

KTP Associates: Facilitators and Hindrances of Knowledge Transfer for University and Industry Collaboration Projects?

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Abstract: In University-industry collaborations, boundary spanners play a key role in knowledge transfer between different individuals. Management Knowledge Transfer Partnerships (mKTPs) are significant university-industry collaborations in the UK, however, limited scholarly attention has been given to their boundary spanners. This paper aims to explore this role in knowledge transfer in university-industry collaborations. Thirty respondents from four groups of KTP actors involved in mKTPs were interviewed: eleven academics, nine business supervisors, seven KTP associates and three KTP advisors. Using Gouldner's framework of Locals and Cosmopolitans, this study identifies four distinct boundary spanner roles that KTP associates play in knowledge transfer: the dedicated facilitator, true bureaucrat (change controller), empire (career) builder and outsider. The dedicated KTP associates recognise the knowledge and individuals within the host organisations, perceiving themselves as essential boundary spanners in knowledge transfer between universities and businesses. In contrast, some KTP associates describe themselves as outsider, isolated from host companies, thereby disengaging in knowledge transfer. The true bureaucrat (change controller) and empire builder present contingent boundary-spanning roles, with their engagement in knowledge transfer being context-dependent. When provided with sufficient support from academic and business supervisors, such as leadership and opportunities for individual career growth, KTP associates are committed to the current boundary-spanning roles of mKTPs, thereby engaging in knowledge transfer, similar to the dedicated facilitator (a positive dynamic). Conversely, in the absence of such support, they will disengage or selectively transfer knowledge, gradually becoming outsiders of mKTPs, obstructing knowledge transfer (a negative dynamic). The identified four roles and their dynamics have demonstrated different influences on knowledge transfer: facilitation, hindrance or contingent context-dependency. Based on these findings, this paper develops a conceptual framework that offers novel insights into boundary spanners by revealing a multifaceted, dynamic, context-dependent nature in knowledge transfer. The paper offers important implications for research on boundary spanners and university-industry collaborations.

Keywords: KTP associates, Boundary spanner, University-industry collaborations, KTPs, Knowledge transfer (KT)

1. Introduction

In University-industry collaboration (UIC), boundary spanners play a key role in knowledge transfer (KT) (Rossi *et al.*, 2022; Pattinson and Dawson, 2024). They act as intermediaries, bridging people in different contexts to enhance KT (De Wit-de Vries *et al.*, 2019; Hakami, Pradhan and Mastio, 2022). However, KT in UICs is not always successful due to the differing priorities of people in varying contexts (De Wit-de Vries *et al.*, 2019; Rossi *et al.*, 2022). For instance, academics pursue theories whereas industry partners seek profit-driven knowledge (De Wit-de Vries *et al.*, 2019; Tootell *et al.*, 2021; Rossi *et al.*, 2022). These differences can create conflicts between partners and put pressure on boundary spanners (Goodrich *et al.*, 2020). Moreover, a lack of recognition and power imbalance can cause the social isolation of boundary spanners (Goodrich *et al.*, 2020; Tootell *et al.*, 2021). Such challenges reduce their motivation to facilitate KT between academic and industry partners (Tootell *et al.*, 2021; Hakami, Pradhan and Mastio, 2022).

Existing research on boundary spanners in inter-organisational collaboration falls into two main streams. The first one views boundary spanning as organisational-level practices or processes, such as KT, as it is affected by organisational or contextual factors (Schotter *et al.* 2017; Rossi *et al.*, 2022). The second draws on individuals, examining their abilities, characteristics and network roles (Dolmans *et al.*, 2022; Pattinson and Dawson, 2024; Zobel, Falcke, and Comello, 2024). Ryan and O'Malley (2016) proposed a more detailed division from a knowledge exchange perspective: network builders, mediators and entrepreneurs. In a recent study, Zobel, Falcke, and Comello (2024) also suggest that effective KT requires boundary spanners to adapt their engagement dynamics based on the context, rather than applying a one-size-fits-all approach. Despite this, most studies treat boundary spanners as a one-size-fits-all and static role with dual responsibilities of internal and external engagement for KT (Ryan and O'Malley, 2016; Zobel, Falcke, and Comello, 2024). Various contexts give rise to a need for different profiles of boundary spanners; thus, no single form meets the varying needs and social realities of differing contexts (van Meerkerk and Edelenbos, 2018). Therefore, Fragundes and Gasparetto (2023)

suggest that further research still needs to study different boundary-spanner individuals' behaviours and their influences on the performance of inter-organisational partnerships, such as KT or innovation.

