

Between Facilitative and Hindering Roles: Situational Conditions Triggering Boundary Spanners' Dynamics in Knowledge Transfer within University-Industry Collaborations

Abstract

Boundary spanners play a critical role in facilitating knowledge transfer in university-industry collaborations (UIC). However, their intermediary roles are not static and may shift in response to changing project conditions. While prior research has examined facilitative and hindering boundary-spanning roles separately, limited attention has been paid to the dynamic between them, particularly in management-discipline UICs. This study examines a dynamic boundary spanner, Knowledge Transfer Partnership (KTP) associates within UK management-oriented KTP (mKTP) projects, employing qualitative interviews with thirty participants from four stakeholder groups. The findings reveal that unsupportive situational conditions, including insufficient supervisory support and engagement, competing expectations and power asymmetries, and inappropriate treatment by business partners, can shape associates' perceptions toward self-interest, leading to their shifts from facilitative to hindering roles. Conversely, supportive conditions, such as knowledge and pastoral support and business's support in their embeddedness and empowerment, encourage a perception of confident and legitimate conduits. This drives their role movements from hindering to facilitative conduits. The study also identifies three novel hindering boundary-spanning roles: project stewards, disempowered conduits and unembedded newcomers. By developing an integrated framework, this paper advances understanding of the dynamic and context-dependent nature of boundary spanners in knowledge transfer within UICs and extends boundary-spanning research beyond its traditional STEM focus.

Keywords: Boundary spanners, knowledge transfer, university-industry collaborations, role dynamics, knowledge transfer partnerships (KTP), situational conditions

1. Introduction

Boundary spanners, defined as intermediary individuals or organisations (William, 2002), play a central role in knowledge transfer within university-industry collaborations (UIC) (Dolmans et al., 2022; Noke et al., 2024; Crupi & Mortara, 2025). However, operating between academic and industrial partners with divergent priorities and expectations can place significant pressure on boundary spanners, diminishing their motivation and potentially shifting their behaviour away from facilitative behaviours (White et al., 2019; Goodrich et al., 2020)

Existing boundary-spanning literature has predominantly focused on facilitative roles (e.g. Williams, 2002; Ryan & O'Malley, 2016; Abu Sa'a & Ystrom, 2024), while the concept of hindering boundary spanners remains underdeveloped (Tang et al., 2018; Ogbanufe et al., 2025). This gap arises from the tendency to view boundary spanners as stable connectors within established collaborative structures (De Wit-de Vries et al., 2019; Noke et al., 2024). In practice, however, collaborative environments are complex and dynamic (Schaeffer et al., 2020; O'Dwyer et al., 2023; Marques et al., 2024). Boundary spanners frequently encounter conflicting expectations, power imbalances, or insufficient institutional support, all of which may influence their behaviour (Tootell et al., 2021; Abu Sa'a & Ystrom, 2024). Although some scholars acknowledge the dynamic nature of boundary spanners (Haas, 2015; Wegemer & Renick, 2021; Zobel et al., 2024), the focus is often limited to facilitative roles. Empirical evidence on the dynamic between facilitative and hindering roles remains limited, especially regarding the situational conditions that drive these shifts (Haas, 2015; Wegemer & Renick, 2021; Dolmans et al., 2022).

Empirically, the study focuses on Knowledge Transfer Partnership (KTP) associates within management-oriented KTP (mKTP) projects in the UK. mKTPs are relational collaborations in management or business disciplines that focus on people-oriented initiatives to improve performance (Ates et al., 2025; UKRI, 2025). These projects bring together multiple stakeholder groups with varied expectations, making them ideal for observing boundary spanners' dynamics. KTP associates formally span boundaries, linking academic supervisors and business partners while facilitating knowledge transfer, relationship management, and project change (White et al., 2019; Ates et al., 2025). However, their role has limited exploration in KTP research. UIC research also remains focused on STEM domains, with increasing calls for more attention to management-discipline collaborations (White et al., 2019; Bamford et al., 2023; Ates et al., 2025). To address these gaps, this study investigates the triggering situational conditions that influence boundary spanners' role dynamics between facilitative and hindering roles within UICs through a focus on KTP associates. Specifically, we ask two questions:

RQ1: *What situational conditions do the facilitative and hindering boundary-spanning roles shift from one to the other?*

RQ2: *How and why do these situational conditions drive these role dynamics?*

Using qualitative interviews, our novelty lies in identifying situational conditions driving boundary spanners' role shifts between facilitative and hindering roles. Unsupportive conditions (e.g. insufficient support and engagement, competing expectations and power asymmetries and inappropriate treatment from host businesses) can erode associates' perception of legitimacy and confidence and develop self-interested perceptions, driving their shifts from facilitators to project stewards, peripheral and disempowered conduits and outsider status. These roles perform controlling or disengagement behaviours that impede knowledge transfer. In contrast, supportive conditions (e.g. knowledge and pastoral support, supporting embeddedness, empowered authority and autonomy, sufficient engagement) enhance associates' confidence, sense of legitimacy and commitment. As a result, this enables their facilitative functions. These findings enrich boundary-spanning theory by explaining how situational conditions influence the role perceptions, role shifts and enacted behaviours (Farrell et al., 2022). Second, we also identified three novel hindering conduits in knowledge transfer: project stewards, disempowered conduits and unembedded newcomers. These distinctive roles and their triggering situations and behavioural patterns enrich the concept of hindering boundary-spanning roles by moving this concept beyond marginalised perspectives (De Wit-de Vries et al., 2019; O'Dwyer et al., 2023) and providing greater diversity. Our integrated framework deepens understanding of situational conditions influencing boundary-spanners' role dynamics in knowledge transfer. Finally, since most studies focus on STEM, this research broadens knowledge by examining mKTPs in management (Bamford et al., 2023; Ates et al., 2025).

The remainder of the paper is organised as follows: the next section reviews relevant literature and develops the theoretical background. Subsequently, the methodology is described and the findings are presented. The discussion section outlines key insights and contributions to the literature. The paper concludes with a summary, practical implications, limitations, and recommendations for future research.

2. Literature Review

2.1 Dynamic boundary spanners within UICs

Boundary spanner is a well-established idea in organisational and management studies (Schotter et al., 2017; Tang et al., 2018). This concept originated in organisational sociology, describing individuals who work across an organisation and its external environment (Gouldner, 1957). Gouldner (1957) used 'cosmopolitans' and 'locals' to show the difference: cosmopolitan professionals are more loyal to their profession, while locals focus on their organisations. This division led to the first definition of boundary spanners as agents exchanging information inside or outside an organisation (Tushman, 1977; Tushman & Scanlan, 1981). By locating at the interface between organisations, boundary spanners may exhibit dynamic roles in knowledge transfer.

Later, scholars have discussed the dynamic boundary-spanning roles in varying contexts. For example, Ryan and O'Malley (2016) outlined and explained three interdependent boundary-spanning roles in the context of interorganisational projects: 1) network builders who establish and maintain relationships across organisational boundaries, creating communication channels; 2) entrepreneurs in charge of identifying opportunities for innovation by initiating new projects for both organisations. This type of boundary spanner possesses a visionary mindset that enables them to synthesise problems and solutions. A high level of locus of control within organisations supports boundary spanners as entrepreneurs, and sufficient respect helps build relationships. The entrepreneur-type boundary spanners are emphasised because this role can facilitate boundary spanning by maintaining relationships while consolidating boundaries by avoiding conflicts among actors; 3) mediators responsible for addressing conflicts and ensuring cultural and objective alignment. To become an effective mediator, a good relationship is a foundation. This study highlighted that these three roles are dynamic, with ongoing problem-solving and relationship development, to impact knowledge transfer and innovation. More recently, drawing upon a collaborative programme including 25 enterprises in the energy sector, Zobel et al. (2024) argued that effectiveness depends not only on the extent of engagement but also on how engagement shifts over time between internal and external domains. Their analysis revealed that frequent switching helps simple knowledge transfer, whereas more sustained, less fragmented engagement enables complex knowledge transfer. This study conceptualises boundary spanners as dynamic actors who facilitate knowledge transfer by managing engagement over time.

In the UIC context, individuals in different positions can play dynamic boundary-spanning roles in knowledge transfer. For instance, Miller (2008) argued that educational leaders act as dynamic boundary spanners because they are "*in and of*" diverse partners in American community-based UICs (p. 370). Their embedded position enables them to develop contextual knowledge and navigate differing norms, priorities, and constraints. Weerts and Sandmann (2010) classified four boundary-spanning roles: community-based problem solver, technical expert, engagement champion, and international engagement advocate. They defined these roles along two dimensions:

task orientation (technical knowledge vs emotional leadership) and social closeness (community/practice focus vs university focus). They also highlighted that these roles are not static but dynamic as responsibilities, expertise, and institutional contexts evolve. A given spanner may at times exhibit attributes of these roles. Building on these ideas, Wegemer and Renick (2021) further discussed the dynamic essence of boundary spanners through a longitudinal study of three Research–Practice Partnerships. They proposed a five-role spectrum that includes institutional focus, task orientation, expertise, partnership disposition, and agency. The roles within this spectrum are shaped by changing partnerships embedded within broader organisational, cultural, relational, and historical systems. As these situational factors evolve, boundary spanners continue shifting across different roles within the spectrum.

Further evidence emerges from Dolmans et al. (2022), who examined academic researchers as boundary spanners in large-scale UIC projects over a three-year period. Adopting a perspective-taking lens (a process of placing oneself in another's position to comprehend their viewpoint), the study demonstrated that boundary spanners' abilities develop through continuous engagement with industrial partners and reflexive learning. Over time, academics become more effective at translating knowledge, aligning interests, and navigating institutional boundaries. In contrast, Crupi and Mortara (2025) explored boundary spanners from the business position. They discovered that middle managers function as dynamic boundary spanners who develop managerial capabilities through ongoing collaboration across organisational boundaries. This process enables them to integrate external knowledge and adapt internal practices. In the context of KTP projects, Ates et al. (2025) described KTP associates as knowledge translators and change agents who reduce cognitive distance and foster relationship building to achieve knowledge co-creation. Even though their findings did not explicitly examine the dynamics of KTP associate roles, it suggests that boundary spanners are not fixed but evolving as the relationship develops.

The body of research indicates that boundary spanners within UIC occupy dynamic roles, embedded within evolving environments characterised by ongoing interactions among stakeholders and continued development of personal and institutional relationships (Weerts & Sandmann, 2010; Ates et al., 2025). Meanwhile, contingent situations such as emergent problems, shifting priorities, and conflicting targets between partners may alter the objectives and processes of the project (De Wit-de Vries et al., 2019; Dolmans et al., 2022). These dynamic conditions also influence how boundary spanners understand their position and the resultant behaviours in knowledge transfer (Benmore, 2016; Farrell et al., 2022; Ates et al., 2025; Ollila, 2025).

2.2 Hindering boundary spanners and corresponding solutions

By definition, boundary spanners embody the organisational divide between two entities, placing them in complex environments where competing expectations and knowledge boundaries must be navigated (Akkerman & Bakker, 2011). Thus, individuals may vary in their effectiveness in this role and, under certain conditions, may even hinder knowledge transfer, as shown in Table 1 (Tang et al., 2018; Marques et al., 2024; Ogbanufe et al., 2025). In UIC settings, academics and practitioners often differ in expectations and work rhythms (De Wit-de Vries et al., 2019; Ates et al., 2025), making it difficult for boundary spanners to satisfy diverse stakeholder demands and increasing the risk of role conflicts (Goodrich et al., 2020). These challenges may be compounded when other actors lack the time and resources to support boundary-spanning activities (Goodrich et al., 2020; Dolmans et al., 2022; Abu Sa'a & Ystrom, 2024). This may further reinforce individuals' perception as peripheral or marginalised participants within the collaboration (White et al., 2019). In many KTPs, KTP associates reflect themselves as 'outsiders' from host companies (e.g. White et al., 2019; Bamford et al., 2024). Such outsider status may extend beyond organisational relationships to knowledge domain, as boundary spanners may lack expertise in the required knowledge (Goodrich et al., 2020). It requires their substantial time to acquire relevant knowledge and engage diverse stakeholders (Dolmans et al., 2022; Abu Sa'a & Ystrom, 2024). However, these efforts may remain unrecognised, particularly when the outcomes of knowledge transfer are not ideal (Goodrich et al., 2020). Over time, boundary spanners become more self-interested and marginalised (Tootell et al., 2021). Keller and Holland (1975) argue that marginalised boundary spanners focus on economic interests but become less dedicated to their roles in knowledge transfer. Thus, academic and industrial partners may not obtain the expected knowledge.

