

# Inter-organizational knowledge transfer in Omani SMEs: influencing factors

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Knowledge  
transfer in  
Omani SMEs

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Received 1 November 2017  
Revised 17 February 2018  
Accepted 26 May 2018

## Abstract

**Purpose** – Inter-organizational knowledge transfer (IOKT) is important especially for small and medium enterprises (SMEs). Organizations need external knowledge to improve learning capabilities and their own competitiveness. SMEs are important for every nation's economy. IOKT can enable SMEs' learning and innovation and consequently its contribution to the national economy. This study aims to examine the factors that influence the IOKT process in Omani SMEs.

**Design/methodology/approach** – This study uses qualitative methodology. Participants were ten Omani SMEs from the information and communications technology sector, a knowledge-intensive sector. The study is based on face-to-face semi-structured interviews and content analysis.

**Findings** – The results confirmed that inter-organizational knowledge is considered to be important to SMEs. This research also showed that IOKT is affected by many factors related to the donor organization, recipient organization, nature of the knowledge and inter-organizational dynamics. The core factor to IOKT in SMEs is risk and trust.

**Originality/value** – Literature shows that there is an emphasis on the importance of studying knowledge management in SMEs; however, there is little work that has been done. Such study is even more important for Omani SMEs to improve their learning, innovation and contribution to a national diversified economy. This study provides valuable insights to establish an effective foundation for IOKT in Omani SMEs.

**Keywords** SMEs, Knowledge management, Knowledge transfer, Inter-organizational knowledge transfer, Omani SMEs

**Paper type** Research paper

## Introduction

Knowledge management (KM) is a source of competitive advantage (Bakar *et al.*, 2015; Loebbecke *et al.*, 2016) and a way to improve organizational performance (Bakar *et al.*, 2015). Knowledge transfer (KT) is an area of study within KM that has also been given a great deal of focus recently (Easterby-Smith *et al.*, 2008). It is a determinant of the long-term existence of organizations (Khamaksorn *et al.*, 2017). Organizations need to acquire information from different sources around them so it can help them build their competitive advantage and become successful (Bakar *et al.*, 2015; Easterby-Smith *et al.*, 2008). KT, either within or across boundaries, helps organizations improve their innovation capabilities by leveraging the skills of others and is considered to be one of the fundamental elements of creating innovative solutions in the economy (Kulińska *et al.*, 2015).

Inter-organizational knowledge transfer (IOKT) is an activity by which organizations can acquire knowledge from other organizations – ideally in a strategic alliance situation (Easterby-Smith *et al.*, 2008; Yih-Tong Sun and Scott, 2005), joint ventures (Fang *et al.*, 2013), R&D



programs (Poorkavoos, 2013), mergers and acquisitions or in licensing agreements. IOKT is a process by which knowledge is passed from one donor organization to another recipient organization. A donor organization is a “teacher” organization that provides knowledge to the recipient “student” organization (Steensma *et al.*, 2005). The KT process between organizations has to be managed effectively so that it yields the intended results for which the initial relationship was established (Fang *et al.*, 2013; Rhodes *et al.*, 2008). The establishment of the relationship for KT is complex (Easterby-Smith *et al.*, 2008), and many factors can contribute to its success (Rhodes *et al.*, 2008; Yih-Tong Sun and Scott, 2005). Management of that relationship is not easy, and designing a framework that fits a specific organization has to take into consideration all the factors that influence its success. Because of their unique characteristics, the difficulties that small and medium enterprises (SMEs) encounter while managing knowledge are bigger than those faced by large organizations (Cerchione *et al.*, 2016; Grandinetti, 2016); however, their ability to innovate is higher (Marri *et al.*, 2016).

SMEs are the backbone of the national economy because of the contribution they make to the country’s GDP (Bakar *et al.*, 2015; Durst and Runar Edvardsson, 2012; ITC, 2015; Marri *et al.*, 2016). External sources of knowledge are very important to SMEs because they can help them avoid mistakes. Examples of these external sources are customers, competitors, suppliers and conferences (Chen, 2005). SMEs need IOKT (Chen *et al.*, 2006) because of its ability to improve their performance when effectively used (Szulanski, 1996). Literature shows that there is an emphasis on the importance of studying KM in the domain of SMEs; however, there is little work that has been done (Cerchione and Esposito, 2017; Durst and Runar Edvardsson, 2012; Zieba *et al.*, 2016), especially in the KT area and, specifically, in the information and communications technology (ICT) sector.

Consequently, the aim of this study is to assess the influencing factors of IOKT in SMEs in Oman. In Oman, in IOKT, there is only one article by Al-Salti (2011) that investigated KT, but in IS outsourcing. Although there is support from the Omani government to encourage entrepreneurship among Omanis, the SME sector is still not doing what it is supposed to be doing in terms of the contribution to GDP and creation of job opportunities – compared to neighbor countries in the GCC. IOKT can enable learning, improved performance and competitive advantage, innovation and growth for SMEs.

SMEs’ contribution to Oman’s 2015 GDP value is 14 per cent – which is about 3.8bn OMR compared to 33 per cent in Saudi Arabia (Jedda Economic Gateway, 2016). According to Riyada (2017), SMEs contribute to about 30.2 per cent of total entrepreneurs in the Sultanate of Oman. There are 5,064 small enterprises in Oman, which is about 25.8 per cent of the whole population. There are 871 medium enterprises, which is about 4.4 per cent of the total population. The Omani government supports SMEs through several initiatives and bodies, including National Business Center, The SME Development Fund, Al Raffd fund, Oman Development Bank, SAS managed by Oman Information Technology Authority (ITA) and Riyada. Thus, such investigation is needed to promote SME development in Oman.

