

# Kindred spirits—trust and knowledge sharing in the knowledge management literature

by

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## Declaration

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# Abstract

## **Kindred spirits—trust and knowledge sharing in the knowledge management literature**

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Knowledge and its successful management is widely held to be a determinant of innovation and competitive advantage for businesses in the 21st century. Knowledge sharing is one of the key processes of knowledge management and is generally accepted to be largely social in nature. As a result trust is often held up as an essential determinant of knowledge sharing in the knowledge management literature. This thesis reviews the top echelons of the Knowledge Management (KM) literature in order to ascertain how the literature treats trust as a variable in relation to knowledge sharing. The results show that while trust is often mentioned as an important factor, only a small section of the articles explored trust in depth, and often this was done in conjunction with other

*ABSTRACT*

**iii**

factors. It also showed that, despite some consensus in the literature on conceptions of trust, methods were heavily weighted towards a wide range of survey-based measures. In order to address some of the shortcomings of these methods when applied to a dynamic phenomenon such as trust, a trust-as-process approach was described and offered as one of a set of recommendations to researchers.



## Uittreksel

### Getroude geeste—vertroue en kennisdeling in die kennisbestuursliteratuur

*(“ Kindred spirits—trust and knowledge sharing in the knowledge management literature”)*

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Kennis en die suksesvolle bestuur daarvan word algemeen beskou as ’n bepalende faktor vir innovasie en mededingende voordeel vir ondernemings in die 21ste eeu. Kennisdeling is een van die belangrikste prosesse van kennisbestuur en word algemeen aanvaar dat dit grotendeels sosiaal van aard is. Gevolglik word vertroue dikwels as ’n wesenlike bepaler van die deel van kennis in die literatuur oor kennisbestuur gehou. In hierdie tesis word die toonaangewende literatuur van die Kennisbestuur (KM)-literatuur bespreek om vas te stel hoe die literatuur vertroue as ’n veranderlike in verhouding tot kennisdeling beskou. Die resultate toon dat, hoewel vertroue dikwels

as 'n belangrike faktor genoem word, slegs 'n klein gedeelte van die artikels vertrou in diepte ondersoek het, en dit is dikwels gedoen in samewerking met ander faktore. Dit het ook getoon dat, ondanks 'n mate van konsensus in die literatuur oor konsepte van vertrou, metodes swaar geweeë is in die rigting van 'n wye verskeidenheid opmetingsgebaseerde maatreëls. Om enkele van die tekortkominge van hierdie metodes aan te spreek wanneer dit toegepas word op 'n dinamiese verskynsel soos vertrou, is 'n vertrouens-as-proses benadering beskryf en aangebied as een van 'n stel aanbevelings aan navorsers.



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## Dedications

*I dedicate this work to my darling wife, Cathy, who instructed me in the academic equivalent of “whittling” in the editing of this paper.*





# Contents

<b>Declaration</b>	<b>i</b>
<b>Abstract</b>	<b>ii</b>
<b>Uittreksel</b>	<b>iv</b>
<b>Acknowledgements</b>	<b>vi</b>
<b>Dedications</b>	<b>vii</b>
<b>Contents</b>	<b>viii</b>
<b>List of Figures</b>	<b>xi</b>
<b>List of Tables</b>	<b>xii</b>
<b>1 Introduction</b>	<b>1</b>
1.1 Introduction and Overview to the Study . . . . .	1
1.2 Knowledge Sharing and Trust . . . . .	6
1.2.1 Knowledge Sharing . . . . .	7
1.2.2 Trust . . . . .	8
1.3 Other Factors . . . . .	12

1.4	Purpose and Rationale for the Study . . . . .	13
1.5	Research Question and Research Design . . . . .	16
1.6	Concluding Summary . . . . .	17
<b>2</b>	<b>Background</b>	<b>19</b>
2.1	Introduction . . . . .	19
2.2	Knowledge . . . . .	20
2.3	Knowledge Management . . . . .	23
2.4	Knowledge Sharing . . . . .	25
2.5	Trust and Knowledge Sharing . . . . .	33
2.6	Concluding Summary . . . . .	36
<b>3</b>	<b>Literature Review</b>	<b>39</b>
3.1	Introduction . . . . .	39
3.2	Trust . . . . .	40
3.2.1	Trust Definitions and Typologies . . . . .	43
3.2.2	Trust as Process . . . . .	48
3.2.3	Measures of Trust . . . . .	54
3.3	Other Factors . . . . .	56
3.4	Concluding Summary . . . . .	58
<b>4</b>	<b>Methods</b>	<b>59</b>
4.1	Introduction . . . . .	59
4.2	Search Strategy . . . . .	59
4.2.1	Sources of Data . . . . .	60
4.2.2	Search Terms and Delimiting . . . . .	60
4.2.3	Selection Criteria . . . . .	63
4.3	Coding . . . . .	64
4.4	Limitations of the Study . . . . .	65
4.5	Concluding Summary . . . . .	65

<b>5</b>	<b>Presentation and Discussion of Findings</b>	<b>67</b>
5.1	Introduction . . . . .	67
5.2	Results . . . . .	68
5.3	Summary of Articles' Aims and Findings . . . . .	69
5.4	Concept of Knowledge Sharing and Knowledge . . . . .	74
5.4.1	Types of Knowledge . . . . .	77
5.5	Trust Concept . . . . .	79
5.5.1	Definitions and Typologies of Trust . . . . .	79
5.5.2	Functions of Trust . . . . .	84
5.6	Trust Measures . . . . .	86
5.7	Other Factors . . . . .	92
5.8	Concluding Summary . . . . .	96
<b>6</b>	<b>Conclusion and Recommendations</b>	<b>97</b>
6.1	Introduction . . . . .	97
6.2	Conclusion . . . . .	98
6.3	Recommendations and implications for future research . . . . .	104
	<b>Appendices</b>	<b>106</b>
	<b>A Appendix</b>	<b>107</b>
	<b>Study Articles</b>	<b>119</b>
	<b>References</b>	<b>128</b>



## List of Figures

2.1	McNeish model of Trust and Knowledge Sharing in Organisations . . . . .	37
4.1	Article Search and Screening Process adapted from (Bornbaum et al. 2015)	62
5.1	Chronology of articles where trust was studied as the independent variable in relation to knowledge sharing as the dependent variable . . . . .	69
6.1	<i>Day 37: "I've finally earned the E.Coli's trust."</i> – (McNamee 2017) . . . . .	105



## List of Tables

3.2	Sample of Trust Definitions . . . . .	45
3.3	Basic Trust Typology . . . . .	46
3.4	Process and Variance approaches ( <i>Jagd and Fuglsang 2016, p. 5</i> ) . . . . .	50
3.5	Process approaches to trust . . . . .	53
4.2	Top 8 KM Journals . . . . .	61
5.2	Definitions of Trust . . . . .	80
5.3	Trust Measures . . . . .	88
5.4	Trust Dimensions . . . . .	91
A.2	Full list of articles . . . . .	107
A.3	The independent and dependent variables identified in articles. . . . .	118

# 1

## Introduction

“Share your knowledge. It is a way to achieve immortality”.

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*Dalai Lama*

### 1.1 Introduction and Overview to the Study

Knowledge has for time immemorial attracted the interest of scholars in the West and the East (Wiig 2000). From beginnings in religion and ancient philosophy, interest in knowledge migrated to fields of economics, psychology and sociology before hitting its stride in the world of work in the latter third of the 20th century (Wiig 2000). However Spender and Scherer (2007) find it strange that despite the plain evidence of the strides humans have made in all spheres over the centuries it is only recently that this interest in knowledge and the harnessing of its benefits has become *de rigueur* . . . . As David and Foray (2002) note, there have always been institutions and organisations that have managed to create new knowledge and disseminate it, with many examples from the Cistercian monasteries to the royal academies in the 18th century to the NASAs and Googles of today.

It has certainly long been held that knowledge and its successful creation, harnessing and sharing is key to individual and organisational success (Nonaka 1994; Daven-

port and Prusak 1998; Lubit 2001; Abrams et al. 2003). In an article that appeared in *Harvard Business Review* in 1997 Drucker et al. (1997) state that the only source of comparative advantage of a developed nation is its supply of knowledge workers. The realisation is that knowledge should be a strategic focus of modern organisations is widely documented (Ruggles 1998; Boisot 1998). Knowledge acts differently from traditional resources, increasing its utility, and growing the more it is shared and used; i.e the sharing of ideas breeds new ideas (Davenport and Prusak 1998). This one characteristic among many, means it requires a unique set of strategies for firms to benefit from it, that collectively came to be called Knowledge Management (KM) in the late eighties (Wiig 2000). Newell et al. (2009) define KM as the collection of strategies, tools and practices that a firm employs in order to develop knowledge as a resource of an organisation. Alavi and Leidner (1999, p. 6) state that KM is a “systemic and organisationally specified process for acquiring, organising, and communicating both tacit and explicit knowledge of employees so that other employees may make use of it to be more effective and productive in their work”. Variations of this definition include the one from Wong et al. (2015) who describe knowledge management as the management of an organisations knowledge resources and knowledge processes, with the objective of creating value through knowledge usage that will give competitive advantages to the users. This creation of value is central to KM’s *raison d’être* in modern management. KM is related to business value because knowledge is fundamental to both improving efficiency and innovation, the two fundamental business drivers that enable organisations to compete (Newell 2015). The link to these key drivers has seen KM adopted across a range of organisations in wide variety of industries. Girard (2015) found and analysed over a 100 definitions of KM across a number of industries (from accounting and aerospace to the health and cognitive sciences). A simple free text *Google* search on the term *Knowledge Management* returned over 1,6 billion results.<sup>1</sup> In 2003 Serenko and Bontis (2004) performed a search with the same term which returned 3,150,000 results.

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<sup>1</sup>This search was performed on <http://www.google.com> 3 March 2019

This importance is supported by a knowledge-based theory of the firm (Spender 1996; Nonaka and Takeuchi 1995) which extended the resource-based theories first espoused in the 1950s by Edith Penrose Alavi and Leidner (2001). The knowledge-based theory holds that in a post-industrial knowledge economy, the focus on the accumulation and transferring of natural resources of the resource-based view of the firm has shifted to “intellectual assets” or knowledge assets (Lee and Choi 2003, p. 180), and that the management of these assets involves the successful capture, sharing and integration of these assets in order to make firms more resilient and competitive (Grant 1996). Levin and Cross (2004, p. 1477) argue that firms that fully utilise their stocks of knowledge and know-how tend to be more “innovative, efficient and effective”. It is an era where knowledge is seen by some to have become a critical organisational resource for sustaining competitive advantage (Wang and Noe 2010), where the balance of intangibles and tangibles has shifted in favour of the intangibles. It is an era in which firms, especially those that rely on knowledge for their revenue see their “assets’ go home in the evening” (Spender and Scherer 2007, p. 8). It is also a period where a previous abundance of raw materials, skilled labour and access to open markets has largely given way to one where the ability to harness the capacity to create new knowledge is the new measure of success (David and Foray 2002; Clegg et al. 2011). As Davenport and Prusak (1998, p. 47) state: Increasingly, knowledge and related intangibles not only make businesses go, but are part of all of the ‘products’ firms offer. Economists first recorded the growth in intangible vs intangible capital in the early 20th Century, and showed that by 1973 capital deployed to improve knowledge creation and human capital had already overtaken tangible capital expenditure (David and Foray 2002, pp. 9–11). In recent times the ubiquity of cloud computing and software as a service (Saas) models is one such example of this growth. Software companies such as Microsoft have adapted their business models by delivering their intellectual property as services to users embedded in lines of code and not as physical products.

In the same Drucker article cited above Senge (1997, p. 32) noted that the corralling



of the “intelligence and spirit of people at all levels of an organisation to continually build and share knowledge” is the key challenge for organisations this millennium. As an indication that knowledge management in organisations is a people issue one can not get any clearer, but for many organisations the response has been heavily weighted towards the implementation of technology solutions (Lee and Choi 2003; Wang and Noe 2010). However this led to much introspection after many of these initiatives failed to deliver on promised value, according to Cook and Brown (1999), and an orientation developed towards social aspects of human interaction at work, and concepts such as Communities of Practice came into being (Lave 1991). Organisational researchers doubled their efforts around challenges of teamwork and collaboration as important success factors in knowledge management initiatives (Politis 2003).

