

Taking the rough with the smooth: a qualitative inquiry into social and cultural practices of knowledge-sharing work in international consultancy alliances

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Abstract

Knowledge sharing in inter-organizational alliances has been predominantly studied by investigating causal influencing factors in tightly-coupled alliances. In contrast, we empirically study how individuals accomplish knowledge sharing activities in the context of various social and cultural differences within a loosely-coupled international business-consultancy alliance. Through an in-depth qualitative case-study approach, we find that the local knowledge-seeking and -accessing partners socially and culturally deal with various influencing factors, through two broad sets of 'knowledge-sharing work'. This includes harmonization development work, and disharmony mitigation work, that are both supported through an accompanying mode of work: auto-learning. These forms of work at the micro (individual and interactional) level, are enabled through modes of communicative interaction, not just strategic action. Further, this work mediates between the influencing factors and the knowledge sharing of the alliances in an iterative and recursive manner. Our findings thus contribute to showing *how* knowledge sharing is enacted in inter-organizational alliances, by highlighting the significance and dynamics of the micro-level social and cultural practices of knowledge-sharing work.

Keywords: Knowledge-sharing work, communicative interaction, inter-organizational alliance, loosely coupled partnership, engineering consultancy, international business, developing country, qualitative research

1. Introduction

A key objective of organizations from developing and emerging countries seeking international business alliances, is inter-organizational knowledge sharing (Grant and Baden-Fuller, 2004, Buckley et al., 2009, Li et al., 2014, Chen et al., 2016). While there is growing research on the topic (Guo et al., 2020, Jiang and Chen, 2018, Liu et al., 2016, Tarba and Cooper, 2016, Vissak et al., 2020, Zhang et al., 2019), we have identified at least three issues in the literature on knowledge sharing in international alliances that have been under-explored.

Firstly, previous studies predominantly adopt an entity- and possession-based view of knowledge, and focus on determining linear and one-way cause-and-

effect relationships between different factors influencing inter-organizational knowledge sharing (Ahammad et al., 2016, Fan et al., 2016, Lee et al., 2020). These studies provide useful insights, but we still know little about how these factors are negotiated and addressed at the micro (individual and interactional) level to enable and facilitate inter-organizational knowledge sharing (Marabelli and Newell, 2014).

Secondly, much of the literature has been in the context of tightly coupled business alliances such as shared-ownership, foreign subsidiaries, or long-term buyer-supplier relationships (Bhatti et al., 2020, Boussebaa et al., 2014, Gulati et al., 2000, Steiner,

2005). As such, we have less understanding of knowledge sharing within ‘loosely coupled’ alliances (e.g. consultancy alliances) that generally involve less equity exchanges and fewer contractual agreements (Steiner, 2005). Indeed, consultancy alliances are viewed as unfavourable for knowledge sharing owing to their ‘loose coupling’, making them a ‘critical case’ (Flyvbjerg, 2001) for examining inter-organizational knowledge sharing activities.

Thirdly, the literature has given relatively little attention to the perspective of local knowledge-seeking partner organizations based within developing or emerging contexts (Bell and Figueiredo, 2012). We consider understanding knowledge sharing processes of such partnering firms to be important as this has been reported to have a direct relationship with business alliances’ success (Iskoujina and Roberts, 2015, Kale and Singh, 2007, Li et al., 2014, Gomes-Casseres et al., 2006). Particularly, since knowledge sharing between individuals and organizations from different socio-cultural and institutional contexts is assumed to be especially challenging (Crespo et al., 2014, Hong et al., 2006, Liu and Giroud, 2016). In light of these research gaps, we specifically ask: *How do ‘local’ individuals negotiate knowledge sharing activities in the context of various social and cultural differences within a loosely-coupled international business-consultancy alliance?*

Our research site, NESPAK, is a private limited engineering consultancy company based in Pakistan. This organization typically forms business alliances with foreign partners to conjointly offer consultancy services on mega-infrastructure engineering projects such as Hydro-Power Dams, Intra-city Metro Train lines, Express Highway Road Networks, Flood Early Warning systems, and others (see Appendix for sample projects). The financial value of some of the studied projects ranged between PKR 146.3 billion to 813.6 billion (approx. £0.6 billion to £3.7 billion), and they lasted between three to ten years.

NESPAK is involved in contextually unique infrastructure and civil engineering mega-projects (in that new civil engineering practices and technologies are adopted and adapted in the particular geography of Pakistan). Knowledge-sharing is necessary in order for the projects to be completed satisfactorily, and the financial costs of failed or stalled projects are substantial for all the alliance partners. This provides another specific advantage of our case i.e. a different and contrasting setting for studying inter-organizational knowledge-sharing, since most knowledge-sharing and innovation studies tend to be

of mass- or batch- manufacturing firms (Bell and Figueiredo, 2012). Similarly, while the construction industry, in general, does not involve the creation of knowledge ‘stocks’ that are ‘new to the universe’ (Chang et al., 2016), the industry tends to involve various couplings and temporary coalitions (Dubois and Gadde, 2002a), making it an apposite field for studying knowledge-sharing activities between partnering firms.

Drawing on our in-depth qualitative case-study, we cast light on the social, cultural and relational practices of ‘knowledge-sharing work’ undertaken at the micro-level within knowledge sharing alliances. We conceptualize these practices of ‘knowledge-sharing work’ with reference to the focus on ‘knowledge work’ as a key feature to understand how individual and organizational knowing and knowledge are produced via situated practices and processes (Gherardi, 2009, Marabelli and Newell, 2014, Blackler, 1995).

We further show how this knowledge-sharing work is predicated on processes of communicative interaction, and not just strategic action, which is often the focus of much of the literature (Buckley et al., 2009, Grant and Baden-Fuller, 2004, Schreyögg and Geiger, 2007, Nicolini, 2009). Also, we highlight the mediating and recursive role of knowledge-sharing work between the various factors that influence knowledge-sharing in loosely-coupled alliances. In so doing, we offer insights into the localised, mundane yet dynamic social and cultural practices within the daily actualization of work that enable the possibilities of knowledge sharing and learning between business partners (Brandt and Elkjaer, 2019).

In the next section, we review the literature on the factors influencing knowledge sharing within inter-organizational alliances, integrating insights from research on ‘knowledge management’, ‘knowledge work’, the knowledge-based view (KBV) of the firm, innovation studies, and absorptive capacity. Section three details our research methods. In section four we present our empirical findings, which will be followed by the discussion section. Section six offers our concluding remarks within which we also present the limitations, future research suggestions, and implications of our study.

2. Theoretical Background

Figure 1 summarises the different types of attributes and factors that provide potential capabilities that may be utilised in different forms of organization-

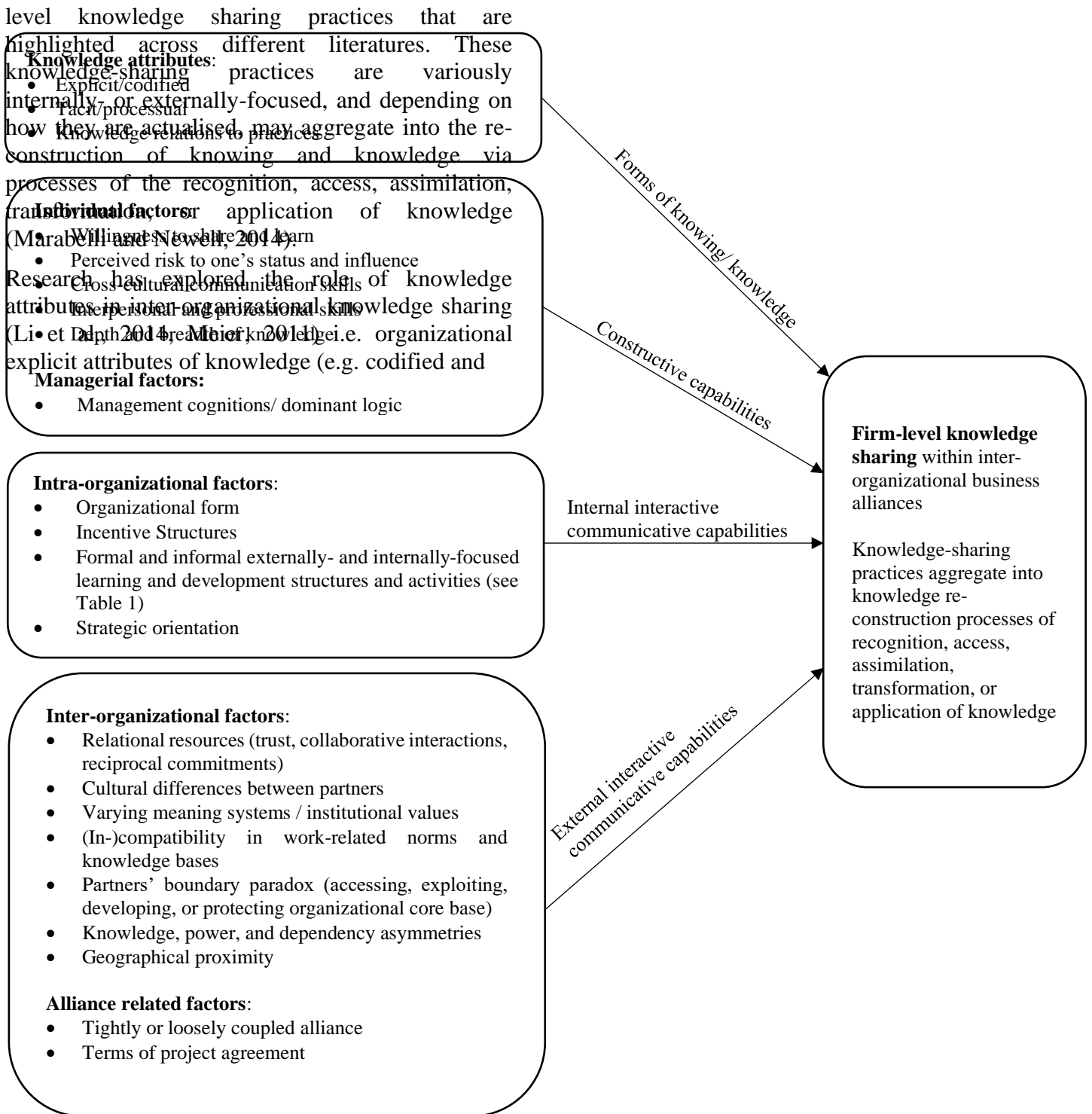


Figure 1: Factors and capabilities influencing knowledge sharing in international consultancy alliances

documented knowledge) and tacit attributes of knowledge which is 'sticky' and ambiguous

(Szulanski, 1996, Teece, 2003). These explicit and tacit attributes of knowledge are further related to

processual and practice attributes whereby knowledge is created and enacted in situated social action (Cook and Brown, 1999a, Brandi and Elkjaer, 2019, Gherardi, 2009). These various attributes of knowledge contribute to distributed capabilities (Hutchins, 1995, Weick and Roberts, 1993) that inhere within different forms of knowing and knowledge-sharing practices (Blackler, 1995). For example, being personally bonded and context-specific, sharing tacit attributes of organizational knowledge tends to be more time-consuming and requires processes of show-how (Roberts, 2000) involving collaborative communications, observations, and 'learning by doing' (see Li et al., 2014).

The role of individuals is also critical within inter-organizational knowledge sharing (Bhatti et al., 2020, Lee et al., 2020, Minbaeva et al., 2018, Meier, 2011) with various related challenges being identified. For example, since knowledge sharing is often considered strategically as a discretionary act that tends to benefit others more than oneself (Cabrera and Cabrera, 2002), individuals could see benefit in hoarding valuable and specialized knowledge (Gerpott et al., 2020, Salk and Simonin, 2011). This may be based on fears of individuals' knowledge and expertise being imitated, or of their status and influence being eroded (Becerra et al., 2008, Hau and Evangelista, 2007).

Further, individually-based factors noted in the literature include the spread of cross-cultural, interpersonal, and professional skills, along with the depth and breadth of knowledge across different individuals, managers and units in an organisation, and the dominant logics inscribed in their practices (Wang and Wu, 2016, Gertler, 1995). Some qualitative studies highlight the significance of socio-cultural dynamics as well as relational resources for knowledge sharing at the micro-level. These studies identify mutual trust, collaborative interactions, reciprocal commitments, as well as cultural approaches to authority and modes of communication, as influencing knowledge sharing amongst alliance group-members (see Ardichvili et al., 2003, Bhatti et al., 2020, Li et al., 2014). While there appears to be consensus regarding language barriers impeding knowledge sharing processes (see Shao and Ariss, 2020), mixed results have been reported regarding the influence of cultural differences amongst individuals in facilitating knowledge sharing (Bresman et al., 2010, Sarala and Vaara, 2010).