Even when positioned as 'insiders', boundary spanners may lack the connections and authority required to mobilise internal knowledge and coordinate dissemination (Abu Sa'a & Ystrom, 2024). Similarly, Wegemer and Renick (2021) demonstrate that the voices of graduate students acting as boundary spanners are often deprioritised in research and partnership activities, potentially undermining their sense of belonging and self-efficacy. In UIC settings, power asymmetries may amplify the negative effects experienced by boundary spanners in knowledge transfer (Tootell et al., 2021; Wegemer & Renick, 2021). For example, Minkler (2004) highlights that "outside" researchers in community-based participatory research often grapple with power asymmetries and legitimacy issues while attempting to balance academic demands, such as deadlines and publication, with community

expectations for quick wins and sustainable capability building. In parallel, in a study on supervisors and employees' boundary-spanning behaviours, Mell et al. (2022) show that supervisors may resist boundary spanners' efforts. This tendency is especially evident when boundary spanners bypass their supervisors for advice, as supervisors may perceive this as self-serving and challenging to their authority. Such restrictive conditions can generate frustration and cognitive conflicts between boundary spanners' expected role and self-positioning (Benmore, 2016; Farrell et al., 2022). Likewise, White et al. (2019) reveal that unclear or changing project objectives can impede project progress, leading to short-term anxiety, while limited organisational support may hinder boundary spanners' social integration within host companies. When these constraints persist, boundary spanners often experience prolonged frustration and disengagement, even resignation. Boundary-spanning behaviour was significantly and negatively associated with employees' innovative behaviour via ego depletion, as employees' intrinsic motivation or organisational support was low (Zhu et al., 2023). These outcomes can disrupt knowledge transfer and increase the risk of collaborative failure (Farrell et al., 2022).

Table 1. An overview of hindering boundary-spanning roles

Authors/years	Hindering Roles	Descriptions	Triggering conditions
Keller and Holland (1975); White et al. (2019); Wegemer and Renick (2021) Abu Sa'a and Ystrom (2024)	Marginalised participants	Boundary spanners experience a diminished sense of belonging in project relations and self-efficacy in knowledge transfer, resulting in passive participation in knowledge-transfer activities	Limited time and resources from other actors; lack of connections or authority; boundary-spanning efforts or voices are not recognised by other actors.
Minkler (2004) White et al. (2019); Goodrich et al. (2020); Bamford et al. (2024);	Outsiders	Boundary spanners perceive, or are perceived by others, as outsiders in organisational relationships or knowledge domains, reducing their motivation to participate and potentially leading to withdrawal from the collaboration.	Being perceived as an outsider; limited expertise in the knowledge domain; weak integration into the host organisation or partnership.
Keller and Holland (1975); Tootell et al. (2021); Mell et al. (2022)	Self-interested or economic-focused status	Boundary spanners prioritise personal interests and preferences over collective project objectives, selectively engaging in boundary-spanning activities that provide personal benefits.	Unrecognised efforts or contributions; power asymmetries; legitimacy challenges; tensions in balancing academic and organisational demands
White et al. (2019) Zhu et al. (2023)	Disengaged actors or resignation	Boundary spanners reduce their engagement in knowledge transfer and relationship building and may ultimately withdraw from or resign from their boundary-spanning position and undermine their innovative behaviours	Unclear or changing project objectives; short-term anxiety; prolonged frustration; inadequate organisational support

Despite the existence of these hindering roles, their adverse effects can be mitigated through coordinated actions by university and industrial partners. From the university perspective, academics can facilitate knowledge transfer by allocating sufficient time, embracing diverse viewpoints, and providing both intellectual and pastoral support to boundary spanners (Dolmans et al., 2022; Marques et al., 2024). Ates et al. (2025) emphasised that academic supervision is particularly important because knowledge transfer is an iterative learning process requiring ongoing guidance and reflection. In parallel, White et al. (2019) stressed the importance of pastoral care from academic supervisors to address KTP associates' frustration and demotivation. With academics' pastoral guidance, KTP associates can enhance their motivation to embed more in the host organisation and to engage more with project actors. By contrast, from the industrial side, management support is critical for developing boundary spanners' skills, such as perspective-taking, knowledge translation, communication, and social networking (Goodrich et al., 2020; Dolmans et al., 2022; Mascarenhas et al., 2024). Abu Sa'a and Ystrom (2024) emphasised that middle management plays a pivotal role in fostering organisational openness toward boundary spanners (industrial PhD students) because this position can integrate individuals and resources for the given context and actors. They also

help create supportive environments that facilitate PhD students' embeddedness and day-to-day operations. Support from middle management enables PhD students to tailor the knowledge transfer process, adjust knowledge to suit the specialised stakeholders while improving organisational awareness of 'who knows what' (De Wit-de Vries et al., 2019; Mell et al., 2022). In doing so, boundary spanners change the traditional work methods and culture and implement the new knowledge within the business.

Across the UICs, transparent communication is essential for building trust and reducing misunderstandings (Tootell et al., 2021; O'Dwyer et al., 2023). Structured activities, such as training and workshops, create spaces for mutual learning and feedback (De Wit-de Vries et al., 2019), while sustained face-to-face interaction strengthens relational alignment (Schaeffer et al., 2018; Scandura & Iammarino, 2022). Trust-based relationships establish a foundation for knowledge transfer and innovation (Ryan & O'Malley, 2016; Ates et al., 2025). In KTP settings, Ates et al. (2025) argued that as relationships deepened, KTP associates could become more embedded in their roles as knowledge translators. The presence of a knowledge facilitator or change agent in the form of the KTP associate and fluidity of roles are critical to allow novel and relevant knowledge co-creation. Over time, boundary spanners can better comprehend partners' needs and knowledge, enabling them to apply that knowledge (De Wit-de Vries et al., 2019). Hence, the above discussion indicates that the supportive academic and industrial actions potentially facilitate the hindering boundary spanners shifting into facilitative positions.

2.3 Conceptual framework and knowledge gaps

Drawing on the aforementioned discussion, we have developed a conceptual framework to illustrate boundary-spanning roles in knowledge transfer within UICs (Fig. 1). Boundary spanners undertake multiple and dynamic functions in facilitating knowledge transfer, such as bridges, network builders, and mediators, shown in the upper semi-circle (Williams, 2002; Ryan & O'Malley, 2016; Wegemer & Renick, 2021). However, they also exhibit hindering roles under challenging conditions, particularly when confronted with conflicting stakeholder expectations, inequitable distribution of benefits, power asymmetries, and inadequate institutional support (White et al., 2019; Tootell et al., 2021; Mell et al., 2022; Mascarenhas et al., 2024) (see the lower section in Fig. 1). These roles are potentially dynamic, shifting in response to situational demands and contextual complexity, thereby influencing the effectiveness of knowledge transfer (Wegemer & Renick, 2021).

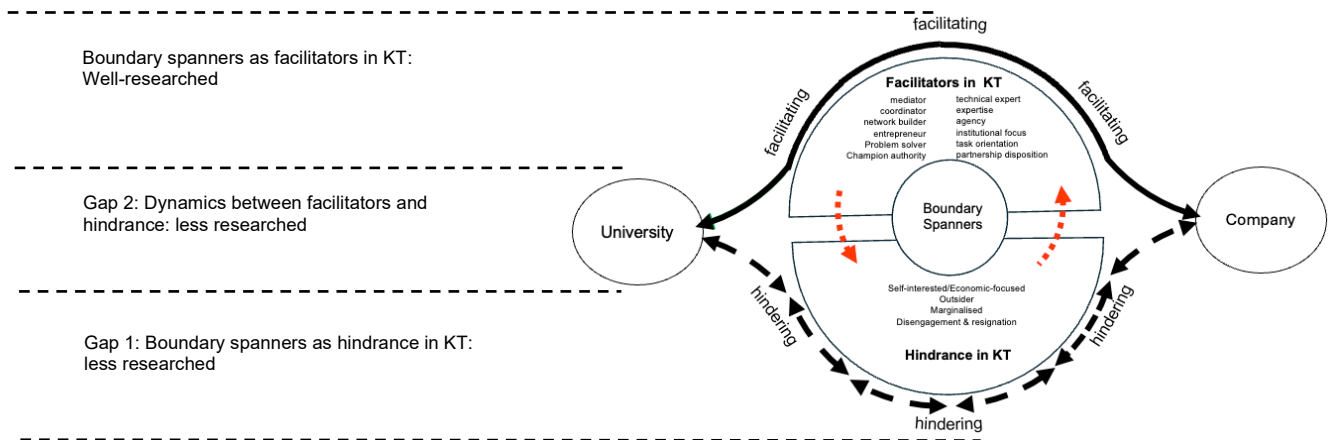


Fig. 1. Conceptual framework of boundary spanners in knowledge transfer between university and company

Despite extensive research on boundary spanners, the hindering roles remain conceptually underdeveloped (Tang et al., 2018; Ogbanufe et al., 2025). This gap stems from the prevailing assumption that individuals at the middle of organisational boundaries inherently serve as bridges, connecting diverse actors and facilitating multidimensional relationships (Schotter et al., 2017). However, boundary spanners do not invariably guarantee effective knowledge transfer. Complex and evolving collaborative environments pose challenges to them (Tang et al., 2018; Tootell et al., 2021; Ogbanufe et al., 2025). Challenging situations can influence the role they adopt and how they choose to behave (Benmore, 2016; Farrell et al., 2022; Wegemer & Renick, 2021; Ollia, 2025). When confronted with conflicting stakeholder expectations, inequitable distribution of benefits, power asymmetries, or inadequate institutional support, dedicated boundary spanners may prioritise self-interest and exhibit/shifting into hindering roles in knowledge transfer (White et al., 2019; Tootell et al., 2021; Mascarenhas et al., 2024).

Secondly, although boundary spanners are recognised as dynamic roles, this idea tends to be descriptive, and role dynamics are primarily discussed within facilitative roles (e.g., Haas, 2015; Wegemer & Renick, 2021; Dolmans et al., 2022; Zobel et al., 2024). The literature continues to portray boundary spanners as relatively stable intermediaries embedded within the established collaborative structures (e.g. De Wit-de Vries et al., 2019; Noke et al., 2024). However, they also entail a degree of agency, allowing individuals to interpret, enact, and adapt them in diverse ways (Benmore, 2016; Wegemer & Renick, 2021). In the UIC context, stakeholders with different expectations work within multidimensional relationships, e.g. institutional, interpersonal and intrapersonal levels, which require a boundary spanner to act dynamically in response to different situations (e.g. Schaeffer et al., 2020; Wegemer & Renick, 2021; O'Dwyer et al., 2023; Marques et al., 2024). This determines that boundary spanners are dynamic. Despite this, little is known about how and why boundary spanners shift between facilitative and hindering roles, especially the conditions that drive these shifts. As Hass (2015) and Abu Sa'a & Ystrom (2024) suggested, exploring boundary spanners' role dynamics is crucial for explaining when knowledge transfer is enabled or obstructed. Hence, this study aims to explore the situational conditions that influence shifts between facilitative and hindering boundary-spanning roles within UICs.

3. Methodology

This paper employed an inductive qualitative approach to explore the situational conditions that influence facilitative and hindering boundary-spanning roles shift from one to the other within specific UIC projects in the UK, mKTPs. This approach facilitates gaining an in-depth understanding of how and why boundary spanners act in and/or shift into different roles in knowledge transfer through their experiences across varying situations. It is through the exploration of 'how' and 'why' questions that we can analyse and understand the dynamic situations influencing boundary spanners' role shifts in knowledge transfer (Easterby-Smith et al. 2021).

3.1. Positioning the Research context: KTP associates

Launched in 2003 and sponsored by Innovate UK, KTPs initially focused on transferring technical knowledge to foster product and service development within STEM fields, known as classic KTPs (UKRI, 2025). Due to its success, the government expanded funding and broadened the scope to address managerial and business problems, leading to the mKTP schemes (White et al., 2019; Bamford et al., 2024; Ates et al., 2025). These programs seek to improve key corporate operations, such as marketing, finance, human resources, and information management through partnerships with business and management schools. Its uniqueness emphasises people-oriented and management initiatives to improve overall performance (Ates et al., 2025; UKRI, 2025).

Both classic KTPs and mKTPs involve a core team comprising an academic, a practitioner and a KTP associate. Academics, as knowledge-based supervisors, provide expertise in specific disciplines, while practitioners, as business supervisors, offer practical, business-based knowledge. Under joint supervision, the associate manages knowledge transfer and builds relationships for the two institutions (White et al., 2019; Ates et al., 2025). A KTP Advisor, a government representative, monitor and guides KTPs and mKTPs to ensure the project's integrity (UKRI, 2025). As needed, the projects can involve additional academics and industry employees (Ates et al., 2025).

KTP associates function as the boundary spanner, facilitating interactions among multiple actors (White et al., 2019; Ates et al., 2025). Through multiple case studies, White et al. (2019) highlighted the central role of KTP associates in knowledge transfer with individuals. Because of their embedded role within the company, associates frequently interact with business supervisors. In contrast, communication between the associate and the academic occurs less often, as stipulated by KTP contracts. However, when faced with complex issues, the associate engages more regularly with academics to acquire the knowledge necessary to address these challenges (White et al., 2019). KTP associates do not often receive training from the KTP advisor, as this role typically engages with other actors during local management committee meetings. In addition to the key actors, the associate also needs to engage with employees who are affected by or may be affected by the project. It enables them to identify business issues and knowledge gaps within the company, thereby supporting both academic and business supervisors. Although academic and company supervisors may interact at monthly meetings, their communication is often less frequent than intended (White et al., 2019). Through frequent interaction with various stakeholders, KTP associates can facilitate mutual understanding and relationship-building within UICs (White et al., 2019; Bamford et al., 2024; Ates et al., 2025). Therefore, associates are boundary spanners in mKTPs, which are the focus of this study.

3.2 Sampling

While the research focused on KTP associates, considering their interactions with other key actors (White et al., 2019), other actors' experiences and stories were also valuable to make sense of boundary-spanning roles that KTP associates played in knowledge transfer within varying situations (Bamford et al., 2024; Ates et al., 2025). To achieve this purpose, we adopted a purposeful sampling method to select participants based on one criterion: KTP associates involved in mKTP projects. As mKTP projects were launched in 2019 and experienced delays during the COVID-19 pandemic, few projects had been completed by the time of data collection in April 2022. Therefore, we targeted KTP associates working on ongoing mKTP projects.