These developments saw a second wave of interest in the subject of knowledge and its management across a wide variety of fields—including economics, psychology and sociology—take on the challenge of solving this problem (Wiig 2000). This cross-discipline interest, however, has brought with it much contention, clustered around issues of definition of knowledge, knowledge work and even knowledge management. There is now wide acceptance that there will always be conceptual sparring around definitions due to the multi-disciplined, subjective framing of *knowledge* itself (Newell et al. 2009). There are, according to Newell et al. (2009), some useful working definitions that cover both the individual and social aspects of knowledge. For example knowledge has been defined as the ability to navigate, discriminate or span within or across contexts (Swan 2007). It has also been tightly linked to intellectual capital, which sees knowledge as a form of intellectual capital or material such as useful information, intellectual property, and experience that can be used to create value (Stewart 2007). Where there appears to be broad consensus is on the importance of knowledge to modern firms (Abrams et al. 2003), importance that is borne out by the volume of research in KM-related subjects. An AIS e-library search between 1998 and 2013 on KM-related articles revealed only 212 articles in 1998 and then a steady increase to a peak in 2011 of 1555 articles (Serenko and Bontis 2004). The interest in the subject

is mirrored in the world of business where attempts have been made to put a value to the risk of not sharing knowledge. According to Babcock (2004), an estimated \$ 31.5 billion is lost every year by Fortune 500 companies because of a failure to share knowledge (2004 figures). Many have sought to explain why many KM initiatives have struggled (Davenport and Prusak 1998) and tried to make recommendations to practitioners on what pitfalls to avoid, because as Asrar-ul-Haq and Anwar (2016) argues, knowledge that is not well managed erodes easily, while Wang and Noe (2010) agrees with (Senge 1997) that it's largely a people issue that requires focus at the organisational and interpersonal contextual levels. It has also been argued that the overarching challenge is with the nature of knowledge itself. Carlile (2002) states that there appears to be awareness of the importance of knowledge and its relationship continuing competitive advantage. However it has been difficult for firms to implement knowledge management programmes because of the fundamental difference between the two different types of knowledge: explicit and tacit knowledge. Explicit knowledge is the knowledge that can be easily captured, codified, and shared through manuals, documents and standard operating procedures Wong et al. (2015). Tacit knowledge is associated with the "skills or know-how" collected with experience in particular contexts (Newell et al. 2009, p. 7). The tacit characteristics of knowledge (Polanyi 1966; Nonaka and Takeuchi 1995) and its inherent stickiness (Szulanski 2000) can make it difficult to share. For some scholars this is partly as a result of treating knowledge as an asset that can be possessed – like a building or a production line and exchanged or transferred like a commodity. This view forms the scaffolding of what Cook and Brown (1999, p. 383) term the "epistemology of possession" school. This approach sees the practice of knowledge management in organisation as largely revolving around the successful corralling of knowledge assets in large knowledge management systems, by codifying or making explicit tacit knowledge in order to make it easier to share. Critics of this view, those who follow a knowledge as process or practice view, argue that treating knowledge as a possession is inherently the reason many knowledge management initiatives, especially those involving the design and implementation of

knowledge management systems have failed to deliver value. According to Newell et al. (2009, p. 4) this view of knowledge is more likely to describe knowledge as a phenomenon that is constructed and negotiated through social interaction. It is therefore “intrinsic to localised social situations and practices that people actually perform”, and not something that can exist outside of those practices and knowledge management is therefore all about creating the “enabling context that allows people to do (or say) things differently and, hopefully, better”.

## 1.2 Knowledge Sharing and Trust

A second wave of KM research has seen a move away from the knowledge-as-asset epistemology, towards one which accepts knowledge or the dynamic of “knowing” as active, process-driven and social in nature. This has resulted in more focus on the factors that may influence knowledge management processes. For example knowledge process enablers, blockers and other contextual variables that stimulate and support the creation, sharing and use of knowledge are of keen interest to researchers (Lee and Choi 2003).

It is largely because sharing and exchange behaviour are deemed social processes and that knowledge is regarded as deeply personal (Fernie et al. 2003) that knowledge sharing and trust have emerged in the literature as key complementary factors (Ford 2004): knowledge sharing because it is perhaps the process in knowledge management that is the most reciprocal of nature and, in general, requires the co-operation of individuals, and trust because it is tightly entwined with exchange-type behaviour, and is, therefore, widely held to be a predictor of knowledge sharing and of a knowledge sharing culture. Yet, despite broad consensus of the importance of the two, both as distinct factors in their own right and as inter-related variables, researchers have grappled with the twin concepts, largely as a result of the ramified nature of the concepts themselves, the relationship between them, and how this relationship can be observed and measured.

### 1.2.1 Knowledge Sharing

Knowledge sharing, like trust, has suffered to an extent from cross-discipline attempts to find a standard definition. This depends on which side of the epistemological divide one is situated. Knowledge sharing has been described as the making of individual knowledge available through the process of converting knowledge into an absorbable, transportable form (Ipe 2003). It has also been defined as a set of behaviours to encourage the “exchange of acquired knowledge” (Chow and Chan 2008, p. 458). Knowledge sharing, according to Wang and Noe (2010), is a knowledge-centered activity and is an essential process in knowledge management (Newell et al. 2009). In fact it is seen as the most central of all knowledge management processes, according to Asrar-ul-Haq and Anwar (2016) and its promotion is a key challenge for managers (Levin and Cross 2004). Lee and Choi (2003) state it is the knowledge process that is also a dependent process for the creation of new knowledge, as without sharing of both explicit and tacit knowledge, knowledge creation can not take place. Knowledge sharing is different to information sharing, in that it has more of a bi-directional, reciprocal form (Connelly and Kelloway 2000). It is also the key knowledge management process that encompasses the sharing of task information and is the primary means by which individuals in a firm can collaborate. “As one knowledge-centred activity, knowledge sharing is the fundamental means through which employees can contribute to knowledge application, innovation, and ultimately the competitive advantage of the organisation” (Wang and Noe 2010, p. 115), and is also tightly associated with organisational learning (Szulanski 2000; Huber 1991).

Therefore Knowledge Management (KM) is about either sharing what is already known in some part of the organisation with the parts where the existing knowledge is needed; or about the sharing of new knowledge discovered by some with others.

Some scholars do not make a distinction between knowledge transfer and knowledge sharing with many using the term interchangeably (Ford 2004). According to Paulin and Suneson (2015) the lines are blurred between sharing and transfer, which one is used depends on the school of thought related to their treatment of knowledge.

If they are, in what Paulin and Suneson (2015, p. 87) refer to the “knowledge-as-object” school, they tend to use the term knowledge transfer, and if they are in the “knowledge as a socially-constructed” process school then the term knowledge sharing tends to be more prevalent. While in some cases they found that both terms are often utilised when describing the same KM process. King (2011, p. 73) makes the following distinction: “[knowledge] transfer implies focus, a clear objective and uni-directionality, while knowledge may be shared in unintended ways, multi-directionally, without a specific objective”. McNeish and Mann (2010, p. 19) define knowledge transfer as follows: knowledge transfer is about the ability to take “action” based on knowledge received or in circulation while knowledge sharing is about the exchange of knowledge between two individuals. Research in the area of knowledge sharing in firms mainly centres around two areas. There is either research focused on the predictors or antecedents of knowledge sharing or research which concentrates on the barriers to knowledge sharing. Knowledge sharing barriers have been termed as those elements that combine to disrupt knowledge flows (Paulin and Suneson 2015). Szulanski (2000) breaks up factors that affect knowledge sharing/transfer into both motivational factors and knowledge barriers. These factors are either studied as a multi-factorial or on an individual factor basis, and can encompass both internal and external knowledge sharing, with the level of analysis generally occurring on the individual, organisation or technological levels (Serenko et al. 2007). According to Asrar-ul-Haq and Anwar (2016) knowledge sharing is impacted by a number of variables. These include, amongst others, personal characteristics of individuals, groups and organisations, for example age and gender, as well as certain embedded qualities of the individual, such as attitudes to knowledge sharing as well as culture.

### **1.2.2 Trust**

One of the key factors identified in the literature and the other variable and object of study in this thesis is that of trust. Knowledge sharing is closely associated with trust. Serenko et al. (2007) acknowledge that many of these factors that support knowledge

sharing are independent and can be addressed individually by firms but that it's often an aggregation of factors which is required to improve knowledge sharing. Trust is a factor that has been isolated as a key predictor of successful knowledge sharing by a number of studies, including one in which 132 Information Systems (IS) business units from seven industries showed that mutual trust increased the level of knowledge sharing, while a lack of trust was a significant hurdle to knowledge sharing in teams (Cleveland and Ellis 2015). Trust has been defined as the “willingness to be vulnerable to the actions of another party, based upon the positive expectations of the intentions of the behaviours of the other party under conditions of risk and independence” (Mayer and Davis 1999; Rousseau et al. 1998). It has also been defined as a confident reliance on a person, group, organisation when there is uncertainty and unpredictability or risk (Gillespie and Hurley 2013; Hurley 2006). The importance of trust within the economic sphere has long been espoused. Its centrality to our entire economic system is perhaps best captured by Greenspan (1999), the former head of the American Federal Reserve, who stated that without trust economies would become sclerotic.

Trust is at the root of any economic system based on mutually beneficial exchange. In virtually all transactions, we rely on the word of those with whom we do business. Were this not the case, exchange of goods and services could not take place on any reasonable scale. Our commercial codes and contract law presume that only a tiny fraction of contracts, at most, need be adjudicated. If a significant number of business people violated the trust upon which our interactions are based, our court system and our economy would be swamped into immobility.

In the 1990s a Deutsche Bank advertising campaign of the time used the advertisement tag-line Trust ... “*der Angfung von allem* (the beginning of everything)” (Bachmann and Zaheer 2013, p. 1). Ironically this was the banks' undoing as the global financial crisis of 2007-2008 effectively became a crisis of trust. The crisis demonstrated how a large-scale erosion of trust can have profound political, economic and

social impact on the nation state, as Fukuyama (1995) noted in his classic work on trust *Trust: Social Virtues and the Creation of Prosperity*. It is also difficult to build trust, maintain it and repair it once it has broken down (Bachmann and Zaheer 2013).

Misztal (2013, p. 12) states that trust is “essential for stable relationships, vital for the maintenance of co-operation, fundamental for any form of exchange and necessary for even the most routine of everyday interactions”. According to Hurley (2006, p. 62): “trust is the measure of the quality of a relationship between two people, between groups of people, or between a person and an organisation”. In totally predictable situations the question of trust is not an issue. The fact that trust is difficult to build, maintain and repair makes it an object of interest in relation to individuals, groups and systems in economic, social and political life. At the organisational level especially both intra and inter-organisational exchange of goods and services, information and knowledge is built on the bedrock of trust.

Trust is important to knowledge sharing because it shares a reciprocal foundation (Connelly and Kelloway 2000) with a certain level of valency in the process. For example I will be less likely to share my knowledge with someone if I do not expect the donation to be returned in some way. And this is even more pertinent when the knowledge that is shared is not codified or explicit in form. That is, the more tacit—knowledge that is peculiar to an individual, for example beliefs, mental models and perspectives based on experience (Connelly and Kelloway 2000)—the more difficult it is to share. If one follows a knowledge as a socially constructed undertaking then knowledge is best shared via social interaction (Connelly and Kelloway 2000). It is for this reason that trust is brought into play as an important enabler of knowledge sharing. Ford (2004, p. 2) highlights the importance of trust to the success of knowledge management practice in general, and its relation to knowledge management processes such as sharing, in organisations. They state: “If trust is a key ingredient for the success of knowledge management then it is important to understand how it relates to the various knowledge management processes, and how a manager may plant the seeds required for trust and knowledge management to grow (i.e be successfully implemented)”.

According to Li (2012) trust matters, especially in the following organisational contexts: When uncertainty (e.g. complexity and ambiguity) or unmet expectations is high; when the vulnerability of control (e.g failure of form of contract) is high; when the stakes (e.g. financial loss) of unmet expectations or control failure are high; when long-term interdependence (e.g. reciprocal relationships) is high. In their meta-review of the knowledge management journal literature Asrar-ul-Haq and Anwar (2016, p. 7) argue that trust emerged as the “most significant factor” in the process of knowledge sharing from about 2010, and Rolland and Chauvel (2000, p. 239) claim that “trust is the single most important precondition for knowledge exchange”. This hand-in-glove relationship between the two is often presented in the knowledge management literature, with trust explored as one of several processes, alongside organisational culture, social processes, external and internal incentives—amongst others, to support knowledge sharing (McNeish and Mann 2010). Trust is also regarded as an essential component of organisational performance, as Davenport and Cronin (2000) state, without trust an organisation would need to formulate a set of rules for every transaction (a bureaucratic snarl-up, Greenspan alluded to above at a more macro level), including the sharing of knowledge. The importance of vertical and horizontal trust, that is trust between colleagues and trust between manager and sub-ordinate are also important forms of trust. In many organisations internal competition between colleagues can lead to situations of knowledge hoarding, both to protect one’s individual competitive advantage from ambitious colleagues or from perceived management control (Connelly and Kelloway 2000).

As a result research interest in the subject of trust has grown from a niche, specialist area from the late 1980s into one which has established itself rapidly and intensively especially in the management sciences (Bachmann and Zaheer 2006). According to Arnott (2007) there has been in excess of 50 peer-reviewed papers per year on trust, and a number of special issues such as the *Academy of Management Review*, Vol. 23 No. 3, 1998 and *Organization Studies* Vol. 22 No. 2, 2001, as well as conference tracks dedicated to trust, for example the *World Economic Forum* 2003. In the health sci-



ences, for example, there were 1612 articles on the topic from 1995–2003; compared to 764 in the preceding 15 years (Schlesinger et al. 2005). Yet both concepts (trust and knowledge sharing), despite being explored by many researchers, have similar difficulties when it comes to definitions or lack thereof (McNeish and Mann 2010). As Misztal (2013) states it is the omnipresent nature of the phenomenon of trust that has also led to an often ambiguous understanding and treatment of the concept. Both trust and knowledge sharing share these epistemological complexities.