## Literature review

### *Inter-organizational knowledge transfer*

IOKT is a process by which knowledge is passed from one donor organization to another recipient organization. IOKT may include the process of movement, assimilation and application of knowledge and involves at least two organizations (Easterby-Smith *et al.*, 2008). It is also a useful strategy for value creation or sustainable competitive advantage (Lyles and Salk, 1996; Van Wijk *et al.*, 2008) and improving business performance (Szulanski, 1996). KT is a difficult process (Szulanski, 1996); it is complicated (Grant, 1996)

and can be viewed as a social dilemma (Maciejovsky and Budescu, 2013). It is even more complex and difficult at the inter-organizational level (Chen, 2005).

It is important to understand the relationship between the interacting organizations in the process of IOKT. Before any form of knowledge flows from one party to the other, there has to be an agreement on the goal from transferring this knowledge. This can be in a form of a strategic alliance which is organizing how the KT process is going to be established (Easterby-Smith *et al.*, 2008). The management of this strategic alliance is difficult and has a high failure rate because of the barriers associated with the KT process (Fang *et al.*, 2013).

Successful IOKT depends on the combination of external and internal knowledge. Chen (2005) mentioned two channels that organizations can use to facilitate the IOKT. These channels are social and electronic networks. Social networks allow for face-to-face communication, which creates stronger ties between individuals, which in turn allows for tacit and explicit KT. Electronic networks have the advantage of rapidly transferring explicit knowledge and reduced communication cost (Warkentin *et al.*, 2001), but have difficulties transferring tacit knowledge.

*Inter-* and *intra-*organizational KT are different (Van Wijk *et al.*, 2008). Intra-organizational KT is the process that addresses how the knowledge is transferred and its diffusion within the organization (Ollows and Moro, 2015). In that KT scenario, the organization does not require an external source of knowledge; it already exists in the organization (Perrin and Rolland, 2007). According to Chen (2005), IOKT may consist of two sub-processes. The first sub-process is when inter-individual learning is happening. The second sub-process is when individual learning is converted into organizational learning through organizational internal mechanisms. The process of IOKT is more difficult than intra-organizational KT (Easterby-Smith *et al.*, 2008).

SMEs have a strong need for IOKT (Chen *et al.*, 2006). It improves business performance and the effectiveness of this process in the SME context depending on how the external knowledge is effectively used (Szulanski, 1996). Although there is a need for IOKT, Kramer *et al.* (2016) showed in an explorative study that SMEs had unclear ideas of KM terms and what benefits it could bring to their organizations. Chen (2005) provided a list of knowledge that is important to SMEs ordered by importance; the list includes:

- customers;
- own products/services;
- own competencies/capabilities;
- best practices/effective processes;
- emerging market trends; and
- competitors and suppliers.

#### *Knowledge transfer influencing factors*

KT process has many factors that affect it (Easterby-Smith *et al.*, 2008; Lane and Lubatkin, 1998; Rhodes *et al.*, 2008). Throughout the KT literature, there were factors listed that contribute to the effectiveness of the KT process. These factors can be considered as motivators or barriers. Table I summarizes some theoretical and empirical studies that identified some influencing factors of the KT process within an organization.

#### *Inter-organizational knowledge transfer influencing factors*

In inter-organizational context, it is challenging to strike the right balance between competitive and cooperative forces in an effective KT. Also, complexity exists because of the differences between organizations in cultures, boundaries and processes. Organizations will not be willing to transfer knowledge if they fear losing their

**Table I.**  
Summary of factors  
influencing KT  
process

Reference	KT factors	Additional information
Ishihara and Zolkiewski (2017)	Absorptive capacity Type of knowledge Network ties	Empirical
Khamaksorn <i>et al.</i> (2017)	Inter-organizational commitment Trust Willingness to cooperate KT methods and mechanisms	Theoretical
Kulińska <i>et al.</i> (2015)	Culture Trust Leadership Absorptive capacity	Theoretical
Fang <i>et al.</i> (2014)	Communication process	Theoretical
Rhodes <i>et al.</i> (2008)	Trust and good communication Organizational controls Culture, training and education Processes and activities Leadership Human resources management Networks Innovation strategies	Empirical
Ajmal and Koskinen (2008)	Technological readiness	Theoretical
Sherif and Sherif (2008)	Culture and context	Empirical
Jennex (2008)	Culture	Theoretical
Muthusamy and White (2005)	Trust and reciprocity	Empirical
Yew Wong (2005)	Leadership	Empirical
Hasanali (2002)	Leadership Culture Structure, roles and responsibilities IT infrastructure	Theoretical
Simonin (2004)	Knowledge characteristics	Empirical
Ives <i>et al.</i> (2003)	Structure Culture Process and strategy IT systems	Theoretical
Szulanski (1996)	Relationship between donor and recipient Absorptive capacity	Empirical

competitive advantage (Maciejovsky and Budescu, 2013). That is why finding the right balance between these factors is important to manage what can be shared and under which conditions. In the inter-organizational context, more factors can influence the KT process, which can be related to the involved organizations' characteristics, the relationship between them and the transference of knowledge characteristics. Table II summarizes theoretical and empirical studies that highlight influencing factors of the IOKT process.