Importantly, from a practice-based view of organizations (Gherardi, 2009), assuming knowledge construction is always human-mediated, the individually-based and relational factors and capabilities may be activated or made passive in different situations or by different actions, and are essential for knowledge sharing (Blackler, 1995). Furthermore, *how* these factors and capabilities are activated and put into use, is crucial for the actualisation and enactment of knowledge reconstruction. This has not, however, been the subject of much empirical research (Marabelli and Newell, 2014).

From the intra-organizational perspective, one strand of the innovation studies literature has focussed on how firms in developing or emerging contexts may variously utilise a range of knowledge sharing practices (involving externally-focused and internally-focused activities, see Table 1) to acquire and assimilate knowledge from external sources, and also to internally re-work or generate their own knowledge (Dutrénit, 2000). This is in order to move along the 'innovation chain' i.e. from being imitative or 'follower' innovators to advanced, or 'world-leading' innovators (Bell and Figueiredo, 2012).

Various knowledge management studies have also identified inter-organizational dynamics, including both alliance-specific as well as partner organization-specific dimensions that influence knowledge sharing (Chang and Chuang, 2011, Easterby-Smith et al., 2008, Meier, 2011, Prasarnphanich and Wagner, 2009, Salk and Simonin, 2011). For example, within competitive alliances, business partners face a boundary-paradox (Quintas et al., 1997) i.e. while they seek an inter-organizational relationship to share knowledge and achieve the alliance's common objectives, they also intend to protect their knowledge in order to retain their competitive advantage (Dussauge et al., 2000, Hau and Evangelista, 2007, Inkpen, 2000).

Partnering organizations' varying cultural practices (Tzeng, 2018, Park and Ungson, 2001), knowledge bases, technical vocabularies as well as administrative, and decision-making processes (Devarakonda and Reuer, 2018, Gertler, 1995) and work strategies, are also reported to add burden on knowledge sharing practices (Lyles and Salk, 1996, Zhang et al., 2018). Furthermore, organizations' asymmetric bargaining power, knowledge, dependency relations, and institutional heritage (Chen et al., 2016, Casciaro and Piskorski, 2005), and inadequate absorptive capacity (Easterby-Smith et al., 2008), as well as the terms of reference

between partners (Chen et al., 2016), may also negatively influence the learning and knowledge sharing processes of the alliance (McEvily and Marcus, 2005, Kale and Singh, 2007, Gomes-Casseres et al., 2006).

The KBV of the firm assumes that knowledge is a property of individuals or organizations (Grant, 1996). From this view, the primary role for inter-organizational alliances may not be for the partner firms to *acquire* knowledge or to expand their own core knowledge bases (Buckley et al., 2009, Grant and Baden-Fuller, 2004), which is often an assumption in the literature on absorptive capacity. Rather, alliances may be seen as effective modes of *accessing* partners' knowledge in a joint venture to gain mutual advantage in providing a product or service (Grant and Baden-Fuller, 2004).

Much of this literature, as noted earlier, theorizes inter-organizational knowledge sharing as being motivated and enacted through instrumental- and strategic-rationality. Also, it tends to follow an entity-view of knowledge, and often assumes linear and one-way causal relationships amongst the factors linked with inter-organizational knowledge sharing (Argote et al., 2003, Meier, 2011).

In this research, however, we go beyond the distinctions between possession- and practice- views of knowledge, and of explicit and implicit knowledge, and follow Polanyi's (1966) assertion that 'explicit knowledge must rely on being tacitly understood' (p. 7). We understand knowing as a processual mode of attention or awareness in the service of dynamic human action (Cook and Brown, 1999b, Lave, 1993). Knowledge, in turn, is an accreted form of directing attention which is (re-constructed) through practice, and which is provisional and potentially contested (Blackler, 1995)¹. The possession of knowledge is thus always a product of previous practice (Marabelli and Newell, 2014). In our study, we adopt the understanding that knowledge is simultaneously situated and abstract i.e. it emerges from the '...collective activities and practices actualised jointly and influenced by social, cultural, and material processes and interactions in and through organisational life' (Brandt and Elkjaer, 2019, p.186) and is simultaneously encoded in symbolic and technological structures (Blackler, 1995). We recognize that situated and abstract

knowledge cannot be simply 'transferred' across organizational and cultural boundaries (Easterby-Smith et al., 2008, Volberda et al., 2010), rather, 'sharing' knowledge requires the work of knowledge 'reconstruction' (Marabelli and Newell, 2014). For example, codified explicit attributes of knowledge (e.g. a theorem) have to be materially- and/or symbolically re-made, potentially in a different idiom, whether the theorem is to be applied by an original 'knower' or if someone else is to understand it, repeat it, or acquire it. The reconstruction of knowledge is thus necessary in order for tacit or explicit attributes of knowledge to be re-located and shared to a different time, space, user, or setting.

We conceive knowledge sharing as involving on-going, active cognitive and social processes of human interaction, involving mutual (if not necessarily symmetric) participation, and learning (Roberts, 2000) that 'involves eliciting both explicit and tacit [attributes of] knowledge' (Ryan and O'Connor, 2013, p.1616). Knowledge sharing includes social, relational, and reciprocal practices amongst individuals, symbolic systems, artefacts, collectives and organizations (Brown and Duguid, 1998, Cook and Yanow, 1993, Lave and Wenger, 1991, Wenger, 2010). These practices also 'reflect mixtures of rationalities, emotions, aesthetics, and power' (Brandt and Elkjaer, 2019, p.186).

In this research, we also draw on the societal learning literature (Habermas, 1984, Eder, 2007). This literature, while recognizing the significant role played by strategic rationality, views learning and knowledge-sharing to be fundamentally dependent on communicative interaction. In most cases, strategic rationality is in fact dependent on communicative interaction, for without a level of shared understanding, coordination or strategic action through language or communication cannot occur.

According to Habermas (1984), communicative interaction involves the establishment of joint meaning and understanding, and has a number of necessary internal features. It involves different parties justifying their different claims in relation to their empirical truth (what is the case?), normative rightness (what is morally appropriate in the situation?), and expressive truthfulness (are the claimants expressing themselves authentically?).

¹ We concur with those that delineate conceptual distinctions between knowing and knowledge, and between tacit and explicit attributes of knowledge, and who also note the interplay between these interdependent attributes of knowing/knowledge

(Cook and Brown, 1999, Miller, 2008, Nicolini, 2011). For presentational purposes, however, we primarily refer to just knowledge, although we use the term to encompass tacit and explicit attributes of knowing and knowledge.

These internal features of communicative rationality are grounded in the social character of human communication and evolution (Eriksen and Weigard, 2003).

While much of this literature focuses on rational deliberation, communicative interaction also underpins practical communication and argumentation (Geiger, 2009). It is, however, an underutilised theoretical resource for comprehending the dyadic exchanges and interactions amongst different social actors and knowledge sharing

activities within the actualization of alliance work (Geiger and Schreyögg, 2009, Nicolini, 2009).

Drawing on the societal learning literature (Habermas, 1984, Eder, 2007), we locate our research in the under-explored context of loosely coupled consultancy-alliances where, we argue, the challenges and dilemmas linked with inter-organizational knowledge sharing (see Figure 1) are heightened, and that the alliance-partners are likely to engage in co-occurring processes of knowledge sharing and knowledge protection (Estrada et al., 2016, Guo et al., 2020).

Firm-level learning activities	Illustrative examples
Externally-focussed learning activities	
External training	e.g. training courses; post-graduate programmes
Experience acquisition that requires practice	e.g. simulated designs under supervision
Acquisition of codified knowledge	e.g. accessing articles, theses, books, standards, research reports or patents
Acquisition of ready-made specifications for new products or processes that can be brought into use with limited original design or development	e.g. acquisition or licencing of design details; or acquiring knowledge from consultants
Hiring of 'ready-made' human capital	e.g. 'poaching' of staff; or hiring staff with new skill sets
Accessing R&D facilities or activities	e.g. acquiring R&D facilities from other firms; or knowledge exchange with universities or research institutes
Organisational arrangements for external knowledge acquisition	e.g. membership of trade or industry networks; liaisons with specific organisations; involvement in scientific meetings
Internally-focused learning activities	
Internal training	e.g. internal technical or management training
Various kinds of intra-firm communication of knowledge	e.g. reporting from external training; formal and informal induction and socialisation; 'learning by doing' activities with increasing levels of difficulty
Knowledge articulation and assimilation	e.g. internal technical or management seminars; reporting from external seminars; discussions; recording and discussing experiments or projects
Various forms of experience acquisition	e.g. passive acquisition via involvement in activities; or active exposure to experience-rich opportunities
Knowledge creation by R&D	e.g. provision of an internal knowledge base or activities; or developing research units or activities
Knowledge codification	e.g. documentation of technical or management activities or procedures;
Organisational arrangements for internal knowledge creation, assimilation and codification	e.g. arrangements related to organisational specialisation in specific kinds of activity, arrangements for integrating knowledge across different functional areas in the organisation, and across different fields of specialisation and also across the internal boundaries of the firm.

Table 1: Externally- and internally-focused learning and development activities (Bell and Figueiredo, 2012, p.24-5, Dutrénit, 2000, Figueiredo, 2002, Figueiredo and Cohen, 2019, Figueiredo et al., 2020)

3. Research context and methods

NESPAK was established by the Government of Pakistan in 1973. It has nearly 4500 employees, and had an annual turnover of PKR 8.2 billion (approx. £38 million) in the fiscal year 2018/19 (see NESPAK, 2020). While NESPAK forms project-based alliances with foreign companies to conjointly offer engineering-consultancy services, the ‘...objective of its creation was to create a pool of talented engineers, attain self-reliance in engineering consultancy and replace foreign consultants’ (NESPAK, 2020). This makes NESPAK an interesting research site to study micro-level practices of knowledge sharing as the objective of forming inter-organizational business alliances is not only to deliver engineering consulting services but also to learn from partnering-consultants through project work².

As a semi-state organization, NESPAK has to bid for government project funding, but is in a favourable position to secure funding because of the political desire to enable national economic development. As such, the organization benefits from ‘local content policy’ – policies implemented by many countries to develop the national economy via capacity-building, organisational strengthening, job creation and embedding locally-based firms in international networks and value chains (see Geipel and Hetherington, 2018, Oyewole, 2018). While local content policies have been studied in various countries and in various sectors of industry (e.g. Ngoasong, 2014, Jegede et al., 2013), their potential for influencing knowledge-sharing in international project-based infrastructure alliances has not previously been considered.

In this research, we adopted a qualitative case-study approach (Stake 2006; Flyvbjerg 2006; Charmaz 2000). We also followed Dubois and Gadde’s (2002b) guidance on abductive research that suggests

taking ‘a non-linear, path-dependent process of combining efforts with the ultimate objective of matching theory and reality’ (Dubois and Gadde, 2002b, p.556). This implies moving back and forth between a developing theoretical framework and empirical findings, guided by a specified outline of our conceptions of knowledge-sharing work within international business alliances (see Dubois and Gadde, 2002b for detailed discussion). We followed Patton’s (2014) guidelines on ethical treatment of research data throughout the research.

Using a snowball approach to recruit participants, we interviewed 25 NESPAK engineering consultants. The criteria used for selecting participants were that: a) they should have worked directly with foreign partners on a project, and b) they should have had responsibilities for planning and implementing project-related state-of-the-art engineering technologies (since these involved an incentive for knowledge-seeking). The appendix includes summary data on the pseudonymised participants and the projects in which they participated.