While in the area of trust research some consensus has been reached in the area of definition there still appears to be issues of operationalisation (trust is notoriously difficult to measure), which has led calls for researchers to look at alternatives to logico-scientific methods, or which Jagd and Fuglsang (2016) describes as variance approaches. One method proposed by prominent trust researchers, such as Möllering (2013) and Nooteboom (2002), have been grouped as trust-as-process methods, where rather than focusing on the “how much” or “how many” trust measures, they study the continuous forming and reforming of trust(ing) and its antecedents over time, and taking account of both the cognitive and social processes of trust(ing). These methods are built on the premise that trust is both an outcome and a precondition for social interaction. This observation can also be applied to knowledge sharing. Trust is both an antecedent or predictor of knowledge sharing, and is also an outcome. In other words I require trust in order to share, and the more I share, the more trust is generated and built up over time.

### 1.3 Other Factors

Of course trust was not always a single factor, but combined with others to impact knowledge sharing. Alongside trust, culture (Alvesson and Kärreman 2001), individual factors (Lin 2007; Okyere-Kwakye and Nor 2011) and organisational factors (Hansen and Wernerfelt 1989; Serenko et al. 2007) have also been studied as predictors of knowledge sharing. Culture has been identified as an important factor in many aspects

of organisations and competitive performance, especially in the sharing of knowledge, through culture's tight link to beliefs, norms and values of groups (Alvesson and Kärreman 2001). Organisational factors can be described as those factors such structure, systems, size (Serenko et al. 2007), and history of a firm that could have an impact on business performance. These factors have been presented, together with environmental and people (individual) factors. Individual factors can be described as those factors such as skills, characteristics, motivation, attitudes and knowledge that a person possesses that may determine their behaviour in social situations. As Nonaka and Toyama (2003) stated the process of knowledge creation is embedded in social interaction. Individuals share and create tacit knowledge through direct experience both within and outside an organisation (Nonaka and Toyama 2003).

In staying with antecedents of trust, and in keeping with the view as espoused by proponents of trust-as-process methods, the analysis of articles also surfaced other significant factors. These factors could be deemed to be predictors of trust that also have an effect on knowledge sharing. While they were not the prime focus of the paper, I believe they are significant enough to warrant inclusion for discussion – especially where those factors, could be classified as enhancing the enabling context in which trust forms and ultimately knowledge sharing benefits. They are also factors that are studied in combination with trust as having an influence on knowledge sharing or as variables on their own. After trust the next most significant factors impacting knowledge sharing were cultural, organisational and individual factors. It should be noted that many highlighted trust as an important mediating or environmental factor, especially where leadership, organisational size and structure and cultural factors were being measured or discussed.

## **1.4 Purpose and Rationale for the Study**

It is the aim of this thesis to help further research in the study of trust and knowledge sharing in organisations by exploring how the literature treats this relationship. Given

trust's implied importance as an essential factor in knowledge sharing, this thesis sets out to understand whether the relationship between the two has been given enough focus, and, if not, to provide recommendations for how its treatment in future research can be improved. In order to best describe this relationship, this thesis begins by setting out as background how the literature deals with knowledge, knowledge management, the key knowledge management process of knowledge sharing as well as an overview of knowledge sharing and trust. It will then move on to a review of the literature's conception of trust, trust typologies and measures, and trust-as-process. In addition I will outline some of the significant factors other than trust that were surfaced as key predictors of knowledge sharing. I believe this study is important and adds to the body of literature because it explores two of the key concepts in knowledge management research: trust and knowledge sharing. Both of these concepts matter independently and when brought together, matter even more to practitioners. It is, therefore, important to understand the depth of the problem of trust and knowledge sharing and the strength of its entanglement in order to construct and bolster trust-based mechanisms and to positively influence knowledge sharing practices in organisations.

On a more macro scale the importance of trust in political, social and economic institutions has been brought into stark relief. First with a major breakdown of trust in our global financial institutions with the global financial crisis in 2007-2008, as mentioned above, which saw the collapse of long-standing institutions such as Bear Sterns and Lehman Brothers, and the wiping out of an estimated \$4.1 trillion of wealth globally (Gillespie and Hurley 2013). Economic conflagrations such as these have been fertile ground for trust researchers, as Gillespie and Hurley (2013, p. 177) state: "the Global Financial Crisis (GFC) presents a unique setting to examine trust, trust violation and trust repair from a multi-level perspective that crosses the individual, organisational, industry and societal levels". And more recently the revelations of large-scale manipulation of personal data on Facebook in order to influence the election of Donald Trump in 2016 and the Brexit referendum in the United Kingdom (Cadwalladr 2017), has been seen as the first trust crisis for the field of data science, and Big Data,

with far reaching implications. As this article from the The Guardian newspaper indicates:

The fallout from the Cambridge Analytica–Facebook scandal marks a significant inflection point in the public’s trust concerning Big Data. The health-science community must use this crisis-in-confidence to redouble its commitment to talk openly and transparently about benefits and risks and to act decisively to deliver robust effective governance frameworks, under which personal health data can be responsibly used (Lawler et al. 2018, p. 1014).

In my own observations, having spent over a decade implementing various forms of Knowledge Management Systems (KMS) in a corporate organisation, I was always intrigued, often perplexed, as to why many of these initiatives failed to deliver on their promise of increasing the sharing of knowledge both between individuals and between groups. In some cases, knowledge systems, have even been blamed for restricting knowledge sharing as businesses look to protect their intellectual property in increasingly tough market conditions. Another aspect has been the proliferation of instant messaging platforms such as *WhatsApp*. Many organisations are now grappling with mass defections away from official company KMS to share information and knowledge via the relative, perceived safety of encryption of these mass adoption message platforms. It has even spawned a term in the Knowledge Management literature, Personal Knowledge Management (PKM) (Ahmad 2015).

Could this be a result (or a sign) of a deficit of trust in corporate and large-scale social networks? I often find myself self-regulating the sharing of comments, tags and images. Is this related to my lack of trust in the network of individuals, the social interactions; the institutions or the system itself? Recent developments surrounding privacy issues and data leakage has once again brought trust and knowledge sharing into stark relief. Or is that I am not willing to make myself vulnerable to the network. It’s in this context of real world practice it became clear to me that it was the presence or absence of trust that could well be the central factor in the key knowledge process

of knowledge sharing. It is for this reason that I turned to the literature to understand their handling of trust.

I believe this study will be useful for practitioners as it aims to analyse, through a scan of the Top 10 knowledge management journals, if it is indeed trust that is portrayed as THE antecedent to knowledge sharing, or if trust appears like a ‘successful’ bit part actor—in the credits—but never featuring in more than one scene due to the ‘complex’ nature of the phenomenon. Or if indeed others emerge - such as organisational or national culture.

## 1.5 Research Question and Research Design

The central research question to be addressed is as follows: *trust is widely held as a significant factor in knowledge sharing. How does the top-ranked knowledge management literature empirically study trust as a predictor of knowledge sharing in organisations, either on its own or with other factors?*. I will attempt to answer this question through a two-step process. First through a narrative overview review of the knowledge management and trust literature, followed by a systematic review of the top-ranked knowledge management journals. I have chosen a combination of a narrative overview and systematic review approaches as these methods were best suited to a complex topic such as trust. Trust intersects with many different research areas. In the case of this thesis I utilised a narrative overview for an extensive review of the knowledge management and trust literature. The outcome of this was then presented in Chapters 2 and 3. I then utilised the systematic review to focus my attention on the top-rated knowledge management literature, and how it deals specifically with trust and knowledge sharing and knowledge transfer. This systematic review method and the steps taken to generate the sample of articles are outlined in the methods chapter.

I chose the narrative overview in order to best represent the wide-ranging and cross-discipline literature on trust. The narrative overview method, according to Green et al. (2006, p. 103), gives “a broad perspective on a topic and ... describe the history or

development of a problem or its management” and can “serve to provoke thought and controversy”. They state that a good narrative overview should do the following: present information that contains the required elements for a narrative review, be well structured, synthesise the available evidence pertaining to the topic, and ultimately convey a clear message.

The systematic review method assisted me greatly in selecting a focused sample of articles armed with a much better understanding of the trust concept as a result of the the narrative overview. The aim of a systematic review is to produce an effective snapshot of the landscape of a particular field of study Jacks et al. (2012). In the case of this thesis, the systematic review allowed me to focus in on how the top knowledge management literature deals with the concept of trust in relation to knowledge sharing in organisations. While systematic reviews are an important tool for evidence-informed decision-making, they have been called out for only providing partial answers to broader questions and “are not themselves decisions” (Snilstveit et al. 2012, p. 425). Therefore a combination of the narrative approach to review the trust literature, and a systematic review to focus the research across a defined period in time and subject matter was deemed to be the best strategy to tackle a complex subject such as trust.

## 1.6 Concluding Summary

In this introductory chapter I outlined the contextual background of the the key concepts of knowledge, knowledge management, knowledge sharing and trust. I highlighted the importance of knowledge to firm performance and sustainability in a competitive world, and especially the key position of the knowledge sharing process in the broader field of knowledge management. I explained why the issue of trust is so important to the effective functioning of society as a whole and how it plays out at both the individual, group, organisational, institutional and societal levels. I introduced the importance of trust in reciprocal exchange interactions, such as knowledge sharing, and its hand-in-glove relationship both as an antecedent of knowledge sharing, as well

as an outcome or result of the sharing process. I briefly outlined the the difference between the two knowledge types, explicit and tacit knowledge, and how their varying properties has a bearing on the role of trust in the exchange. That is the more tacit the knowledge the more difficult it is to share, which means trust has an even more important role to play when this type of knowledge is being shared. I gave an overview of some of the problems that researchers of trust face, both regarding definitions but largely as a result of reliance on logico-scientific, variance-based methods on which most of the research encountered in this paper relies. I highlighted the trust-as-process view, which looks to address some the shortcomings of traditional survey-based methods by focusing on how trust can be created, managed and repaired over time. I also presented the rationale for the study, how, for example, the Global Financial Crisis (GFS) put in stark relief the importance of trust, and how the breakdown of trust had massive ramifications both fiscally, socially and politically, resulted in a renewed interest in the challenge of trust. I highlighted how just recently the exposure of the misuse of personal data at Facebook has led to much introspection from the field of data science as they try and rebuild trust in so-called Big Data. I also outlined my own observations around the sharing of knowledge on social media and internal company networks, and personal experience related to the implementation of KMS systems captured my interest in the subject of trust and knowledge sharing, and the defections from these official organisational systems to so-called Personal Knowledge Management (PKM) such as *What's App* and *We Chat* messaging platforms. Lastly I presented the choice of method employed in the form of a systematic review of the top-rated knowledge management journals, a narrative synthesis of the screened articles.

This thesis is structured as follows. Chapter 2 presents an overview of the knowledge management literature. Chapter 3 is a review of the trust literature and the key concepts and measures. Chapter 4 outlines the methods employed. Chapter 5 contains the discussion of the results and findings and Chapter 6 presents the conclusion and recommendations.

## 2

## Background

“No one knows anything, really.  
It’s all rented, or borrowed”.

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*Ian McEwan*

### 2.1 Introduction

As discussed in the introduction to this thesis, there is general consensus that knowledge is a critical resource for maintaining competitive advantage (Davenport and Prusak 1998; Grant 1996). Hwang and Burgers (1997) states that through encouraging knowledge sharing between individuals and teams, organisations can increase instances of generating new knowledge and compound their advantage. However the literature is littered with cases where initiatives to encourage knowledge sharing have failed or haven’t delivered promised value (Lee and Choi 2003; Wang and Noe 2010). One reason given is that there is “high value” in theory, but little for practitioners (Sveiby 2007, p. 1637). According to Newell et al. (2009) it is also widely accepted in the literature that the enabling context in which knowledge management initiatives take place is also very important for successful knowledge sharing, and Serenko et al. (2007) assert that a combination of factors and predictors at the individual, organisational and technological levels have been identified to support knowledge sharing. Trust has been



identified as one of these key success factors for various knowledge management processes in organisations (Ford 2004). This is especially trust for the sharing of more sophisticated, complicated forms of knowledge such as skills and know-how (Holste and Fields 2010a). The purpose of the following background chapter is to give the reader an overview of the key concepts in the knowledge management literature. I will also present some of the key aspects relating to trust and its relationship to knowledge sharing. This chapter is presented as follows. First I will present the concept of knowledge, knowledge management and knowledge sharing, the connection between trust and knowledge sharing.