We approached a KTP adviser, a gatekeeper who supports mKTP projects at the researchers' university, to assist in identifying potential KTP associates for this study. The adviser introduced ten suitable candidates, and seven agreed to participate in the study. During data collection, KTP associate participants were asked to recommend additional participants for subsequent interviews, using a snowball sampling strategy. This approach enabled a more comprehensive understanding of the research context (Easterby-Smith et al., 2021). Participant selection and data collection occurred concurrently and lasted fifteen months (May 2022 – August 2023). In total, thirty participants from four groups (KTP associates, academics, business supervisors and KTP advisers) were interviewed. Table 2 presents their demographic information, and pseudonyms are used to protect their identities.

Table 2. Demographic Information of Respondents

Code	Age band	Gender	Duration in mKTPs	Role	Project stage	Sectors located
P1	30-39	Male	3 years	KTP associate	Late stage	Construction
P2	40-49	Female	4-5 years	KTP manager	all stages	Various
P3	20-29	Female	1.5 years	KTP associate	Late stage	Construction
P4	20-29	Male	1.5 years	KTP associate	Late stage	Energy
P5	40-49	Male	5 years	Business supervisor	Late stage	Energy
P6	30-39	Female	1.5 years	KTP associate	Middle stage	Housing
P7	50-59	Female	1.5 years	Academic	Middle stage	Housing
P8	50-59	Female	5 years	KTP advisor	all stages	Consultation
P9	40-49	Male	5 years	KTP advisor	all stages	Consultation
P10	60-69	Male	5 years	KTP advisor	all stages	Consultation
P11	40-49	Female	1.5 years	Academic	Middle stage	Housing
P12	40-49	Female	2 years	Business supervisor	Middle stage	warehouse technology
P13	40-49	Male	1.5 years	Business supervisor	Late stage	Housing
P14	40-49	Male	2 years	Business supervisor	Late stage	Construction
P15	60-69	Male	4.5 years	Lead academic	all stages	Various
P16	50-59	Female	6 months	Academic	Completed	Construction
P17	40-49	Male	4 years	Academic	Completed	Consultation
P18	60-69	Male	4.5 years	Lead academic	all stages	Various
P19	40-49	Male	3 years	Academic	Completed	Social enterprise
P20	40-49	Male	1 years	Academic	Completed	digital marketing
P21	20-29	Female	2 months	KTP associate	Early-stage	Biotech
P22	20-29	Female	5 months	KTP associate	Early-stage	Biotech
P23	20-29	Male	3 months	KTP associate	Early-stage	manufacturing
P24	50-59	Female	3 years	Academic	Completed	manufacturing
P25	50-59	Male	1 year	Academic	Middle stage	Housing
P26	50-59	Female	2 years	Business supervisor	Early-stage	manufacturing
P27	20-29	Male	1.5-2 years	Business supervisor	Early-stage	Biotech
P28	50-59	Male	1.5 years	Business supervisor	Middle stage	Legal service
P29	30-39	Female	1.5 years	Business supervisor	Middle stage	Not-for-profit
P30	20-29	Male	8 months	Business supervisor	Middle stage	digital marketing

Note. 1. The early stage involves mapping processes and defining requirements.

2. The middle stage refers to customising and implementing solutions and testing and adjusting the solutions in the host business.

3. The late stage requires analysing and reviewing the results and finalising the outputs (Ates et al., 2025; UKRI, 2025).

3.3 Data collection and analysis

A semi-structured interview protocol, informed by an extensive literature review, was designed to explore participants' experiences and stories regarding KTP associates' facilitation and hindrance of knowledge transfer. The interview protocol included four areas: (i) descriptions of mKTP projects and the participant's responsibilities in that project; (ii) the positive experiences of KTP associates in knowledge transfer; (iii) the negative experiences of associates in knowledge transfer; and (iv) suggestions for KTP associates in knowledge transfer. These questions provide sufficient space for the participants to reflect on their experiences and stories in relation to KTP associates at different stages of mKTP projects.

Interviews, lasting between 30 and 100 minutes, were conducted and recorded via Microsoft Teams. Following the interviews, the transcripts were transcribed and reviewed by the interviewer and sent to participants for verification to ensure the accuracy and trustworthiness of the information (Creswell, 2015; Harvey, 2015). Participants' feedback was incorporated into the transcripts, which were used for data analysis.

Our analysis drew on boundary-spanning roles in knowledge transfer and the situations shaping these roles within mKTP projects. We adopted a reflective thematic analysis following Braun and Clarke's (2021) six-step process (Fig. 2). First, the researcher familiarised herself with the data through repeated reading of interview transcripts, identifying apparent situations experienced by KTP associates and the behaviours they performed for knowledge transfer. This process generated preliminary insights into facilitative and hindering roles and the situations influencing them. Consistent with Thomas (2006), establishing this analytical focus guides the identification and extraction of relevant data for subsequent coding. As such, KTP associates' experiences and working situations provided the foundation for the further coding process.

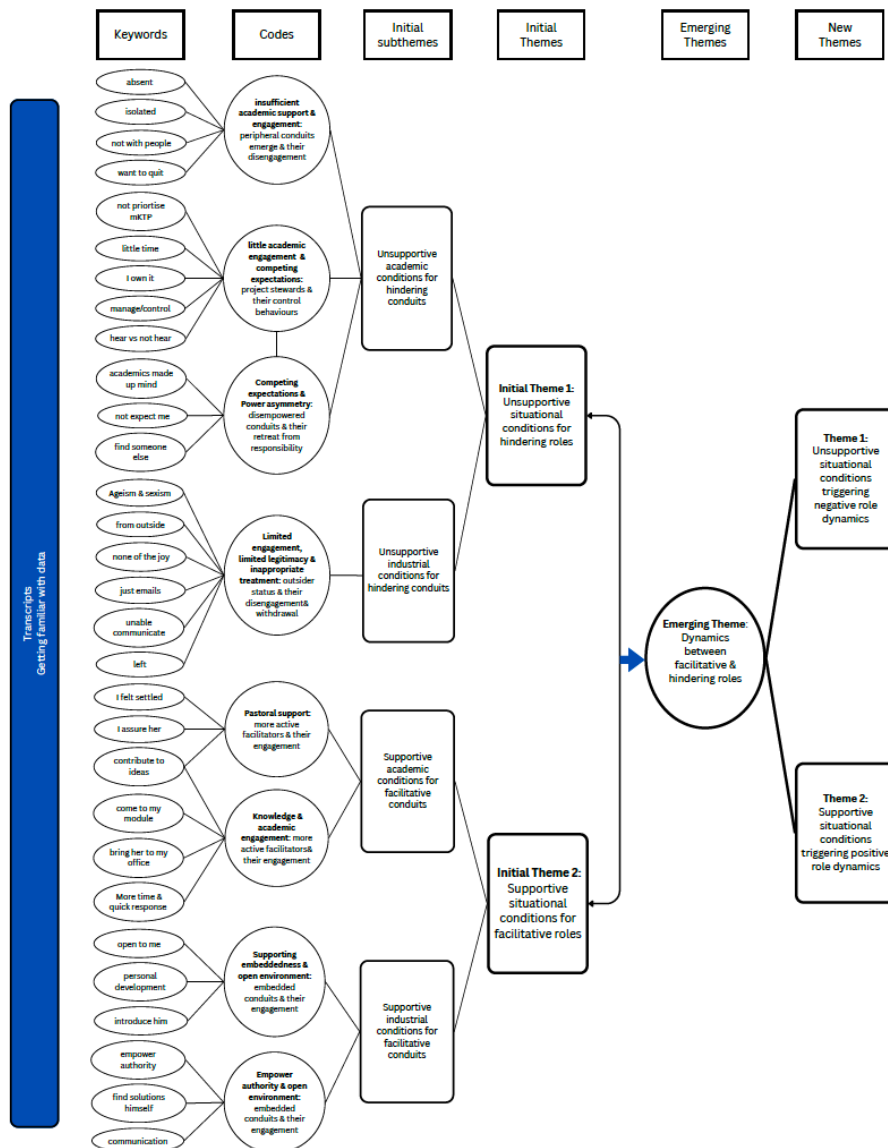


Fig. 2. Data coding and analysis process

Second, the first researcher conducted open coding through repeated engagement with the data. Initial codes were generated directly from participants' original language (Saldana, 2021), such as "*absent*", "*isolated*", "*on my own*", etc. This approach ensures data accuracy and consistency (Creswell, 2015). In Step three, attention shifted from individual excerpts to identifying patterns of shared meaning across the dataset, as this helps maintain a consistent analytical focus (Braun & Clarke, 2021; Frandsen et al., 2023). Related codes were iteratively grouped into broader categories that represent boundary-spanning roles and the situational conditions associated with them. The coding process combined inductive and deductive approaches (Braun & Clarke, 2021; Saldana, 2021). Inductively, role-related and situational-condition codes emerged from participants' accounts. For example, role-related codes included "*peripheral conduits and disengagement*"; "*project steward and control*", etc. Situational-conditional codes included "*insufficient academic support and engagement*", "*power asymmetry*", etc (see Fig. 2). Deductively, insights from the boundary-spanning literature informed the classification of roles into facilitative and hindering conduits. Through constant comparison, situational conditions were found to operate at both academic and industrial levels. This process produced four subthemes: "*unsupportive academic conditions for hindering conduits*", "*unsupportive industrial conditions for hindering conduits*", "*supportive academic conditions for facilitative conduits*" and "*supportive industrial conditions for facilitative conduits*". These subthemes were further consolidated into two initial themes: "*Theme One: unsupportive situational conditions for hindering conduits*" and "*Theme Two: supportive situational conditions for facilitative conduits*".

In the fourth step, the second researcher, who had supervised several mKTP projects, contributed to the interpretation of the data. Comparing accounts from associates and their supervisors involved in the same projects revealed a key analytical perspective: the dynamics between facilitative and hindering roles. Incorporating insights from multiple participants enabled a more comprehensive understanding of the situational conditions shaping these role transitions. During this stage, a reflexive process involved moving back and forth between the data, the research focus and relevant literature to ensure analytical coherence (Braun & Clarke, 2019; Jackson & Mazzei, 2012). Given the limited attention to boundary spanners' role dynamics in prior literature (e.g., Haas, 2015; Wegemer & Renick, 2021), the analysis was refined to examine the situational conditions triggering shifts in KTP associates' roles. In Step five, the two researchers collaboratively reviewed and redefined the emerging themes through ongoing discussion and reflection. Rather than seeking coding consensus, the analysis evolved through reflective engagement with the data and theoretical concepts (Braun & Clarke, 2019; 2021). This process resulted in two main themes: (1) unsupportive situational conditions triggering negative role dynamics; and (2) supportive situational conditions triggering positive role dynamics. Appendix 1 presents the empirical evidence supporting each theme and its associated subthemes.

4. Findings

Through the analysis, our results discover that all of KTP associates understood that their role was a conduit in knowledge transfer between universities and business. However, such a conduit is "*dynamic*".

Knowledge transfer is very dynamic. So, my role is dynamic, being alert in the process all the time in order to capture that knowledge transfer (P21, an associate)

This reflection stresses the dynamic nature of boundary spanners. By recognising the "*dynamic*" of knowledge transfer and her role, the associate argued that effective knowledge transfer required her to continue adapting and being situationally responsive. The phrase "*being alert in the process all the time*" highlights the need for active monitoring of interactions, emerging insights and shifting organisational conditions. This position was associated with a "*dynamic*" boundary spanner who needs to constantly adapt their behaviour, communication methods and strategies to interpret knowledge as it moves between academic and business environments.

We identified the dynamics that KTP associates play in knowledge transfer by analysing data from associates and their academic and business supervisors involved in the same KTP projects. Combining information from associates and their supervisors enabled a clearer understanding of each KTP associate's experiences within their projects, which helped capture the situational conditions for their role shifts and corresponding behaviours. Hence, in the two themes, we interpret our findings through specific KTP associates' stories across different situations.

4.1 Theme One: Unsupportive situational conditions triggering negative role dynamics

4.1.1 Unsupportive academic situational conditions

Unsupportive academic conditions were evident in P6's stories. Unlike most mKTP projects, which typically involve one academic and one business supervisor (White et al., 2019; Ates et al., 2025), P6's project included three academic supervisors and one business supervisor. This supervisory structure generated complex relational and situational dynamics that shaped her multiple roles and the transitions among these roles. Three identified unsupportive academic conditions were particularly influential, including insufficient supervisory support and engagement, competing expectations and power asymmetries. We demonstrate unsupportive academic situational conditions triggering the associate's "dynamics" through several quotes from her and her academic and business supervisors (P7, P11 and P13).

Insufficient supervisory support and engagement

P6 presented a facilitative conduit in knowledge translation and relationship building in the beginning:

I can see my role is to try to and understand what the company needs, and then what is available from the academics. In the beginning, I tried to simplify the information to multi-stakeholders...Then I brought all of the academics together to have meetings to get them on the same page because they are interested in different things...Also, I facilitate workshops where everybody can share their perspectives and hear from each other.