Knowledge Transfer Partnerships (KTPs) or management KTPs (mKTPs) are significant UICs in the UK, driving innovation in products, services and business functions (Rossi, Rosli and Yip, 2017; Ates *et al.*, 2024). Each partnership consists of a core team: an academic, a business supervisor, a KTP associate, and a KTP advisor who is a government representative monitoring the project (White *et al.*, 2019). The KTP associate acts as the boundary spanner, bridging the academic and supervisors by facilitating KT, managing relationships and project operations (White *et al.*, 2019; Ates *et al.*, 2024). Yet, extant research on KTPs or mKTPs has focused on the enablers, barriers and impacts on knowledge creation, offering limited insights into the specific role of KTP associates (De Wit-de Vries *et al.*, 2019; White *et al.*, 2019; Ates *et al.*, 2024). Conceptualising KTP associate as a one-size-fits-all role overlooks how their actions shape and are shaped by the complex dynamics of KT in practice. Therefore, this study aims to explore the roles of KTP associates and their influences on KT within mKTP projects.

To guide the aim of this study, we raise the following research questions:

RQ1: *What roles do KTP associates play in KT within mKTPs?*

RQ2: *Why do they have these roles?*

RQ3: *How do they influence KT?*

2. Literature Review

2.1 Boundary Spanners in Inter-Organisational Partnerships

The concept of boundary spanner is well established in organisational studies but lacks a single agreed definition. How this concept is understood often depends on the differing functions emphasised (Fragundes and Gasparetto, 2023). Boundary spanner emerged in early organisational sociology to describe individuals who work between an organisation and its external environment (Gouldner, 1957; 1958). Gouldner (1957) introduced this idea as 'cosmopolitans' and 'locals' within organisations, where cosmopolitan professionals were more loyal to their profession and locals were more committed to their organisations. Tushman and Scanlan (1981) further explained this idea by identifying two main tasks: gathering external information and sharing it internally. They argued that KT can only happen effectively when individuals are well-connected both inside and outside the organisation. Their work has influenced later research into inter-organisational collaboration and UIC.

William (2002) defined boundary spanners as a dedicated role to support collaboration between diverse agencies and interests. He identified two important boundary-spanner roles in inter-organisational relationships: network managers who build relationships, and policy entrepreneurs who connect problems to solutions. In his later study, William (2012) argued that boundary spanners can take many forms, including dedicated, leaders, managers and frontline professionals, and each appreciates the many different purposes of their roles. Ryan and O'Malley (2016) further outlined three important roles: 1) *network builder* who maintains relationships across organisational boundaries, creating communication channels; 2) *entrepreneur* in charge of identifying opportunities for innovation; 3) *facilitator/mediator* responsible for managing and addressing conflicts and ensuring cultural and objective alignment. Their findings highlight the relational and dynamic nature of boundary spanners in KT and innovation along with processes of ongoing problem-solving and relationship development.

Boundary spanners also encounter various challenges. Working in a complex environment involving different rules, structures and stakeholders can create tension and ambiguity (William, 2012; Tootell *et al.*, 2021). In such cases, boundary spanners may retreat to their own organisation's interests, withdraw support for collaboration or even remove dedicated boundary-spanning posts, thereby these actions can hamper KT and collaborative projects (William, 2012). These issues are also observed in UIC, where universities act as key external sources of knowledge for innovation in organisations (Goodrich *et al.*, 2020; Mattin and Ibbotson, 2021; Pattinson and Dawson, 2024). Goodrich *et al.*, (2020) identified key attributes of boundary spanners in UIC, including communication skills, relationship-building abilities and cultural awareness. Despite their important role, boundary spanners in UICs often lack formal recognition and clear career paths, which can affect their motivation and engagement in KT (De Wit-de Vries *et al.*, 2019; Goodrich *et al.*, 2020; Tootell *et al.*, 2021).