## 2.2 Knowledge

As is the case with most discussions around knowledge sharing (the focus of this thesis alongside trust), the launch point generally begins with a discussion of knowledge. The creation of new knowledge has fuelled growth and development for as long as humans have been on earth, yet it is only recently that terms such as the knowledge society, knowledge management and the knowledge-based economy have been in circulation (David and Foray 2002). The study of knowledge been the subject of both philosophical and epistemological enquiry in both the West and the East since ancient times (Jha and Pandey 2016; Alavi and Leidner 2001; Wiig 2000; Kakabadse et al. 2003). A widely used definition for knowledge comes from branch of philosophy concerned with the nature of human knowledge, epistemology (Aarons 2011). This definition states that knowledge is “justified true belief” - which is according to Firestone and McElroy (2012, p. 3) the “venerable definition of many philosophers” and is credited to Plato (Alavi and Leidner 2001; Kakabadse et al. 2003). It is the definition on which many early KM theorists—such as Nonaka (1994), Spender (1996), and Blackler (1995)—grounded their work; see (Newell et al. 2009). A much used definition is the one of Davenport and Cronin (2000, p. 4), who define knowledge as the following:

Knowledge is a fluid mix of framed experiences, values and contextual in-

formation, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organisations, it often becomes embedded not in documents or repositories but also in organisation routines, process, practices and norms.

Or simply put, knowledge is the ability to “discriminate within and across contexts” (Swan 2007, p. 751) while Newell et al. (2009, p. 6) states that studying knowledge entails “looking at the varied ways in which actors in particular social situations understand and make sense of where they are what they are doing”. According to Newell et al. (2009, p. 4) those that follow a more process or practice perspective with regards to knowledge see knowledge as a constructed as part of a social process (Lave 1991; Orlikowski 2002).

It is important to note at this juncture that the literature acknowledges key differences between data, information and knowledge, while there are different *foci* depending on the branch or discipline from which it is approached. There are clear lines between those in the field of economics who build on the views of economic heavyweights Hayek, Arrow and Winter that knowledge is reduced to information, that it is only really the codified form that is commodified. As well as those in the Computer Sciences who view human knowledge to be the same as machine information (Duguid 2005). This is the view of the information systems literature which is that knowledge is the higher, processed form of data and information. However an alternative view is knowledge should be seen as personalised information owned and present in the minds of individuals (Alavi and Leidner 2001). Prusak (2006, p. 19) argues that information is one dimensional and “bounded in its form” while knowledge results from the “assimilation and connecting of information” through learning, coaching, mentoring and apprenticeship. While some scholars argue that one in fact needs to have knowledge in the first instance before information can be developed and measured (Tuomi 1999).

Knowledge, like trust, has also been the subject of typological classification (types and levels) (Ford 2004). The two main types of knowledge in the organisational liter-

ature, according to Levin and Cross (2004), are explicit and tacit knowledge. Explicit knowledge is the type of knowledge that can be easily codified Nonaka (1994), that is written down, made into diagrams and by its very nature easily distributed, while tacit knowledge Nonaka (1994) is concerned with the knowledge associated with skills or know-how that people acquire through experience in specific contexts, see also (Newell et al. 2009). It is widely acknowledged and researched, state Levin and Cross (2004), that tacit knowledge is more difficult to articulate, therefore it is difficult to share and transfer (Polanyi 1966; Nonaka 1994). It is posited that trust is said to be more of a factor in the exchange of tacit knowledge than in the case of explicit knowledge (Levin and Cross 2004). While clear distinctions have been made between explicit and tacit knowledge in the organisational literature and the IS literature, there are those that argue the two types are far more integrated (Ford 2004). As the originator of the tacit knowledge concept philosopher Polanyi (1966, p. 7) stated: “while tacit knowledge can be possessed by itself, explicit knowledge must rely on being tacitly understood and applied. Hence all knowledge is either tacit or rooted in tacit knowledge”.

This section presented a broad overview of knowledge and its conceptual handling in the literature. As discussed it is a topic that has captured the attention of scholars across disciplines and has, as a result, multiple conceptualisations. A situation that can prove difficult for researchers looking for a standard approach to apply to their studies. Knowledge has been differentiated into different levels types and levels, such as explicit and tacit knowledge, with contention around the distinction between the two, especially in the IS literature. What is clear is that the tacit form of knowledge is that much more difficult to articulate, share and integrate which is important to note for this thesis, and the fact that trust is put forward as one of those factors that predicts the sharing of more sophisticated, complex forms of knowledge.

In the next section I will discuss the field of knowledge management, another subject that has been defined in multiple ways, in order to explain the importance of the discipline for practitioners in harnessing the knowledge for competitive advantage in organisations.

## 2.3 Knowledge Management

Knowledge management's formation as a discipline was spawned from an increasing interest in knowledge and the management of knowledge as a key driver of organisational competitiveness in an increasingly globalised, connected world (Spender and Scherer 2007). In 1958 Peter Drucker came up with the term knowledge worker (Kakabadse et al. 2003). Drucker (1993) states that “knowledge has become the key economic resource and the dominant, and perhaps even the only source of comparative advantage” in a knowledge society, and generally accepted that if it wasn't because of the harnessing of knowledge and the creation of new knowledge we would not have seen the improvement in economies and the general rise in living standards (David and Foray 2002). Many definitions of this new society are dependent on whether the studies focused on technology, economics, occupational, spatial and cultural factors (Webster 2002). The management sciences literature credits management and systems scientists such as Peter Senge for elevating knowledge management to its current status (Clegg et al. 2011). This attention has also coincided with an accelerated transition from an industrial to a post-industrial age, a term first coined by sociologist Daniel Bell in the 1970s (Blackler 1995; David and Foray 2002)

The term knowledge management has been applied in many instances from organisational learning to data repositories (Ruggles 1998). Certainly the interest reached fever pitch in the 1990s into the 2000s, as the large consulting firms followed the fanfare and set up capabilities to implement KM strategies, and large software companies developed large document repositories and collaboration systems (Wiig 2000). Like knowledge, knowledge management has also been defined in many ways (Ford 2004). And there appears to be a multitude of definitions. Dalkir (2013) notes that an anecdotal survey he conducted returned over 100 definitions, 72 of which he stated were well positioned and thought out. He states that this could well be a symptom of the fact that KM draws on and impacts a wide variety of fields, including—amongst others—the cognitive and health sciences, linguistics, information technology, information and library science, technical writing and journalism, anthropology and sociology, educa-

tion and training, storytelling and communication studies. The management science definition of KM is best exemplified by Scarborough (2007, p. 758) in the *Encyclopedia of Organizational Science*, who defines knowledge management as “explicit strategies, tools, and practices applied by management that seek to make knowledge a resource for the organisation”. In organisational settings, and that favoured by organisational science; knowledge management involves the shift, conceptually, from knowledge as a resource to a capability that allows organisational entities to co-exist and thrive in their environment (Davenport and Cronin 2000). The perspective of knowledge and cognitive sciences sees knowledge management as the management of the insights, understandings, and practical know-how that we possess and is a combination of the management of the assets themselves and the processes that are employed to create, share and safeguard these assets (Wiig 2000).

According to Newell et al. (2009) organisations acknowledged to be successful at knowledge management are those organisations where knowledge is acknowledged as being strategic of nature, where the firms are concerned with the mechanisms and conditions that encourage the design, activation and implementations of knowledge processes aligned to the specific knowledge purpose of the firm, be it knowledge exploration or exploitation or a combination of both. Nonaka and Takeuchi (1995) developed a model of knowledge creation, known as the SECI model, in firms that shows the conversion of explicit knowledge into tacit knowledge. According to Despres and Chauvel (2000, p. 23) the model is made up of the following key KM concepts; there are two forms of knowledge (tacit and explicit), there is an interaction dynamic involving some form of knowledge transfer, three levels of “social aggregation” at the individual, group and context levels, and four knowledge processes that operate when knowledge is created in organisations. They are socialisation, externalisation, combination and internalisation. These processes are clearly social in nature and require repeated interaction between individuals over time to allow tacit knowledge sharing to take place (Newell et al. 2009). The four main processes are knowledge creation, knowledge integration, knowledge codification, knowledge sharing (Newell et al. 2009). It must be

noted that some studies in the literature use the terms knowledge transfer and knowledge sharing interchangeably. While some argue that transfer and sharing are two distinct processes (Paulin and Suneson 2015). King (2011) makes the following distinction: [knowledge] transfer implies focus, a clear objective, and uni-directionality, while knowledge may be shared in unintended ways multiple-directionally without a specific objective. In the information systems and information science literature KM is typically concerned with four processes; knowledge creation, knowledge storage and retrieval; knowledge transfer and knowledge application (Jacks et al. 2012). These domains have traditionally placed their emphasis on knowledge stock vs knowledge flow and on the explicit vs the tacit forms of knowledge (Davenport and Cronin 2000). As Day (2001, p. 726) points out however, information management, presupposes that knowledge is codified and commodified, while knowledge management is concerned with the “rather paradoxical attempt to ‘mine’, organise and manage previously conceived non-instrumental thought”.

The above section gave a high-level review of the literature in relation to the concept of knowledge management, and how this discipline emerged largely in the organisational and information systems world as a knowledge-based theory of the firm took root in the late 1980s and early 1990s. To the point that it became a field of study in its own right. The next section will give an overview of the process of knowledge sharing in the knowledge management literature.

## 2.4 Knowledge Sharing

Knowledge sharing is acknowledged to be an important contributor to firm performance (Argote and Ingram 2000; Wang and Wang 2012). Knowledge exchange has also been shown to be one of the key factors in the success of outsourcing arrangements between firms (Alwahdani 2019), the sustainability of geographically distributed organisations (Argote and Ingram 2000; Alavi and Leidner 2001) and innovation (Lin 2007). Moreover, knowledge that is not well managed and shared erodes quickly

(Asrar-ul-Haq and Anwar 2016). As a result the promotion of the knowledge sharing process is a key strategic challenge for many organisations (Levin and Cross 2004; Cabrera and Cabrera 2002). For this reason it can be said that knowledge sharing is also the KM process most studied in the literature. For example it has garnered many of the citations and focus in research. In a paper which reviewed the first 10 years of the *Journal of Knowledge Management and Practice* (2003-2013), it was found that the keyword for the term *knowledge sharing* was the top-ranked keyword (50 occurrences) out of a total of 678 keywords self-defined by contributing authors (Rivière and Walter 2013).<sup>1</sup> A 2017 study of the extant literature on knowledge processes shows that knowledge sharing is still the focus of many KM researchers, with 110 (53 per cent) of the 206 articles analysed focusing on KS related objectives (Intezari et al. 2017). As is the case with other concepts reviewed in this thesis, knowledge sharing also has a number of definitions. According to McDermott (1999) knowledge sharing is the process of guiding someone through one's own thinking or making others aware of one's own personal insights or the process by which a person shares his or her knowledge, insight or expertise in either a tacit or explicit form to a knowledge seeker or recipient (Grant 1996). Tiwana (2002) states that knowledge sharing involves a continuous process of dissemination, absorption and utilisation of information for integrated learning. This is supported by Dalkir (2013) who says that once knowledge has been captured and codified, it needs to be shared and disseminated throughout the organisation. Knowledge sharing has also been defined as a process of knowledge donation which integrates tacit and explicit knowledge and involves both knowledge seeking and contributing behaviours (Fernie et al. 2003; Cleveland and Ellis 2015). While Sergeeva and Andreeva (2016) defines knowledge sharing as inter-personal interactions involving communicating as well as receiving knowledge from others. According to McNeish and Mann (2010, p. 19), knowledge transfer is about the ability to take "action" based on knowledge while knowledge sharing is about the the exchange of the knowledge between two people. In a process view; knowledge sharing is said to come before

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<sup>1</sup>The researchers analysed 235 articles from Volume 1 Issue 1 in 2003 to Volume 10 Issue 4 in December 2012 in *KMRP*

knowledge transfer in a knowledge flow .

There are two main perspectives of knowledge in the literature which have an impact on the framing of knowledge sharing, especially, and its treatment in the literature. They are the structuralist perspective and the process and practice perspectives. The structuralist approaches (Nonaka 1994; Spender 1996) are exemplified by the development of useful frameworks that focus on the types and forms of knowledge people possess and are primarily concerned with the identification and conversion of tacit knowledge to explicit knowledge (Newell et al. 2009). This treatment of knowledge as a resource or asset to be accumulated and exploited in firms is one of the key underpinnings of the rise in knowledge management systems. According to Serenko et al. (2007) the structural school views the sharing of knowledge as a result of the obligation a knowledge donator has to a stakeholder be it a manager, customer or shareholder. Those that critique the structural perspective, argue that these views don't take into account subjective, dynamic nature of knowledge into consideration (Newell et al. 2009; Cook and Brown 1999). They use the large-scale failures in the implementation of knowledge management programmes and systems in firms as evidence to support their arguments. As a result there has been a shift in epistemological approaches to studying knowledge in organisations (Newell et al. 2009). Cook and Brown (1999, p. 382) argue that despite a myriad of different approaches to the study of knowledge, there is still a tendency to treat knowledge as an amorphous whole. A characterisation of much of the literature on knowledge, and knowledge processes, they state, tends to foreground the individual over the group, and elevate the the codified explicit form of knowledge over the tacit, which they argue is because they treat them as "variations" of "one kind" of knowledge and not separate, distinct versions of knowledge.

The counter to structuralist approaches has seen the move to treat knowledge less like an object that can be owned and possessed, captured, transferred or converted but rather as something that is socially constructed (Dalkir 2013). This dynamic social and organisational activity and or process of "knowing"; in which the importance of building enabling contexts to connect individuals, groups, identities and perspec-



tives to complete organisational tasks is seen as paramount. “Process approaches to managing knowledge work draw from theoretical traditions of ‘social constructivism’, seeing knowledge, or knowing, as a process of ‘sensemaking’, whereby actors interacting within particular social contexts come to negotiate understandings of the world” (Newell et al. 2009, p. 14).