The associate's quotation manifests, in the early stage of the project, that she actively positioned herself in a facilitative role in knowledge translation and relationship building. Her proactive stance was grounded in a clear understanding of the role expectations of a KTP associate, which included bridging academic and business perspectives through varied practices, including maintaining communication, holding meetings, and conducting workshops. This understanding motivated her to enact a facilitative conduit to "simplify the information", "bring all of the academics together", and "facilitate workshops".

However, the COVID-19 pandemic led to the absence of academics and business employees and changes in work methods (hybrid method), negatively impacting the associate's performance as a facilitative conduit.

I enjoy teamwork. I enjoy being in the middle, coordinating things. But due to COVID, there is an absence of many people, and we don't know what will happen next. We had a phase where it didn't do anything for a while. Sometimes I felt very isolated, like being on my own in the middle and trying to figure out everything... I felt like quitting for more than half of the project because it's hard to see how this is benefiting my career. (P6)

The associate's experience shows that although she enjoyed teamwork and being a facilitative conduit, the pandemic context prevented her from doing so. Staff absences and ongoing uncertainty limited her contact with both university and business partners, leaving her feeling "isolated" and unable to perform collaborative sensemaking, relationship building, and knowledge translation. Her description of "trying to figure out everything" suggests she lacked support from the university and business. Instead of being collaborative, she became disconnected and shaped a role perception of being a peripheral conduit. Moreover, her thoughts of "quitting" and her difficulty seeing the benefits to her career eroded her professional motivation to be in a facilitative role. This reinforced her perceptions of being a peripheral conduit in the project. It can be seen that a lack of support and engagement from both the academic and business is a mechanism for the KTP associate that shapes a peripheral conduit.

Resulting from the perception as a peripheral conduit, one of her academic supervisors, P7, expressed the associate's behaviours in knowledge transfer practices:

I sent her an article or a website, and I don't think she was particularly inspired by the knowledge...it's possibly difficult being on-site, she felt that she was not sitting with people she wanted to learn from. She's not with the people often.

The academic's experience shows that disengagement from knowledge transfer practices is the associate's behaviour when the associate holds the perception as a peripheral conduit. The academic's observation that the associate was not "particularly inspired by the knowledge" and "not with the people often" suggests a declining motivation to engage with the academic's knowledge and materials. Her limited presence "on-site" further constrained her opportunities to interact with staff. The comment "she was not sitting with people she wanted to learn from" indicates a relational disconnect that P6 did not feel embedded in the business context or connected

to those with relevant expertise. Accordingly, low perceived learning value reduced her engagement in facilitative behaviours expected for knowledge transfer.

Competing expectations

When the academics and staff returned to work, many changes were made to the project tasks. This required the associate to rework and change the project plan and manage the change:

When we returned and worked on the project, we found the project was super ambitious. For example, the academics were quite removed from what happened within the company and were just interested in their areas, but the company was just waiting for us to tell them what they needed to do... However, due to little time allocated to the academics, the main work of changing the current project plan relied on me... So I spent much time rewriting it and now it is reassuring. I felt like I own it and I'm the only full-time resource on this project. (P6)

The associate's account reveals how changes in academic priorities and project dynamics altered her perception of the KTP associate position. The associate perceived academics as "quite removed" from the company's operational realities and primarily focused on their areas, indicating that academic priorities were discipline-driven rather than context-driven. Because academics had "little time," a structural gap emerged in leadership and coordination. Meanwhile, the company appeared passive, "waiting for us to tell them what they needed to do," which further intensified the associate's responsibility. Within this context, the associate became the only consistent, full-time actor driving the project forward. By rewriting the project plan and stabilising its direction, she produced a role perception of project steward. Her statements "I own it" and "only full-time resources" reflect a role perception of a project steward, where ownership emerged not solely from formal designation but also from necessity. Thus, limited academic time became the second mechanism shaping the associate's perception as a project steward, consolidating authority around her role.

This perspective is underpinned and further explained by another associate.

The project is not the priority of any of these stakeholders. They just think that this is the associates' main responsibility. (P23)

This associate's statement demonstrates that mKTP projects are frequently treated as peripheral by academics, business managers and other stakeholders, yet positioned as the associate's "main responsibility". This perspective encourages reliance on associates to address difficulties and manage projects. This imbalance places associates in a structurally vulnerable conduit position, bearing disproportionate accountability for project outcomes without corresponding support. Pushing the mKTP project onto the associate might reinforce their perception as a project steward to control knowledge transfer and other academics.

Holding this perception, the associate exhibited controlling behaviours in knowledge flows. For example, the lead academic supervisor and business supervisor provided two examples:

Our time allocated in the project is 3 hours a week to offer academic advice and support the associate. Now the associate tries to give the academics the tasks to do... like on Monday, she wants to meet... We do the actions and report to her... However, our schedule is very busy for many other things, like teaching, marking, etc, so we cannot be managed in that way (P11, academic supervisor)

We're sharing that knowledge back to the university, but we don't often always know what is happening. It's down to the associate to disseminate information. If we don't ask, that can sometimes maybe not get through. This makes change hard to understand and drive (P13, business supervisor)

The two accounts demonstrate the associate's controlling behaviours in knowledge transfer. The academic supervisor's reflections indicate that the associate imposed task and meeting schedules on academics, despite time constraints for the project. It highlights a dominant position that the associate held in project communications. Although academics contribute expertise and support, the statement that they were required to "do the actions and report to her" suggests that knowledge was mediated through the associate rather than exchanged directly between academics and business partners. Consequently, the associate functioned as a steward who determines how and when knowledge is disseminated.

This interpretation is reinforced by the business supervisor's observation that "*we don't often always know what is happening*" and that "*It's down to the associate*". These comments indicate that the business partners were not consistently informed and depended on the associate for updates. The perception that information "*can sometimes maybe not get through*" unless business partners actively request it suggests selective knowledge and controlled knowledge transfer. The controlling behaviours can hinder stakeholders' understanding of organisational change, limiting the development of a shared understanding of project objectives and implementation processes. In this sense, these examples suggest that the perceived stewardship of the project makes the associate become the project steward, controlling knowledge transfer and other actors, hindering effective knowledge transfer.

Power asymmetries between academics and associates

However, our analysis discovered that when the associate lost controlling authority over knowledge flows as a project steward, P6 could lose interest in engaging in knowledge transfer practices, behaving as a disempowered conduit.

Academics already made up their mind about how things need to go, asking me stuff and I'm relaying. Some stuff is not very interesting to me... They need to come to share knowledge more regularly, rather than expecting me to do all.

We have the scholar's data-built environments. The 20% of that I don't think is realistic. I kept saying to them like, "I can't do it. I don't see how this works. If you want that, then you have to find someone else to make it happen".

P6's two quotes manifest that the diminished controlling authority contributed to her disengagement from knowledge transfer. The associate noted that key decisions and knowledge contributions were being managed by the academics. It reflects power asymmetries between the academic and the associate in the project. This repositioned her from a project steward to a passive "*relay*", undermining her role perception of a project steward and reducing her interest in the knowledge being exchanged. Her statement that knowledge "*is not very interesting*" and "*rather than expecting me*" reflects both frustration and reluctant involvement. The second statement further presents the associate's loss of control over the project direction, particularly when confronted with unrealistic expectations. By saying that "*I don't see how this works*", she felt unable to influence. Her statement that the academics should "*find someone else to make it happen*" signals not only resistance but a retreat from responsibility, as she did not view herself as the appropriate actor to carry the work forward. These experiences reveal competing expectations and power asymmetries between academics and the associates as the third mechanism eroding the associate's perception of stewardship and authority. It leads her to shift into a more disempowered conduit stance, thus exhibiting resistance, retreat from responsibility and disengagement behaviour.

This section illustrates how three unsupportive academic conditions trigger associates' shifts from facilitative to hindering roles. First, insufficient supervisory support and engagement reduced associates' ability and willingness to engage stakeholders, resulting in a perception of peripheral roles characterised by disengagement from project activities. Second, limited academic time increased the associate's responsibility and authority for project planning and implementation, fostering a strong sense of project stewardship. As such, they performed as project steward to control knowledge flows and stakeholder interactions. Knowledge transferred is based on associates' preferences and interests. The project steward roles enhanced associates' involvement in knowledge transfer practices whilst they also fragmented knowledge exchange. Third, competing expectations and power asymmetries between academics and associates undermined associates' perceived authority and autonomy, generating a sense of disempowerment. This perception encouraged them to become disempowered conduits that resist and retreat from fulfilling their responsibilities as a conduit.

4.1.2 Unsupportive industrial situational conditions

Our analysis uncovers that unsupportive industrial conditions can influence KTP associates' role shifts from the facilitator to hindering roles. Three unsupportive conditions from the industries include limited engagement from businesses, limited legitimacy and inappropriate treatment from businesses. P3 provides some significant examples. As a young female associate undertaking a PhD within the mKTP project, she experienced ageism and sexism in the host business, which undermined her legitimacy and reinforced her outsider status. These experiences progressively reduced her engagement with project stakeholders and led her to depart the KTP associate position from this project. We selected this case to illustrate a clear role transition from a facilitative conduit to an outsider through the quotations from P3 and her lead academic supervisor (P15).

Limited business engagement and limited legitimacy

P3 performed as a facilitative conduit in knowledge translation, relationship building and change driving at the outset, as she described:

I hold a lot of workshops because I've keyed into some of the more pedagogical aspects of working with the company and how they like to learn and how they transfer... also, within the workshops, I help to bring the academics to be integrated into that project team environment. So they can bring in that more theoretical knowledge to support business transformation... this job aligns with my personal goals because I'm doing my PhD through this. It centralises me to drive the mKTP projects.

P3's narrative presents that she acted as a facilitative conduit in both knowledge translation and relationship building because the KTP associate position was embedded in her PhD project, which was an important incentive for her personal career. She describes organising pedagogically informed workshops tailored to how the business "likes to learn and how they transfer", while simultaneously using these sessions to integrate academics into the project. Thus, theoretical insights can effectively support business transformation. These actions demonstrate a proactive approach to bridging knowledge, expectations and relationships, rather than simply relaying information. Importantly, P3 links the KTP associate position to her personal academic goals, noting that "this job aligns with my personal goals", which gives her a strong "incentive" to engage with the project. Her feeling "centralised" in the mKTP reinforces her sense of responsibility, motivating her to actively coordinate, translate and facilitate interactions between academic and business partners.

However, the lead academic supervisor observed that the associate encountered challenges from limited business employees' engagement.

They (business employees) receive an email or a phone call from my associate saying, "Can we meet?" and they're going "I'm busy". This really makes her feel isolated. (P15)

The academic's observation demonstrates how limited engagement from business employees reshaped the associate's perception of herself as an outsider, undermining her ability to become embedded within the company. The employees' response of "I'm busy" when approached by the associate suggests that interactions with the associate were not prioritised. The associate encountered barriers to accessing staff and building relationships. Such responses seemed a signal of a lack of organisational acceptance, which are essential for understanding business needs and facilitating knowledge transfer. As a result, the associate experienced feelings of isolation, reflecting a weakened sense of belonging within the company. The narrative suggests that outsider status was not solely a self-perception but was reinforced through reactions of business employees. When repeated attempts to engage stakeholders are met with indifference or avoidance, the associate may find it difficult to build trust and confidence in their role.

Inappropriate treatment from business employees

However, P3 experienced ageism in the host business, leading her to start engaging less and shaping the perception of being an outsider.

I work with a lot of men who are twice my age. Age with experience elements. A lot of sexism and ageism exist. I have to work 10 times harder to prove myself. You're not a subject expert and you're coming in from the outside, so people don't see you as credible and can't trust you.

I've had people make ridiculous comments, like comments on what you're wearing or derogatory comments about capabilities. it is unfortunate... I felt like someone from the outside...previously, I think this position looks interesting but now I feel all the pain and share none of the joy.

The two quotes from P3 reveal that ageism and sexism reshaped her perception from a facilitative conduit to an outsider role. Although she initially expressed interest in the position, her daily experiences as a young woman working "with a lot of men who are twice my age" created an environment in which she constantly had to "work 10 times harder to prove" her legitimacy. The phrase "from the outside" indicated that business employees viewed the associate as an outsider who might not be accepted in the host business. By acknowledging that being "not a subject expert" and "from the outside", P3 identified that trust is a key barrier to facilitating knowledge transfer.

Effective knowledge translation relies not only on the content of knowledge but also on the perceived legitimacy of the knowledge holder. When P3 is not recognised as a “credible” insider, her attempts to transfer knowledge may be discounted or resisted by business members. Hence, the effectiveness of knowledge transfer will be obstructed.

The second quote manifests inappropriate treatment that P3 received from the host business. “Derogatory comments” about her clothing and capability indicated that her expertise and contribution were not recognised, undermining the respect necessary for effective knowledge transfer and relationship building. These situational dynamics shaped her perception as an outsider. Her reflection that she now feels “all the pain and shares none of the joy” captures her growing disengagement in the project and a shift toward psychological distancing. After the data collection, P3 left this KTP associate role. This suggests that an unsupportive workplace environment, such as limited legitimacy and inappropriate treatment, can push the associate out of the facilitative role and into an outsider role, weakening knowledge transfer.

A similar situation is also found from academics’ experiences. P24 revealed that an outsider perception impacts how the associate communicates and engages with other actors.

The associate was heavily reliant on email for knowledge transfer because he did not see himself as part of the company and was less willing to talk to business employees. I couldn't keep up with the email thread.