Mattin and Ibbotson (2021) use the concept of identity work to explore how university staff act as boundary spanners by adapting to internal and external requirements through interaction and learning. Similarly, Pattinson and Dawson (2024) revealed that individual and collective boundary spanners connect people across organisational and disciplinary boundaries, which is essential for encouraging collaborations and supporting KT within science-based SMEs. These findings emphasise that boundary spanners facilitate KT from external organisations (e.g. universities) to local organisations (Goodrich *et al.*, 2020; Pattinson and Dawson, 2024), which reflects Gouldner's (1957) idea of cosmopolitan (externally focused) and local (internally focused). Because of this, several researchers revisit this early discussion to explore boundary spanners in KT. For instance, Dahlander, O'Mahony and Gann (2016) discovered that people who rely on internal networks (locals) can be as innovative as those who explore widely outside (cosmopolitans), but only when the latter truly engage with their external contacts. This suggests that successful KT is driven not only by many outside connections but also by how people spend time and attention internally. Although some recent studies do not use the terms 'locals' and 'cosmopolitans', they also explore boundary spanners through a similar discussion—internal and external engagement for KT (Zobel, Falcke, and Comello, 2024). Zobel, Falcke, and Comello (2024) conclude that frequent switching between internal and external engagements helps transfer clear knowledge but makes it harder to process complex and specialist knowledge. Less frequent switching appears better for transferring hard-to-share knowledge. This demonstrates that boundary spanners need to adapt their engagement dynamics for KT based on the contexts, rather than applying a one-size-fits-all approach. Nevertheless, while many studies focus on the internal-external (local-cosmopolitan) divide, this binary view may not fully explain multiple boundary-spanner roles in KT and why they behave as they do. Gouldner (1958) expanded the local-cosmopolitan framework by examining six types of social roles, offering a more detailed approach to understanding how professionals commit to and engage with different tasks and people. Hence, using the full local-cosmopolitan framework could provide more exploratory possibilities of the roles of boundary spanners in KT for this study.

2.2 Local-Cosmopolitan Framework and six Latent Social Roles

Gouldner's (1958) local-cosmopolitan framework offers a valuable lens for understanding individuals' professional roles, identities and engagement in varied organisational activities. 'Local' roles include the dedicated, true bureaucrat, home guard and the elders, characterised by internal relationships and organisations (van Meerkerk and Edelenbos, 2018; Stephens, van Steden and Schoonmade, 2024). Specifically, *the dedicated* identifies with organisational values, emphasising collective goals over personal preferences (William, 2012). *True bureaucrat* advocates for changes to address external pressures, often prioritising control over others (Petchey *et al.*, 2007). *Home Guard* has the lowest level of professional commitment but remains individually loyal to the organisation and existing relationships, because of their past experiences. *The elders* are typically the most experienced and long-standing members, deeply committed to the organisational relationships (Gouldner 1958).

'Cosmopolitans', which include *outsiders* and *empirical builders*, focus on self-interests and external career possibilities (Fuller *et al.*, 2009). *Outsiders* view themselves as separate from organisational relationships and therefore unwilling to engage with individuals within organisations, while *empire builders* pursue better career opportunities from external, leading them to explore possibilities elsewhere (William, 2012). Both prioritise personal goals, resulting in less emphasis on engaging in organisational internal activities (Fuller *et al.*, 2009).

Prior studies on inter-organisational collaboration describe boundary spanners in two roles: locals and cosmopolitan: 'cosmopolitans' who acquire knowledge externally and 'locals' who rely on internal knowledge (Dahlander, O'Mahony and Gann, 2016; Zobel, Falcke and Comello, 2024). This distinction highlights where boundary spanners access knowledge, which is relevant to UICs, where KTP associates undertake acquiring and transferring knowledge between university and business partners. It evidences that knowledge boundaries are viewed as organisational divisions separating universities from organisations (Goodrich *et al.*, 2020; Mattin and Ibbotson, 2021). However, from a sociological perspective, boundaries are not just structural, but they depend on whether individuals identify with the organisations or not (Schotter *et al.* 2017). UICs are collaborative partnerships where different stakeholders work together to co-create knowledge for common goals (De Wit-de Vries *et al.*, 2019; Tootell *et al.*, 2021). So, the boundary between university and business becomes blurred. In this context, successful collaboration depends not only on KT but also on how boundary spanners identify with the project and engage with other actors (Goodrich *et al.*, 2020; Pattinson and Dawson, 2024). Gouldner's (1958) six roles contribute to explaining different types of identification (commitment) and engagement that individuals bring to the collaborations.