According to Newell et al. (2009, p. 14) in practice approaches knowing is packaged as a “social activity”. Proponents usually take into account process, context and purpose, with firm links between “knowledge and action or practice” (ibid). They foreground the stickiness of knowledge—which sticks to practice—thus making knowledge difficult to share, especially in cases where individuals practices differ. For example across functions or even across cultures and countries. They are thus notoriously difficult to adapt once established. For this reason many scholars in the organisational sciences and the human capital management are concerned with issues surrounding creating the right environment for networks of practice in order to facilitate and encourage knowledge-sharing behaviours (Cabrera and Cabrera 2005).

These enabling contexts are largely indicative of organisations that encourage knowledge sharing through the removal of barriers to sharing. Some of the main barriers identified in the literature include; lack of time, poor communication skills and trust (Cleveland and Ellis 2015). One example of an enabling context is the development of a knowledge-centered culture (KCC) in an organisation, which can foster trust which in turn leads to improved levels of knowledge sharing (Intezari et al. 2017). KCC has been explored as a significant antecedent to knowledge sharing and knowledge management in general (Alavi and Leidner 2001; Janz and Prasarnphanich 2003; Ajmal et al. 2010). According to Serenko et al. (2007, p. 611) the social school’s view of knowledge sharing is concerned largely with *rapport* as the most important "antecedent (to knowledge flows), including the ability to trust one another so that the knowledge recipient will use shared knowledge in an appropriate way". While many organisations have looked to technology, investing billions in knowledge management systems, databases and collaboration tools to aid knowledge sharing, the literature shows strong evidence that the

barriers to knowledge sharing can not be overcome by technology alone, rather it's the people operating the technology that count as people turn to colleagues rather than databases and knowledge systems (Cabrera and Cabrera 2005; Abrams et al. 2003; Cleveland and Ellis 2015).

The key to successfully managing knowledge is now being seen as dependent on the relationships and connections between individuals within the organisation with knowledge sharing as a largely social process (Ipe 2003; McDermott 1999; Hardwig 1991). For this reason social capital theory, social dilemma approaches and theories of social exchange are key theoretical underpinnings for research into successful knowledge exchange, flows and sharing (Cleveland and Ellis 2015). Social capital theory is concerned with the interpersonal relationships between individuals, and their ability to claim and protect benefits through membership in social networks (Bourdieu 2011; Tsai and Ghoshal 1998). At the heart of the theory of social capital lies the notion that participants in a social network share resources and co-operate, however social capital can not be hoarded and controlled by an individual group members as they depend on the willingness of the other members/member to share their resources (Fukuyama 1995). While social networks are the settings and structures in which social capital develops (Blumberg et al. 2013), and social ties are the conduits for these resource flows (Tsai and Ghoshal 1998).

The social network is made up of weak and strong connections between actors and agents in the network. A network of strong ties renders opportunities for actors to access knowledge resources easily (Bourdieu 2011). Weak social ties, argues Granovetter (1977), are more likely to be sources of novel information. This is confirmed by Levin et al. (2002) and Levin and Cross (2004) whose studies have revealed that trusted weak ties produce knowledge with more value.

Dalkir (2013) states that social network analysis can map and measure these relationships and flows between people, groups, organisations. The nodes in the network represent the people or groups and the connectors or links represent the flows and relationships between the flows. They are useful to determine from who people seek

knowledge and with whom do they share knowledge. According to Cabrera and Cabrera (2005, p. 722) there are three dimensions of social capital, namely: the structural, cognitive and relational dimensions. The structural and cognitive aspect in relation to knowledge sharing; determine whether network members have the "opportunity to share knowledge with others" as a result of encouraging structures and intrinsic and extrinsic motivation. Whereas the relational aspect is more concerned with "assets" such as trust and trustworthiness that are embedded in social ties (Tsai and Ghoshal 1998, p. 465).

Social dilemma theorists, meanwhile, look at how an individual's rational actions can sometimes lead to less favourable outcomes for the group, for example the organisation (Cabrera and Cabrera 2005). Dawes (1980, p. 170) posits there are two properties of social dilemmas. Firstly, the non-conformist or deviant behaviour payoff is higher than the "co-operative behaviour"; and secondly, all individuals receive a lower payoff if all do not co-operate. Social exchange theory (SET) looks at the social process of exchanging valuable resources during human social interactions (Homans 1958). SET is composed of the dimensions of trust, equity, opportunities and conflict (Alwahdani 2019). For examples see (Ring and Van de Ven 1994; Mayer et al. 1995). According to Cropanzano and Mitchell (2005) the central principle of SET is that relationships evolve over time into trusting, loyal, and mutual commitments, with exchange governed by sets of exchange rules. It converges in the fields of economics, psychology and sociology and their dealing with rules of reciprocity and costs in dyadic relationships (Emerson 1976). Reciprocity is also one of the key bases of knowledge sharing and is the core characteristic that separates knowledge sharing from the more uni-directional flow of information sharing, which usually involves the making of organisational information available to employees at every level (Connelly and Kelloway 2003). According to Cabrera and Cabrera (2005, p. 721) the above three frameworks are essential for an understanding of the "socio-psychological nature of the behaviour" of knowledge sharing and its related dynamics, and therefore for creating the right conditions for KS to occur. These enabling contexts are largely indicative of organisations

that encourage knowledge sharing through the promotion of predictors of knowledge sharing or through the removal of barriers. According to Mu et al. (2008) social capital especially, provides the basis for trust by decreasing the transaction costs and "enhancing the willingness of partners to share knowledge".

The literature tells us that interest in knowledge sharing can be found across many fields (Levin and Cross 2004). As knowledge exists at many levels in an organisation (Ipe 2003), knowledge sharing has been studied at both the individual, team and organisational levels (Wang and Noe 2010). According to Cleveland and Ellis (2015, p. 1858) it is important to understand "individual and organisational characteristics that influence knowledge sharing". Much of the work has been targeted at predictors and antecedents of knowledge sharing and in exploring barriers. For example Constant et al. (1994) looked at variables such as age and gender and their impact on knowledge sharing; Cabrera et al. (2006) looked at qualities of the individual, Bock and Kim (2002) explored individual attitudes to knowledge sharing, while others have investigated group and organisational factors such as executive or top management support (Connelly and Kelloway 2003; Cavaliere and Lombardi 2015), leadership (Rivera-Vazquez et al. 2009; Xue et al. 2011) and organisational culture values and norms (Bock et al. 2005; De Long and Fahey 2000; McKinnon and Harrison 2003; Bakker et al. 2006). Differences of organisational culture has also been studied as a barrier to successful transfer of knowledge between subsidiaries of global companies (Bhagat et al. 2002; Javidan et al. 2005), as well as studies of differences in national culture, extrinsic and intrinsic reward system and motivation have also been shown to have a positive impact on individual attitudes to knowledge sharing, which in turn affects their knowledge sharing behaviours (Jeon et al. 2011). For example Durmusoglu et al. (2014) found that, if rewards were embedded in an organisational culture, individuals are more motivated to share knowledge. Organisational structure has been shown to impact the flow of tacit knowledge in an organisation (Szulanski 1996); that is even if there are hierarchies in place, as long as people have access to those individuals with the knowledge, knowledge will flow (Asrar-ul-Haq and Anwar 2016). Organi-

sational size has also been proposed as a predictor of knowledge sharing, and that knowledge sharing reduces as organisational unit size increases beyond 150 members due to increased complexity (Serenko et al. 2007) which is also related to the work on tie strength and network density with regards to network relationships (Granovetter 1985) and social relations, i.e people are more likely to share knowledge when they have friendly and frequent interactions with one another (Inkpen and Tsang 2005). In line with this, communication has also been explored as an enabler of voluntary knowledge sharing behaviour (Teng and Song 2011). Information technology too has been held to be an enabler of knowledge sharing (Mitchell 2003), with some key studies in the benefits of social media technologies for the sharing of tacit knowledge (Panahi et al. 2012) and enterprise social networks (Zhao and Chen 2013).

The above section clearly shows how the KM literature values the importance of the process of knowledge sharing. It also shows how the concepts of knowledge, knowledge management and knowledge sharing are still contested 30 years since the discipline came onto the scene. And the problem of a lack coherent definitions has led to much cross-field, academic dissonance and a claims of “semantic drift” (Davenport and Cronin 2000, p. 295). Despite competing framings of the nature of knowledge between the structural school and the socially-orientated process and practice perspectives, it can be safely asserted that a large section of the knowledge management literature has begun addressing knowledge sharing as a deeply social process. This can be attributed in part to the failure of many KM initiatives that followed the view that they would achieve success by simply identifying tacit knowledge, making it explicit and sharing it across the business. Theories of social capital, social exchange and social network theory are shown to be key bedrock theories for knowledge sharing in organisations. As a result there does appear to be a shift in the literature that foregrounds individual and organisational factors, such as trust, that influence the knowledge sharing process. The next section will explore the literature around the concept of trust, its relationship to knowledge sharing, its definitions and typologies, trust as process and the operationalisation of trust measures in the research.

## 2.5 Trust and Knowledge Sharing

Trust is widely-held to be an important building block for facilitating co-operation in organisations (Porta et al. 1996). Scholars in the philosophy of science have in fact argued that trust is the basis of all our knowledge: “in most disciplines those who do not trust cannot know; and those who do not trust cannot have the best evidence for their beliefs” (Hardwig 1991, p. 693). Trust is also regarded as an essential factor and building block for the development of social capital (Mu et al. 2008) and successful knowledge sharing (Davenport and Prusak 1998; Asrar-ul-Haq and Anwar 2016; Ford 2004; Rolland and Chauvel 2000).

It is widely accepted in the literature to view organisations as "embedded in a network of relationships" (Pennings and Lee 1999, p. 51). There are also many links made to trust and social capital in the organisational literature (Blumberg et al. 2013), and it is generally accepted in the literature that trust is enacted in social interactions or even as a factor in the dynamics of social networks (Blumberg et al. 2013). That is the impact and influence trust has on co-operation, social complexity, order, social capital (Möllering 2001). It is in this arena that trust has been identified as a key motivational factor in knowledge sharing (Krot and Lewicka 2012; Wang and Noe 2010). Trust is widely-held to be the basis for this co-operation (Tsai and Ghoshal 1998), social interaction, social capital (Porta et al. 1996; Kramer 2006), the formation and maintenance of social networks and an outcome of these networks (Casson and Della Giusta 2006). According to McNeish and Mann (2010) much of literature views trust or social capital as an antecedent to co-operation and ergo exchange type behaviour, e.g. knowledge sharing. This has seen it well-represented in the literature relating to organisations. McEvily (2011) outlines the richness of the documentary evidence that it is indeed an important phenomenon in organisational research. He acknowledges the works of Kramer (1999), Dirks and Ferrin (2001), Rousseau et al. (1998), and Fukuyama (1995) as important contributors to this evidence.

According to Serenko et al. (2007) people are more willing to share knowledge when social relationships are strongly associated with emotional attachment, mutual

trust, respect and understanding of colleagues' strengths and capabilities. Trust has been explored as an antecedent as well as an outcome or consequence of knowledge sharing and has been measured in relation to knowledge sharing as a variable that has a direct causal influence on knowledge sharing (McNeish and Mann 2010). For example studies of sports teams, such as that undertaken by Dirks and Ferrin (2001), found that trust has a direct, proportional impact on improved knowledge sharing and ultimately improved performance. Or indirectly through its influence on personal relationships, psychological and social processes, culture and previous experience with knowledge sharing (McNeish and Mann 2010). In a survey study of 138 employees at three large Fortune 500 companies, the IBM Institute for Knowledge-Based Organisations (IKO) found that when a knowledge seeker viewed the knowledge source as both benevolent and competent, knowledge sharing or exchange was more effective (Levin et al. 2002). The same study also concluded that it is trust and not "strong ties" that leads to effective knowledge sharing, and that trust could even develop, and does, when there were so called "weak ties", that is less frequent interaction and communication between individuals (Levin et al. 2002, p. 2). According to Zand (1972) and Levin et al. (2002) if trust is present, employees are more willing to give useful knowledge. This provides the conditions under which co-operation, collaboration and ultimately knowledge sharing are likely to occur (Cabrera and Cabrera 2005). This has been accepted as an essential element of knowledge management and knowledge exchange especially, see (Rolland and Chauvel 2000).

According to Ford (2004) organisational trust is also an essential mechanism for motivating employees as a form of affective (emotional) commitment. Kramer (1999) found that an increase in employee commitment to organisations resulted in compounding trust within organisations. Serenko et al. (2007) describes three types of organisational commitment featured in the literature: (a) affect (emotional attachment to the organisation); (b) continuance (need of employment); (c) normative (obligation to the organisation). Therefore the more trusting an environment, the more motivated one's employees are and the more successful one's knowledge sharing processes will be.