#### *Summary of influencing factors*

Most of the reviewed studies are theoretical and not empirical, and very limited studies are on SMEs. After analyzing the factors that affect the process of KT and assessing their occurrences in the literature, it was found that the most critical factors are Culture (12), Trust and Risk (8), Absorptive Capacity (8) and others as indicated in Table III.

Reference	IOKT factors	Study type
Yuling (2016)	Learning ability Cognitive distance Expected value R&D cost	Theoretical
Bieniek and Pliszka (2014)	Leadership	Theoretical
Maciejovsky and Budescu (2013)	Fear of losing that competitive advantage	Theoretical
Fang <i>et al.</i> (2013)	Knowledge content Environmental context Knowledge characteristics (tacitness, ambiguity and complexity)	Theoretical
Easterby-Smith <i>et al.</i> (2008)	Absorptive capacity Motivation and intent to learn Power issues, Risk taking, Geographic position Support of management Innovation capability development Social ties	Theoretical
Van Wijk <i>et al.</i> (2008)	Structure and mechanisms Power relations Absorptive capacity Trust and risk Cultural differences	Theoretical
Yih-Tong Sun and Scott (2005)	Knowledge characteristics Organizational culture Sender (interpersonal skills, communications skills, values and openness) Receiver (Trust of the individual, openness to new ideas, learning capability, communication methodology, external power and influences and group view of the message) Organizational support, Conflict of interest, Loss of competitive advantage, Understanding and trust, Culture and values conflicts, Common objective, Personality clashes at the top level, Top management direction, Openness to ideas, and Flexibility	Empirical
Abou-Zeid (2005)	Knowledge specific Culture specific	Theoretical
Chen <i>et al.</i> (2006)	Relationships	Theoretical

**Table II.**  
Summary of factors influencing IOKT

### Study investigated model

IOKT is a complex process (Aquino and de Castro, 2017; Chen, 2005; Easterby-Smith *et al.*, 2008) because there are many factors that affect its success (Rhodes *et al.*, 2008; Yih-Tong Sun and Scott, 2005). Literature has shown many factors that affect the IOKT process. Table III summarizes the top-listed influencing factors.

One of the classic IOKT KT theoretical models that identified most of the factors noted by this study's literature review is by Easterby-Smith *et al.* (2008), which is based on earlier work

**Table III.**  
Summary of top factors influencing KT and IOKT process

Factor	Reference
Culture	Kulińska <i>et al.</i> (2015), Radziszewska (2009), Jennex (2008), Rhodes <i>et al.</i> (2008), Van Wijk <i>et al.</i> (2008), Easterby-Smith <i>et al.</i> (2008), Yih-Tong Sun and Scott (2005), Ives <i>et al.</i> (2003), Hasanali (2002)
Absorptive capacity	Aquino and de Castro (2017), Ishihara and Zolkiewski (2017), Szulanski <i>et al.</i> (2016), Easterby-Smith <i>et al.</i> (2008), Van Wijk <i>et al.</i> (2008), Lane and Lubatkin (1998), Szulanski (1996)
Trust and risk	Khamaksorn <i>et al.</i> (2017), Kulińska <i>et al.</i> (2015), Maciejovsky and Budescu (2013), Easterby-Smith <i>et al.</i> (2008), Rhodes <i>et al.</i> (2008), Muthusamy and White (2005), Yih-Tong Sun and Scott (2005), Szulanski (1996)
Leadership	Kulińska <i>et al.</i> (2015), Bieniek and Pliszka (2014), Yew Wong (2005), Yih-Tong Sun and Scott (2005), Hasanali (2002)
Strategy and structure of the organization	Kulińska <i>et al.</i> (2015), Radziszewska (2009), Easterby-Smith <i>et al.</i> (2008), Ives <i>et al.</i> (2003)
Knowledge characteristics	Nakauchi <i>et al.</i> (2017), Fang <i>et al.</i> (2013), Van Wijk <i>et al.</i> (2008), Simonin (2004)
Social relationship	Ishihara and Zolkiewski (2017), Easterby-Smith <i>et al.</i> (2008), Rhodes <i>et al.</i> (2008), Chen <i>et al.</i> (2006)
Technological readiness	Ajmal and Koskinen (2008), Easterby-Smith <i>et al.</i> (2008), Hasanali (2002)
Communication	Kulińska <i>et al.</i> (2015), Fang <i>et al.</i> (2014), Rhodes <i>et al.</i> (2008)
Motivation and intent to learn	Radziszewska (2009), Easterby-Smith <i>et al.</i> (2008)
Power issues	Easterby-Smith <i>et al.</i> (2008), Yih-Tong Sun and Scott (2005)

performed by Grant (1996). In addition, the model integrated the donor and recipient perspective, which is also investigated by this study. This framework has been highly adopted and modified by several studies in different contexts including very recently Yee *et al.* (2015) and Eiriz *et al.* (2017). Thus, the current study aims to extend the theoretical model by Easterby-Smith *et al.* (2008) based on the above literature to investigate the factors that affect the IOKT process in SMEs.