After securing data-collection approvals and consent, the first author conducted semi-structured interviews with the participants during the years 2015-2016. Following ‘systematic combining’ (Dubois and Gadde, 2002b), the interview guide was developed based on the existing literature. The interview questions asked were open-ended but focused on local consultants’ knowledge-sharing work practices with foreign engineering consultants during joint-consultancy work (Charmaz 2000). These questions included: *Is the consultancy alliance sufficiently conducive for the sharing of the required knowledge, skills and engineering activities with you?... How is it conducive or not conducive for knowledge sharing?*

The interviews were conversational in style and the questions asked during the interviews were intended

² The innovation studies literature tends to distinguish between ‘levels’ of knowledge in terms of whether firms are ‘industry-leading’, or ‘latecomers’ in terms of innovation (see Figueiredo 2002; Figueiredo et al 2020). Within these frameworks, the levels of knowledge being shared with, and accessed by, NESPAK would be from ‘intermediate’ to ‘advanced’ in international terms, with NESPAK being the largest and leading engineering construction firm in their market. NESPAK

initiates project ideas and plans before developing these plans with foreign partners; and a number of NESPAK’s projects involve innovations to adapt to local circumstances. NESPAK also accesses public laboratories and Universities; and NESPAK has significant international experience, in that it has contributed to projects in 38 other countries. For the framework used to classify these ‘levels’ of knowledge, see Chang et al. (2016).

to encourage the participants to share their perspective, reflections and experiences of collaborating with foreign partners along with the contextual aspects of the consultancy project (Charmaz 2000). ‘Laddering’ and ‘probes’ (Easterby-Smith et al., 2021) were used for follow-up questions to explore with the participants their actions, assumptions, implicit meanings (Stake, 2006) linked with the dynamics and challenges of knowledge-sharing work. We also asked questions regarding how the participants dealt with the challenges they faced during the joint-consulting project work. As our participants had worked with foreign partners on 12 different mega-infrastructure projects (see Appendix), it offered opportunities to compare, contrast, analyze and describe variation between different aspects of the knowledge-sharing work within the joint-consultancy projects. For example, in our study, variations between the projects included individual factors owing to different NESPAK and foreign consultants being involved, as well as the projects requiring different technical and organisational contents. Intra-organisational factors, learning activities, and the inter-organizational and alliance-factors likewise diverged between different projects.

The participants used English, Urdu, and Punjabi language during the interviews that lasted for 90mins on average. In addition to the interviews, the research data also included the first author’s research-diary notes on the formal and informal observations and interactions with the participants. While we write about data collection and analysis processes sequentially, in practice these were occurring simultaneously (Charmaz 2000; Suddaby 2006). When no new insights or views were emerging from the interviews, the authors decided to stop conducting further interviews.

Grounded theory (GT) is said to be “*most suited to efforts to understand the process by which actors construct meaning out of intersubjective experience*” (Suddaby, 2006, p.634). Our interpretive data analysis approach was guided by the Straussian version of GT (Strauss and Corbin, 1990, Strauss and Corbin, 1998) as well as Easterby-Smith et al.’s (2021) suggestions. In order to develop greater familiarization with the data (Merriam and Tisdell, 2016), the interview audio-recordings and research-diary notes were first translated and transcribed by the first author. Drawing on the literature reviewed for the study, we reflected on the way our participants described knowledge-sharing work activities and events, the roles played by local and foreign

engineering consultants as well as their working relationship. We also reflected on the first author’s notes on the interactions with the participants’ before and after the interview. This was to see if the extant literature along with first author’s reflections and experiences of being in the research field, may spark ideas for data-coding (Charmaz 2000; Suddaby 2006; Dubois and Gadde, 2002b). We also traced the nature of the collaborative project work involved as well as the technological and contextual requirements of the projects in our data analysis. This was owing to our research participants working on different consultancy-project alliances. Based on the accounts of knowledge-sharing instances provided by our participants, we classified them into two broad categories: ‘smooth’ and ‘rough’ instances of knowledge sharing (discussed in the next section).

In the next step of *open coding*, we loaded the transcripts into NVivo11 and broke down the data into open codes (discrete parts and delineating concepts). Based on *line-by-line analysis* to understand the participants’ views (Strauss and Corbin, 1998, p.119), relevant labels were assigned according to the data. Saldana’s (2016) descriptive, in-vivo, process, evaluation, and causation coding methods were used for this open coding. For instance, using process coding, we assigned the code/label ‘*independent working*’ to the data-quote: ‘*I started analyzing Chinese construction codes and comparing them with American and British codes*’.

For the next stage of *conceptualization*, we identified patterns among the codes, and developed categories by grouping ‘*similar events, happenings, and objects under a common heading or classification*’ (Strauss and Corbin, 1998, p.103). The initial categories were developed based on the concepts grounded in the data with their defining properties. Grounded theory required constant comparison of data codes and categories throughout the analysis stage (Charmaz 2000). Following this, we grouped and collapsed the categories based on careful study of their similarity and differences in the process of *axial coding*, and chose labels to closely reflect the meanings of the emerging categories. An example of an axial code is ‘*Norm-building and reciprocation*’ constituted by the categories of ‘*Cultural differences*’, ‘*Cultural adaptability*’, and ‘*Felt obligations*’. The last stage of analysis was *selective coding*, which is “*the process of integrating and refining the theory*” (Strauss and Corbin, 1998, p.143). The emerging core categories were developed as umbrella terms that encapsulate the related concepts, incidents and issues in the data, and offer ‘a

theoretical narrative that has explanatory and predictive power' (Charmaz 2000, 16). For example, the core category of 'Harmonization development work' comprises of 'Direct interpersonal exchange', 'Informal socialization', 'Rational argumentation' and 'Norm-building and reciprocation' categories. As a result of the abductive and systematic combining (Dubois and Gadde, 2002b), we found some context-specific novel findings that allow us to make theoretical statements about the social situation under scrutiny, and about the processes and relationships involved in knowledge-sharing work in joint consultancy project-alliances. These core categories are presented as "the main theme(s) of the research ... (they) consist of all the products of analysis condensed into a few words that seem to explain what 'this research is all about'" (Strauss and Corbin, 1998, p.146).

4. Findings

4.1 'Smooth' and 'Rough' knowledge sharing in alliances

As we present in Table 2 below, in the alliances with predominantly 'smooth' knowledge sharing the participants had mostly positive working relationships and fewer barriers in coordinating, and jointly undertaking project-work with foreign consultants. There was a felt reciprocal obligation between partners to communicate and collaborate in order to achieve alliance-goals. On most occasions, the participants reported that their partner-consultants were willing to share information and knowledge along with collaboratively reviewing and revising the logics, rationales and justification underpinning their project-related mutual decisions, technologies, engineering approaches, etc. The foreign consultants in such alliances also extended support to one another in meeting the client's project requirements. Despite the cultural differences between the partners, our participants described interactive knowledge sharing activities, as one participant said:

'There were discussions on issues, meetings, and joint working as we used to sit in the same room. There were day-long discussions, and they give us feedback and we give them feedback [on project designs, planning, implementation, obstacles etc]. There was lots of knowledge sharing during the design process as we used to spend hours and days on the same points.' [Mohsin]

In contrast to the alliances with predominantly 'smooth' knowledge sharing, there were projects in which collaborative working relationships were significantly lacking. The participants reported numerous challenges in undertaking joint alliance work that included seemingly unprofessional and unsupportive attitudes of foreign counterparts in undertaking project-work, who were seen as being keen on protecting instead of sharing their knowledge (Guo et al., 2020, Estrada et al., 2016). On the other hand, local engineering consultants, who were all qualified engineers (with relevant prior knowledge, work experience and qualifications ranging from Undergraduate to PhD degrees, detailed in the Appendix), desired to collaborate and learn from/with foreign counterparts in the joint alliance work. This was described to be important in order to develop knowledge about project related state-of-the-art technologies and engineering methods, and to assess, discuss and evaluate their compatibility with contextually unique requirements and conditions of mega-infrastructure projects. However, in alliances with predominantly 'rough' knowledge sharing, the foreign partners were reported to expect that their proposed project-related solutions, technologies and rationales were to be simply accepted and implemented by the participants. In such alliances there were fewer knowledge sharing activities as well as collaborative review and constructive discussions during joint project-work between the participants and foreign consultants as was found in smooth knowledge sharing alliances. For example, one participant reported:

'Majid (a participant) asked him (another NESPAK colleague) to find Zhou (foreign consultant) and not to let him leave (office premises) without responding to some queries. The colleague replied that Zhou was not taking phone calls...Majid looked at me and said: 'You see how it is difficult for us to approach and communicate with foreign counterparts.'

Evident in this excerpt is that extended experience of such a 'rough' alliance entailed the development of negative feelings towards the foreign partner.

It is important to note that these 'smooth' and 'rough' instances of knowledge sharing are accentuated representations of the empirical data in order to delineate their contrast. In the data, smooth and rough instances of knowledge sharing were sometimes found within the same project alliance, and there were likewise instances of knowledge-sharing that were arrayed along a continuum between these polar

Knowledge sharing alliance, & its reported characteristics	Sample project	Representative Data
<p><i>Alliance with predominantly 'smooth' knowledge sharing</i></p> <ul style="list-style-type: none"> • reciprocal and collaborative relationship between local and foreign consultants • mutually coordinated project work • compatible work strategies • mutual respect for both partners 	<p>NJHPP project: Neelum river water in Pakistan to be diverted to a power station on Jhelum river through a long tunnel</p>	<p>'There is a symbiotic relationship between us, because completion of the project is to the benefit of each partner. We seek knowledge about new technologies, advances and improvements in the field while sharing input about our local geological, economic and political/ legal conditions. We [both partners] then collectively work to transform technologies according to local specific conditions. So, the contributions of both partners are of great value.' [Shahbaz]</p> <p>'When they (foreign partners) visited Pakistan, we worked together and consulted them, and whenever we had problems, they guided us in return. We also have extensive formal and informal discussions during the lunch or during the working in the same rooms.' [Muneeb]</p>
<p><i>Alliance with predominantly 'rough' knowledge sharing</i></p> <ul style="list-style-type: none"> • lack of collaborative working relationship between partners • language barriers • lack of compatibility within work approaches • unsupportive attitudes of foreign partners 	<p>LOLMT project: to construct an intra-city metro trainline in the provincial capital city</p>	<p>'They don't share knowledge with us. Actually, when they come here, they are considered knowledge donors, so their attitude towards this collaboration and work is very casual. They stay at the Pearl Continental Hotel³, often remain in the hotel and play badminton and swim there... We have to request them many times to come to the NESPAK office to discuss a matter. Then they come around 10 or 11 a.m. and leave the office at 3 or 4 p.m. They are just like tourists so they are enjoying their time here, not working.' [Waseem]</p> <p>'Their emails, construction codes and user interface for their software are all in Chinese and I can't understand anything. Even when they do calculations, write our names and phone numbers and take meeting notes, it's all in Chinese. ... so exchange of required information is largely compromised'. [Abdullah]</p>

Table 2: Alliances with predominantly 'Smooth' or 'Rough' knowledge sharing

experiences. Nonetheless, these 'smooth' and 'rough' instances of knowledge-sharing tended to accumulate into 'smooth' and 'rough' trajectories of knowledge-sharing. It is also important to note, however, that in the studied projects, even the predominantly 'rough' projects were successfully completed according to the project criteria. Thus, In our analysis of knowledge sharing practices within the two broad types of alliance, we identified that our participants negotiated, brokered, and developed knowledge via a number of social and cultural practices of 'knowledge-sharing work'. The knowledge-sharing work encapsulates the work strategies, tactics, activities, cognitive processes and social interactions of individuals as they utilize and address the tensions in knowledge sharing and reconstruction while conjointly performing project-work tasks with foreign partners (see Table 3).

Drawing on the different modes of knowledge-sharing work, within the predominantly 'smooth' knowledge sharing alliances, the local partners were attempting to develop harmonious working relationships with their foreign partners. On the other hand, within the predominantly 'rough' knowledge

knowledge was shared in rough and smooth business-alliance projects, without which the projects could not have been completed.

sharing alliances, the local partners adapted these strategies and tactics, and instead employed modes of knowledge-sharing work to focus more on mitigating the apparent disharmony with the foreign partner. By doing so, the participants variously accessed, applied, acquired, synthesised, and developed different knowledge, skills and practices.

However, in both types of knowledge sharing alliances, there was a strategy of auto-learning, whereby the local partners undertook project work independently both in preparation for the project and during the project. This was to acquire and develop their own project-related knowledge in order to engage productively with their foreign partner, though there was some difference in focus in this learning between alliances with predominantly 'smooth' or 'rough' knowledge sharing. We

³ The most expensive hotel in Lahore.

conceptualize these processes and practices of knowledge-sharing work with reference to the focus on ‘knowledge work’ as a key feature to understand how individual and organizational knowing and knowledge are produced via situated practices and processes at the micro-level (Gherardi, 2009, Marabelli and Newell, 2014, Blackler, 1995).