Additionally, Gouldner's (1985) framework is useful for analysing individual behaviours in environments where internal tensions and conflicts exist, such as within KTPs or mKTPs (De Wit-de Vries *et al.*, 2019). KTP associates often have to navigate between collective goals and self-preservation, their commitment may be influenced by how others perceive their role, whether as cosmopolitans or locals (Fuller *et al.*, 2009). When encountering unfairness or power imbalances, they may prioritise self-interests, which can hinder their engagement in KT (De Wit-de Vries *et al.*, 2019; Tootell *et al.*, 2021). Moreover, individuals mainly driven by financial rewards tend to show lower commitment to boundary-spanning roles (Keller and Holland, 1975). Hence, in this context, this framework is helpful for this study, as it supports deeper insights into how different individuals commit to and engage in KT within complex, project-based environments, like KTPs or mKTPs.

3. Research Approach

This paper employs an inductive qualitative approach to explore the experience of individuals involved in mKTPs, focusing on KTP associates' roles in KT within such collaborations. While the research mainly focuses on KTP associates, considering the nature of this role in interacting with other actors, such as academics, business supervisors and KTP advisors should be included (White *et al.*, 2019). Participants were initially selected through purposeful sampling, based on their participation in mKTPs. Afterwards, we asked the participants to recommend others for subsequent interviews, which followed a snowball strategy. It guarantees a holistic view of the research (Creswell 2013; Easterby-Smith, Thorpe and Jackson 2021). Using snowball sampling, the data collection and participant selection co-occurred, and this process lasted fifteen months (May 2022 – August 2023). In total, thirty participants from four distinctive groups were interviewed (see Table 1). All the participants are referred to by pseudonyms.

Table 1: Summary of the demographic profile of the participants

Name (code)	mKTP code	Gender	Role	Duration in mKTPs	Project stage	Sector located
Robert	Project 1	Male	KTP associate	3 years	Late stage	Construction
Juliet	Project 1	Female	KTP manager	4-5 years	all stages	Various
Alice	Project 2	Female	KTP associate	1.5 years	Late stage	Construction
Luke	Project 3	Male	KTP associate	1.5 years	Late stage	Energy
Andrew	Project 3	Male	Business supervisor	5 years	Late stage	Energy
Rach	Project 4	Female	KTP associate	1.5 years	Middle stage	Housing
Angela	Project 4	Female	Academic	1.5 years	Middle stage	Housing
Christina	project 5,6,7	Female	KTP advisor	5 years	all stages	Consultation
Peter	project 1,2,3,4,10,11,12, 13,14	Male	KTP advisor	5 years	all stages	Consultation
William	project 8,9	Male	KTP advisor	5 years	all stages	Consultation
Emily	Project 4	Female	Academic	1.5 years	Middle stage	Housing
Samantha	Project 5	Female	Business supervisor	2 years	Middle stage	warehouse technology
John	Project 4	Male	Business supervisor	1.5 years	Late stage	Housing
Adan	Project 1	Male	Business supervisor	2 years	Late stage	Construction
Steve	Project 2,5,6,7	Male	Lead academic	4.5 years	all stages	Various
Carrie	Project 1	Female	Academic	6 months	Completed	Construction
Mark	Project 6	Male	Academic	4 years	Completed	Consultation
James	Project 1,3,4,8,9,11,12	Male	Lead academic	4.5 years	all stages	Various
George	Project 7	Male	Academic	3 years	Completed	Social enterprise digital marketing
Joseph	Project 8	Male	Academic	1 year	Completed	digital marketing
Miranda	Project 9	Female	KTP associate	2 months	Early-stage	Biotech
Jennie	Project 9	Female	KTP associate	5 months	Early-stage	Biotech
Daniel	Project 10	Male	KTP associate	3 months	Early-stage	manufacturing
Sarah	Project 11	Female	Academic	3 years	Completed	manufacturing
Romeo	Project 12	Male	Academic	1 year	Middle stage	Housing
Lily	Project 10	Female	Business supervisor	2 years	Early-stage	manufacturing
Bob	Project 9	Male	Business supervisor	1.5-2 years	Early-stage	Biotech
Simon	Project 10	Male	Business supervisor	1.5 years	Middle stage	Legal service
Rose	Project 13	Female	Business supervisor	1.5 years	Middle stage	Not-for-profit enterprise digital marketing
Jack	Project 14	Male	Business supervisor	8 months	Middle stage	digital marketing

A semi-structured interview protocol was developed from the extensive literature review, which aimed at participants' roles and their experiences in enabling and hindering mKTPs. Each interview lasted 30-100 minutes and was recorded via Microsoft Teams. After the interviews, the transcripts were reviewed verbatim by two researchers (the interviewer and an experienced professor). We sent them to participants for verification. Once participants returned the transcripts with their comments, the updated versions were used for further analysis.