The academic’s experience illustrates that outsider status can lead to one-way communication with actors for knowledge transfer, such as via email. The perception of not being “part of the company” recognised his outsider status, leading to his disengagement in direct, interpersonal interaction, but he just used emails to communicate. Excessive reliance on emails could fragment knowledge transfer and overwhelm recipients, as evidenced by the academic being unable to “keep up with the email thread”. Furthermore, a lack of face-to-face dialogue restricted opportunities to contextualise and adapt knowledge to organisational practices, thereby undermining both knowledge transfer and relationship development. As P24 further shared:

In a meeting, for the whole time, the associate turned away and looked out of the window. Managing Director was really offended by that... There was a lack of willingness on both sides and they weren't able to communicate. So, the associate left after 12 months, and the project did not complete.

P24’s story positions the associate as an outsider who struggled to engage with the business environment. The account centres on a symbolic incident, such as “turning away and looking out the window”, which is presented as evidence of disengagement and a lack of respect towards the Managing Director. This behaviour increased the social distance between the associate and business manager, contributing to mutual frustration and communication breakdown. Although the supervisor briefly acknowledges that there was “a lack of willingness on both sides,” the narrative primarily attributes the failure to the associate’s unwillingness and inability to build relationships with the business. The associate’s behaviours, including withdrawal, avoidance of interaction and limited engagement with managers, reinforced his outsider status. This perception further contributed to his decision to leave the position, which in turn hinders project progress and collaborative relationships.

In this section, we articulate how three unsupportive industrial conditions contributed to shifts from facilitative roles towards outsider positions. First, limited engagement, limited legitimacy and experiences of inappropriate treatment, including ageism and sexism, made associates perceive themselves as outsiders because they are unable to receive sufficient respect and acceptance from the business. These situations influence associates to prefer one-way, impersonal communication rather than face-to-face engagement with stakeholders. This disengagement not only undermined the relationship with the business but also reinforced the outsider status, further contributing to the decision to leave the position. As a result, knowledge transfer was impeded, and even the project would fail.

4.2 Theme Two: Supportive situational conditions triggering positive role dynamics

4.2.1 Supportive academic situational conditions

Our data shows two supportive academic conditions enabling movement from peripheral to more active boundary-spanning roles, including knowledge-based and pastoral support, and sufficient academic engagement. The outstanding evidence of supportive academic conditions emerged from P1’s story. As P1’s project involved two academic supervisors from the divergent disciplines, creating complex relational dynamics and multiple

opportunities to learn from academic supervisors. While insufficient support and engagement during covid make P1 become a peripheral conduit characterised by disengagement from knowledge transfer activities, subsequent academic support altered this trajectory. P1 described:

Initially, I felt less involved in the project because of COVID. That happened with one of the academic supervisors. He was like, "hey...if you need anything, just come to my module". I went to his module. This really helped my understanding of what we are doing, as well as I felt settled and confident in the uncertain period. It's very lucky that the academic staff were willing to have some conversations. So, I started getting involved in the project and helping knowledge transfer among different people.

The account emphasises how the academic supervisor played a crucial role in helping the associate move from a peripheral conduit to a more active facilitator within the knowledge transfer. Initially, the associate had limited confidence and interest in interactions. Recognising this, the academic supervisor not only provided knowledge support but also actively created opportunities for him to engage with others. The academic's invitation, "*if you need anything, just come to my module*", provided a friendly signal for the associate that he was welcomed and accepted. The exposure enabled the associate to interact with important stakeholders and gain confidence in sharing his ideas and expertise. In doing so, the academic provided important pastoral support, helping him overcome feelings and perceptions of isolation and strengthening his sense of belonging with the current position and project. As a result, the associate was willing to take on a more effective role in facilitating knowledge transfer.

P1's lead academic supervisor described how he supported the associate from knowledge wise and emotion.

Our associate was quite worried because he likes structuring, whereas in the beginning you can't really know these things. So, he found that frustrating. I brought him into my office. At least, he got some of the routines. I could explain to him and assure him that a lack of routines in the beginning was fine. Since then, he participates in the conversations and, more recently, starts to contribute to our ideas. (P18)

The academic's example demonstrates the importance of more time and engagement from academics to the associate, particularly in the uncertain context. A lack of direct interaction with individuals left the associate with fewer opportunities to develop relationships, build confidence and gain practical insights into the host business. Gradually, the associate became a peripheral conduit, exhibiting "*frustration*" and disengagement behaviours. In response, the academic supervisor adopted a proactive approach by inviting him to the "*office*", giving him structured tasks and creating opportunities for reflection. Functionally, this support helped the associate remain connected to the project and develop the knowledge and skills necessary to perform his role despite the disruption to normal working arrangements. This process provided pastoral support by the academic, who regularly checked on his wellbeing, offered reassurance, and created a safe space to discuss challenges and uncertainties. This emotional support reduced feelings of isolation and strengthened his confidence during a difficult period. As a result, the associate gradually moved beyond a passive, peripheral conduit characterised by limited disengagement, becoming an active conduit capable of transferring knowledge between university and business partners.

This section illustrates that academic supervisors provided both knowledge-based and pastoral support through regular communication, project guidance, and emotional encouragement, helping associates navigate uncertainty and strengthen their engagement with project activities. These forms of support reduced feelings of isolation and uncertainty while enhancing associates' sense of confidence, legitimacy and belonging with project relations. Thus, the associates became more willing to develop themselves into a more active knowledge-transfer conduit, engaging with stakeholders and communicating knowledge.

4.2.2 Supportive industrial situational conditions

Three identified supportive industrial conditions enabled associates to transition from unembedded newcomers to embedded conduits, including supervisory support, open work environments and supporting embeddedness and empowered authority.

Supervisory support and open environments

Supportive industrial situations for associates' role shifts from hindering to facilitative conduits can be learned from the experiences of P4 (the associate) and his business supervisor (P5). For example, P4 shared:

I came from an engineering background and did not know management knowledge. This is a new challenge for me, like working as a management role with a new environment. At the start, I felt less confident in doing this position and less confident in speaking to the business employees... Fortunately, I have very supportive and experienced academic and business supervisors. The academic supervisor helps with my management expertise. The business supervisor is very open about the project to me, ... whether what he feels is beneficial or what issues the company has now. We built a good relationship. It provides a push for my personal development and confidence in doing this job.

P4's narrative describes a significant developmental shift in the associate's role from an unembedded newcomer to a more confident, embedded facilitator of knowledge transfer. At the outset, the associate emphasised his lack of management knowledge and unfamiliarity with the new business environment. This led to feelings of "less confidence" and reluctance to engage with business employees. This self-positioning as an unembedded newcomer, both in terms of expertise and organisational embeddedness, reflects conditions that typically hinder effective knowledge translation and collaboration. However, the academic supervisor strengthened his knowledge of the management subject, while the business supervisor's openness created opportunities for trust, contextual learning, and mutual understanding. These supportive relationships enhanced the associate's confidence and enabled him to integrate more fully into the project. Gradually, the associate viewed himself as an insider of the business. As a result, supporting embeddedness by the business supervisor is instrumental for the associate to shift from an unembedded position to a more embedded conduit capable of bridging academic and business perspectives, demonstrating how the KTP associate role can evolve dynamically through learning, relational engagement, and supervisory guidance.

Supporting embeddedness and empowered authority

P4's business supervisor reinforces the analysis of the importance of business supervisory support:

In the beginning, I introduced him (the associate) to my employees and empowered him with authority to deliver the projects. Everyone in the organisation is clear. So, he is able to investigate the business and communicate with the staff about the project. He's got very supportive people around him ... We've also gotta let him find the solutions even though we may already know them. It helps him to grow within the project. Now, he could identify and solve barriers independently and have more confidence in communicating his insights with different people. (P5)

The business supervisor's accounts emphasised the importance of business support in enabling the associate to evolve from a newcomer into an embedded conduit. The business supervisor facilitated establishing the associate's legitimacy early on by introducing him to employees and "empowering him with authority." This organisational endorsement helped position the associate not as a less confident newcomer but as an authorised actor with a clear mandate, which is crucial for gaining staff cooperation and accessing embedded organisational knowledge. This action offered more autonomy for the associate to deliver knowledge transfer, developing his professional skills. From the other perspective, it manifests a high level of trust from the business supervisor toward the associate. He allowed the associate to "investigate the business" and "communicate with the staff". This perspective reflects the business supervisor's insight into the importance of a "supportive" environment, such as "supportive people" and "let him find the solutions". These statements highlight an open environment where the associate could access resources and relevant "staff". This is consistent with P4's statement, "The business supervisor is very open about the project to me". The open space strengthened the associate's confidence and encouraged deeper engagement with business processes. Consequently, the associate was capable of "investigating the business" independently and "communicating his insights" with both partners. This progression demonstrates a shift from an unembedded newcomer to an embedded facilitative conduit in knowledge transfer, triggered by the business support in empowering authority and an open work environment.

Interestingly, our analysis also discovered an exceptional case in which empowered authority by the business enabled the associate to shape a perception of project steward. An associate articulated,

In our weekly meetings with the university, we had different concerns. They were thinking about theoretical frameworks and asked me to follow up on their concerns about that framework. I was like, "This is not what I should work on. The problem is a cultural thing". But they didn't listen. They didn't care about these things. It frustrated me, because they were not there and did not observe and feel the atmosphere, but I am assigned to deliver the report, having everyday

conversations and observing everything in the field. Thus, I felt less willing to contribute to the ideas. (P23)

The associate's account illustrates how empowered authority by business enabled the associate to hold both facilitative and hindering boundary-spanning roles. Initially, the associate drew legitimacy and stewardship from the business, evidenced by "*having everyday conversations and observing everything*". This embedded conduit role provided access to contextual knowledge and enabled the associate to act as a knowledge transfer facilitator in the project. As the individual responsible for delivering reports and maintaining close contact with the business, the associate perceived himself as a central project steward capable of determining and controlling which form of knowledge should be transferred.

However, the project steward role was accompanied by tensions arising from competing expectations. Although the associate possessed the first-hand organisational knowledge, the academics focused on "*theoretical frameworks*". This reflects a power asymmetry, in which academics retained authority over knowledge and project direction. This discrepancy created a perception that the associate's expertise and authority as the project steward were challenged because the academics' knowledge did not fit the business culture. As authority was constrained, the associate developed a sense of "*frustration*", less legitimacy and exclusion from the knowledge exchange process. The statement "*I felt less willing to contribute to the ideas*" suggests a transition from a project steward to a disempowered conduit, whose reduced influence over decision-making causes their reluctance to share knowledge. This case not only articulates how the associate roles shifted from embedded conduit to a project steward and eventually to a disempowered conduit under the situation of holding empowered authority and power asymmetries but also emphasises that facilitative and hindering boundary-spanning roles can occur simultaneously under similar situational conditions. However, it is worth noting that the associate's knowledge contribution may be essential for mKTP projects.

The final section manifests how three identified supportive industrial conditions enabled associates to transition from unembedded newcomers to embedded conduits. First, organisational efforts to support embeddedness reduced feelings of isolation and strengthened associates' confidence and sense of belonging. In addition, empowered authority and autonomy not only positioned the associate as an authorised actor to better embed in the organisation but also developed the associates' necessary skills serving knowledge transfer. These effects were reinforced by open and trust-based workplace environments, which promoted inclusion, relationship building, and active participation in organisational processes. Collectively, these supportive conditions strengthened associates' insider status and enhanced their capacity to facilitate knowledge transfer across organisational boundaries. Exceptionally, we also reveal that empowered authority simultaneously enabled associates to hold the project steward role.

5. Discussion

This research explores situational conditions that influence boundary spanners' role dynamics between facilitative and hindering conduit roles within UICs by identifying several supportive and unsupportive situational conditions at both academic and industrial levels. We integrate our findings into a framework in Fig. 3. The two divergent roles in the semicircles are adapted from the initial conceptual framework (Fig. 1).