Modes of sharing-work	Representative data
<i>Harmonization development work</i>	
Direct interpersonal exchange	<p>‘They gave us a presentation about the (revised FEWS) model and its functionality, followed by cross-questioning, debate, discussion, agreement/ disagreement, deliberation and reading project manuals.’ [Yawar]</p> <p>‘We also installed new pressure gauges, tunnel instruments and pore pressure measurement instruments under their supervision, and they trained us while working collectively.’ [Haroon]</p>
Informal socialization	<p>‘I had a very good friendship with one of the foreign engineers. We often played cricket with them ... They used to ask me to arrange a cricket match ... so we used to play [cricket] behind the office building... Further, we often</p>

	<p>arranged hikes and trips to nearby areas which are full of scenic beauty⁴. Such events gave me opportunities to build an association and informal relationship with him, and in return he helped me along the way and discussed many other engineering methods and technologies and the nitty-gritty of each. In normal circumstances, they do not discuss anything beyond routine work'. [Mohsin]</p> <p>'During such events [informal gatherings and dinners, site-seeing and visits], we used to chat with them that enhances our association with them and comfort level, and as a result we feel easy with them.' [Sattar]</p>
Rational argumentation	<p>'We critique their work and they critique our work, and so additional knowledge is shared to convince other party.' [Adeel]</p> <p>'There are technical tasks involved here, and people present their arguments to prove rationality of their preferred engineering methods.' [Manzoor]</p>
Norm-building and reciprocity	<p>'They (foreign partners) are working all over the world, so they are ready to face different cultural norms, and similarly we are also used to dealing with various foreign companies and we are also ready to change ourselves.' [Nasir]</p> <p>'We did not face any issue because of cultural differences. We offer prayer, and they go for lunch. I used to offer prayer during the same lunch break.' [Asad]</p>
<i>Auto-learning</i>	
Desk research	<p>'We examined work and technologies that were used in different cable-car projects developed across the world and the performance of those technologies.' [Adeel]</p> <p>'We consulted literature and [published] text a lot to understand the tunnelling process...Information and knowledge is also available on the Internet in the form of text, pictures and videos ... Apart from this, we had to do a lot of work to collect information about the site as it is highly sensitive, being exactly on an earthquake fault line. So, each member [of the NESPAK project team] worked on their respective part of the consultancy, including studying soil characteristics, rock conditions, reservoirs' dimensions, potential storage for water and its flow and discharge. We then analysed this using different software in order to develop a compatible concept design for the project'. [Shahbaz]</p>
Work involving language barriers	<p>'Chinese engineers have so many apps and modern devices even if we send them text on WhatsApp, their app immediately translates it into Chinese. In meetings, they often record the discussion and points and later translate into Chinese.' [Amna]</p> <p>'We also have interpreters but they are not from an engineering background ...[and] they are unable to translate technical terms...so exchanges of information and knowledge is largely compromised.' [Abdullah]</p>
<i>Disharmony mitigation work</i>	
Confrontation via deliberate 'mistakes' and disagreements	<p>'I would disagree with them [foreign partners] on some argument, they will give me ten more arguments to convince me which increases knowledge sharing.' [Azaad]</p> <p>'I confronted a guy who was reluctant to share even small things [regarding the project]. We had to extract knowledge in any case for project completion. [For this] I remember sometimes I intentionally did the wrong work and tried to get him [foreign partner] to notice it. Once he noticed, he used to make corrections and tell me the right way to do the task and its justification.' [Haroon]</p>
Creating interpersonal obligations	<p>'One MWH engineer was reluctant to tell us about a certain behavior of a turbine part. I remember, we were travelling to the site and had a lunch in a roadside restaurant. [During that] I started discussion on that part and the foreign engineer, I don't know what made him agree, but he shared the required detail while sitting there and during further travelling' [Yawar]</p> <p>'To give them more respect and make the relationships warmer, I invited them [foreign engineering consultants] to dinner at my home and introduced them to my family. They also showed us picture of their families. Similarly, they serve us warmly when we go there. This makes the professional relationship very good at a personal level, which subsequently results in better mutual understanding' [Adeel]</p>

Table 3: Modes of social and cultural practices of knowledge-sharing work

4.2 Harmonization development work

Our analysis indicates that the participants had to make efforts to develop a harmonious working relationship in order to make the alliance run smoothly and be productive for knowledge sharing. They sought to do so via various modes of direct

interpersonal interaction with foreign consultants, informal socialization, engaging in rational argumentation, and developing reciprocal normative expectations between themselves and their partner

⁴ The area where NJHPP is being undertaken is located in Muzaffarabad, the capital of Kashmir. This area is a well-known tourist and recreation area in Pakistan.

4.2.1 Direct interpersonal exchange

Partners would visit each other's offices in-person in order to undertake the alliance-work. Foreign consultants would travel to Pakistan for project-tasks that were critical and required close collaborative work with the local partners. During these stages of the project in particular, there was direct interpersonal exchange. This involved practical demonstrations of installing, using and testing of new state-of-the-art technologies, engineering techniques and methods, observation of project-site conditions (Rooney et al., 2015), training in new software, as well as reviewing and revising each other's project work (Roberts, 2000). One participant told us:

'This was sort of on-the-job training as we worked collectively...and they continuously guided us through practical demonstration of the whole process... The [project] work was performed through seeing and touching turbines' parts, listening to the sounds, observing the working of whole turbines and their parts. It [knowledge sharing] happened through observing foreigners working on it and assisting them in the work. We asked them questions like 'What are the indicators of a part being faulty?', 'What does it look like?' etc. and they answered it through practical demonstration'. [Nasir]

4.2.2 Informal socialization

Along with direct formal project-related interactions, interpersonal relationships and friendships between local and foreign partners were reported in many smooth knowledge sharing alliances, and were said to have an important role for enabling knowledge sharing. Our participants aimed to form informal relationships with foreign engineering consultants as this impacted knowledge sharing activities within the project work. Adeel described:

'We (local and foreign consultants) used to spend time together either on-site, in office or during dinners/lunches. That is an obvious opportunity to develop friendship and informal association, and to discuss the issues in formal and informal ways. There is general discussion on other things as well. There is a cordial relationship [between us], so its benefit is that both partners have good association and understanding of each other and that is necessary for knowledge sharing'. [Adeel]

The informal socialisation involved a number of aspects such as working lunches, project-site visits, reciprocally hosting each other when visiting

respective countries for project work, sharing of traditional food, as well sporting and other recreational activities. These exchanges, though, were not simply about interpersonal socialisation, but also afforded an opportunity for more informal discussions of the project details such as the methodologies and technologies being used, and also other related developments in their field. This finding supports the contention of Ado et al. (2017) that the exploitation of informal social interactions can be crucial for knowledge sharing and learning in joint ventures.

4.2.3 Rational argumentation

The 'smooth' knowledge sharing alliances, however, were not without disagreements. In many such alliances, the respondents noted disagreements with their partners in relation to work-related issues. These disagreements included differences in professional opinion over the compatibility of engineering methods as well as the customization of technology with respect to the local project sites. Such disagreements occurred within both the initial design as well as the implementation stages of the projects. However, these disagreements were described to contribute positively towards knowledge sharing between the partners as they worked through project requirements and solutions. Akram stated:

'We disagree when we observe that a technology or engineering method is not suitable in these conditions. It is necessary to resolve an issue before the huge damage occurs in the construction work... Knowledge sharing increases because both parties debate the issue, we explain justifications [for our preferred methods] and share more points to convince each other. On the other hand, silence leads nowhere'. [Akram]

The quote shows the willingness of NESPAK engineering consultants to engage in rational argumentation, and the expectation that the foreign counterparts will also participate in the discussions constructively. Our participants perceived a value in reasoned debate for exchanging technical information and different perspectives. They reported that these exchanges contributed towards the development of a synthetic project output that constructively combined the knowledges of both local and foreign partners. Moreover, the local engineering consultants were not just knowledge-seeking partners, but also providers and spokespersons for locally developed engineering,

geographical, and climatic information. Both the foreign partner's models and technologies, and the local partner's site-specific engineering, geographical, and climatic information and understanding, were essential for the completion of these projects. It was through the rational argumentation and deliberation between the partners that both sets of knowledge were to be integrated and synthesised.

4.2.4 Building reciprocal norms

While the excerpts provided in the discussion of the 'smooth' knowledge sharing alliance may give the impression of a naturally harmonious working relationship, our data analysis revealed that the shared norms and collaborative relationship between the foreign and local partners were worked at, and that this work was motivated by a number of different considerations. The quote below shows the importance of the development of these norms for knowledge sharing as well as project completion:

'They tend to respond properly to our emails and phone calls whenever we contact them. Although we try not to disturb them at the weekend, however when handling a fast-track project, we sometimes have to contact them at odd times. They do not mind and respond properly. On the other hand, if we are expected to provide something on a certain date, I ask my engineers to complete the work even if we have to work until midnight. I believe we should come at par as we are learning from them'. [Ashfaq]

As indicated in the quote, Ashfaq is aware that he is potentially impinging upon their foreign partners, but the shared project goal provides a reason for this, and the apparent positive response from the foreign partner indicates their recognition of the priority of the communication. In turn, Ashfaq reciprocates this prioritisation by stressing to his engineering consultants that they need to meet the agreed deadlines. Building this norm of prioritising the partner is also influenced by a felt obligation to work at a level equal to that of the foreign partner. Although not clear from the quote, this may be from a felt interpersonal obligation, a sense of personal pride, the desire to gain knowledge, or from the desire to maintain professional status with their foreign partners. Whatever the mix of motivations, this obligation serves to reinforce the building of reciprocal norms.

In sum, by engaging in direct interpersonal interaction, informal socialization, rational argumentation, and developing reciprocal norms, the

respondents variously developed relatively harmonious working relationships. These different strategies and tactics for developing harmonious and constructive working relationships facilitated the local partners in accessing and applying the knowledge of the foreign partners. It also led to them acquiring knowledge about how to customize and synthesize foreign partners' knowledge, as well as developing their own knowledge in terms of how to productively collaborate with foreign partners.

4.3 Auto-learning

This form of knowledge-sharing work involved significant amounts of research undertaken by local partners without the involvement of their foreign counterparts. This included not only desk-study of project-related new engineering techniques, methods or technologies but also conducting their own field research of site-specific conditions and characteristics (see Table 2). Doing so was said to be important in order to enable the local partner to interact productively with the foreign partners, and to access their knowledge while undertaking project work jointly.

While auto-learning was evident across both 'smooth' and 'rough' knowledge sharing alliances, it operated slightly differently in each type of alliance. In a 'rough' knowledge sharing alliance, the NESPAK project team were sometimes faced with language issues as well as lack of compatibility with foreign partners' knowledge base. For example, on a particular project, Chinese counterparts used a set of construction codes and conventions that the participants were unfamiliar with, and these codes were provided in a language which none of the participants understood. It was a requirement of the foreign partner to follow Chinese construction codes for the project's civil work. However, no assistance was extended in translating these codes even when requested. As a result, NESPAK engineering consultants were to independently make sense of these construction codes as Ayla explained:

'I started analysing Chinese construction codes and comparing them with American and British codes. I made so many comparisons between them that I had these things on my fingertips. Further, I have to use Chinese software. Though the theory and logic behind all software are the same, their interface was in Chinese...We adopted their ways of working, such as their software, construction codes and calculation

methods, and developed our own excel sheets with macros to do calculations. [Ayla]⁵

While this was similar in process and purpose to the independent desk research in the ‘smooth’ knowledge sharing alliances, as the quote suggests, ‘rough’ knowledge sharing alliances required local partners to invest significant additional work to undertake the project. The additional work, however, contributed towards improved professional knowledge and skills of the individuals and the organization that will put it in an advantageous position over other local firms to work with Chinese partners in future projects.

4.4 Disharmony mitigation work

Our analysis revealed that the local partners adapted their knowledge-sharing work practices to mitigate any disharmony with foreign partners, and engage in knowledge sharing activities with them. As indicated in relation to the additional auto-learning needed within the ‘rough’ knowledge sharing alliances, the local partners adopted different tactics and strategies to address difficulties in knowledge sharing rather than to enhance it. This included efforts to draw knowledge from their foreign partners by feigning ‘mistakes’ or disagreements with them in order to generate confrontation and to be corrected. Local partners would also attempt to develop a sense of interpersonal obligation with specific foreign partners in order to encourage them to share knowledge.

4.4.1 Confrontation via deliberate ‘mistakes’ and disagreements

The practice of deliberately generating disagreement with foreign partners was adopted when they appeared reluctant to share project-related documents and knowledge. In order to address this, our participants described adopting situation-specific tactics to access knowledge from their foreign counterparts:

‘...I may also intentionally disagree with foreign consultants on some points while knowing that I am wrong. This makes foreign engineers explain extra points and share more knowledge to prove their arguments.’ [Haroon]

⁵ The Chinese construction codes were not just in a different language, they also involved significant technical differences with regards to approximation and calculation methods as well as testing and simulation techniques.