Figure 1 shows the Easterby-Smith *et al.* (2008) framework which has factors grouped into four main themes:

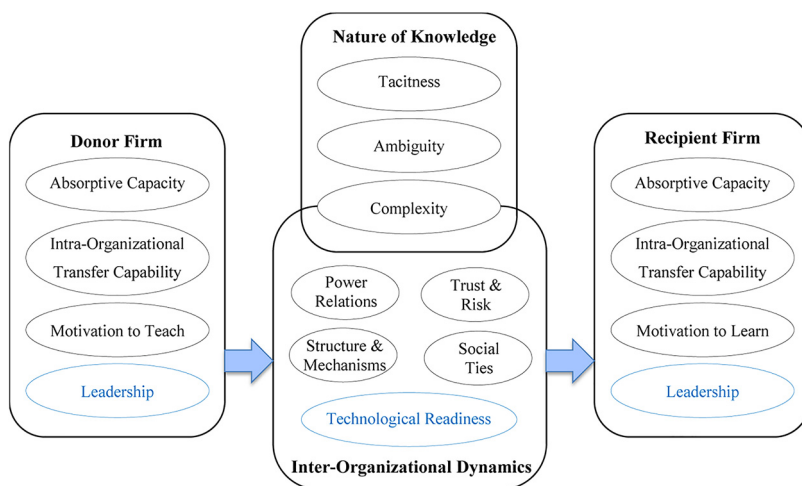
- (1) resources and capabilities of the donor organizations;
- (2) resources and capabilities of the recipient organizations;
- (3) nature of the knowledge being transferred; and
- (4) intra-organizational dynamics.

This framework theoretically identified most of the factors in this current thesis noted from the literature review, except for a couple of factors. There are two other factors that were added to this framework. The first one is leadership, which is under both donor and recipient firm characteristics. The second factor is technological readiness, which is under inter-organizational dynamics. The reason this framework was selected – plus the addition of two other factors, i.e. leadership and technological readiness – is that it is nearly describing the results found in Table III.

## Research methodology

### Survey design

The research objective is to study the factors that influence the IOKT process between Omani SMEs. This research used in-depth, semi-structured interviews with open-ended and close-ended questions to elaborate on the open-ended questions (Ravitch and Carl, 2015). Most of the literature (Hutzschenreuter and Listner, 2007, Ollows and Moro, 2015; Al-Salti,



Source: Adopted with modification from: Easterby-Smith *et al.* (2008)

Figure 1. Factors influencing IOKT

2011) shows that this area of study is preferred to be studied using qualitative methods. Interview is a common method for collecting information from people (Kumar, 2011). The development of the questions in the instrument was developed based on related literature [such as Easterby-Smith *et al.* (2008)] and according to Kumar's (2011) guidelines for formulating effective questions. The interview had two sections for this presented study. The first interview section included the participant organizations and respondents, and the second section focused on exploring the factors that impact the IOKT. A general question was asked in addition to specific questions related to the investigated themes and factors.

Validity of a qualitative study has been widely defined with no fixed or universal concept (Golafshani, 2003). A valid study is one that has properly collected and interpreted its data, so that the conclusions from that study reflect and represent the real world in an accurate way. The interview questions were validity through face validation with experts in the field and pilot rest validation with two organizations.

#### Data collection

This research is targeting SMEs that are involved in information and communication technology activities. These activities include one or a mix of the following: hardware, software, security and networking. This classification is based on the registration system provided by Oman ITA for registering SMEs. The EU defines SME as any company that has between 10 and 250 employees (European Commission, 2016). In comparison with the EU definition of SMEs, Central Bank of Oman (2016) categorizes micro, small and medium enterprises by the size of the organization – measured by the number of registered employees – and its budget. A medium enterprise is classified with 50-200 employees and a budget of US\$1.3-13.3m; a small enterprise is classified with 3-49 employees and a budget of US\$27,000-1.3m; a micro enterprise is classified with 1-2 employees and a budget less than US\$27,000. Table IV shows the number of SMEs and how much the ICT sector makes up from the total population.

Qualitative researchers worked with small samples of people and studied them in depth (Miles and Huberman, 1994). A snowball sampling approach was also used. The reason for this is that

in qualitative research, the number of respondents is not decided in advance and additional cases will be selected until data saturation point is reached. The concept of data saturation point is highly subjective (Kumar, 2011): “long interviews with up to 10 people” are sufficient to reach saturation (Creswell, 2012). Snowball sampling uses networks to select the sample and can be used in qualitative research without having a predetermined number of cases in mind. The other reason for selecting this method is that it is a very useful method for studying communication patterns, decision-making or diffusion of knowledge within a group (Kumar, 2011). The snowball methodology used helped in reaching SMEs who are forming networks. Reaching a sample of ten organizations means that this research covers close to 7.5 per cent of the total population.

**Analysis and results**

*Respondents’ demographic*

Ten organizations were interviewed in the process of data collection. In total, 80 per cent were small (6 and 25 employees) and 20 per cent of them were medium organizations (26 and 100 employees). SME classification is based on related government entities. All ten organizations provide software services (engaged in building solutions to solve business problems). Besides the software services, some of them provide other ICT services like hardware, security, training and networking. Figure 2 shows these organizations and their links. Table V shows a summary of the respondents’ demographics.

*Inter-organizational knowledge transfer factors analysis and discussion*

This study explored the influencing factors of the IOKT in SMEs. Following four main themes were investigated:

- (1) characteristics of donor firm;
- (2) characteristics of recipient firms;
- (3) nature of knowledge; and
- (4) inter-organizational dynamics.