The data used in this paper stemmed from the entire dataset based on novel stories identified during the analysis. Thematic analysis with an inductive approach was used for data analysis (Creswell 2013), which was completed by two researchers. In stage 1, we used open coding to create a list of codes based on the words used by participants, ensuring the accuracy and consistency of the data. After comparing the open codes, we grouped similar ones together (Braun and Clarke, 2006). In this process, we identified a novel storyline that focuses on the role of KTP associates within mKTPs, which has been limited in current literature. As such, the subsequent analysis drew on this topic. In stage 2, based on the new scopes---KTP associates and their engagement in KT, we initially found four themes: (1) facilitators (2) Change Controllers, (3) Career Builders, and (4) Outsiders. Through a cyclical analysis and refinement, a new theme--- the dynamics of the four KTP associates, was discovered. Therefore, apart from the former four themes, we added the new themes as the fifth theme.

4. Main Findings and Discussion

4.1 Facilitators (the Dedicated Facilitators)

The findings reveal the four KTP associate roles that influence their engagement in KT within mKTPs. Foremost, the facilitators are characterised by KTP associates recognising their mKTPs. As Robert, a KTP associate, stated: *"It's useful to make the project my own and take elements from it"*. This recognition enables KTP associates to facilitate KT, for example, *"bring all of the actors together to have a meeting to keep every onboard"* (Rach, a KTP associate) or *"having lunch, having a coffee with employees"* (Robert, a KTP associate). Their efforts ensure *"people feel they can be trusted and then can trust others"* (Simon, a business supervisor), enabling KT.

The facilitators in mKTPs align with Ryan and O'Malley's (2016) two boundary spanners roles: network builder and mediator (facilitator). In intra-organisational arrangements, boundary spanners have to translate information for them to ensure their perceptions are aligned (Ryan and O'Malley, 2016). The findings indicate that their engagement in KT stems from their identification with the project. Drawing from Gouldner's (1958) concept of the dedicated, this type of KTP associate can be seen as the dedicated boundary spanners, committed to shared goals and relationships in work environments (William, 2012; Stephens, van Steden and Schoonmade, 2024).

4.2 Change Controller (True Bureaucrat)

The second role, change controller, involves KTP associates managing changes in mKTPs, such as personnel shifts and adjustments in working methods. To facilitate associates, business supervisors *"empower an authority to him (KTP associate) to deliver the project and manage changes"* (Andrew, a business supervisor). Whereby leadership, associates are able to *"organise a project team meeting to manage conflicting perceptions due to changes, with the university and company supervisors altogether"* (Daniel, a KTP associate). In this way, they can help communication and KT between two partners. However, excessive leadership can make associates feel like they *"own the project"* (Rach, a KTP associate), leading to dominance over knowledge resources and ignoring others' valuable knowledge. *"Things are being heard that want to be heard. What the associate doesn't want, they're not heard... She (associate) is trying to give the academics the tasks to do. She's missing the fact that's not what the mKTP is. So, I hold my knowledge back."* (Emily, an academic). Such control can harm academics' commitment to KT. Additionally, losing leadership can get associates frustrated, *"as I detect everything happening in the company. I know better than university supervisors"* (Daniel, a KTP associate). This lack of acknowledgement can diminish their engagement in KT.

Change controller, involves KTP associates managing changes within mKTPs and addressing the resulting challenges. Business supervisors empower associates with leadership, enabling them to communicate with different individuals and make them accept changes through control (De Wit-de Vries et al., 2019; White et al., 2019; Ates et al., 2024). KTP associates contribute to KT. However, excessive control by KTP associates can produce a sense of project ownership, leading to restriction of information and control of academics. This obstructs KT from academics (De Wit-de Vries et al., 2019; Tootell et al., 2021; Hakami, Pradhan and Mastio, 2022). According to Gouldner's (1958) concept of the true bureaucrat, who favours control to address external pressures, the study highlights leadership or control as defining traits of a change controller. Despite the control

characteristic, a true bureaucrat values internal organisational groups over external ones (Petchey *et al.*, 2007). In this study, associates embedded within businesses are better positioned to understand business and manage changes, often expecting their knowledge to drive these processes. These behaviours, rooted in goodwill for collective success, aligned with the characteristics of a true bureaucrat.