This tactic of intentionally feigning disagreements or mistakes was used to stimulate a level of disagreement or confrontation as the foreign counterpart would in response offer explicit rational argument for their suggested methods. This enabled the local partner to develop more knowledge about the proposed methods. This tactic, however, was recognized as potentially counterproductive, in that it might further deteriorate the working relationship with the foreign partner rather than aid access to their knowledge, and so was used sparingly.

4.4.2 Creating interpersonal obligations

While the harmonization development strategies of socialization and reciprocal norm-building were used to facilitate knowledge access, these strategies were inflected in a different manner within ‘rough’ knowledge sharing alliances. The local partners used rare opportunities to create interpersonal relations with specific foreign partners who otherwise remained aloof and unwilling to share knowledge with the participant. For example, Nasir reported:

‘Once, a Chinese engineer’s computer hard drive crashed and his data were lost. [To recover this], I personally visited Hafeez Centre⁶ three times and got his data recovered. He was much obliged then; he is in China now but still he always sends me documents or any information as and when I ask him’. [Nasir]

This example shows that even when there is little cooperation and social interaction between local and foreign partners, there are still opportunistic tactics whereby an interpersonal relationship and its attendant mode of reciprocal obligation could be activated and then nurtured. By going out of his way to help the foreign consultant, Nasir managed to interpersonally bridge between the two cultures in order to mitigate this cultural difference.

Norm-building and reciprocation (from harmonization development work) and creating interpersonal obligations (from disharmony mitigation work) are thus similar processes, but they appear to be motivated differently – the first is to try to build a positive relationship, the second is to deal with or try to transform a negative relationship. The former also appears to be more generically and more broadly-motivated in terms of career development and aspirations, whereas the latter appears to be more

⁶ The Hafeez centre is the main marketplace for IT and relevant technologies in Lahore.

instrumentally-motivated in relation to the particular project at hand.

In summary, the local partners, and likewise, the foreign partners, engaged in a number of knowledge-sharing strategies and tactics within project-work in order to help facilitate knowledge sharing, or, alternatively, to try to overcome or address its related difficulties. It was found that in both the ‘smooth’ and the ‘rough’ knowledge sharing alliances, considerable effort, energy, and persistence went into trying to make the alliance cohesive in order to access, develop, and synthesize knowledge between the partners, and thus complete the projects.

In the ‘smooth’ knowledge sharing alliances, the participants developed individual knowledge from their engagement in the alliance-work as the foreign partners applied their knowledge, skills and capabilities for the project. The local partners, however, did not acquire the core project-related knowledge of their foreign partners but did develop and acquire knowledge of its customisation and synthesis with respect to their own specific conditions. Moreover, the participants developed an independent knowledge base of their own local conditions which provided them with an indispensable role in the combined project. Also, the participants developed supporting capabilities which were not the key capabilities of their foreign partners, but were new or initially underdeveloped.

In the ‘rough’ knowledge sharing alliances, there was also access to, and application of, the foreign partner’s knowledge, and the participants likewise developed individual knowledge through their engagement with the project. However, within such alliances, there was disharmony mitigation work needed in order to try to bridge the socio-cultural differences and work-related tensions between local and foreign partners. This was achieved through adapting the socialization tactic as a mode of developing interpersonal obligations and relationships with the foreign partners.

There was an additional finding that was unexpected from the knowledge sharing literature. As noted above, NESPAK benefits from ‘local content policy’ and is in a favoured position to attract state funding. In the alliance with the ‘roughest’ knowledge-sharing, the Chinese state-owned partners also benefitted from local content policy since the project was part-sponsored as part of the One Belt One Road Initiative. With few alliances where both foreign and local partners benefitted from local content policy it is difficult to speculate as to the reasons why this

alliance experienced such ‘rough’ knowledge sharing, but it raises questions for future research on knowledge-sharing in such state-supported alliances, as we discuss in the last section.

5. Discussion

Our findings both relate to, and extend the literature on individual, intra-organizational, and inter-organizational factors that influence knowledge sharing practices (see Figure 2). We highlight the different forms of social and cultural knowledge-sharing work undertaken by local partners in order to access, develop, customise, synthesise, and acquire knowledge, while also acknowledging the knowledge-sharing work performed by foreign partners. We found that the micro-level social and cultural practices of knowledge-sharing work mediate between, on the one hand, these influencing factors and their combinative capabilities, and on the other hand, instances of knowledge-sharing and the cumulative trajectories of the alliances. In so doing, we contribute to an understanding of how mundane, micro-level dynamic social activities and practices help negotiate and address socio-cultural differences and other factors that impact the re-construction of knowledge (Brandt and Elkjaer, 2019).

The modes of knowledge-sharing work are variably utilised across instances of both ‘smooth’ and ‘rough’ knowledge-sharing. That is, although there is an association between, for example, disharmony mitigation work and ‘rough’ instances of knowledge-sharing, this does not hold true for all instances of this mode of knowledge-sharing work. Auto-learning, for example, was observed in both ‘smooth’ and ‘rough’ learning instances.

These instances of smooth or ‘rough’ knowledge sharing, however, do accumulate into predominantly ‘smooth’ or ‘rough’ trajectories of knowledge-sharing. The predominant trajectory of a project alliance reciprocally influences both the social and cultural practices of knowledge-sharing work that are utilised, and the individual, relational, and inter-organizational factors which enable these practices of knowledge-sharing work. As such, as well as a mediating dynamic between the influencing factors, the modes of knowledge-sharing work, and the cumulative trajectories of knowledge-sharing, there is also a recursive reinforcing dynamic between them, whereby the experience of an alliance as predominantly ‘smooth’ or ‘rough’ has effects on individual’s motivations and attitudes towards their partner. While it is not claimed that these trajectories

are irreversible, they appear to require extra effort to change.

The importance of direct interpersonal exchange – a form of relational resource (Bhatti et al., 2020, Ho and Wang, 2015) – was highlighted by its presence in the ‘smooth’ knowledge sharing alliances, and its

relative absence in the ‘rough’ knowledge sharing alliances. While these ‘rough’ alliances were still completed satisfactorily, they entailed significantly more work on the part of the local partners who were able to develop less customization, supporting, and synthesis knowledge than in the ‘smooth’ knowledge sharing alliances.

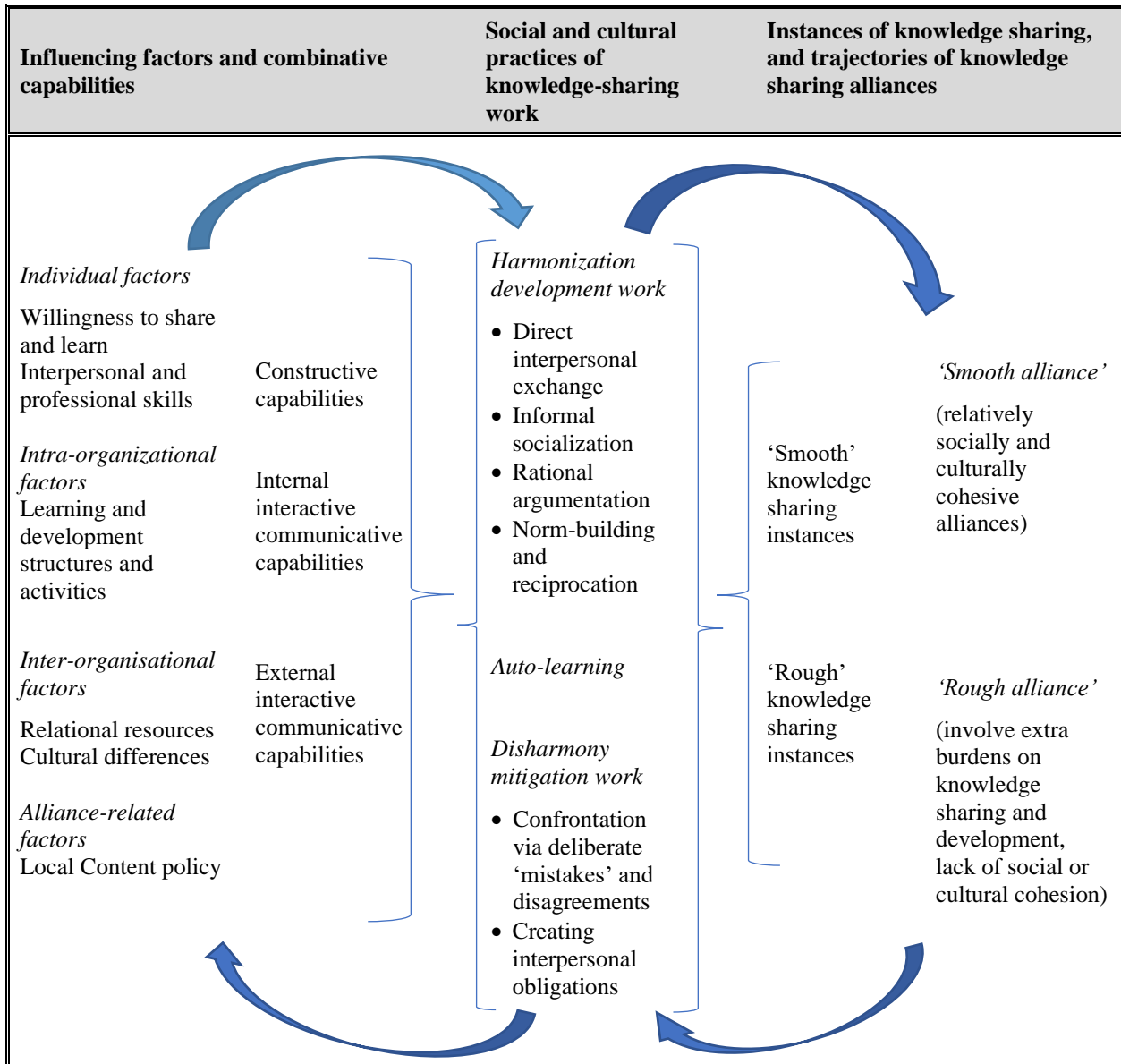


Figure 2: The dynamics of knowledge-sharing work between the influencing factors and trajectories of knowledge sharing in alliances

Direct interpersonal exchange through face-to-face interaction has long been recognized to better facilitate the exchange and development of situated knowing and tacit attributes of knowledge in comparison to other modes of communication (Rooney et al., 2015, Li et al., 2014, Polanyi, 1958, Roberts, 2000, Cook and Brown, 1999b). This is in terms of the content of the project-based knowledge, the social relationships that animate and perform the

project, and also the processes of knowledge sharing. By being mutually involved in joint problem-solving, direct practical demonstrations, design discussions, running simulations, project-site observations and visits, and assistance with each other’s work, the local and foreign partners develop a learning environment which enables the grounding for knowing and sharing knowledge (Reich et al., 2017, Polanyi, 1958, Cook and Brown, 1999b). This

benefits both partners and enables the synthesis of their different knowledge (Jiang and Chen, 2018, Ryan and O'Connor, 2013, McEvily and Marcus, 2005).

The findings with regard to the facilitating power of informal socialization deepen previous arguments that informal social interaction activities, such as dining (Dacin et al., 2010), sports events (Lok and de Rond, 2013), hosting, or other shared recreational activities are significant for knowledge sharing. While previous theorisations of knowledge brokering point to the influence of informal socialization (e.g. Tzeng, 2018), we however found in our study that informal socialization was not simply an addition to formal work interaction, rather, it changed the social relationship in which project-work takes place. We argue that informal socialization, while seemingly mundane, is a key micro (individual and interactional) practice which draws on social, cultural and material processes (Brandt and Elkjaer, 2019) that facilitate knowledge sharing between the partners (Kale and Singh, 2007, Soekijad and Andriessen, 2003).

Also, the importance of the process of rational argumentation and deliberation has received less attention within the knowledge sharing literature (Geiger and Schreyögg, 2009) as compared to the societal learning literature (Habermas, 1984, Eder, 2007). According to Habermas (1984), societal learning occurs through communicative interaction when different parties justify their different claims in relation to their empirical truth, normative rightness, or expressive truthfulness. In the practical argumentation and deliberation described by the respondents, empirical truth was foregrounded. The cultural expectation that professional consultants are to engage in rational argumentation, also enabled the use of tactical confrontation by feigning mistakes or disagreements. Drawing on the expected norm of rational argumentation in order to mitigate disharmony between local and foreign partners, highlights the important cultural ground for knowledge sharing practices (Brandt and Elkjaer, 2019).