Under each of these areas, there are factors that were investigated. A thematic analysis was followed for the data analysis phase. The analysis method follows the Miles and Huberman (1994) framework. It consists of the following three streams: data reduction, data display and conclusion drawing/verification. After the transcribing process of the interviews, a copy of the transcribed interview was sent to each participant company to confirm and validate the answers. This section presents study findings related to the studied factors that impact IOKT.

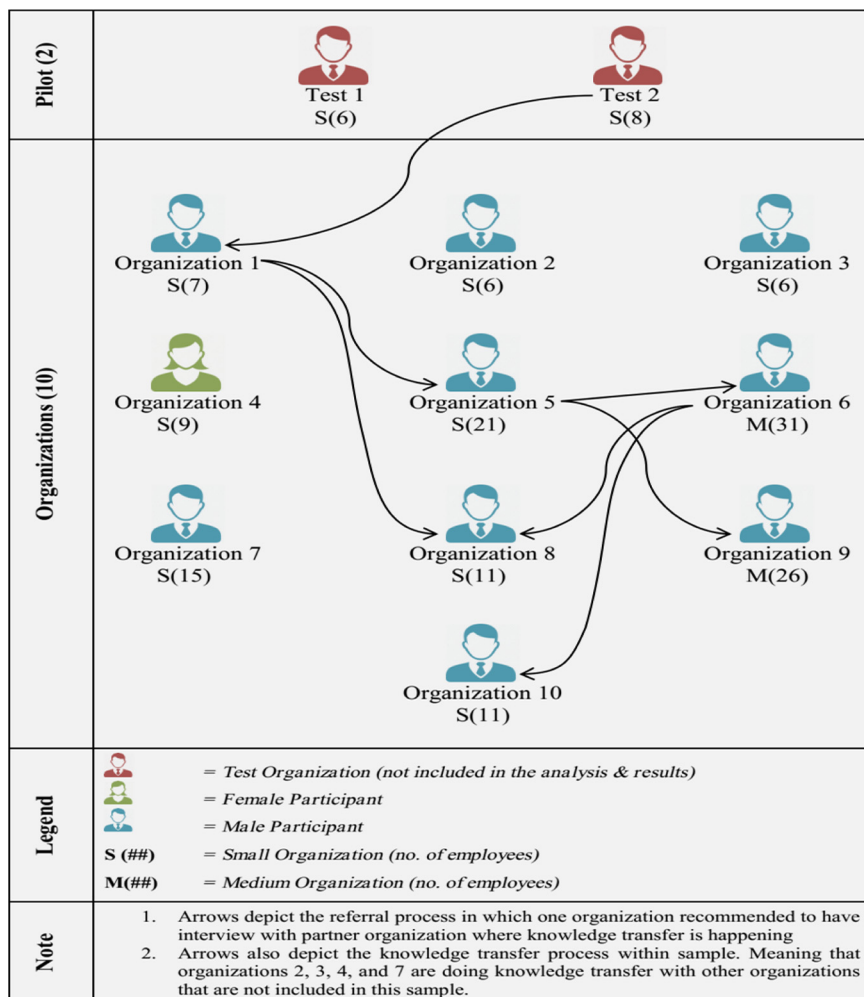
Using computer-assisted qualitative data analysis software (CAQDAS) offered computer assistance in analyzing the data and sorting it based on codes and visualization (Miles and Huberman, 1994). According to Flick (2014), CAQDAS offers speed, improved research quality and improvement in data representation. Transcribed data were prepared using Microsoft Excel and then were loaded to QDA Miner for further inspection and detailed

**Table IV.**

ICT SMEs compared to total SMEs in Oman

	SMEs at all industries (Riyada, 2017)	SMEs at ICT sector (Director of incubators and entrepreneurship centers, Riyada)
Small	5,064	71
Medium	871	63
Total	5,935	134





**Figure 2.**  
Pilot vs participants

analysis. Categories and codes were created in the software. While doing the analysis and coding using QDA Miner, notes were created and associated with the data. These notes helped in storing the reflections while doing the analysis.

*Donor firm factors.* Some characteristics of the donor organization have been investigated. The participant organizations were asked questions that explored specific organizational characteristics when donating knowledge to external organizations. The following four factors were studied:

- (1) absorptive capacity;
- (2) intra-organizational transfer capability;
- (3) motivation to teach; and
- (4) leadership.

**Table V.**  
Respondents'  
demographics

Respondents' profile (n = 10)	Frequency
<i>Gender</i>	
Male	9
Female	1
<i>Age</i>	
30 years old or below	4
31-35 years old	2
36-40 years old	2
Above 45 years old	2
<i>Education</i>	
Bachelor Degree/Professional	8
Master Degree/Professional	2
<i>Length of service</i>	
Less than 5 years	4
6-10 years	2
11-15 years	2
16-20 years	1
Above 21 years	1
<i>Job position</i>	
Owner	5
Manager	3
Sr. Positions	2

Absorptive capacity. Value realization at the donor organization was assessed. The question explored the ability of the organization to realize the value of the knowledge and their ability to absorb and incorporate it into the organization's processes. Qualitative analysis of the data showed that 70 per cent of the participant companies demonstrated the importance of absorptive capacity when doing KT with other SMEs. Participants showed the understanding of the value they are adding to the other organization when donating knowledge to other organizations. For example, one of the participants stated:

The value I'm getting is indirect in a sense that this is going to create a business opportunity and a chance for my company to publicize itself.