4.3 Career Builder (Empire builder)

The third role, career builder, describes KTP associates who focus on their career development. When they do not see career benefits, they are less willing to engage in KT. For example, one associate shared: *"I felt like quitting because it's hard to see how this is benefiting my career...that's where it's easier to bring them (academics) into the company at the right time to share knowledge with the right stakeholders, rather than expecting the associate to do all of that"* (Rach). This aligns with Keller and Holland's (1975) findings that individuals motivated by economic rewards are less committed to undertaking boundary-spanning practices. Hence, associates disengaged in KT and even *"left after 12 months and took a job in academia. The project did not go to the end"* (Sarah, an academic). This behaviour can be seen as a self-interest behaviour to seek a better opportunity outside of the current project, jeopardising KT (Tootell *et al.*, 2021).

Nevertheless, if supervisors help associates develop their professional skills in mKTPs, the associates perceive the project as *"a valuable opportunity for personal development"* (Luke, a KTP associate). Consequently, this can strengthen their dedication to KT, similar to the helper role. Based on the concept of empire builders, individuals dissatisfied with careers within organisations may seek possibilities elsewhere (Fuller *et al.*, 2009). In this research, whether KTP associates stay or look for new careers, their focus remains on advancing their careers, linking to the characteristics of empire builders. When their career goals are aligned with mKTPs, KTP associates are more engaged in and facilitate KT; otherwise, they may seek a better job in other contexts, which hinders KT within the mKTPs.

4.4 Outsiders

KTP associates perceive themselves as an outsider of the host organisation because *"You're in working in a company, but you're not employed by that company"* (Robert, a KTP associate). As such, when KTP associates attempt to engage with the employees of the host company, they may say *"No, I am busy"* (Peter, a KTP advisor) to reject the request of KTP associates. This results in associates' feelings of disconnection in mKTPs (William, 2012; White *et al.* 2019). Over time, *"there was such a reluctance from the associate to speak to other people even if I tried to get people talking"* (Emily, an academic). Another academic experienced a similar situation. *"My associate was less willing to get involved in the day-to-day running of the company and the employees. He was heavily reliant on emails for KT, rather than conversations, workshops, and discussions. I couldn't keep up with the email thread"* (Sarah). This destroys KT channels between universities and businesses. According to the concept of outsiders, individuals who feel detached from work networks are less willing to engage in activities within the current environment (William, 2012). The outsider-type of KTP associate aligns with this concept and hinders KT in mKTPs.

4.5 Dynamics of KTP Associates

A novel finding reveals the dynamics among the four roles. At first, when supervisors empower them to lead project changes, true-bureaucrat associates may transition into the dedicated facilitators because they believe their knowledge can contribute to the project rather than just personal gain. The leadership allows them to manage changes and support KT in mKTPs. Similarly, when empire-building associates receive professional development, they will align their careers with mKTPs. Thus, they become more willing to facilitate KT, as the facilitators do (William, 2012; Ryan and O'Malley, 2016).

The results highlight the interaction between empire (career) builders and outsiders. When KTP associates view themselves as outsiders, they lose interest in KT and may explore other career opportunities (Tootell *et al.*, 2021). Likewise, if associates do not receive career benefits from mKTPs, over time, they will disengage in communication and KT within mKTPs and become outsiders (William, 2012; Tootell *et al.*, 2021). However, the consequences suggest that support from supervisors, such as helping associates know organisational employees, especially early in the project (De Wit-de Vries *et al.*, 2019), can help them become one part of the mKTPs. Over time, they evolve into the dedicated facilitators.

Lastly, the findings leave some indications about the dedicated facilitators. If KTP associates are excluded from organisational relationships or cannot obtain recognition and support from supervisors (e.g. leadership or skill development), their engagement in KT may erode (William, 2012; White *et al.* 2019; Tootell *et al.*, 2021). Over

time, the dedicated facilitators may transition into other roles: outsiders, true bureaucrats and empire builders. Hence, this indication implies two dynamics--positive and negative. Positive dynamics occur when KTP associates shift toward the facilitators in KT, while negative dynamics refer to the transition toward outsiders or empire builders, disengaging and hindering KT.

