability on both sides. Disseminative capacity and absorptive capacity are the enablers of this process – without either, the gears of knowledge flow grind to a halt. Organizations that have thrived in the modern knowledge economy (be it a cutting-edge tech firm, a high-reliability healthcare system, or an agile non-profit) can often be reinterpreted through the lens of our review as those that have consciously or unconsciously developed strong capacities to share knowledge and to learn. The lessons from this review encourage organizations to take a balanced, capacity-building approach to knowledge strategy: invest in people and systems not just to learn (absorb) but also to teach (disseminate) (Whitehead et al., 2019).

For scholars, disseminative capacity stands out as a ripe area for further theory-building – essentially doing for the sender side what three decades of absorptive capacity research did for the receiver side. For practitioners, the numerous examples and studies compiled here provide both cautionary tales and best practices. If a knowledge transfer initiative isn't delivering results, one can now diagnose: Is it because the intended users just don't "get it" (low absorptive capacity)? If so, how can we better prepare or support them? Or is it because the experts aren't conveying it well or at all (low disseminative capacity)? If so, how can we motivate and equip those experts to share, or insert intermediaries who will? Often, the answer will be a bit of both. The consistent finding that both capacities matter suggests that interventions will be most effective if done in tandem – for example, training for receivers accompanied by tools or incentives for senders.

In conclusion, deepening the conceptual and empirical understanding of disseminative and absorptive capacities has reinforced an enduring insight: knowledge does not transfer on its own – it must be carried by people (or systems designed by people) who are willing and able to share, and it must land with people (or systems) willing and able to learn. By viewing knowledge transfer through this capacitive lens, organizations and societies can better pinpoint where their knowledge flow problems lie and address them more surgically. Future research will undoubtedly continue to refine these concepts, perhaps exploring the limits of human capacity to process knowledge in the era of information overload, or the role of intelligent technologies in supplementing human capacities. The DKTC model, with disseminative and absorptive capacities at its core, provides a robust scaffold on which these future investigations can build. As the world becomes ever more knowledge-intensive, understanding and enhancing our capacities to disseminate and absorb knowledge will not only remain relevant – it will be pivotal to innovation, adaptation, and progress.

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During the preparation of this work the authors used ChatGPT to enhance the clarity of the writing. After using the ChatGPT, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication.

Compliance with ethical standards

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