Within the rough knowledge sharing alliances the norm of rational argumentation was said to be not observed by foreign partners who, according to the participants, seemed to presume that their professional knowledge and project-related recommendations did not need to be justified. Notwithstanding the instances where rational deliberation was lacking, our findings show the synthetic potential of rational argumentation and

deliberation in knowledge sharing. This expands the types of knowledge sharing beyond simply accessing and acquiring knowledge based on an entity-based conception of knowledge (Grant and Baden-Fuller, 2004), to also include developing, customising, and synthesizing modes of knowing and knowledge. Through the synthetic process of rational argumentation, new knowledge is simultaneously constructed, developed, and shared between local and foreign partners through the acknowledgement, articulation, and consideration of differences. This further indicates how differences, as much as similarities, can be utilised for sharing and developing of knowledge.

While empirical truth was foregrounded in the processes of rational argumentation and deliberation, a significant concern with normative rightness was articulated in relation to the reciprocal norms developed in the 'smooth' knowledge sharing alliances, and regularly noted as lacking in the 'rough' knowledge sharing alliances. Although the normative nature of organisations has been noted previously (Hirschhorn, 2000), this has not been considered in the knowledge management, KBV, absorptive capacity, and innovation studies literatures which tend to foreground instrumental and strategic concerns (e.g. Grant and Baden-Fuller, 2004).

The findings indicate, however, that even fixed-term, loosely coupled, instrumental inter-organizational relationships are imbued with normative meaning by their participants. These normative meanings are clearly influenced by professional, interpersonal, and organizational expectations (Brandt and Elkjaer, 2019). The local partners clearly instrumentalized these normative relationships as relational resources, to a degree, in their use of informal socialization as a means to access, develop, and acquire knowledge. Also, the tactic of developing interpersonal obligations as a means to mitigate disharmony is likewise predicated on the interpersonal normative impulse of reciprocity articulated in social exchange theory (Blau, 1964). Notwithstanding the instrumentalization of these normative relationships, this is only possible because of the development of a normative grounding that enables instrumental sharing of knowledge.

The different micro-level practices of social and cultural knowledge-sharing work also add to the understanding of learning mechanisms from the innovation studies literature (see Table 1). In particular, the understanding of the nature of these as 'work' shows how learning mechanisms are actually

accomplished in practice. They do so by pointing to the underlying processes by which such learning mechanisms are involved in the (re-)construction of knowing and knowledge. For example, rather than just assuming that ‘training’ produces learning, it is the work involved in direct interpersonal exchange that constructs knowledge across partners. Likewise, auto-learning better describes the practical and normative motivations of preparatory learning, which are not foregrounded in conceptions such as desk research (‘acquiring codified knowledge’) or ‘learning by doing’ (auto-learning can involve a combination of these learning modes). In our study, auto-learning was practically and normatively important in order to provide foundational knowledge with which the local partners could contribute to the inter-organizational alliances, or by which they could overcome some of the disharmonious lack of cultural similarity or relational resources (Bhatti et al., 2020). Also, this auto-learning work contributed towards the development and utilisation of the interpersonal and professional skills that are called upon and improved through knowledge sharing.

Similarly, the underlying process of rational argumentation shows the constructive and two-way process of knowing/knowledge development in alliances – and is different from the entity-based view of knowledge “communication”, “articulation” and “assimilation” evident in much of the knowledge management, absorptive capacity, innovation studies, and KBV literatures (Marabelli and Newell, 2014). Our findings suggest that social and cultural knowledge-sharing work is foundational for harmonious knowledge-sharing. The issues of empirical truth and normative rightness indicate some of the foundational underlying micro-level processes and issues through which knowledge-sharing takes place.

Our findings also indicate that the factors influencing inter-organizational knowledge sharing are not static, fixed, or unproblematic. Rather, the social and cultural practices of knowledge-sharing work that we identified in our study, show the different processes of *how* the different influencing factors are in fact activated, developed, or addressed at the micro-level. For example, the practice of harmonization-development work nurtures and develops the foreign partners’ willingness to share (Raza-Ullah and Eriksson, 2017, Salk and Simonin, 2011, Szulanski, 1996). Instead of their willingness to share being considered as pre-given and fixed, it is variously stimulated by the local partners through direct

personal interaction, informal socialization, rational argumentation, tactical confrontation, and the development of reciprocal norms. Similarly, the auto-learning, and development of interpersonal obligations, are attempts to narrow or bridge the knowledge, cultural, and social differences between the local and foreign partners (Das and Teng, 2001, Ford and Chan, 2003, Luring and Selmer, 2012, Yildiz, 2016). This implies that these socio-cultural differences should not be considered as static or unchanging.

6. Conclusion

Much of the previous literature on knowledge sharing has portrayed a relatively linear and one-way cause-effect relationship between the individual, intra-organisational, and inter-organisational influencing factors and knowledge sharing within inter-organizational alliances. We contribute to the literature by indicating that there is a recursive, interactive and mediating relationship of alliance-partners’ knowledge-sharing work with the influencing factors and the knowledge sharing instances and trajectories of the alliances. As such, all of these potentially impact upon the types and degrees of knowledge sharing produced through the alliance-work. We also identify that ‘smooth’ and ‘rough’ instances of knowledge sharing may be variably exhibited in an alliance, but can also accumulate into reinforcing trajectories of knowledge-sharing within an alliance over time.

Our second contribution is that we offer a nuanced understanding of how the ‘local’ knowledge-seeking and -accessing partners socially and culturally negotiate the different factors influencing knowledge sharing. This is addressed through broad sets of practices that we collectively labelled as knowledge-sharing work: harmonization-development work, and disharmony-mitigation work, both of which involve auto-learning which is differentially inflected. The second contribution thus also adds to the theorisation of knowledge-sharing by showing that social, cultural and relational work enables knowledge-sharing through modes of communicative action. This involves questions of (at least) empirical truth and normative rightness, and not just strategic instrumentality, which is the focus of much previous research.

In combination, these insights show that there is a need for the knowledge sharing literature to take much greater account of socio-cultural dynamics as well as micro (individual and interactional) level

practices. These dynamics and practices help enable knowledge sharing as an on-going, active social process in the actualization of inter-organizational alliance work (Jonsson, 2015, Loane and Bell, 2006, Brandi and Elkjaer, 2019, Iskoujina and Roberts, 2015).

6.1 Practical implications

Our conceptualization of the social and cultural dynamics and micro-level practices of knowledge-sharing work (see Figure 2) could help business-alliance partners consider how to develop their interpersonal, relational, cultural, and professional knowledge, skills, and dispositions. As we show in the findings, these have implications for achieving the knowledge sharing goals and trajectories of business-alliances. The findings also imply that knowledge-seeking partners need to ascertain the relevant similarities and differences between partners that best facilitate knowledge sharing. In addition, our findings suggest that in-person visits, informal socializing activities, and the recognition of cultural differences, could be further considered within business alliances' terms of agreement and working practices in order to create a more harmonious and conducive knowledge sharing relationship between alliance partners.

In addition to insights from this research, we contend that developing skills in using persuasion tactics and strategies in the context of knowledge-seeking activities, could be incorporated within relevant trainings available to, and/or mentoring of, individuals and teams involved in inter-organizational consulting work. This would be potentially useful in helping overcome challenges linked with knowledge-sharing in loosely-coupled alliances. We also argue that communicative interactions involving practical communication, demonstration and discussions, should be emphasized within terms of reference for inter-organizational consulting project-work. This could be invoked, if needed, to facilitate knowledge sharing between alliance partners as well as to avoid rough instances of knowledge-sharing aggregating into rough knowledge-sharing trajectories, given the potentially significant effort required to reverse them.

Also, we see value in offering foreign consultants working on inter-organizational alliance projects within developing and/or emerging countries, opportunities to develop skills in negotiating challenges associated with co-occurring processes of

knowledge sharing and knowledge protection at a micro-level (Estrada et al., 2016, Guo et al., 2020). Given the situational, contextual nature of consulting-work, particularly involving unique mega-infrastructure projects, professional development trainings/mentoring of foreign consultants could also focus on the importance of '...eliciting both explicit and tacit [attributes of] knowledge' (Ryan and O'Connor, 2013, p.616). This will be useful in the context of the knowledge reconstruction processes that we see as dynamic and non-linear in nature. We argue this could contribute positively towards relatively smooth knowledge sharing between loosely-coupled inter-organizational partners, to timely completion of the consulting project-work, and to the avoidance of financial penalties for all involved partners.

6.2 Limitations and future research

One limitation of our research is that it focuses primarily on the perspective of local knowledge-seeking partners. Future research on knowledge sharing within inter-organizational alliances could usefully take a multi-perspectival approach to include not just the local and foreign partners, but also their clients and other stakeholders (Bhatti et al., 2020).

Given that the data collected in the study is primarily based on individual interviews and research diary notes, future research could contribute with more ethnographic and observational data to develop further understanding of the social and cultural dynamics highlighted in this study. More research could study, based on longitudinal data, whether and how knowledge-seeking and -acquiring partners develop their inter-organizational knowledge-sharing practices over time as they accumulate experiences of working with international alliance partners. Further studies on the structure of business alliances, their terms of reference, as well as power relations and strategies of the partners in relation to the work, practices, and processes of inter-organizational knowledge sharing would be useful contributions to the literature. In particular, given the potential impact of local content policies which this research has noted but not been able to fully investigate, there is clearly a need for further research on how the broader political economy of the alliance environment might contribute both as an enabler and as a barrier to particular modes or forms of knowledge-sharing.

Also, future research that recognizes joint-consulting work as involving interactive, relational and co-production processes (Sturdy et al., 2009), could usefully explore the complex interface of power and inter-organizational knowledge sharing in the context of loosely-coupled partners that benefit from local content policies. In the same vein, it will be worth studying how and why partners who are supported by their home-governments, participate within loosely-coupled business alliances in the manner they do. Also, understanding how engineering consultants' work and motivation is enabled/controlled at a micro-level could further add to our insights into the influence of local content policies on inter-organizational knowledge-sharing. In our study, knowledge sharing between Pakistani and Chinese partners in a particular project was reported to be the roughest. Interstate economic relations and political affinity and supportive government policies have been discussed previously in the context of emerging economies' multinational enterprises (see Han et al., 2018). However, their influence on knowledge sharing within loosely-

coupled business alliances involving Chinese partners, has received little attention. This will be an important avenue for future research on inter-organizational knowledge sharing.

Lastly, we do not claim in our study to account for all of the factors or practices that influence knowledge sharing within inter-organizational alliances. More research into the interactive, recursive, dynamic relationship between the factors and trajectories of knowledge sharing in different settings and types of business alliances, would further help extend our understanding of how relational resources are developed to overcome and utilize socio-cultural differences within knowledge sharing practices.

Acknowledgements: We would like to thank NESPAK for supporting this research project and agreeing to be named, and also the participants for providing their valuable responses.

Funding: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

7. References

- ADO, A., SU, Z. & WANJIRU, R. 2017. Learning and Knowledge Transfer in Africa-China JVs: Interplay between Informalities, Culture, and Social Capital. *Journal of International Management*, 23, 166-179.
- AHAMMAD, M. F., TARBA, S. Y., LIU, Y. & GLAISTER, K. W. 2016. Knowledge transfer and cross-border acquisition performance: The impact of cultural distance and employee retention. *International business review*, 25, 66-75.
- ARDICHVILI, A., PAGE, V. & WENTLING, T. 2003. Motivation and barriers to participation in virtual knowledge-sharing communities of practice. *Journal of knowledge management*.
- ARGOTE, L., MCEVILY, B. & REAGANS, R. 2003. Managing knowledge in organizations: An integrative framework and review of emerging themes. *Management science*, 49, 571-582.
- BECERRA, M., LUNNAN, R. & HUEMER, L. 2008. Trustworthiness, risk, and the transfer of tacit and explicit knowledge between alliance partners. *Journal of Management Studies*, 45, 691-713.
- BELL, M. & FIGUEIREDO, P. N. 2012. Innovation capability building and learning mechanisms in latecomer firms: recent empirical contributions and implications for research. *Canadian Journal of Development Studies / Revue canadienne d'études du développement*, 33, 14-40.
- BHATTI, W. A., LARIMO, J. & SERVAIS, P. 2020. Relationship learning: A conduit for internationalization. *International Business Review*, 29, 101694.
- BLACKLER, F. 1995. Knowledge, Knowledge Work and Organizations: An Overview and Interpretation. *Organization Studies*, 16, 1020.
- BLAU, P. M. 1964. *Exchange and power in social life*, New York, J. Wiley.
- BOUSSEBAA, M., STURDY, A. & MORGAN, G. 2014. Learning from the world? Horizontal knowledge flows and geopolitics in international consulting firms. *The International Journal of Human Resource Management*, 25, 1227-1242.
- BRANDI, U. & ELKJAER, B. 2019. Subtleties of knowledge sharing—Results from a case study within management consultancy. *Knowledge and Process Management*, 26, 185-193.
- BRESMAN, H., BIRKINSHAW, J. & NOBEL, R. 2010. Knowledge transfer in international