According to the above description, a framework is developed to illustrate the dynamics among four KTP associate roles and their influences on KT, as shown in Figure. 1. The core of the framework represents KTP associates, with the four roles in separate quadrants around: The green quadrant depicts the dedicated facilitators who identify with their current boundary spanning role in mKTPs and committed to engaging and facilitating KT between universities and companies; the orange quadrant means that KTP associates view themselves as outsiders from the host company or even the project, thereby disengaging in KT; as both true-bureaucrat and empire-building KTP associates show contingent influences on KT based on varying situations (either facilitate or hinder KT), they are filled in the same yellow colour in the quadrants.

The inner black arrows mean the dynamics among the four roles of KTP associates depending on the different contexts. The outer-above green arrows indicate positive dynamics that enable KT between universities and companies when KTP associates who request leadership (true bureaucrat) or opportunities for personal career growth (empire builder) or perceive themselves as an outsider, transition toward the dedicated boundary spanners; while the outer-below red arrows represent negative dynamics that hinder KT as empire-building and true-bureaucrat KTP associates shift toward outsiders.

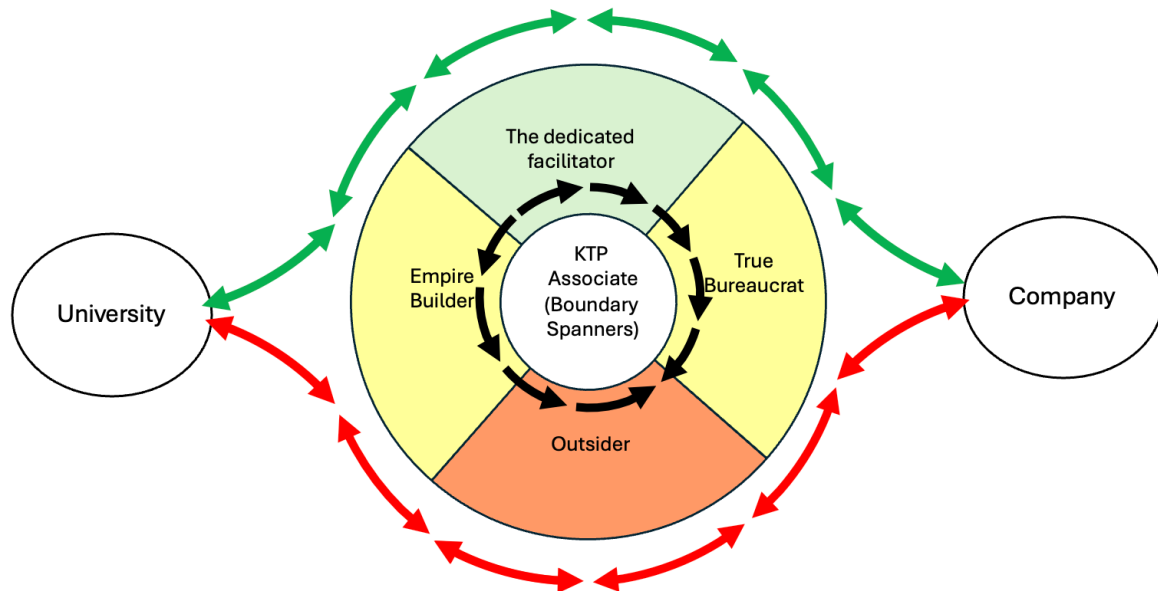


Figure 1: Framework of Four Boundary Spanning Roles in University-Industry Collaboration and Their Dynamics

5. Contributions

Our findings make several contributions to the literature on KT and boundary spanners in UICs by exploring the KTP associates' role in mKTPs. Foremost, exploring the four KTP associate roles and their underlying reasons addresses RQ1 and RQ2. Using Gouldner's (1958) framework helps to conceptualise the multifaceted roles of KTP associates based on their engagement in KT in mKTPs. When associates engage internally, they act as the local boundary spanners, such as the dedicated facilitator and change controller. Conversely, when they attempt to engage with opportunities externally or disengage in internal KT, they adopt cosmopolitan roles, such as career builders and outsiders. Prior literature on UICs and KTP/mKTPs on boundary spanners and KTP associates have often regarded it as a one-size-fits-all static role in KT within UICs (e.g. De Wit-de Vries *et al.*, 2019; White *et al.*, 2019; Goodrich *et al.*, 2020; Mattin and Ibbotson, 2021; Ates *et al.*, 2024). Nevertheless, the present study expands this understanding by identifying four roles: the dedicated facilitators true bureaucrats, empire builders and outsiders based on different personal and contextual reasons. Therefore, this paper contributes to emphasising that KTP associates are multifaceted and context-dependent boundary spanners in KT.