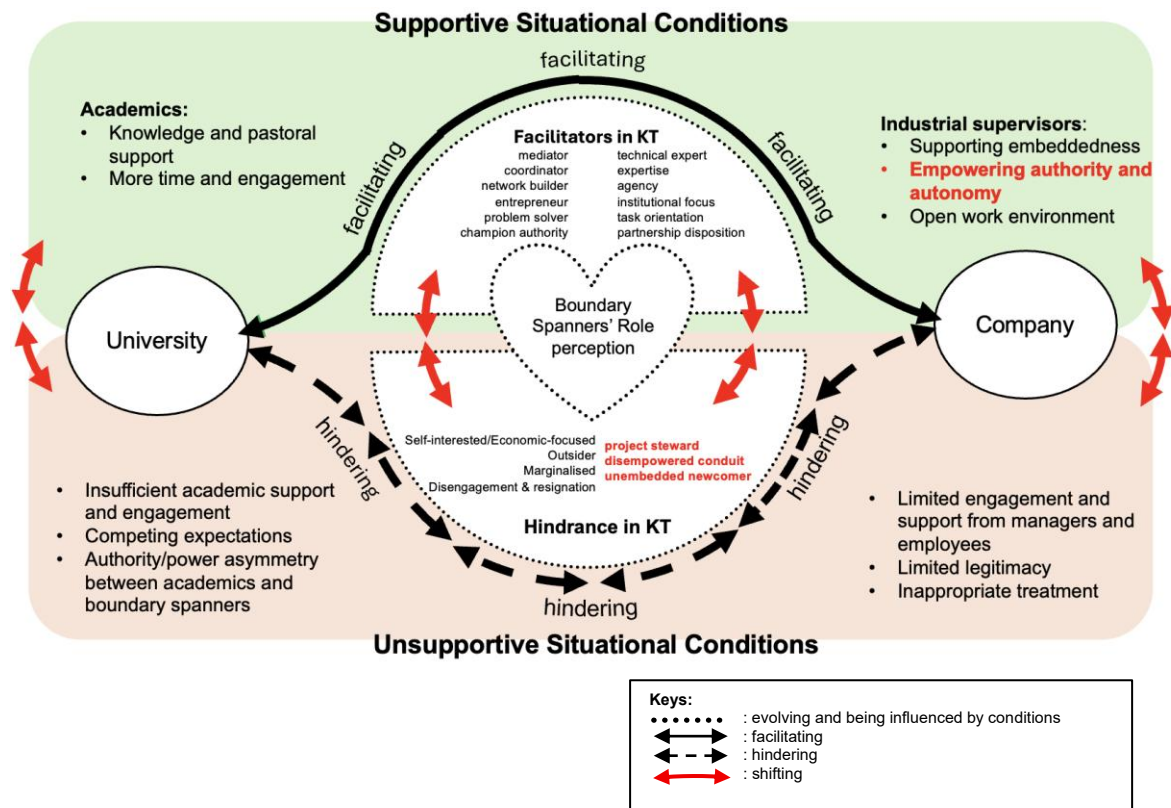


Fig. 3. Dynamic roles of boundary spanners within university-industry collaborations

At the centre of the framework lies the boundary spanners' role perceptions, which continuously evolve with changes in situations. The changing situations are shown in the outer layer within the framework, which includes supportive and unsupportive situational conditions. The upper green section of the framework represents supportive situational conditions from academic and industrial partners. Under these conditions, academics provide knowledge and pastoral support, while business supervisors facilitate embeddedness and empowerment. This strengthens boundary spanners' perception as an embedded and capable conduit. As a result, they display facilitative roles in knowledge transfer (see the red bidirectional arrows). The facilitative roles in the upper semicircle of the framework are adapted from the initial conceptual framework (Fig. 1).

Moreover, the lower orange section depicts unsupportive situational conditions from academic and industrial partners. Insufficient supervisory support and engagement, competing expectations and power asymmetries, and inappropriate treatment from business staff develop boundary spanners' self-interested perceptions of their conduit roles: project stewards, peripheral and/or disempowered conduits, outside status and unembedded newcomers. These roles exhibit hindrance in knowledge transfer, as represented by the solid-dash arrows. Existing literature has primarily conceptualised hindering boundary spanners from the marginalised or self-interested perspectives, including marginalised participants, outsiders, self-interested or economically oriented actors, and disengaged or withdrawn actors (e.g., Keller & Holland, 1975; White et al., 2019; Tootell et al., 2021; Abu Sa'a & Ystrom, 2024). In contrast, the three novel hindering roles identified in this study, highlighted in red, extend and complement these established conceptualisations rather than replacing them.

Interestingly, our findings suggest that boundary spanners may simultaneously enact facilitative and hindering roles when granted substantial authority by business supervisors. On the one hand, empowered authority enables boundary spanners to assume a project steward role, allowing them to determine and control the direction and content of knowledge flows. This may constrain knowledge exchange by concentrating decision-making and restricting access to knowledge. On the other hand, the same authority enhances their organisational embeddedness, legitimacy, and access to key stakeholders, thereby facilitating knowledge transfer. This dual effect highlights the coexistence of facilitative and hindering role enactments under the same situational condition, as highlighted in red.

Finally, a core of the framework emphasises role dynamics between facilitative and hindering roles. The dotted boundary surrounding the two main boundary-spanning categories indicates that roles are evolving, shaped by

situational conditions, as shown in the upper and lower sections. The red bidirectional arrows signify that boundary spanners may shift between facilitative and hindering roles over time. These dynamics demonstrate that boundary spanners are dynamic actors influencing knowledge transfer within UICs. The following sections will explain the novel findings in depth by comparing them with current studies and demonstrating how they contribute to the literature on boundary spanners and UIC practices.

5.1 Theoretical contributions

The study has made two contributions to the boundary-spanning literature and the context of UICs by explaining situational conditions for positive and negative boundary spanners' role dynamics and identifying three novel hindering roles. First, it advances a dynamic perspective in boundary-spanning theory by empirically interpreting how dynamic academic and industrial conditions trigger transitions between facilitative and hindering boundary-spanning roles. Prior discussions on boundary spanners in the literature are often confined to facilitative roles (Haas, 2015; Wegemer & Renick, 2021; Dolmans et al., 2022). The situational conditions influencing their shifts between facilitative and hindering roles remain underexplored. Our findings reveal two interrelated patterns of role dynamics. The negative dynamics concern the shifts from facilitative to hindering roles under unsupportive conditions. Specifically, at the outset, as KTP associates understand what is required in their position, they initially enact a conduit role in supporting knowledge transfer (White et al., 2019; Ates et al., 2025). However, newcomers struggle to embed within the company environment (De Wit-de Vries et al., 2019; O'Dwyer et al., 2023), and boundary spanners may become an untrusted and unembedded actor. When associates experience insufficient supervisory support and engagement, competing expectations and power asymmetries, and inappropriate treatment from business staff develop boundary spanners' self-interested perceptions of their conduit roles (Tootell et al., 2021; Mascarenhas et al., 2024). These perceptions subsequently shape boundary spanners to become distinctive hindering roles, such as peripheral, unembedded conduits, project stewards, disempowered conduits and outside status. What's more, a role shift between project stewards and disempowered conduits is observed, associated with changing authority relations. This is because these roles are inherently unstable because authority within UICs remains asymmetrically distributed across actors (Abu Sa'a & Yström, 2024).

In contrast, the positive dynamic trajectory from hindering to facilitative conduits occurs under supportive conditions. When commencing the KTP associate position, individuals perceive themselves as an unembedded conduit due to limited subject knowledge and an unfamiliar environment. Also, business employees may not cooperate with associates due to a lack of legitimacy (Goodrich et al., 2020). However, sustained support reduces cognitive and emotional barriers that may otherwise constrain participation in knowledge transfer during the evolving learning process in UICs (Schaeffer et al., 2020; Ates et al., 2025). On the other hand, supporting embeddedness and empowerment from business supervisors facilitates building an open environment that allows business employees to better accept the newcomer who undertakes the associate position (Mell et al., 2022; Abu Sa'a & Ystrom, 2024). When KTP associates need specialised employees for knowledge transfer practices, business employees could actively cooperate and respond to their queries. Empowerment from the host business signals trust to associates, strengthening their insider status (Abu Sa'a & Ystrom, 2024) and supporting their professional development (Dolmans et al., 2022). Gradually, associates enhance a sense of confidence in their position and sense of belonging in host companies, thereby reshaping their perception from an unembedded, peripheral conduit to a more embedded actor in knowledge transfer. Overall, the above evidence of the positive and negative role dynamics and their triggering situational conditions advances the current theoretical understanding of boundary spanners' dynamics beyond facilitative roles to transitions between facilitative and hindering functions (Haas, 2015; Wegemer & Renick, 2021). Our results explained this argument in detail by presenting role dynamics as a result of an interplay among situational contingencies, KTP associates' role perceptions and behaviours. More importantly, we integrate the identified situational conditions, boundary-spanning roles and these two types of dynamics into a conceptual framework. It presents the context-dependent boundary-spanning dynamics within a complex UIC context. Therefore, this study extends existing boundary-spanning scholarship by providing an integrative framework for understanding what academic and industrial situational conditions drive boundary-spanning dynamics and how and why these conditions trigger these role dynamics in knowledge transfer.

Exceptionally, our observation reveals that the same situational condition may simultaneously generate both facilitative and hindering boundary-spanning roles. Specifically, when business supervisors grant associates substantial authority and autonomy, boundary spanners may concurrently enact embedded conduit and project steward roles. On the one hand, authority signals trust and legitimacy, enabling associates to access organisational members, strengthen their insider status, and facilitate knowledge transfer (Abu Sa'a & Yström, 2024). On the other hand, the same authority can reinforce a sense of project stewardship, encouraging associates to exercise greater control over stakeholder interactions and knowledge flows. Such control may restrict knowledge exchange

and impede collaboration. This finding extends the boundary-spanning literature by demonstrating that situational conditions do not always produce a single role outcome. Instead, the same condition may simultaneously enable and constrain knowledge transfer through the coexistence of facilitative and hindering role enactments. The finding therefore highlights the paradoxical and context-dependent nature of boundary spanners and suggests that authority functions as a double-edged mechanism, fostering both organisational embeddedness and knowledge-transfer constraints. By identifying this role coexistence, our study advances a more nuanced understanding of how boundary spanners shape knowledge-transfer processes within UICs.

Second, this study challenges the prevailing assumption that boundary spanners are inherently facilitative actors (Tang et al., 2018; Ogbanufe et al., 2025) by broadening the conceptualisation of hindering boundary-spanning roles (see Table 3). Prior literature has often conceptualised the hindering boundary spanners from marginalisation perspectives in organisational relations or knowledge domains, such as outsiders, self-interested or economically oriented actors, and disengaged or withdrawn actors (e.g., White et al., 2019; Goodrich et al., 2020; Tootell et al., 2021; Abu Sa'a & Ystrom, 2024). Nevertheless, we identify three novel hindering roles: project steward, disempowered conduit, and unembedded newcomer. Specifically, the project steward role diverges from prior studies. Wegemer and Renick (2021) suggest that authority-type boundary spanners more closely resemble a facilitator who helps achieve knowledge mobilisation by coordinating actors' participation in the decision-making process, rather than a directive control figure. However, in our study, the project steward is evidently characterised by their control over decisions or knowledge flows that impede knowledge transfer. Moreover, we conceptualise the unembedded newcomer as a distinct hindering boundary-spanning role. Prior studies recognise that newcomers often face difficulties integrating into UICs (De Wit-de Vries et al., 2019; O'Dwyer et al., 2023), yet these challenges have rarely been theorised as a form of hindering boundary spanners. By identifying unembedded newcomers as a hindering role, we demonstrate that ineffective boundary spanners may arise from insufficient organisational embeddedness rather than active disengagement or resistance. These identified three novel roles are complementary, rather than replacing the established roles of hindering boundary spanners. Taken together, our findings enrich the concept of hindering boundary spanners by labelling more possible hindering roles grounded in the distinctive situational triggers and behavioural patterns. By complementing existing discussions of hindering boundary spanners beyond marginalisation perspectives (e.g., White et al., 2019; Tootell et al., 2021; Abu Sa'a & Ystrom, 2024), this study demonstrates the multiple ways in which boundary spanners may impede knowledge transfer. In doing so, it highlights the context-dependent nature of hindering boundary spanners and advances a more nuanced understanding of how such roles emerge and operate within UICs.

Table 3. Novel hindering boundary-spanning roles

Authors/years	Hindering Roles	Descriptions	Triggering conditions
Keller and Holland (1975); White et al. (2019); Wegemer and Renick (2021) Abu Sa'a and Ystrom (2024)	Marginalised participants	Boundary spanners experience a diminished sense of belonging in project relations and self-efficacy in knowledge transfer, resulting in passive participation in knowledge-transfer activities	Limited time and resources from other actors; lack of connections or authority; boundary-spanning efforts or voices are not recognised by other actors.
Minkler (2004) White et al. (2019); Goodrich et al. (2020); Bamford et al. (2024);	Outsiders	Boundary spanners perceive, or are perceived by others, as outsiders in organisational relationships or knowledge domains, reducing their motivation to participate and potentially leading to withdrawal from the collaboration.	Being perceived as an outsider; limited expertise in the knowledge domain; weak integration into the host organisation or partnership.
Keller and Holland (1975); Tootell et al. (2021); Mell et al. (2022)	Self-interested or economic-focused status	Boundary spanners prioritise personal interests and preferences over collective project objectives, selectively engaging in boundary-spanning activities that provide personal benefits.	Unrecognised efforts or contributions; power asymmetries; legitimacy challenges; tensions in balancing academic and organisational demands

White et al. (2019) Zhu et al. (2023)	Disengaged actors or resignation	Boundary spanners reduce their engagement in knowledge transfer and relationship building and may ultimately withdraw from or resign from their boundary-spanning position and undermine their innovative behaviours	Unclear or changing project objectives; short-term anxiety; prolonged frustration; inadequate organisational support
Our contributions	Project steward	Boundary spanners display enhanced associates' involvement in knowledge transfer whilst controlling and fragmenting knowledge flows.	Little supervisory engagement; Empowered authority and autonomy in knowledge or knowledge transfer by business supervisor
	Disempowered conduit	Boundary spanners resist and retreat from fulfilling their responsibilities as a conduit.	Competing expectations; losing control authority in knowledge or knowledge transfer
	Unembedded newcomer	In a new position, boundary spanners exhibit insufficient organisational embeddedness rather than actively disengagement or resistance from host companies' environments	Limited subject knowledge and unfamiliar environments

Finally, our results respond to calls for greater empirical research on management-focused UIC contexts, as existing UIC studies primarily focus on STEM partnerships (White et al., 2019; Bamford et al., 2023; Ates et al., 2025). In contrast, our study examines mKTP projects operating within management schools and industrial collaborations (Ates et al., 2025; UKRI, 2025). By examining boundary spanners within management-discipline collaborations, this research widens the empirical scope of UIC studies beyond STEM contexts. It illustrates that management-discipline knowledge transfer entails relational dynamics, authority negotiations, and change processes that may differ from those in STEM collaboration.