- acquisitions. *Journal of International Business Studies*, 41, 5-20.
- BROWN, J. S. & DUGUID, P. 1998. Organizing knowledge. *California management review*, 40, 90-111.
- BUCKLEY, P. J., GLAISTER, K. W., KLIJN, E. & TAN, H. 2009. Knowledge Accession and Knowledge Acquisition in Strategic Alliances: The Impact of Supplementary and Complementary Dimensions. *British Journal of Management*, 20, 598-609.
- CABRERA, A. & CABRERA, E. F. 2002. Knowledge-sharing dilemmas. *Organization studies*, 23, 687-710.
- CASCIARO, T. & PISKORSKI, M. J. 2005. Power Imbalance, Mutual Dependence, and Constraint Absorption: A Closer Look at Resource Dependence Theory. *Administrative Science Quarterly*, 50, 167-199.
- CHANG, H. H. & CHUANG, S.-S. 2011. Social capital and individual motivations on knowledge sharing: Participant involvement as a moderator. *Information & management*, 48, 9-18.
- CHANG, Y. F., RASIAH, R. & CHAN, W. M. 2016. Understanding innovations in Malaysia's construction industry: a study of four large national firms. *Asian Journal of Technology Innovation*, 24, 275-292.
- CHEN, P.-L., TAN, D. & JEAN, R.-J. B. 2016. Foreign knowledge acquisition through inter-firm collaboration and recruitment: Implications for domestic growth of emerging market firms. *International Business Review*, 25, 221-232.
- COOK, S. D. N. & BROWN, J. S. 1999a. Bridging Epistemologies: The Generative Dance Between Organizational Knowledge and Organizational Knowing. *Organization Science*, 10, 381-400.
- COOK, S. N. & BROWN, J. S. 1999b. Bridging epistemologies: The generative dance between organizational knowledge and organizational knowing. *Organization science*, 10, 381-400.
- COOK, S. N. & YANOW, D. 1993. Culture and Organizational Learning. *Journal of Management Inquiry*, 2, 373-390.
- CRESPO, C. F., GRIFFITH, D. A. & LAGES, L. F. 2014. The performance effects of vertical and horizontal subsidiary knowledge outflows in multinational corporations. *International Business Review*, 23, 993-1007.
- DACIN, M. T., MUNIR, K. & TRACEY, P. 2010. Formal dining at Cambridge colleges: Linking ritual performance and institutional maintenance. *Academy of Management Journal*, 53, 1393-1418.
- DAS, T. K. & TENG, B.-S. 2001. Trust, control, and risk in strategic alliances: An integrated framework. *Organization studies*, 22, 251-283.
- DEVARAKONDA, S. V. & REUER, J. J. 2018. Knowledge sharing and safeguarding in R&D collaborations: The role of steering committees in biotechnology alliances. *Strategic Management Journal*, 39, 1912-1934.
- DUBOIS, A. & GADDE, L.-E. 2002a. The construction industry as a loosely coupled system: implications for productivity and innovation. *Construction Management and Economics*, 20, 621-631.
- DUBOIS, A. & GADDE, L.-E. 2002b. Systematic combining: an abductive approach to case research. *Journal of Business Research*, 55, 553-560.
- DUSSAUGE, P., GARRETTE, B. & MITCHELL, W. 2000. Learning from competing partners: Outcomes and durations of scale and link alliances in Europe, North America and Asia. *Strategic management journal*, 21, 99-126.
- DUTRÉNIT, G. 2000. *Learning and knowledge management in the firm: From knowledge accumulation to strategic capabilities*, Cheltenham, Edward Elgar.
- EASTERBY-SMITH, M., GRAÇA, M., ANTONACOPOULOU, E. & FERDINAND, J. 2008. Absorptive Capacity: A Process Perspective. *Management Learning*, 39, 483-501.
- EASTERBY-SMITH, M., JASPERSEN, L. J., THORPE, R. & VALIZADE, D. 2021. *Management and Business Research*, SAGE Publications.
- EASTERBY-SMITH, M., LYLES, M. A. & TSANG, E. W. 2008. Inter-organizational knowledge transfer: Current themes and future prospects. *Journal of management studies*, 45, 677-690.
- EDER, K. 2007. Cognitive sociology and the theory of communicative action: The role of communication and language in the making of the social bond. *European Journal of Social Theory*, 10, 389-408.
- ERIKSEN, E. O. & WEIGARD, J. 2003. *Understanding Habermas: communicative*

- action and deliberative democracy*, London, Continuum.
- ESTRADA, I., FAEMS, D. & DE FARIA, P. 2016. Coopetition and product innovation performance: The role of internal knowledge sharing mechanisms and formal knowledge protection mechanisms. *Industrial Marketing Management*, 53, 56-65.
- FAN, D., CUI, L., LI, Y. & ZHU, C. J. 2016. Localized learning by emerging multinational enterprises in developed host countries: A fuzzy-set analysis of Chinese foreign direct investment in Australia. *International Business Review*, 25, 187-203.
- FIGUEIREDO, P. N. 2002. Does technological learning pay off? Inter-firm differences in technological capability-accumulation paths and operational performance improvement. *Research Policy*, 31, 73-94.
- FIGUEIREDO, P. N. & COHEN, M. 2019. Explaining early entry into path-creation technological catch-up in the forestry and pulp industry: Evidence from Brazil. *Research Policy*, 48, 1694-1713.
- FIGUEIREDO, P. N., LARSEN, H. & HANSEN, U. E. 2020. The role of interactive learning in innovation capability building in multinational subsidiaries: A micro-level study of biotechnology in Brazil. *Research Policy*, 49, 103995.
- FLYVBJERG, B. 2001. *Making Social Science Matter*, Cambridge, Cambridge University Press.
- FORD, D. P. & CHAN, Y. E. 2003. Knowledge sharing in a multi-cultural setting: a case study. *Knowledge Management Research & Practice*, 1, 11-27.
- GEIGER, D. 2009. Revisiting the Concept of Practice: Toward an Argumentative Understanding of Practicing. *Management Learning*, 40, 129-144.
- GEIGER, D. & SCHREYÖGG, G. 2009. Coping with the Concept of Knowledge: Toward a Discursive Understanding of Knowledge. *Management Learning*, 40, 475-480.
- GEIPEL, J. & HETHERINGTON, D. 2018. Local Content Policy: What Works, What Doesn't Work. London: Business Environment Reform Facility, Department for International Development.
- GERPOTT, F. H., FASBENDER, U. & BURMEISTER, A. 2020. Respectful leadership and followers' knowledge sharing: A social mindfulness lens. *Human Relations*, 73, 789-810.
- GERTLER, M. S. 1995. "Being there": proximity, organization, and culture in the development and adoption of advanced manufacturing technologies. *Economic geography*, 71, 1-26.
- GHERARDI, S. 2009. Introduction: The Critical Power of the 'Practice Lens'. *Management Learning*, 40, 115-128.
- GOMES-CASSERES, B., HAGEDOORN, J. & JAFFE, A. B. 2006. Do alliances promote knowledge flows? *Journal of Financial Economics*, 80, 5-33.
- GRANT, R. M. 1996. Toward a knowledge-based theory of the firm. *Strategic management journal*, 17, 109-122.
- GRANT, R. M. & BADEN-FULLER, C. 2004. A Knowledge Accessing Theory of Strategic Alliances. *Journal of Management Studies*, 41, 61-84.
- GULATI, R., NOHRIA, N. & ZAHEER, A. 2000. Strategic networks. *Strategic Management Journal*, 21, 203-215.
- GUO, W., YANG, J., LI, D. & LYU, C. 2020. Knowledge sharing and knowledge protection in strategic alliances: the effects of trust and formal contracts. *Technology Analysis & Strategic Management*, 32, 1366-1378.
- HABERMAS, J. 1984. *The Theory of Communicative Action. Volume 1: Reason and the Rationalization of Society*, Boston, Beacon Press.
- HAN, X., LIU, X., XIA, T. & GAO, L. 2018. Home-country government support, interstate relations and the subsidiary performance of emerging market multinational enterprises. *Journal of Business Research*, 93, 160-172.
- HAU, L. N. & EVANGELISTA, F. 2007. Acquiring tacit and explicit marketing knowledge from foreign partners in IJVs. *Journal of business research*, 60, 1152-1165.
- HIRSCHHORN, L. 2000. Changing Structure is Not Enough: the moral meaning of organizational design. In: BEER, M. & NOHRIA, N. (eds.) *Breaking the Code of Change*. Boston, MASS: Harvard Business School Press.
- HO, M. H.-W. & WANG, F. 2015. Unpacking knowledge transfer and learning paradoxes in international strategic alliances: Contextual differences matter. *International Business Review*, 24, 287-297.
- HONG, J. F., EASTERBY-SMITH, M. & SNELL, R. S. 2006. Transferring Organizational

- Learning Systems to Japanese Subsidiaries in China. *Journal of Management Studies*, 43, 1027-1058.
- HUTCHINS, E. 1995. *Cognition in the wild*, Cambridge, Mass., MIT Press.
- INKPEN, A. C. 2000. Learning through joint ventures: a framework of knowledge acquisition. *Journal of management studies*, 37, 1019-1044.
- ISKOUJINA, Z. & ROBERTS, J. 2015. Knowledge sharing in open source software communities: motivations and management. *Journal of Knowledge Management*, 19, 791-813.
- JEGEDE, O. O., ILORI, M. O., SONIBARE, J. A., OLUWALE, B. A. & SIYANBOLA, W. O. 2013. Knowledge Sharing and Innovation as it affects the Local Content in the Oil and Gas Industry in Nigeria. *African Journal of Science, Technology, Innovation and Development*, 5, 31-38.
- JIANG, Y. & CHEN, C. C. 2018. Integrating knowledge activities for team innovation: Effects of transformational leadership. *Journal of Management*, 44, 1819-1847.
- JONSSON, A. 2015. Beyond knowledge management – understanding how to share knowledge through logic and practice. *Knowledge Management Research & Practice*, 13, 45-58.
- KALE, P. & SINGH, H. 2007. Building firm capabilities through learning: the role of the alliance learning process in alliance capability and firm-level alliance success. *Strategic management journal*, 28, 981-1000.
- LAURING, J. & SELMER, J. 2012. Knowledge sharing in diverse organisations. *Human Resource Management Journal*, 22, 89-105.
- LAVE, J. 1993. The practice of learning. In: CHAIKLIN, S. & LAVE, J. (eds.) *Understanding practice: perspectives on activity and context*. Cambridge: Cambridge University Press.
- LAVE, J. & WENGER, E. 1991. *Situated learning: Legitimate peripheral participation*, Cambridge, Cambridge university press.
- LEE, J. Y., YANG, Y. S. & PARK, B. I. 2020. Interplay between dual dimensions of knowledge sharing within globalized chaebols: The moderating effects of organization size and global environmental munificence. *International Business Review*, 29, 101637.
- LI, X., ROBERTS, J., YAN, Y. & TAN, H. 2014. Knowledge sharing in China–UK higher education alliances. *International Business Review*, 23, 343-355.
- LIU, X., GAO, L., LU, J. & LIOLIYOU, E. 2016. Does learning at home and from abroad boost the foreign subsidiary performance of emerging economy multinational enterprises? *International Business Review*, 25, 141-151.
- LIU, X. & GIROUD, A. 2016. International knowledge flows in the context of emerging-economy MNEs and increasing global mobility. *International Business Review*, 25, 125-129.
- LOANE, S. & BELL, J. 2006. Rapid internationalisation among entrepreneurial firms in Australia, Canada, Ireland and New Zealand: An extension to the network approach. *International Marketing Review*, 23, 467-485.
- LOK, J. & DE ROND, M. 2013. On the Plasticity of Institutions: Containing and Restoring Practice Breakdowns at the Cambridge University Boat Club. *Academy of Management Journal*, 56, 185-207.
- LYLES, M. A. & SALK, J. E. 1996. Knowledge acquisition from foreign parents in international joint ventures: An empirical examination in the Hungarian context. *Journal of international business studies*, 27, 877-903.
- MARABELLI, M. & NEWELL, S. 2014. Knowing, Power and Materiality: A Critical Review and Reconceptualization of Absorptive Capacity. *International Journal of Management Reviews*, 16, 479-499.
- MCEVILY, B. & MARCUS, A. 2005. Embedded ties and the acquisition of competitive capabilities. *Strategic management journal*, 26, 1033-1055.
- MEIER, M. 2011. Knowledge management in strategic alliances: A review of empirical evidence. *International journal of management reviews*, 13, 1-23.
- MERRIAM, S. B. & TISDELL, E. J. 2016. *Qualitative research: A guide to design and implementation*, San Fransisco, CA, John Wiley & Sons.
- MILLER, K. D. 2008. Simon and Polanyi on Rationality and Knowledge. *Organization Studies*, 29, 933-955.
- MINBAEVA, D., PARK, C., VERTINSKY, I. & CHO, Y. S. 2018. Disseminative capacity and knowledge acquisition from foreign partners