This is supported by a study by Connelly and Kelloway (2000), in which the study participants noted that they would only be willing to share knowledge where they trusted the receiver of the knowledge. As noted by Serenko et al. (2007) factors that influence knowledge flows can be handled independently and influenced as such in organisations, but that it is generally accepted that it is a blend of factors that are necessary in order to facilitate knowledge sharing. Therefore trust is also, for example, bundled with research on cultural factors; such as studies on organisational culture where trust has been shown to help lessen the costs of knowledge sharing (Wang and Noe 2010).

Trust in relation to knowledge sharing has also been studied as a substitute for certain structural elements such as contracts, legal frameworks, warranties and guarantees in organisations (Lewicki and Bunker 1996; Mayer et al. 1995; Rousseau et al. 1998). According to Madhok (2006) studies show that firms can reduce cognitive differences, improve the willingness to engage in reciprocal behaviour and ultimately improve absorptive capacity by creating a trust-friendly environment. In inter-organisational relationships trust has been shown to reduce costs of maintaining safeguards or monitoring the partner and encouraging the maintenance of the trusting relationship (Zaheer et al. 1998). The importance of inter-personal relationships to knowledge sharing is well-documented (Levin and Cross 2004), as it has been shown that face-to-face interactions are better transmitters of knowledge than documents or databases (Tsai and Ghoshal 1998), while relationships established over time, built on trust, have long-term benefits such as the ability to accept risk, improve co-operation and also creating and maintaining trust (Rotter 1971; Lewis and Weigert 1985). Groups that have strong relationships built on trust, characterised by decentralised decision-making and less formalised procedures (for example red tape) show increased knowledge sharing (Lewis and Weigert 1985).

Conversely, some studies support the notion that trust is also an outcome of the knowledge sharing process. That is that trust is built up and maintained as a result of the knowledge sharing process, which implies that trust is not a prerequisite or is needed for knowledge sharing to start, but “may develop as a result of knowledge



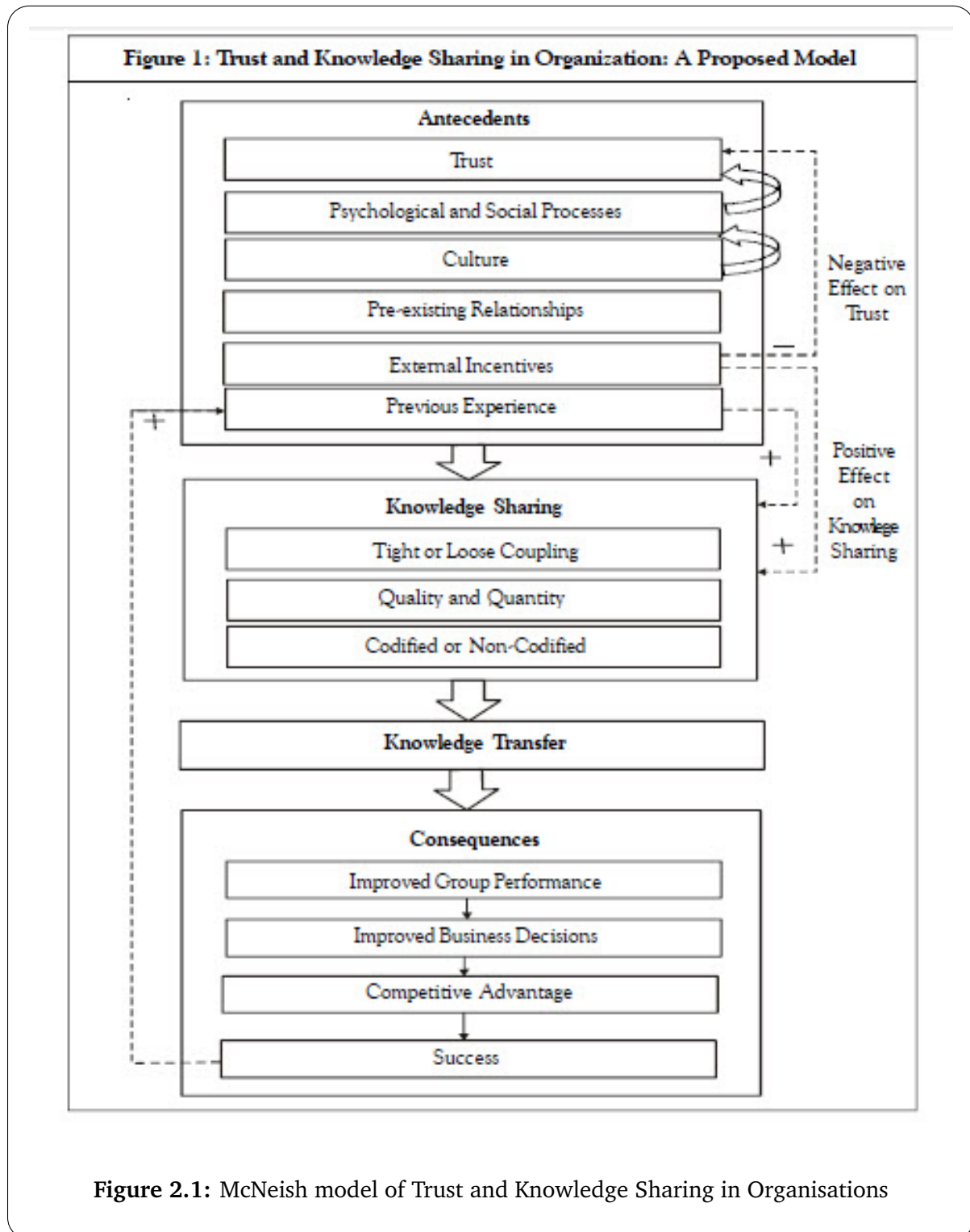
sharing” and ends up replacing external controls (Ford 2004, p. 17).

McNeish and Mann (2010) have proposed a useful model (see figure 2.1) which show these component variables, antecedents and the corresponding relationships between trust, knowledge sharing, knowledge transfer and improved performance organisations. The model groups the antecedents of knowledge sharing as follows; trust, psychological and social processes, culture, pre-existing relationships, external incentives and previous experience with knowledge sharing. Knowledge sharing is shown as being made up of tight or loose coupled variables, quality and quantity, and codified or non-codified knowledge.

Similar to the theories that underpin knowledge sharing, many theories of trust are grounded in social exchange theory, which assumes that trust emerges through the repeated exchange of benefits between two individuals (Whitener et al. 1998). The literature suggests that there are a number of dimensions of trust that promote knowledge sharing: some are benevolence (“You care about me and take an interest in my well-being and goals”) and competence (“You have relevant expertise and can be depended upon to know what you are talking about”) (Abrams et al. 2003, p. 65). Trust, therefore, has a number of important roles in knowledge sharing, especially in the sharing of sophisticated, tacit forms of knowledge which often require more intensive social processes requiring individuals to be more connected and interact frequently, see (Nonaka 1994; Polanyi 1966).

## 2.6 Concluding Summary

This chapter explored the literature’s treatment of knowledge, knowledge management, knowledge sharing and trust. It began by presenting a broad overview of knowledge, knowledge management and the key knowledge management process of knowledge sharing. As discussed it is a topic that has captured the attention of scholars across disciplines, and has as a result multiple conceptions. This is a situation that can prove difficult for researchers looking for a standard approach, as the literature shows how



**Figure 2.1:** McNeish model of Trust and Knowledge Sharing in Organisations

knowledge has been differentiated into different levels and types, such as explicit and tacit knowledge, with contention around the distinction between the two, especially in the Information Systems (IS) literature. What is clear is that the tacit form of knowledge is that much more difficult to articulate, share and integrate. This background chapter also describes how the KM literature values the importance of the process of knowledge sharing and how the concepts of knowledge, knowledge management and knowledge sharing are still contested 30 years since the discipline entered the scene. And, once again similar to trust, the problem of a lack of a coherent definition has led to much cross-field academic dissonance. Despite competing framings of the nature of knowledge between structural school and the socially-orientated process and practice perspectives, it can be safely asserted that a large section of the Knowledge Management literature has begun addressing knowledge sharing as a deeply social process. This can be attributed in part to the failure of many KM initiatives that followed the view that they would achieve success by simply identifying tacit knowledge, making it explicit and sharing it across the business. As a result there does appear to be a shift in the literature that foregrounds individual and organisational factors, such as trust, that influence the knowledge sharing process. In Chapter 3 I will dive deeper into the literature's conception of trust, with particular focus on views of trust from four different perspectives (economic, psychological, social and trust-as-process), followed by a look at definitions, typologies, operationalisation, and introduce the concept of *trust-as-process* before concluding with some of the other factors that trust is often studied alongside in the literature.

## 3

## Literature Review

“No one knows anything, really.  
It’s all rented, or borrowed”.

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*Ian McEwan*

### 3.1 Introduction

Chapter 2 focused on the concept of knowledge, knowledge management and knowledge sharing. It also introduced as background the relationship between trust and knowledge sharing. In this chapter, the focus is on the trust literature. It presents a diachronic review of the key concepts theoretical grounding and approaches to the study of trust and its measurement through the use of the narrative overview approach. The chapter is laid out as follows. First I address the general overview of the trust concept and how it is tackled across disciplines. I follow this with a review of the definitions of trust and its key typologies, introduce the work surrounding *trust-as-process* and the operationalisation of trust, before concluding with a view of other factors that the literature often bundles with trust, for example culture, organisational and individual factors.

## 3.2 Trust

In an increasingly uncertain world trust plays an important role in mediating the effects of uncertainty and complexity (Misztal 2013). We cannot, according to (Arnott 2007, p. 983) expect to “do everything ourselves” and so we must trust and rely on others. As important groupings within societies, organisations too need to navigate uncertainty and complexity in the quest for survival and competitive advantage as a result trust is also held to be essential for both interpersonal, intra-organisational relations and co-operation (Dirks and Ferrin 2001; Castaldo 2003; Fukuyama 1995). In the 2000 issue of *Science*, biologists proclaimed trust and reciprocity as the “basis of all human systems of morality” (Nowak and Sigmund 2000, p. 819). There is widespread agreement that trust is important to human interactions across contexts (Hosmer 1995) and it has been explored as a key factor in leadership theories, positive job attitudes, effectiveness in organisational relationships, conflict management (Dirks 2006) and entrepreneurship (Welter 2012). According to Ford (2004) trust is generally presented in the KM literature as an essential element for successful knowledge management initiatives (e.g. Simonin (1999), Rolland and Chauvel (2000), Roberts (2000), and Asrar-ul-Haq and Anwar (2016) and as discussed in above section 2.5 it especially important for knowledge exchange (Rolland and Chauvel 2000). The trust literature presents differences in the approach to trust from the three main perspectives in the social sciences; economics, psychology and sociology. They all offer different concepts and definitions of the constructs, as well as differing levels of analysis (for example interpersonal versus institutional).

According to Arnott (2007), the earliest works on trust research came from the fields of psychology (Deutsch 1958) and (Rotter 1967; Zand 1972). From the psychological perspective - trust is viewed as an attribute of the agents of trust e.g. trustees and trustors (Rousseau et al. 1998). There is much emphasis placed on the personal traits and attitudinal aspects of the construct, that is the “perceived vulnerability or risk that is derived from the individual’s uncertainty regarding the motives, intentions and prospective actions of others on whom they depend” (Kramer 1999, p. 571), and pref-

erence these differences of the individual dispositions over behaviours (Lewicki and Brinsfield 2012). Research in this field largely uses measures that considers trust as a psychological state of the trustor - be it a belief or expectation or an attitude. Or in the case of the trustee, his/her “behavioural consistency” (Castaldo 2003, p. 7). Much of this theoretical grounding was based on the model of trust put forward by Rotter (1967) and Rotter (1971), which classifies it as a personal trait, see also (Fink et al. 2010; McKnight and Chervany 2001b). It is largely in this area of trust as an attitude that researchers focus their attention (Whipple et al. 2013). We will return to this notion a little later on in the review. The key challenge faced by researchers in this field is that trust cannot be observed (Lewicki and Bunker 1995). In the economic perspective; trust, like social capital, is seen as a predictor of performance Fukuyama (1995). Economists view trust as a tendency for people to co-operate in order to produce socially efficient outcomes and avoid risky and inefficient traps (Porta et al. 1996; Lewicki and Bunker 1995). The economic perspective, is concerned mainly with risk-based measures (Arrow 1974). On an individual level it emphasises the behavioural characteristics of the construct or “trust as choice” behaviour, in which individuals are said to be motivated to make rational, efficient choices to maximise or minimise transactional losses (Kramer 1999, p. 572). Economists mainly use repetitive game theory experiments such as the prisoner’s dilemma, the trust and ultimatum game to test their research (Porta et al. 1996). Sociologists such as Schutz (1967) see trust as the phenomenon that makes society function. That is that trust is ingrained or embedded in relationships and interactions among people (Rousseau et al. 1998). Sociologists on the other hand base their views of trust on relational models. This is, according to (Kramer 1999), a leg of the trust as choice behaviour school of thought. According to Arnott (2007), the work of Luhmann (1979) whose work on trust as a key factor in reducing social complexity became a seminal work. While Whipple et al. (2013) and Kramer (1999) call out Granovetter (1985) and his work on the impact of social embeddedness in economic transactions as as a key contributor to a sociological theory on trust.