5.2 Practical implications

By demonstrating the situational conditions triggering associates' role shifts between facilitative and hindering roles, this study offers practical guidance for universities and industry partners seeking to strengthen knowledge transfer in UIC and mKTP projects. The findings suggest that knowledge transfer effectiveness by boundary spanners depends heavily on supportive situational and relational conditions that encourage facilitative role enactment while reducing the risk of control-oriented or disengaged behaviours (Wegemer & Renick, 2021; Dolmans et al., 2022; Zobel et al., 2024). Foremost, sustained supervisory engagement from both academic and business partners is essential. Supervisors should allocate sufficient time to support boundary spanners' knowledge development, helping them align academic expertise with business needs (De Wit-de Vries et al., 2019; Dolmans et al., 2022). Both supervisors need to consider empowering boundary spanners with authority to diagnose business issues and generate solutions within UIC projects, as they may have more opportunities to engage with individuals on both sides. It can enhance their embeddedness and stewardship in constructive ways. However, empowerment should be accompanied by regular interaction to prevent excessive control over knowledge flows by boundary spanners (project stewards) and ensure that transfer processes remain transparent and collaborative.

Moreover, mitigating the emergence of peripheral, disempowered conduits, unembedded newcomers and outsider status requires proactive relational support, especially at the early stage of collaboration (De Wit-de Vries et al., 2019; O'Dwyer et al., 2023). Business supervisors should formally introduce boundary spanners to employees, clarify their responsibilities, and foster an open and inclusive work environment (Abu Sa'a & Ystrom, 2024). Clear objectives and visible management endorsement enhance legitimacy and facilitate acceptance. Business supervisors must also actively address inappropriate treatment, such as ageism or sexism, which can undermine associates' confidence and trigger disengagement. In the meantime, pastoral and developmental support from supervisors plays a critical role in strengthening confidence, reducing emotional strain and self-interest, and supporting professional growth (White et al., 2019; Ates et al., 2025). When boundary spanners perceive that their

career development and skill acquisition are aligned with project goals, they are more likely to remain engaged and committed (De Wit-de Vries et al., 2019; Tootell et al., 2021). Over time, supervisory support fosters embeddedness within collaborative networks and encourages boundary spanners to enact a facilitative conduit. Overall, the present study emphasises the significance of support and engagement from both university and industrial partners to enable boundary spanners to enact and shift into more embedded, competent facilitative roles while mitigating the risk of becoming control-based project stewards, peripheral and unembedded actors or outsiders.

5.3 Limitations and future research avenues

Three limitations should be acknowledged, which may provide research avenues for future studies. First, the study adopts a qualitative approach based primarily on interview data collected from thirty participants. Although this design enabled an in-depth exploration of participants' perceptions, experiences and sense-making processes (Easterby-Smith et al., 2021), it relies heavily on retrospective self-reporting. Consequently, the findings may not fully capture the real-time interactions, relational dynamics and behavioural processes through which boundary spanners are enacted during knowledge transfer (White et al., 2019). Future research could address this limitation by employing methodological triangulation, combining interviews with observations, focus groups or diary methods to provide richer insights into how situational conditions influence boundary spanners' dynamics in knowledge transfer. Second, the study employs a cross-sectional design, providing a temporally bounded view of how situational conditions influence boundary spanners' role shift (Easterby-Smith et al., 2021). However, this role is inherently dynamic. The cross-sectional nature of the data may not effectively capture such role dynamics, adaptation processes and the emergence of facilitative and hindering behaviours through the project lifecycle. Future studies could use longitudinal research designs to track boundary spanners across different project stages. This could help provide a more nuanced understanding of how varying situational conditions shape boundary spanners' role dynamics over time.

Finally, the generalisability of the findings should be considered in light of our empirical and conceptual boundaries. This study reveals the dynamics through several salient roles, including facilitative conduits, peripheral conduits, unembedded newcomers, project stewards, disempowered conduits, and outsiders; however, these roles do not constitute a complete set of boundary-spanning roles. Moreover, only one empirical instance of the situational condition was identified in which boundary spanners simultaneously hold facilitative and hindering roles. This may limit understanding of the broader conditions under which this role dynamic occurs, which leaves more research space for future scholarship (Weerts & Sandmann, 2010; Wegemer & Renick, 2021). Additionally, the findings are bounded by the mKTP context, a formally contractual and government-supported form of UIC with defined objectives and supervisory arrangements (Ates et al., 2025; UKRI, 2025). These features may shape role expectations, power relations and knowledge transfer processes in ways that differ from the informal, non-contractual UIC forms, e.g. conferences, informal student placement, etc. (Schaeffer et al., 2020; O'Dwyer et al., 2023). Therefore, the identified roles and their dynamics may not be fully transferable to other collaborative settings. Future research should examine a broader range of boundary-spanning roles and situational conditions triggering their role shifts within other UIC forms.

6. Conclusion

This research explores the situational conditions triggering associates' role shifts between facilitative and hindering roles within UIC. Drawing on the positions of KTP associates in mKTP projects in the UK, we find that unsupportive situational and relational contexts characterised by competing expectations, limited supervisory support and engagement, limited legitimacy and authority asymmetry make associates gravitate toward peripheral, unembedded conduits, control-based project stewards or outsider roles, thereby impeding knowledge transfer. Conversely, supportive situational and relational contexts, such as supervisory support, stakeholder engagement, empowerment and an open work environment, could enhance associates' professional confidence and trust in the collaborative relationship. These conditions enable a transition from hindering roles to facilitative conduits. In this way, associates facilitate knowledge transfer within the projects.

Declarations

Funding No funding was received for conducting this study.

Conflict of interest The authors have no relevant financial or non-financial interests to disclose.

Ethical approval This study was granted ethical approval with reference number: 22/LBR/003. All the research progress followed ethical principles.

Data availability Data are available on request.

Reference list

- Abu Sa'a, E., & Yström, A. (2024). Exploring enablers of internal knowledge dissemination for boundary-spanning industrial PhD students. *Creativity and Innovation Management*, 33(3), 530-550. <https://doi.org/10.1111/caim.12596>
- Akkerman, S. F., & Bakker, A. (2011). Boundary crossing and boundary objects. *Review of educational research*, 81(2), 132-169. <https://doi.org/10.3102/0034654311404435>
- Ates, A., Paton, S., Bititci, U., & Kemal Konyalıoğlu, A. (2025). From transfer to co-creation: action research perspectives in knowledge transfer partnership (KTP) projects. *Production Planning & Control*, 36(2), 236-249. <https://doi.org/10.1080/09537287.2024.2335475>
- Bamford, D., Reid, I., Forrester, P., Dehe, B., Bamford, J., & Papalexi, M. (2024). An empirical investigation into UK university–industry collaboration: the development of an impact framework. *The Journal of Technology Transfer*, 49(4), 1411-1443. <https://doi.org/10.1007/s10961-023-10043-9>
- Benmore, A. (2016). Boundary management in doctoral supervision: How supervisors negotiate roles and role transitions throughout the supervisory journey. *Studies in Higher Education*, 41(7), 1251-1264. <https://doi.org/10.1080/03075079.2014.967203>
- Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative research in sport, exercise and health*, 11(4), 589-597. <https://doi.org/10.1080/2159676X.2019.1628806>
- Braun, V., & Clarke, V. (2021). One size fits all? What counts as quality practice in (reflexive) thematic analysis?. *Qualitative research in psychology*, 18(3), 328-352. <https://doi.org/10.1080/14780887.2020.1769238>
- Creswell, J. (2015). *30 Essential Skills for the Qualitative Researcher*. Sage.
- Crupi, A., & Mortara, L. (2025). Building middle managers' managerial dynamic capabilities through collaborations: exploring the microfoundations in a university–industry consortium. *The Journal of Technology Transfer*, 1-31. <https://doi.org/10.1007/s10961-025-10242-6>
- De Wit-de Vries, E., Dolfsma, W. A., van der Windt, H. J., & Gerkema, M. P. (2019). Knowledge transfer in university–industry research partnerships: a review. *The Journal of Technology Transfer*, 44(4), 1236-1255. <https://doi.org/10.1007/s10961-018-9660-x>
- Dolmans, S. A., Walrave, B., Read, S., & Van Stijn, N. (2022). Knowledge transfer to industry: how academic researchers learn to become boundary spanners during academic engagement. *The Journal of Technology Transfer*, 47(5), 1422-1450. <https://doi.org/10.1007/s10961-021-09882-1>
- Easterby-Smith, M., Valizade, D., Thorpe, R., & Jaspersen, L. J. (2021). *Management and Business Research*. Sage
- Farrell, C. C., Penuel, W. R., Allen, A., Anderson, E. R., Bohannon, A. X., Coburn, C. E., & Brown, S. L. (2022). Learning at the boundaries of research and practice: A framework for understanding research–practice partnerships. *Educational Researcher*, 51(3), 197-208. <https://doi.org/10.3102/0013189X211069073>
- Frandsen, S., Svane, M., & Maria Humle, D. (2024). Who is responsible—and for what? An antenarrative perspective on organizational members' crisis sensemaking of responsibility during a corporate scandal. *Human Relations*, 77(11), 1565-1595. <https://doi.org/10.1177/00187267231205781>
- Goodrich, K. A., Sjostrom, K. D., Vaughan, C., Nichols, L., Bednarek, A., & Lemos, M. C. (2020). Who are boundary spanners and how can we support them in making knowledge more actionable in sustainability fields? *Current Opinion in Environmental Sustainability*, 42, 45-51. <https://doi.org/10.1016/j.cosust.2020.01.001>
- Gouldner, A. W. (1957). Cosmopolitans and locals: Toward an analysis of latent social roles. I. *Administrative Science Quarterly*, 281-306. <https://doi.org/10.2307/2391000>

- Haas, A. (2015). Crowding at the frontier: boundary spanners, gatekeepers and knowledge brokers. *Journal of Knowledge Management*, 19(5), 1029-1047. <https://doi.org/10.1108/JKM-01-2015-0036>
- Harvey, L. (2015). Beyond member-checking: A dialogic approach to the research interview. *International Journal of Research & Method in Education*, 38(1), 23-38. <https://doi.org/10.1080/1743727X.2014.914487>
- Jackson, A. Y., & Mazzei, L. A. (2012). *Thinking with theory in qualitative research: Viewing data across multiple perspectives*. Routledge.
- Keller, R. T., & Holland, W. E. (1975). Boundary-spanning roles in a research and development organization: An empirical investigation. *Academy of Management Journal*, 18(2), 388-393. <https://doi.org/10.5465/255542>
- Marques, C. S., Ferreira, J. J., Marques, C. P., & Leal, C. (2024). Understanding university-industry collaboration: a social exchange perspective on the entrepreneurial university. *The Journal of Technology Transfer*, 1-20. <https://doi.org/10.1007/s10961-024-10084-8>
- Mascarenhas, C., Mendes, T., Galvão, A. R., Marques, C. S., & Ferreira, J. J. (2024). Academic researchers' motivations to engage in university-industry collaboration in cross-border regions. *The Journal of Technology Transfer*, 49(6), 2104-2134. <https://doi.org/10.1007/s10961-024-10082-w>
- Mell, J. N., Van Knippenberg, D., Van Ginkel, W. P., & Heugens, P. P. (2022). From boundary spanning to intergroup knowledge integration: The role of boundary spanners' metaknowledge and proactivity. *Journal of Management Studies*, 59(7), 1723-1755. <https://doi.org/10.1111/joms.12797>
- Minkler, M. (2004). Ethical challenges for the "outside" researcher in community-based participatory research. *Health education & behavior*, 31(6), 684-697. <https://doi.org/10.1177/1090198104269566>
- Miller, P. M. (2008). Examining the work of boundary spanning leaders in community contexts. *International Journal of Leadership in Education*, 11(4), 353-377. <https://doi.org/10.1080/13603120802317875>
- Noke, H., Mosey, S., & Vere, K. (2024). Understanding university technicians' role in creating knowledge exchange routines and capabilities: a research agenda. *The Journal of Technology Transfer*, 49(5), 1606-1630. <https://doi.org/10.1007/s10961-024-10072-y>
- O'Dwyer, M., Filieri, R., & O'Malley, L. (2023). Establishing successful university-industry collaborations: barriers and enablers deconstructed. *The Journal of Technology Transfer*, 48(3), 900-931. <https://doi.org/10.1007/s10961-022-09932-2>
- Ogbanufe, O., Benjamin, V., & Kim, D. J. (2025). Adversarial knowledge-sharing in a coopetitive environment: a darknet hacker context. *European Journal of Information Systems*, 34(1), 164-180. <https://doi.org/10.1080/0960085X.2024.2305802>
- Ollila, S. (2025). In-between identity work: Transcending boundaries in university-industry collaboration. *Technovation*, 139, 103128. <https://doi.org/10.1016/j.technovation.2024.103128>
- Ryan, A., & O'Malley, L. (2016). The role of the boundary spanner in bringing about innovation in cross-sector partnerships. *Scandinavian Journal of Management*, 32(1), 1-9. <https://doi.org/10.1016/j.scaman.2015.09.002>
- Saldana, J. (2021). *The Coding Manual for Qualitative Researchers*. Sage.
- Scandura, A., & Iammarino, S. (2022). Academic engagement with industry: the role of research quality and experience. *The Journal of Technology Transfer*, 47(4), 1000-1036. <https://doi.org/10.1007/s10961-021-09867-0>
- Schaeffer, V., Öcalan-Özel, S., & Pénin, J. (2020). The complementarities between formal and informal channels of university-industry knowledge transfer: a longitudinal approach. *The Journal of Technology Transfer*, 45(1), 31-55. <https://doi.org/10.1007/s10961-018-9674-4>
- Schotter, A. P., Mudambi, R., Doz, Y. L., & Gaur, A. (2017). Boundary spanning in global organizations. *Journal of Management Studies*, 54(4), 403-421. <https://doi.org/10.1111/joms.12256>

Tang, R., Qiu, X., & Zhang, M. W. (2018). Spanning the boundary of organisations: a systematic review of the inter-organisational boundary-spanning literature. In M. W. Zhang (Eds.), *Trust building and boundary spanning in cross-border management* (pp. 181-217). Routledge.