Intra-organizational knowledge capability. This factor refers to the ability of the organization to spread the external knowledge internally. Analysis of the qualitative data showed that all donor SMEs have demonstrated the importance and capability to spread the newly received knowledge to their employees inside the organization. SMEs rely on tools to achieve that objective (Cerchione and Esposito, 2017). Some of these tools are e-mail, formal/informal team meetings, WhatsApp groups (specific to their organization), cloud-based collaboration tools like Slack, Asana, Pushbullet and File Server. Each one of these tools enables team collaboration and project management. For example, one of the participants explained the use of one of these tools by saying:

Once we create a new entry in Slack, other team members will receive notifications on their desktops and on their mobile phones. The main purpose of this application is to circulate the knowledge inside the organization [...] It has nice presentation capabilities that are very attractive and they can spot the information immediately – where they can share everything they want with other team members inside the organization.

Motivation to teach. According to [Easterby-Smith et al. \(2008\)](#), the motivation of the recipient organization to learn motivates the donor organization to teach, and vice versa. Analysis on the qualitative data showed that 80 per cent of the donor organizations have demonstrated the importance and motivation to teach other organizations. In total, 20 per cent of the respondents mentioned that they are motivated by the intent of increasing mutual trust with the other organization. For example, one of the participants stated that:

The most important thing for the company is mutual trust. We established our company to be a very friendly company to other companies. If we helped them today they'll help us later. This is going to encourage them to transfer knowledge to us.

Leadership. The study explored the level of support that leadership is providing to KT activity inside their organizations and how they encourage it. Leadership support is very important for KM-related activities including KT ([Kulińska et al., 2015](#)). All of the respondent organizations demonstrated the importance of leadership support when donating knowledge to other organizations. One of the participants started:

I encourage knowledge transfer to other companies but with the precaution of not jeopardizing the secrets of the company. The more knowledge we transfer, the more will come back to us.

When the participants were asked about the types of encouragement provided, one of the participants commented, "We encourage knowledge donation but we don't have a specific scheme to reward how much we transferred to the other organizations". A lack of incentives to transfer knowledge was found to be a key organizational issue ([Filemon and Uriarte, 2008](#)).

*Recipient firm factors.* The characteristics of the recipient organization have been investigated as well. The participants were asked questions that explored specific organizational characteristics when receiving knowledge from external organizations. Following four characteristics were studied:

- (1) absorptive capacity;
- (2) intra-organizational transfer capability;
- (3) motivation to learn; and
- (4) leadership.

Absorptive capacity. The study also explored the ability of the recipient organizations. Analysis showed that 90 per cent of the participant companies demonstrated the importance of absorptive capacity when doing KT with other SMEs. Analysis performed on participants' responses indicated that most of the respondents used the knowledge to "improve project delivery" or "enhance products". This also confirms that SMEs realize the value received because they are trying to make use of it and incorporate it into their processes ([Chen, 2005](#)). This does not necessarily mean that they are succeeding at doing this.

Intra-organizational knowledge capability. This factor is the ability of the organization to spread external knowledge internally. Analysis showed that all recipient SMEs have demonstrated the importance and capability to spread the newly received knowledge to the employees inside the organization. Similar to donor organizations, recipient organizations rely on tools to transfer knowledge. Some of these tools are e-mail, formal/informal team meetings, WhatsApp groups (specific to their organization), cloud-based collaboration tools like Slack, Asana, Pushbullet, Zoho and File Server. One of the respondents discussed the idea of having a newsletter that can be distributed to all SMEs. The participant stated:

[. . .] Now we are asking ITA SAS to create a formal newsletter so that everybody can contribute in transferring knowledge to other SMEs. This will also help SMEs to go back and read the newsletters of what they missed. It will be a form of knowledge base of all SME activities.

Motivation to learn. According to [Easterby-Smith et al. \(2008\)](#), the motivation of the recipient organization to learn motivates the donor organization to teach, and vice versa. Analysis showed that all recipient SMEs have demonstrated the importance and motivation to learn from each other. They were derived by the fact that more knowledge means better service or a product will be offered to the customers which may reflect on their survival. One of the respondents said, “[. . .] the more knowledge we have the better we can be as an organization and the better we can survive”. Another commented that: “The motivation to us is to increase the level of learning we have inside the organization. We don’t know everything and we need more knowledge”.

Leadership. The study also explored the level of support that leadership is providing to KT activity inside their organizations and how they encourage it. All of the respondent organizations demonstrated the importance of leadership support when giving knowledge to other organizations”. There was not any kind of incentive or reward that was provided by leadership that could encourage the knowledge receiving from other organizations. Availability of incentives encouraging KT, and the lack of, were found to be an organizational issue ([Filemon and Uriarte, 2008](#)). One of the participants stated that:

I, as a leader of this organization, encourage my team to bring more knowledge from the outside. We are small organization and I can’t afford giving money as a reward.

*Nature of knowledge factors.* Knowledge has many characteristics that can be barriers to KT. If knowledge is characterized by tacitness, ambiguity or complexity, then this would present obstacles to a smooth KT process ([Simonin, 2004](#)).

Tacitness. Participants were asked about the importance of tacitness in the transferred knowledge. The reason for this was to link the level of tacitness and how it is being impacted by the media to transfer the knowledge. All the participants demonstrated the importance of knowledge tacitness and explained that most of the knowledge they transfer is of a technical nature and is not always tacit. The way they transfer this knowledge is limited to the use of e-mail, telephone and IM (WhatsApp application). There was not any form of social interaction between the organizations that would allow for tacit knowledge to be transferred – an externalization process.