In the mid-1980s the management sciences became more interested in trust as it came to be seen to be essential for business success in general (Ford 2004). For example Dwyer et al. (1987) first investigated the importance of trust in buyer and seller relationships, followed by a stream of landmark, much-cited, works from the likes of Podsakoff et al. (1990), Moorman et al. (1992), Moorman et al. (1993), Morgan and Hunt (1994), and Cummings and Bromiley (1996). Fink et al. (2010) states that the business literature has continued to build on a range of conceptualisations of trust from these influential papers above, and also includes the seminal work by Coleman and Fararo (1992) and their rational choice theory and the well-known paper of Mayer et al. (1995) which we will see has become the most-widely used definition, especially in the KM literature. Arnott (2007) also foregrounds the importance of the McAllister (1995) paper on the cognitive and affective dimensions of trust. Möllering (2013) offers a useful distinction between the two schools in trust research. Firstly there are those that see trust as a mental process that is trusting as a cognitive or affective state of mind, for example (Rotter 1971; Deutsch 1958; Coleman and Fararo 1992) and secondly those that research trust as a social process, for example (Blau 1968; Zand 1972; Ring and Van de Ven 1994; McKnight and Chervany 2001b).

But despite increasing interest from sociologists, psychologists, economists and organisational scientists the construct is still seen as a contentious subject of study and the field still faces many challenges. A lack of a generally accepted theory is particularly difficult for any discipline let alone trust as McKnight and Chervany (2001b, p. 36) warn: “testing a theory before it is conceptualised causes problems. The resulting research is often misinterpreted because researchers have not yet agreed on what the terms mean”. A decade after McKnight and Chervany (2001a) lamented the lack of a base theory and the problem it created for researchers, McEvily (2011) stated that the inability to compare findings across studies and the lack of integration between different perspectives were two major challenges the field of trust research still faces. One reason given by Lewicki and Bunker (1995) is that is that each discipline views trust with differing paradigmatic filters, thus creating different conceptual understanding of

the construct. This, according to McKnight and Chervany (2001b), is one of the major causes of a multitude of working definitions and the vagueness of the terms used. This notion is supported by Li (2012) and Fink et al. (2010) who call out a lack of a general theory, no unitary universally accepted definition, a lack of accepted measures of operationalisation of trust, rudimentary understanding of the relationships between trust and its antecedents (Grabner-Kräuter and Kaluscha 2003), and the trust construct's inability to be generalised across disciplines Castaldo (2003). Much like knowledge and knowledge management, trust has also suffered in a sense from the problem of multiple approaches in a variety of fields leading to a fragmentation of the concept. Trust research in organisational settings has not escaped this situation, as Möllering et al. (2004, p. 557) notes: "Within the organisational context, the questions and problems are multi-faceted. They concern differences in the specific meaning of trust which exists between co-workers, leaders, employers and employees, between different organisations or towards an institution". Yet a pragmatic Bachmann and Zaheer (2013) believe the "complex, evolving and highly dynamic" nature of the trust research field merely reflects its importance in the world of practice. There is no one consolidated view or "shared understanding" of trust across economics, psychology and sociology, with calls for trust to be treated as a *meso* concept. That is a concept that spans and integrates macro and micro-level institutional, individual and group processes (Rousseau et al. 1998; Kramer 1999). As a result there is still much confusion and contention over an accepted definition. A situation which I will be addressing in the next section, where the definitions and typologies of trust are explored.

### 3.2.1 Trust Definitions and Typologies

As mentioned in the previous section, trust's importance in business and the management sciences, and a wide range of other disciplines such as psychology and economics is well documented (Hosmer 1995; Bachmann and Zaheer 2006). The multi-dimensional, all-encompassing nature of the phenomena of trust has seen a variety of different conceptualisations and meanings and the search of a reliable and accepted



working definition is still in progress (PytlikZillig and Kimbrough 2016). Seppänen et al. (2007) found over 70 definitions in their review of empirical studies of inter-organisational trust from 1990 to 2003. While Fink et al. (2010) found 126 definitions with various constitutive dimensions or components ranging from trust partners/agents to managing risk/uncertainty amongst others. They grouped these within two corridors related to definition; the risk and uncertainty corridor on the one hand and the confidence corridor on the other. Some definitions state that trust is largely a disposition towards others (Cleveland and Ellis 2015); that is there is “an expectancy held by an individual or a group that the word, promise, verbal, or written statement of another individual or group can be relied on” (Rotter 1971, p. 444). Or that individuals expect the actions of another person or group ought to be selfless (Frost et al. 1978). Rousseau et al. (1998) has outlined a number of similarities amongst definitions, they are: (a) risk (b) expectations or beliefs and (c) a willingness to place oneself at risk with the assumption and expectations that one will be spared harm or sanction (in (Ford 2004). Castaldo (2003) argues that the basis for trust definitions can be broken up into five main categories. They are expectation and belief; willingness, confidence and attitude.

According to Lewicki and Brinsfield (2012) there are three major definitions used in the management and organisational literature. They are Mayer et al. (1995), Rousseau et al. (1998), and McAllister (1995). The first real convergence and consensus on trust conceptualisation in the organisational literature came in the mid-1990s with the work of Mayer et al. (1995), see (Gillespie 2012). Mayer et al. (1995) stated that trust is a willingness to be vulnerable to another party based on both the trustor’s propensity to trust others in general, and on the trustor’s perception that the trustee is trustworthy. They made an important distinction, which differentiates trust from other constructs such as predictability, co-operation and confidence. And re-inforced the argument that risk is a necessary condition for trust (Mayer et al. 1995). Following on from this willingness to be vulnerable Rousseau et al. (1998) confirmed this convergence, and built on Mayer with their own definition, according to Gillespie (2012) - which states that “trust is a psychological state comprising the intention to accept vulnerability based

on the positive expectations of the intentions or behaviour of another” (Rousseau et al. 1998, p. 395). Both these definitions are well-used in the organisational literature. McEvily and Tortoriello (2011) found that there were 1300 citations referencing Mayer et al. (1995) and 650 citations of Rousseau et al. (1998), also see Gillespie (2012)) in their review of trust measures.

The table 3.2 outlines some of the main definitions of trust and their authors used in the management literature.

<b>Trust Definitions</b>	<b>Author</b>
<i>Trust is a psychological state comprising the intention to accept vulnerability based on the positive expectations of the intentions or behaviour of another</i>	Rousseau et al. (1998, p. 395)
<i>Trust is the expectation of regular honest and cooperative behaviour based on commonly shared norms and values</i>	Fukuyama (1995, p. 26)
<i>Trust is a willingness to be vulnerable to another party based on both the trustor’s propensity to trust others in general, and on the trustor’s perception that the particular trustee is trustworthy.</i>	Mayer et al. (1995, p. 712)
<i>Trust is the degree to which the trustor holds a positive attitude towards the trustee’s goodwill and reliability in a risky exchange situation</i>	Das and Teng (1998, p. 494)
<i>The extent to which a person is confident in, and willing to act on the basis of, the words, actions and decisions of another.</i>	McAllister (1995, p. 25)

Table 3.2: Sample of Trust Definitions

In addition to this oft-cited definition McAllister (1995) also developed instruments to measure the different dimensions of trust, namely cognition-based and affect-based forms of trust, these instruments have been replicated the most frequently in organisational research studies (McEvily and Tortoriello 2011) and are an indication perhaps that the literature leans towards the trust as a mental process of cognition or affectation of the individual and how the individuals keep “positive expectations” in the face of uncertainty and vulnerability, see (Möllering 2013, p. 288).

Another branch of the trust literature is concerned with how trust is developed or arises (bases of trust) (PytlikZillig and Kimbrough 2016; Ford 2004). Examples include Brewer (1981), Shapiro et al. (1992), and Williamson (1993). Trust can be deterrence-based trust (rational or calculative); knowledge-based trust (similar to cognitive trust), identification-based trust (defined sometimes as normative trust and goodwill trust – see (Lewicki and Bunker 1996), cognition-based trust (trust based on the knowledge of the trustee), economics-based trust (similar to rational, calculative-based), institutional-based trust, history-based trust, category-based trust, role-based and rule-based trust or personality-based trust (Kramer 1999; Ford 2004; Ford and Staples 2010; Castaldo 2003).

In the table below, see 3.3 - Castaldo (2003) provides a comprehensive outline of the “common distinctions” made around trust and offers a useful typology of trust for researchers.

<b>Trust Typology</b>	<b>Definition</b>	<b>Examples</b>
Target	Distinguishes various relational level to which the concept of trust is applicable	inter-organisational, interpersonal, etc. . .
Content	Considers specifically the antecedents on which trust is based	calculative, deterrent cognitive, knowledge-bases
Quality– Consistency	Fragile, strong, thick and thin, high and low trust	

Table 3.3: Basic Trust Typology

There are also parts of the trust literature concerned with types of trust with distinctions made between personal and impersonal trust. Ford (2004) cites the work of Morris and Moberg (1994) who make the distinction between the trust of social interaction between individuals and the more generalised, impersonal trust of positions and job titles. According to Castaldo (2003) trust is the central subject of different relational contexts, and this is supported by much of the management science literature on trust which focuses on interpersonal, intra-organisational and inter-organisational trust. Or as Chowdhury (2005) posits one can have trust in a person, system or a collective entity therefore for the study of trust it is essential to be clear on who the

subject and objects of trust are and especially pertinent for its empirical study. The trust literature talks of targets of trust, which gives another taxonomy for researchers to work with. The most common targets of trust are; interpersonal trust and organisational/institutional trust (Ford 2004), while Castaldo (2003, p. 14) defines targets of trust as the “various relational levels to which the concept of trust is applicable, that is institutional, systemic and interpersonal etc ...”.

Interpersonal trust is the trust between two people – where the trustee is another person and where the trustor’s willingness to act on another person’s actions involves a modicum of opportunism (Zand 1972). Organisational trust is where the trustee is the organisation, for example, the employee places or has trust in his or her organisation. A variation of this is trust in one’s manager, in which the manager is seen as a representative of the organisation (Ford 2004). In their theoretical model of trust definitions (Castaldo et al. 2010) described the "subjects" of trust to include individuals, groups and the organisation. While PytlikZillig and Kimbrough (2016) states that it is a “common essence” of the trust literature that trust, in addition to the trustor (subject), the trusting process also requires “an object or set of objects to evaluate, form expectations towards, or be willing to rely upon”, while a certain level of interdependence is assumed between the actors in the trust process.

Analysis [of trust] at the individual level tends to characterise conceptualisations of trust within firms, particular the willingness of subordinates to trust their bosses (Rousseau et al. 1998, p. 397).

The preceding section explored the nature of the trust concept, definitions and typologies of trust, and showed that, while a certain level of consensus had been reached on definitions, much work is still needed in the area of trust measures. A suggestion for an alternative way of addressing trust research has come from the process school, which has proposed that trust be approached from a process perspective.

### 3.2.2 Trust as Process

Despite the literature agreeing that trust is multi-dimensional concept - there still appears to be a lack of consensus on how it should be tackled and used in practice (PytlikZillig and Kimbrough 2016). Those scholars that see it from a psychological perspective categorise it as a construct aligned to knowledge and belief, and is coupled to attitudinal characteristics (PytlikZillig and Kimbrough 2016). Those aligned to this perspective, make the following arguments in support of their thinking: (a) it is possible to trust someone without acting on it; (b) it is possible to act in a way that makes you vulnerable, even without trusting him or her and (c) seeing trust in this way means researchers can separate trust from its antecedents and outcomes (PytlikZillig and Kimbrough 2016).

Trust as attitude is defined in the literature as a “psychological state of passively accepting risk rather than an initiative to take risk” and is the conception of trust most widely used by trust researchers (Li 2007; Li 2012). However, according Li (2012), more and more researchers are arguing for the definitions of trust to feature the notion that trust is in fact a behavioural decision to accept vulnerability. Moreover they have the *choice* whether to trust or not. This epistemological duality is a central characteristic of the trust research arena and is mirrored in the operationalisation of trust measures. There are two distinct camps that have diverged along behaviouralist and attitudinal lines (McEvily 2011). As a result there is growing support from some quarters to increase the focus of treating trust more like a "conceptual sequence", that is from belief to expectation, then intention, and finally action (Castaldo 2003, p. 22). I will also be exploring in the next section, how trust can be viewed (see 3.2.2) - as a “process containing complex feedback loops” between the affective and cognitive trust dimensions (Lewis and Weigert 2012, p. 27).