Thomas, D. R. (2006). A general inductive approach for analyzing qualitative evaluation data. *American Journal of Evaluation*, 27(2), 237–246. <https://doi.org/10.1177/109821400528374>

Tootell, A., Kyriazis, E., Billsberry, J., Ambrosini, V., Garrett-Jones, S., & Wallace, G. (2021). Knowledge creation in complex inter-organizational arrangements: understanding the barriers and enablers of university-industry knowledge creation in science-based cooperation. *Journal of Knowledge Management*, 25(4), 743-769. <https://doi.org/10.1108/JKM-06-2020-0461>

Tushman, M. L. (1977). Special boundary roles in the innovation process. *Administrative Science Quarterly*, 587-605. <https://doi.org/10.2307/2392402>

Tushman, M. L., & Scanlan, T. J. (1981). Boundary spanning individuals: Their role in information transfer and their antecedents. *Academy of Management Journal*, 24(2), 289-305. <https://doi.org/10.5465/255842>

UKRI (2025, n.d.). *Management KTP*. Retrieved March 1, 2026, from <https://iuk-ktp.org.uk/management-ktp/>

UKRI (2025, October 27). *Knowledge Transfer Partnership Guidance*. Retrieved March 1, 2026, from <https://www.ukri.org/councils/innovate-uk/guidance-for-applicants/guidance-for-specific-funds/knowledge-transfer-partnership-guidance/>

Weerts, D. J., & Sandmann, L. R. (2010). Community engagement and boundary-spanning roles at research universities. *The Journal of Higher Education*, 81(6), 632-657. <https://doi.org/10.1080/00221546.2010.11779075>

Wegemer, C. M., & Renick, J. (2021). Boundary spanning roles and power in educational partnerships. *AERA Open*, 7, <https://doi.org/10.1177/23328584211016868>

White, G. R., Cicmil, S., Upadhyay, A., Subramanian, N., Kumar, V., & Dwivedi, A. (2019). The soft side of knowledge transfer partnerships between universities and small to medium enterprises: an exploratory study to understand process improvement. *Production Planning & Control*, 30(10-12), 907-918. <https://doi.org/10.1080/09537287.2019.1582098>

Williams, P. 2002. The competent boundary spanner. *Public Administration*, 80(1), 103-124. <https://doi.org/10.1111/1467-9299.00296>

Williams, P. (2012). We are all boundary spanners now? In P. Williams (Eds.), *Collaboration in Public Policy and Practice* (pp. 95-118). Policy Press.

Zhu, J., Xin, L., & Li, M. (2023). How and when is boundary-spanning behaviour related to innovative behaviour: role of intrinsic motivation and organisational support. *European Journal of Innovation Management*, 28(2), 681-700. <https://doi.org/10.1108/EJIM-11-2022-0608>

Zobel, A. K., Falcke, L., & Comello, S. D. (2024). A temporal perspective on boundary spanning: Engagement dynamics and implications for knowledge transfer. *Organization Science*, 35(2), 474-495. <https://doi.org/10.1287/orsc.2023.1677>

Appendix 1

The Empirical Evidence of Situational conditions and Role Dynamics in Themes

Theme	Subthemes	Codes	Representative quotes	Participant
Theme 1: Unsupportive situational conditions triggering negative role dynamics	Dynamic conduit		<i>associate represents a key channel of communication and interaction between the two partners.</i>	P1, P2, P3, P4, P5, P6, P8, P9, P10, P12, P13, P15, P16, P17, P18, P19, P20, P21, P22, P23, P25, P26, P27, P28, P29, P30
			<i>Knowledge transfer is very dynamic. So, my role is dynamic, being alert in the process all the times in order to capture that knowledge transfer</i>	P1, P2, P3, P4, P5, P6, P7, P8, P9, P11, P13, P15, P18, P21, P22, P23, P24, P25, P26, P29
	Unsupportive academic situational conditions	Story 1: P6		
		Beginning: facilitative conduit	<i>I can see my role is to try and understand what the company needs, and then what is available from the academics. In the beginning, I tried to simplify the information to multi-stakeholders...Then I brought all of the academics together to have meetings to get them on the same page because they are interested in different things... I facilitate workshops where everybody can share their perspectives and hear from each other.</i> <i>I put everything onto a Myro board...and then we had to get everybody to vote them. We just had a really good conversation that I could take away and then I proposed something back to them</i>	P6 (associate)
		Insufficient support and engagement: Becoming peripheral conduit	<i>I enjoy teamwork. I enjoy being in the middle, coordinating things. But due to covid, there is absent of many people, and we don't know what will happen next. We had a phase where it didn't do anything for a while. Sometimes I felt very isolated, like being on my own in the middle and trying to figure out everything... I felt like quitting for more than half of the project because it's hard to see how this is benefiting my career.</i> <i>I sent her an article or a website, and I don't think she was particularly inspired by the knowledge... she felt that she was not sitting with people she wanted to learn from. She's not with the people often.</i>	P6 (associate) P7 (P6's academic supervisor)
		Little academic engagement and competing expectations: Becoming project steward	<i>When we returned and work on the project, we found the project was super ambitious...the academics were quite removed from what happened within the company and were just interested in their areas, but the company was just waiting for us to tell them what they needed to do... However, due to little time allocated to the academics, the main work of changing the current project plan relied on me...So I spent much time rewriting it and now it is reassuring. I felt like I own it and I'm the only full-time resource on this project.</i> <i>Our time is allocated in the project is 3 hours a week to offer academic advice and support the associate. Now the associate tries to give the academics the tasks to do... like on Monday, she wants to meet... We do the actions and report to her... However, our schedule is very busy for many other things, like teaching, marking, etc, so we cannot be managed in that way.</i> <i>Things are being heard that want to be heard. What the associate doesn't wanna hear, the company is not hearing... We're sharing that knowledge back to the university, but we don't often always know what the university is doing. It's down to the associate to disseminate information. If we don't ask, that can sometimes maybe not get through.</i>	P6 (associate) P7 (P6's academic supervisor) P13 (P6's business supervisor)
			<i>Academics already made up their mind about how things need to go, asking me stuff and I'm relaying. Some stuff is not very interesting to me... They need to come to share knowledge more regularly, rather than expecting me to do all.</i> <i>We have the scholar's data-built environments. The 20% of that I don't think it realistic. I kept saying to them like "I can't do it. I don't see how this works. If you want that, then you have to find someone else to make it happen"</i> <i>for me, what was SWOT Analysis about? that was not realistic. I kept saying to them like, 'I don't see how this works". We didn't have any good suggestions from the academics about how those things were gonna work either.</i>	P6 (associate)
			Story 2: P23	
		Competing expectations and power asymmetries: Becoming project steward	<i>The project is not the priority of any of these stakeholders. They just think that this is the associates' main responsibility</i> <i>In our weekly meetings with the university, we had different concerns. They were thinking about theoretical frameworks and asked me to follow up on their concerns about that framework. I was like, "This is not what I should work on. The problem is a cultural thing". But they didn't listen. They didn't care about these things. It frustrated me, because they were not there and did not observe and feel the atmosphere, but I am assigned to deliver the report, having everyday conversations and observing everything in the field. Thus, I felt less willing to contribute to the ideas</i>	P23 (associate)

Theme	Subthemes	Codes	Representative quotes	Participant
Theme 1: Unsupportive situational conditions triggering positive role dynamics	Unsupportive industrial situational conditions	Story 3: P3		
		Beginning: facilitative conduit	<i>I hold a lot of workshops because I've keyed into some of the more pedagogical aspects of working with the company and how they like to learn and how they transfer... also, within the workshops, I help to bring the academics to be integrated into that project team environment. So they can bring in that more theoretical knowledge to support business transformation... this job aligns with my personal goals because I'm doing my PhD through this. It centralises me to drive the mKTP projects</i> <i>we're doing on our project is ambidexterity. breaking that down into literally saying like "you have two hands, with the left, you're doing this and with the right, you're doing this". Talking about things that people can understand</i> <i>I focused on creating a project team of experienced individuals from across the company at different levels.</i>	P3 (associate)
		Inappropriate treatment: Becoming outsider	<i>I work with a lot of men who are twice my age. Age with experience elements. A lot of sexism and ageism exist. I have to work 10 times harder to prove myself.</i> <i>I've had people make ridiculous comments, like comments on what you're wearing or derogatory comments about capabilities. Uh... it is unfortunate... I felt like someone from the outside...previously, I think this position looks interesting but now I feel all the pain and share none of the joy.</i> <i>within the construction industry that I work in, there's a lot of people working in construction who had no management training or no development opportunities. Suddenly you say to them as those at director levels, "you need this person coming into help develop management and leadership within your organization"... There is resistance there</i>	P3 (associate) P1 (associate)
		Limited engagement: Becoming outsider	<i>When the KTP starts and someone in the company who didn't know much about it, they receive an email or a phone call from my associate saying, "can we meet?" and they're going "Well. I'm busy". This really makes her feel isolated.</i>	P15 (P3's academic supervisor)
		Story 4: P24's associate		
		Becoming outsider	<i>The associate was heavily reliant on email for knowledge transfer because he did not see himself as part of the company and was less willing to talk to business employees. I couldn't keep up with the email thread</i>	P24 (associate)
		Outsider status	<i>you can be seen as a bit of an outsider sometimes. you can't work in isolation a bit.</i>	P1, P2, P3, P6, P8, P9, P13, P15, P21, P22, P23, P24

Theme	Subthemes	Codes	Representative quotes	Participant
Theme 2: Supportive situational conditions triggering role dynamics from hindering to facilitative conduits	Story 5: P1			
	Supportive academic situational conditions	Knowledge and pastoral support: Becoming active conduit	Initially, I felt less involved in the project because of covid. That happened with one of the academic supervisors. He was like, "hey...if you need anything, just come to my module". I went to his module. This really helped my understanding of what we are doing, as well as I felt settled and confident in the uncertain period. It's very lucky that the academic staff were willing to have some conversations. So, I started involving in the project and helping knowledge transfer among different people	P1 (associate)
			Instead of saying, "I'm only available on Fridays", other supervisor [...] and I always said, "just drop us an email and we'll get back to you". And we did respond as quick as we could, it helped get her (associate) assured and feeling a bit more settled... I think she is open up and start getting used to flexible routines in the mKTP project.	P16 (P1's academic supervisor)
		academic engagement: Becoming active conduit	Our associate was quite worried because she likes structuring, whereas in the beginning you can't really know these things. So, she found that frustrating. I brought her into my office. At least, she got some of the routines. I could explain to her and assure her that a lack of routines in the beginning was fine. Since then, she participates in the conversations and, more recently, starts to contribute to our ideas	P18 (P1's lead academic supervisor)
			having strong links with the academics on a personal level will be really helpful (P3)	P1, P2, P3, P4, P5, P6, P8, P9, P10, P12, P13, P14, P15, P18, P20, P21, P22, P23, P24, P25, P26, P27, P30
	Story 6: P4			
	Supportive industrial situational conditions	Beginning: unembedded newcomer	I came from an engineering background and did not know management knowledge. This is a new challenge for me, like working as a management role with a new environment. At the start, I felt less confidence in doing this position and less confidence in speaking to the business employees...	P4 (associate)
		Supervisory support and open environment: Becoming embedded facilitator	Fortunately, I have very supportive and experienced academic and business supervisor. The academic supervisor helps with my management expertise. The business supervisor is very open about the project to me, ... whether what he feels is beneficial or what issues the company has now. We built a good relationship. It provides a push for my personal development and confidence in doing this job.	P4 (associate)
		Empowering authority and supporting embeddedness: Becoming embedded facilitator	In the beginning, I introduced him (the associate) to my employees and empower him with authority to deliver the projects. Everyone in the organisation is clear. So, he is able to investigate the business and communicate with the staff about the project. He's got very supportive people around him ... We've also gotta let him find the solutions even though we may already know them. It helps him to grow within the project. Now, he could identify and solve barriers independently and have more confidence in communicating his insights with different people	P5 (P4's business supervisor)
			The ability to allow the associate to have some autonomy to move around those barriers; to explore those barriers, to question those barriers and to look towards the company to help solve those barriers.	
			I am supporting associate to communicate about the project. That's part of his development is to communicate the project, not just communicate that 'this is the project', communicate the benefits and show people what you're doing and just keep people interested	
			in the first three months of the project, I had quite clear resistance from the Management Director as to the way the project was going. They wanted to be more functional. And this wasn't something identified until two or three months into the project...while I was trying to adapt the culture, and build a more resilient organization, and bring people on board with this continuous improvement strategy to develop and keep improving the business model.	P4 (associate)