- in international joint ventures. *Journal of World Business*, 53, 712-724.
- NESPAK. 2020. *Home Page* [Online]. Available: <http://www.nespak.com.pk/> [Accessed November 19, 2020 2020].
- NGOASONG, M. Z. 2014. How international oil and gas companies respond to local content policies in petroleum-producing developing countries: A narrative enquiry. *Energy Policy*, 73, 471-479.
- NICOLINI, D. 2009. Something Old, Something New and Something Puzzling: A Commentary on the Schneider–Geiger and Schreyögg Debate. *Management Learning*, 40, 487-492.
- NICOLINI, D. 2011. Practice as the Site of Knowing: Insights from the Field of Telemedicine. *Organization Science*, 22, 602-620.
- OYEWOLE, B. 2018. Overview of Local Content Regulatory Frameworks in Selected ECCAS Countries. Geneva: United Nations Conference on Trade and Development.
- PARK, S. H. & UNGSON, G. R. 2001. Interfirm rivalry and managerial complexity: A conceptual framework of alliance failure. *Organization science*, 12, 37-53.
- PATTON, M. Q. 2014. *Qualitative Research & Evaluation Methods: Integrating Theory and Practice*, Thousand Oaks, CA, SAGE Publications.
- POLANYI, M. 1958. *Personal Knowledge: Towards a Post-Critical Philosophy*, Chicago, Chicago University Press.
- POLANYI, M. 1966. The logic of tacit inference. *Philosophy*, 41, 1-18.
- PRASARNPHANICH, P. & WAGNER, C. 2009. Explaining the sustainability of digital ecosystems based on the wiki model through critical-mass theory. *IEEE transactions on industrial electronics*, 58, 2065-2072.
- QUINTAS, P., LEFRERE, P. & JONES, G. 1997. Knowledge management: a strategic agenda. *Long range planning*, 30, 385-391.
- RAZA-ULLAH, T. & ERIKSSON, J. 2017. Knowledge sharing and knowledge leakage in dyadic cooperative alliances involving SMEs. In: SINDAKIS, S. & THEODOROU, P. (eds.) *Global Opportunities for Entrepreneurial Growth: Coopetition and Knowledge Dynamics within and across Firms*. Emerald Publishing Limited.
- REICH, A., ROONEY, D. & HOPWOOD, N. 2017. Sociomaterial perspectives on work and learning: sites of emergent learning. *Journal of Workplace Learning*, 29, 566-576.
- ROBERTS, J. 2000. From Know-how to Show-how? Questioning the Role of Information and Communication Technologies in Knowledge Transfer. *Technology Analysis & Strategic Management*, 12, 429-443.
- ROONEY, D., GARDNER, A., WILLEY, K., REICH, A., BOUD, D. & FITZGERALD, T. 2015. Reimagining site-walks: Sites for rich learning. *Australasian Journal of Engineering Education*, 20, 19-30.
- RYAN, S. & O'CONNOR, R. V. 2013. Acquiring and sharing tacit knowledge in software development teams: An empirical study. *Information and Software Technology*, 55, 1614-1624.
- SALDANA, J. 2016. *The Coding Manual for Qualitative Researchers*, London, SAGE Publications.
- SALK, J. E. & SIMONIN, B. L. 2011. Collaborating Learning, and Leveraging Knowledge Across Borders. In: EASTERBY-SMITH, M. & LYLES, M. A. (eds.) *Handbook of Organizational Learning and Knowledge Management*. Chichester: Wiley.
- SARALA, R. M. & VAARA, E. 2010. Cultural differences, convergence, and crossvergence as explanations of knowledge transfer in international acquisitions. *Journal of International Business Studies*, 41, 1365-1390.
- SCHREYÖGG, G. & GEIGER, D. 2007. The Significance of Distinctiveness: A Proposal for Rethinking Organizational Knowledge. *Organization*, 14, 77-100.
- SHAO, J. J. & ARISS, A. A. 2020. Knowledge transfer between self-initiated expatriates and their organizations: Research propositions for managing SIEs. *International Business Review*, 29, 101634.
- SOEKIJAD, M. & ANDRIESSEN, E. 2003. Conditions for knowledge sharing in competitive alliances. *European management journal*, 21, 578-587.
- STAKE, R. E. 2006. *Multiple Case Study Analysis*, New York, The Guilford Press.
- STEINER, F. 2005. *Formation and Early Growth of Business Webs: Modular Product Systems in Network Markets*, New York, Physica-Verlag HD.
- STRAUSS, A. & CORBIN, J. M. 1990. *Basics of qualitative research: Grounded theory*

- procedures and techniques*, Thousand Oaks, CA, Sage Publications.
- STRAUSS, A. & CORBIN, J. M. 1998. *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*, Thousand Oaks, CA, SAGE Publications.
- STURDY, A., WERR, A. & BUONO, A. F. 2009. The client in management consultancy research: Mapping the territory. Elsevier.
- SUDDABY, R. 2006. From the editors: What grounded theory is not. 49, 633-642.
- SZULANSKI, G. 1996. Exploring internal stickiness: Impediments to the transfer of best practice within the firm. *Strategic management journal*, 17, 27-43.
- TARBA, S. Y. & COOPER, C. L. 2016. Interorganizational encounters: An overview. *International Business Review*, 1, 1-3.
- TEECE, D. J. 2003. Expert talent and the design of (professional services) firms. *Industrial and Corporate Change*, 12, 895-916.
- TZENG, C.-H. 2018. How foreign knowledge spillovers by returnee managers occur at domestic firms: An institutional theory perspective. *International Business Review*, 27, 625-641.
- VISSAK, T., FRANCONI, B. & FREEMAN, S. 2020. Foreign market entries, exits and re-entries: The role of knowledge, network relationships and decision-making logic. *International Business Review*, 29, 101592.
- VOLBERDA, H. W., FOSS, N. J. & LYLES, M. A. 2010. Absorbing the Concept of Absorptive Capacity: How to Realize Its Potential in the Organization Field. *Organization Science*, 21, 931-951.
- WANG, C. C. & WU, A. 2016. Geographical FDI knowledge spillover and innovation of indigenous firms in China. *International Business Review*, 25, 895-906.
- WEICK, K. E. & ROBERTS, K. H. 1993. Collective Mind in Organizations: Heedful Interrelating on Flight Decks. *Administrative Science Quarterly*, 38, 357-381.
- WENGER, E. 2010. Communities of Practice and Social Learning Systems: the Career of a Concept. In: BLACKMORE, C. (ed.) *Social Learning Systems and Communities of Practice*. London: Springer.
- YILDIZ, H. E. 2016. "Us vs. them" or "us over them"? On the roles of similarity and status in M&As. *International Business Review*, 25, 51-65.
- ZHANG, J., JIANG, H., WU, R. & LI, J. 2019. Reconciling the dilemma of knowledge sharing: A network pluralism framework of firms' R&D alliance network and innovation performance. *Journal of Management*, 45, 2635-2665.
- ZHANG, J., WANG, Y. & ZHANG, M. Y. 2018. Team leaders matter in knowledge sharing: A cross-level analysis of the interplay between leaders' and members' goal orientations in the chinese context. *Management and Organization Review*, 14, 715-745.

Appendix: Participants and Projects Detail

Sr. No.	Participants' Pseudonyms	Gender	Management Level	Qualification	Project	Project Detail	Foreign Partner	Purpose of the alliance	Interview Duration (Hour: Min)
1	Arif	Male	Middle Management	Master's	HVDC	Development of concept design and project plans for Installation HVDC transmission line in Pakistan	SNC Laveline, Canada	SNC Laveline, Canada (Developing the concept design and project plans)	1:17
2	Akram	Male	Senior Middle Management	Master's	..	..	..	..	1:01
3	Nayyer	Male	Middle Management	Undergraduate	SCADA	Development of concept design and project plans for Installation of Supervisory Control and Data Acquisition in Power distribution centres	Electricite de France	Electricite de France (Developing the concept design and project plans)	1:28
4	Haroon	Male	Middle Management	Master's	Mangla Dam Raising Project	Development of concept design and project plans for Raising of Mangla Dam by 40 feet	MWH USA	MWH USA (Developing the concept design and project plans)	1:56
5	Anwaar	Male	Lower Middle Management	Master's	..	..	..	..	1:07
6	Maqsood	Male	Top Management	PhD	FEWS	Development of concept design and project plans for Installation of Flood Early Warning Systems	DHI Netherlands	DHI Netherlands (Developing the concept design and project plans)	2:30
7	Yawer	Male	Middle Management	Master's	..	..	..	..	1:40
8	Muneeb	Male	Middle Management	Master's	Bhikki Power Plant Project	Development of concept design and project plans for combined cycle-based power production plants	Lahmeyer Germany	Lahmeyer Germany (Developing the concept design and project plans)	1:25
9	Ashfaq	Male	Senior Middle Management	Master's	..	..	..	..	1:47
10	Manzoor	Male	Middle Management	Master's	LBDCPP	Development of concept design and project plans for lower Bari Doab canal power project	Mott Macdonald Limited, UK	Developing the concept design and project plans	1:10

Sr. No.	Participants	Gender	Management Level	Qualification	Project	Project Detail	Foreign Partner	Purpose of the alliance	Interview Duration (Hour: Min)
11	Shahbaz	Male	Senior Middle Management	PhD	NJHPP	Development of concept design and project plans for Neelum Jhelum Hydro Power Plant	Professors from Switzerland; MWH USA; Norplan Norway; ACE Pakistan; NDC Pakistan	Alliance with Swiss Professors for help in hydropower design and civil engineering in overall designing the project; Alliance with NORPLAN for tunnel engineering; Alliance with MWH for designing the structure of hydro power plant;	1:30
12	Mohsin	Male	Middle Management	Master's	..	..	..	..	1:08
13	Adeel	Male	Top Management	Master's	Murree Cable Car Project	Development of concept design and project plans for installation of Murree Cable Car	Snowy Mountain Engineering Consultant (SMEC) Australia; Cable Car Consultant (CCC) Switzerland	Alliance with SMEC Australia (for the required analysis of geological and geographical conditions of the project site including analysis of land sliding such as its study, design, control and mitigation); Alliance with Cable Car Consultant Switzerland (for designing the cable car and gondolas through Ropeways technology, getting them manufactured with certain features suitable to the specific geological and geographical conditions of the project and its installation)	1:35
14	Zaidi	Male	Senior Middle Management	Master's	..	..	..	..	1:11
15	Nasir Hussain	Male	Middle Management	Master's	Refurbishment of Mangla Dam Turbines	Development of concept design and project plans for refurbishment of Mangla Dam Turbines	MWH USA	MWH USA (Developing the concept design and project plans)	1:55
16	Asad	Male	First Line Management	Undergraduate	..	..	..	..	1:40
17	Abdus Sattar	Male	Senior Middle Management	Master's	Dasu Hydro Power Project	Development of concept design and project plans for Dasu dam and hydro power project	MWH USA; COLINQO Switzerland	MWH USA and COLINQO Switzerland for development of concept design	1:29

Sr. No.	Participants	Gender	Management Level		Project	Project Detail	Foreign Partner	Purpose of the alliance	Interview Duration (Hour: Min)
18	Amna	Female	Lower Middle Management	Master's	Guddu Power Project	Development of concept design and project plans for Guddu power project	Harbin Electric International Company China	Developing the concept design	1:35
19	Waseem	Male	Lower Middle Management	Undergraduate	Lahore Orange Line Metro Train Project (LOLMTP)	Development of concept design and project plans LOLMTP	CR-Norelco, China	CR-Norinco, China (Developing the concept design and project plans)	2:00
20	Ayla	Female	Lower Middle Management	Master's	..	..	..	..	1:02
21	Azaad	Male	Lower Middle Management	Master's	..	..	..	..	1:38
22	Abdullah	Male	Middle Management	Master's	..	..	..	..	1:58
23	Majid	Male	Lower Middle Management	Master's	..	..	..	..	1:37
24	Aqeel	Male	Lower Middle Management	Master's	..	..	..	..	1:05
25	Naveed	Male	Lower Middle Management	Master's	..	..	..	..	1:05