Moreover, by exploring these four roles, this study reveals the positive and negative dynamics of KTP associates in mKTPs, which offers a novel insight into the literature on boundary spanners. A framework has been developed to demonstrate these dynamics influencing KT. By large, the dedicated associate is a facilitator of KT, while the outsider is a hindrance. The true bureaucrat and empire builder play a contingent role in this process within UICs. Positive dynamics occur when true bureaucrats, empire builders and outsiders transition toward the dedicated, KT will be enabled. In contrast, negative dynamics emerge when true bureaucrats and empire builders shift toward the outsider, KT will be hindered. These consequences and the framework address RQ3: *How do they influence KT?*

The dynamics of KTP associates in KT challenge the majority of previous research on KTPs and UICs that depicts boundary spanners as a static role with dual responsibilities or functions of internal and external engagement for KT (e.g. De Wit-de Vries *et al.*, 2019; White *et al.*, 2019; Goodrich *et al.*, 2020; Mattin and Ibbotson, 2021; Ates *et al.*, 2024). The results regarding positive and negative dynamics reveal the dynamic and context-dependent nature of boundary spanners in UICs, contributing to the literature on boundary spanners and the studies of KT in inter-organisational partnerships and UICs.

This paper also offers practical implications. This study emphasises the importance of KTP associates in KT due to their positioning between university and business. This provides them with more opportunities to communicate with project members, compared to academics and business supervisors (White *et al.*, 2019). If this role fails to engage in KT for both partners, the collaborations may be problematic. Therefore, support from supervisors is essential to help KTP associates become the dedicated facilitators (De Wit-de Vries *et al.*, 2019; White *et al.*, 2019). Supervisors can empower associates through leadership and professional development; thus, associates will bond personal growth with projects and be willing to undertake their duties as the boundary spanner in UICs. Moreover, the presence of outsider roles suggests the importance of supervisors creating a supportive environment, especially early in the project (De Wit-de Vries *et al.*, 2019; Dolmans *et al.*, 2022). An initial lack of trust and unclear objectives can impact associates' engagement in subsequential KT (De Wit-de Vries *et al.*, 2019). Supervisors' support can help KTP associates adapt to organisational life and connect with organisational employees. Over time, they will see themselves as one part of mKTPs, thereby transitioning into the dedicated facilitator.

6. Conclusion, Limitations and Future Research Avenues

The paper employs Grouldner's (1958) local-cosmopolitan framework to explore the role of KTP associates in KT within UICs. It highlights that the contexts in which supervisors provide sufficient support (e.g. leadership, opportunities for career development, etc.) shape how KTP associates perceive their roles in their mKTPs, leading them to engage in KT. The engagement behaviours result in four boundary spanner roles: the dedicated facilitator, true bureaucrat (change controller), empire (career) builder and outsider. Importantly, these roles are dynamic, varying according to specific contexts, and their dynamics have different influences on KT in UICs—either facilitating, hindering or influencing it contingently. The findings underscore the dual engagement behaviours of KTP associates in managing relational dynamics.

This research has several limitations. First, while interviews with thirty respondents from four distinct groups provide valuable insights into individual experiences related to KTP associates in KT (Creswell 2013; Easterby-Smith, Thorpe and Jackson 2021), relying on one data collection approach may overlook the interactive factors between KTP associates and other actors during collaboration process (De Wit-de Vries *et al.*, 2019; White *et al.*, 2019). The cross-sectional data may limit the depth of understanding regarding the dynamics (Easterby-Smith, Thorpe and Jackson 2021). Accordingly, the findings on the dynamics of KTP associate roles in KT remain an illustrative step. A longitudinal study with additional data and alternative methods, such as observation, and focus groups, could provide a more comprehensive understanding of these dynamics over time. Second, the focus on mKTPs may limit the understanding of boundary spanners to a broader context of UICs, such as knowledge spins-off, business consultancy activities, etc. Including other collaborative forms could offer a more nuanced understanding of boundary spanners and their dynamics across diverse contexts in the future.

Ethical declaration: This study was granted ethical approval with reference number: 22/LBR/003. All the research progress followed ethical principles. All the participants were informed about the purpose and research process of this study by reviewing the Participant Information Sheets and then signing the Participant Consent Forms. There were no ethical issues throughout this study.

AI declaration: This paper was completed by the authors without the use of AI tools.

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