Ambiguity. Ambiguity of knowledge means that there is a level of uncertainty and equivocality – which is the possibility of having multiple meanings or interpretations of the knowledge being transferred. All of the participants demonstrated the importance of knowledge ambiguity and confirmed that sometimes transferred knowledge is ambiguous and it was confusing to them. Having said that, about half of them stated that this is not always the situation and most of the time the knowledge they receive from other organizations is clear because they “[. . .] ask direct questions that we expect direct answers to”.

Complexity. Respondents were asked about the complexity level of the transferred knowledge. In total, 90 per cent of the respondents demonstrated the importance of knowledge complexity and commented that the knowledge they transfer can range from very simple to very complex, and 30 per cent of respondents mentioned that when they donate knowledge they try to avoid transferring complex knowledge because it may be too complicated for the other person. As an example, one of the respondents stated that:

[. . .] Some concepts have complexity but I normally avoid anything that is going to complicate the person who is receiving the knowledge.

*Inter-organizational dynamics factors.* Power relations. This factor refers to the imbalance of knowledge levels between the organizations participating in the KT process. None of the respondent organizations felt the importance of superiority in the relationship during the KT process and they do not practice it while donating knowledge. As a matter of fact, most of them understand that this could ruin their relationship with other organizations if they acted with superiority because of the knowledge they have. SMEs believe in good relationships with other organizations (Chen *et al.*, 2006). One respondent stated: “We don’t put ourselves above anybody. [...] there is no need to feel superiority”.

*Trust and risk.* These two factors are highly related, and their impact on the KT is great. Having a higher level of risk negatively impacts the KT process, whereas having a higher level of trust facilitates the KT process.

All the participants demonstrated the importance of trust and risk while involved in KT. They have precautions for transferring too much knowledge that may impose risk – either at a personal or company level. The trust issue was obvious for respondents and the examples they provided. All of them showed that lack of trust in the knowledge provided by the other organization. One of the participants talked about the competitors and said:

We always put in our mind that all competitors want us to fail and they will provide us wrong information. That is why we check the information and compare with other competitors and sometimes ask the vendor.

Another participant linked the trust factor with the risk that can be imposed. The risk mentioned was loss of time. He stated:

[...] We are very careful in selecting and implementing ideas. We calculate risks and decide carefully. Again, we can’t afford wasting more time.

Organizations that donate knowledge risk losing their competitive advantage; organizations that receive knowledge risk accepting useless or low-quality knowledge (Ko *et al.*, 2005).

*Structure and mechanisms.* Structure is how the relationship is structured between the two organizations in order for KT to happen. KM activities within SMEs tend to happen in an informal way (Baptista Nunes *et al.*, 2006). All the participants demonstrated the importance of structure and mechanisms while doing KT. In total, 60 per cent of the participants reported that they have informal relationships with other organizations when doing KT. They have been described as “friendly” relationships with others. The other 40 per cent of the participants reported that they have formal relationships with other organizations when doing KT. Respondent number 5 commented on the structure type with other organizations by saying:

We have a formal partnership with a couple of companies. We agreed on certain things to be done while working on a project and what kind of knowledge would be transferred between employees in both companies. One of them is Omani organization [*later referred to Respondent 9 who identified his structure type as contractual*], who had a formal partnership with them. Other companies are in Bahrain, Jordan and Kuwaiti.

Mechanisms are the tools or methods that are used to transfer knowledge by the SMEs. In all, 70 per cent of the participants use informal gatherings/meetings. E-mail is the main KM tool that is used by SMEs for knowledge diffusion (Cerchione and Esposito, 2017); 60 per cent of the participants use e-mail, and 50 per cent use phone conversations and instant messaging (WhatsApp). And finally, thirty per cent use formal meetings.

*Social ties.* Informal social ties are superior channels for knowledge flow between organizations (Easterby-Smith *et al.*, 2008). Participants were asked to evaluate their relationship with other organizations – whether formal or informal – and what the frequency of communication is. All the participants demonstrated the importance of social ties while doing

KT. In all, 60 per cent of them stated that they are in an informal relationship with other organizations and often described it as a “friendly relationship”. The frequency of contacting the other organizations is very low. It ranges from one per week to two per month. On the other hand, the other 40 per cent of organizations that are in formal relationships with other organization contact the other organizations with a frequency that ranges from one or two per day to two per week. It can be observed that the frequency of the contact between the organizations that are in formal relationships is higher than the organizations that are in informal relationships.

*Technology readiness.* Participant organizations were investigated in terms of their information technology (IT) readiness. Information technology tools can be used for KT. IT readiness – if it exists – should facilitate the communication and KT but it should not guarantee the effectiveness of the KT. SMEs’ use of KM tools is limited to traditional tools rather than new tools that are cheaper and easier to use (Cerchione and Esposito, 2017). Analysis has shown that all participants demonstrated the importance of technology while doing KT, and they rely on basic technology tools when doing KT. The only two methods used are e-mail and instant messaging services (WhatsApp). According to Cerchione and Esposito (2017), e-mail is considered the main and most KM tool that is used by SMEs for knowledge diffusion. Recipient organizations involved in the process were equipped with the same technologies that are available at the donor organization.

This research investigated the factors impacting IOKT between Omani SMEs in the ICT sector using a modified model from Easterby-Smith *et al.* (2008) presented in Figure 1. Out of 13 factors, four were categorized into main themes:

- (1) characteristics of the donor firm;
- (2) characteristics of the recipient firms;
- (3) nature of knowledge; and
- (4) inter-organizational dynamics.

Figure 3 presents the summary of the findings.

## Conclusion

### *Research key findings*

KT in the domain of SMEs is an encouraging area of study. There are very limited empirical studies that are targeted to IOKT among SMEs in the ICT sector in general and specifically to the Sultanate of Oman. From that perspective, this research aimed to explore the factors that impact the IOKT process among organizations involved in the process. Ten SMEs participated in this research.

The study explored the role of sixteen factors grouped into four main themes. The first theme was the resources and capabilities of the donor organizations in which the following factors were studied: absorptive capacity, intra-organizational knowledge capability, motivation to teach and leadership. The second theme was the resources and capabilities of the recipient organizations in which the following factors were studied: absorptive capacity, intra-organizational knowledge capability, motivation to learn and leadership. The third theme was the nature of knowledge in which the following factors were studied: tacitness, ambiguity and complexity. The fourth studied theme was the inter-organizational dynamics in which the following factors were studied: power relations, trust and risk, structure and mechanisms, social ties and technological readiness. All of the studied factors were relevant to the context in which this study had been carried out except for one: power relations.

Similar to prior theoretical and empirical studies (Table III), this study demonstrated the importance of firms’ factors, knowledge factors and inter-organizational factors to the IOKT

Legend:													
✓	Factor is important												
✗	Factor is not important												
		Org. 1	Org. 2	Org. 3	Org. 4	Org. 5	Org. 6	Org. 7	Org. 8	Org. 9	Org. 10	Total	
Theme	Sub-theme (Factor)												
Factors	Donor	Absorptive Capacity	✓	✓	✗	✓	✓	✗	✓	✓	✗	✓	7
		Intra-organizational Knowledge Capabilities	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
		Motivation to Teach	✓	✓	✓	✓	✓	✗	✓	✓	✗	✓	8
		Leadership	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
	Recipient	Absorptive Capacity	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	9
		Intra-organizational Knowledge Capabilities	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
		Motivation to Learn	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
		Leadership	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
	Knowledge Char.	Tacitness	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
		Ambiguity	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
		Complexity	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
	Inter-Org. Dynamics	Power Relations	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	0
		Trust and Risk	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
		Structure and Mechanisms	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
		Social Ties	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10
Technological Readiness		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10	
Benefits	Performance	Accuracy	+	+	+	+	-	+	-	+	+	8	
		Speed	+	+	+	+	-	-	-	+	+	7	
		Productivity	+	+	+	+	-	-	-	+	+	7	
		Cost	+	+	+	+	+	+	-	+	+	8	

Figure 3. IOKT Influencing factors importance summary

process in Omani’s SMEs. Very limited studies were conducted on IOKT in the Omani context. Al-Salti (2011) conducted an IOKT study in the context of outsourcing; whereas Al-Busaidi and Olfman (2017) conducted an inter-organizational study but from the perspective of individual employees on knowledge sharing. These studies can be integrated for general insights.

Research and practical implications

This study hopes to contribute some exploratory insights to the body of knowledge of KM, KT and IOKT in Oman, specifically in the domain of SMEs and ICT.

Researchers can build on the findings of this study to come up with a holistic IKOT framework specifically designed for SMEs in the Omani context. Many researchers agree that the ICT industry is a knowledge intensive industry and it is an enabler for a strong, knowledge-based economy. From that perspective, it is encouraging to study the KT – as one of the KM processes – in the ICT industry. This study has provided empirical qualitative evidence of IOKT and has looked at both parties (donor and recipient) involved in the KT process.

From a practical perspective, this research is believed to be helpful for SMEs to carry out better IOKT activities among themselves. Based on the analysis of the results, here are few recommendations for SMEs:

- Leaders at these SMEs should pay attention to having a clearly communicated top management support to the KT activities and to have that support backed up with proper incentives and rewarding mechanisms.
- The Omani government is good at creating networks for SMEs but is currently used for business purposes (opportunity generation).

This is good for SMEs and the economy, but they should also emphasize the KT activities by creating the platforms that allow SMEs to carry out KT activities effectively. It would be

a good idea to create social events specifically designed under a KT theme and make SMEs realize the basic concepts of knowledge and its benefits. Also, government entities can help SMEs with creating formal structures to define the aim and the expected benefits of the IOKT.

By addressing the research questions of this explorative study, it should form empirical evidence of the existence and status of the IOKT between Omani ICT SMEs. The results of this study could help Omani decision-makers and SMEs to understand how IOKT could aid in learning and innovation and focus on the factors that positively affect the process.

#### *Research limitations and future work*

Although this qualitative research provides empirical evidence about the IOKT among Omani ICT SMEs, there are few limitations of this qualitative study. First, as a qualitative study, it cannot draw significant and generalizable results; future studies should check the significance of these results using a quantitative approach. Second, this research is based on SMEs in the Sultanate of Oman. The findings may not be applicable to micro organizations (one to five employees) or large organizations (more than 250 employees). Third, this research addressed the ICT sector. Future studies can investigate other countries, or other sectors. Fourth, most of respondents are from small organizations. This imbalance was caused by the difficulty in reaching out to more medium organizations because of their busy schedules. So, the results of the study may be more skewed toward small organizations. Thus, future studies need to involve more medium organizations. Fifth, future studies may conduct a detailed examination of the interaction among themes and factors.

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