There is, however, consensus in the trust literature that trust is a multi-faceted construct which plays out reflexively across emotional and cognitive dimension as part of social interactions (McKnight and Chervany 2001b). Yet most trust studies don't account very well for this dynamic nature of trust, that is, that it can be built, maintained

and destroyed over time (Lewis and Weigert 2012). According to Long and Sitkin (2006, p. 106), many studies also focus their attention on the “role of trustors in exchange relationships”, and as a result fail to show the interdependence of the phenomena (Lyon et al. 2015). Advocates of the *process* view of trust claim that their approach ought to address some of the shortcomings of the predominant ontological assumption that trust is a relatively stable phenomenon, despite general agreement that it is generated and replicated through processes of social interaction (Jagd and Fuglsang 2016). According to trust-as-process proponents, the following factors should receive attention: dispositions, perceptions, beliefs, attitudes, expectations, intentions of the trustor, characteristics of the trustee, the context and situations in which these agents of trust are embedded (PytlíkZillig and Kimbrough 2016). Highlighting the valuable contributions of Blau (1964), Zand (1972), Luhmann (1979), Ring and Van de Ven (1994), and Nooteboom (1996) who “established the fact that trust is a result as well as a condition of social interaction processes”, Möllering (2013, p. 285) states that trust should be “conceptualised and operationalised as a continuous process of forming and reforming the attitudes that static surveys have measured so far”, or put simply *trusting* should be addressed as both a noun and a verb, in order to study both the “activities and effects of trusting”. Jagd and Fuglsang (2016) posit that trust as process positions draw on a growing body of knowledge from the sphere of Process Theory. Process Theory launches from a premise that it is in fact processes (that is events, states and entities) rather than substances - studied as independent and dependent variables - that form the world. While its theories espouse the importance of explaining these patterns, between these events, activities and choices over time (Jagd and Fuglsang 2016). The following table 3.4 shows some the distinctions between traditional logical-scientific modes of enquiries with those of process views.

Many ‘trust-as-process’ proponents, such as Möllering (2001), draw on the work of the sociologist Georg Simmel. Simmel was one of the sociologists who dealt extensively with the concept of trust in the early 20th Century and his work has influenced some of the great modern scholars (Misztal 2013).

Process Approaches	Variance Approaches
<p><b>Process Metaphysics</b> Processes, rather than substances are the basic form of the world. Events, states or entities studied by revealing the complex activities and transaction that take place.</p> <p><b>Process Theorising</b> Process theories provide explanations in terms of patterns between events, activities and choices over time</p> <p><b>Narrative thinking</b> Includes temporal linkages between experienced events over time. It's a form of knowing used to give meanings to particular events drawing on culturally embedded narrative structures</p>	<p><b>Substance Metaphysics</b> Processes are explained in terms of substances: process contingently happen to substances, but substances are essentially unchanging in character.</p> <p><b>Variance Theorising</b> Variance theories provide explanations of phenomena in terms of relationships among dependent and independent variables</p> <p><b>Logico-scientific thinking</b> Also known as paradigmatic knowing - generalisations are made about causal influences among variables</p>

Table 3.4: Process and Variance approaches (*Jagd and Fuglsang 2016, p. 5*)

His [Simmel's] contribution to the sociological conceptualisation of this notion is significant. Many of his brilliant analyses of trust relationships were later adopted and developed by scholars such as Luhmann and Giddens. Simmel's theory of trust provides a theoretical framework for analysing personal as well as generalised (or impersonal trust) (Misztal 2013, p. 49).

On trust and knowledge, Simmel described trust as "both less and more than knowledge" as it entails "a further element of socio-psychological quasi-religious faith" (in (Misztal 2013, p. 49). Simmel's idea of trust as a "leap of faith" or "trust qua expectation" according to Lewis and Weigert (2012) has been further developed by Möllering (2001), who showed how Simmel conceptualised trust as a process of interpretation leading to positive expectation of others, through the suspension of vulnerability and uncertainty via this leap of faith (Welter 2012). Simmel, Luhman and Möllering's contributions to the field of trust research are widely respected (Lewis and Weigert 2012).

While acknowledging that the process view itself is lacking in clear, accepted frameworks, as a result of multiple conceptualisations of process, and minimal integration –

Möllering (2013) insists trust researchers stand to benefit from an approach that overcomes some of the shortcomings of the variance-based approaches by focusing on how people create, maintain and repair trust over time. In addition there is ever growing interest in exploring how trust behaves when it is embedded within various organisational process and structures, for example management and sub-ordinate interactions and regulatory control (Jagd and Fuglsang 2016). Though few and far between there have been some studies that have attempted to plug this gap in the past decade, see (Maguire et al. 2001), (Adobor 2005) and (Nikolova et al. 2015).

In their study of client-consultant relationships Nikolova et al. (2015) developed a theoretical framework that builds on the Simmelian notion of trust as a “leap of faith” using a process perspective on trusting as involving social practices that support positive expectations in the face of vulnerability and uncertainty. Trust is not just a passive response to stimuli from the environment, an action of going into trust and going into a different frame of mind (PytlikZillig and Kimbrough 2016). This idea of a leap of faith or suspension of uncertainty is central. Möllering (2013) argues that this suspensive state is an essential construct for the concept of *trusting* and certainly helps explain *how* people trust. In another example from Möllering (2013, p. 286), using the definition from Mayer et al. (1995). “If trust implies a willingness to be vulnerable, *trusting* encompasses how people generate, maintain, apply and possibly lose such willingness”.

According to PytlikZillig and Kimbrough (2016) trust-as-process approaches recognise that “trusting” involves both mental and social processes (that is both psychological and behavioural aspects), occurs and changes over time, involves information processing and learning (e.g. trustworthiness, risk, and contexts of trust), and also can result in, for the trustor and the trustee, changed personal identities and institutional structures and practices. It also values the interdependence of the individuals in the trusting process, for example trust-building, first addressed by Rousseau et al. (1998) and supports Whipple et al. (2013) in their notion that trust can either be studied as a multi-dimensional or uni-dimensional construct across multiple contexts and actors.



Yet much of the current research on trust is concerned with research that assumes independent actors (Lyon et al. 2015). Khodyakov (2007) developed a conceptual definition of trust with a process framing, which he states can explain the temporal nature of trust-building processes, showing the factors that influence the creation, development and maintenance of trustworthy relationships over space and time.

Trust is a process of constant imaginative anticipation of the reliability of other party's actions based on (1) the reputation of the partner and the actor, (2) the evaluation of current circumstances of action, (3) assumptions about the partner's actions, and (4) the belief in the honesty and morality of the other side (Khodyakov 2007, p. 126).

The study of trust-as-process has three main benefits to the applied research community according to PytlikZillig and Kimbrough (2016). Firstly it embraces the idea that trust is currently used both in everyday conversation and across the research literature referencing multiple constructs within an overarching process. Secondly, trust-as-process takes the field past the semantics of the psychological state versus behaviour dichotomy to focus on the more important aspects such as how, why and when these trust-as-process aspects emerge, increase, decline or are repaired. And lastly, trust as process approaches don't 'stretch' the definition of trust, rather they acknowledge the multi-dimensional aspect of concept, rather than generalised view; allowing researchers to be specific about what 'trust' they are studying; for example trust evaluations versus beliefs, or willingness versus intentions.

In order to help trust researchers navigate this new approach, Möllering (2013) has developed a useful conceptual framework that categorises the different process views of trust; trusting as . . . continuing, processing, learning, becoming and as constituting. This categorisation framework can aid trust researchers to match conceptualisation with the correct operationalisation of the construct, see table 3.5 on the following page.

According to Möllering (2013), trust-as-process integration is indeed possible across

Process Views	Summary	Traditional Methods	Process Methods
Trusting as continuing	Interested in how trust changes over time	Cross-sectional studies of trust a stable variable	Longitudinal studies with several points of measurement that look at <i>how</i> trusting changes temporally
Trusting as processing	How trustees and trustors process information in order to produce an outcome of trust	Survey questionnaires that detect perceived trustworthiness	Use of qualitative interpretative and narrative methods
Trusting as learning	trusting learned in childhood (trust histories)	Focus on how trusting influences learning	Methods that detect quality of trust changes from previous episodes via discourse analysis
Trusting as becoming	Interested how trusting forms individual and collective identities, as opposed to trust as a predisposition in non-process views		Closely-related to identity research, benefits from qualitative-interpretative methods
Trusting as constituting	Emphasis on social structures; trusting not just dependent on social context, but also reproducing the rules and resources in which it is embedded.	Mostly based on trust in institutions or institution-based trust	Can benefit from ethno-methodological and structuration theoretical frameworks

*Adapted from: Möllering (2013)*

Table 3.5: Process approaches to trust

these five process views if researchers remain true to the core value about *trusting* as the process of how people develop the preliminary outcome of trust.

The above section introduced the trust-as- process view of trust. Followers of this approach, who base their framing on those of process theory, believe that the approach builds on the fact that trust is a result and a condition of social processes, that trust quality and intensity can change over time and that trust can be both a component of a process or a process in itself (Möllering 2013). Following process approach could have benefits for trust researchers keen for an alternative to the shortcomings of the dominant, logico-scientific frameworks of the variance-based approaches in trust research. The next section explores how the trust literature addresses the operationalisation of trust.

### 3.2.3 Measures of Trust

The conceptual uncertainty surrounding trust across disciplines has filtered into operationalisation of trust. As we have seen trust is a concept that is difficult to observe, and therefore define (Lyon et al. 2015) and measure (Möllering et al. 2004; PytlikZillig and Kimbrough 2016). Dirks and Ferrin (2001) describe how much of the research on trust revolves around its benefits, rather than how trust might broadcast these benefits. In order to fill this gap, they believe more research should build on the model that suggests that trust plays more of a moderating role, that is it supports the favourable conditions that promote co-operation and higher performance, amongst other positive behaviours. But trust is still often taken for granted, a symptom perhaps of the many different views of the complex concept across disciplines. This could well be the reason that it has proven difficult to unearth evidence of trust in action. As Gambetta (2000) asserts it's far easier to find evidence of the antithesis of trust, distrust, than it is to find evidence of its opposite - trust. The operationalisation of trust, especially changes in levels of trust, suffers greatly from a lack of methods (Lyon et al. 2015). According to Möllering et al. (2004, p. 560) trust researchers across disciplines face the challenge of how to "bring an abstract problem to life". In an effort to address this challenge, they offer a list of key questions researchers should be asking when studying the phenomena in an organisational setting. (A) Who are the trustors and the trustees? (B) How do they interact and in what respect do they face vulnerability and risk towards each other? (C) Within which kind of social systems (with certain rules and routines) are they embedded in? (D) How do they form expectations about each other's intentions and behaviours? (E) What exactly leads them to accept or increase their vulnerability? And (F) How can they enact trust?

There is also an "empirical divide" regarding the measures of the phenomenon along the two, clear and independent (in most cases) paradigms that dominate the research area; namely behavioural and attitudinal (McEvily 2011, p. 1268). Trust is also difficult to measure because its understanding and interpretation is also a socially constructed and context-dependent phenomenon - which renders its measurement dif-

difficult (Welter and Kautonen 2005). The psychometric measurement of trust, which is by far the most preferred in organisational study settings, are those measures which use multi-question surveys designed to capture one or more dimensions of trust (Gillespie 2012). In a 2011 review of the organisational studies from 1962-2010, McEvily and Tortoriello (2011) found that out of the 171 studies that used psychometric measures, 129 unique measures were utilised, and only 24 could be classified as being replicated from previous studies. Their findings can be summarised as follows: Firstly measures for attitudinal aspects of trust have been developed and used to measure both the trustor's beliefs about the intention of the trustee (also depicted as perceived trustworthiness) as well the trustor's willingness to accept risk or vulnerability (Lewicki and Brinsfield 2012). Secondly McAllister (1995) produced instruments to measure cognition-based trust; *I can rely on this person not to make my job difficult by careless work* and affect-based types of trust *If I shared my problems with this person I know (s)he would respond constructively and caringly*, and lastly Mayer and Davis (1999) developed instruments that measured trust among three dimensions, namely ability-based trust, benevolence-based trust and integrity-based trust. It is also known as the ABI model, see (Nikolova et al. 2015).

Yet despite the predominant use of the Mayer et al. (1995) and (Rousseau et al. 1998) definitions of trust, there is strong evidence (see also Gillespie (2012) and McEvily and Tortoriello (2011) that researchers are not developing or using instruments that measure either the willingness to be vulnerable or intention to accept vulnerability but are using measures designed to measure perceived trustworthiness (Dietz and Den Hartog 2006).

As mentioned in the previous section, the economic school is primarily concerned with trust as behaviour/trust as choice and its associated measures which involve observable actions and decisions. Firstly trust as choice or behaviour measures are sometimes difficult to isolate due to the fact that a decision or action measure or variable can not be confirmed unless one is informed of what substitute or alternative choices were to hand (Lewicki and Brinsfield 2012). The behavioural aspects of trust are of-

ten measured within a laboratory environment using experimental games such as the *Prisoner's Dilemma* and the *Trust Game* - to observe when agents choose to co-operate instead of compete (Möllering et al. 2004).

In some examples; cross-sectional instruments are also used with measures that test reliance and disclosure (Gillespie 2012; Lewicki and Brinsfield 2012). Acknowledging the issues with trust measures, and the discipline's fragmentation with regard to conceptual underpinning and lack of mature operationalisation, Li (2012, p. 102) has suggested that progress can be made by concentrating on what makes the research area "unique and distinctive", such as focusing on the contexts in which trust matters. For example; (a) when the uncertainty of unmet expectations is high, (b) when the vulnerability of control (e.g failure of formal contract) is high, (c) when the stakes (e.g financial loss) of unmet expectation or control failure are high and (d) when long term interdependence (e.g reciprocal relationship) is high.

The above section gave an outline of the literature in respect to the operationalisation of trust measures and showed how a concept which is so difficult to observe and therefore define, is also then extremely difficult to measure.

### 3.3 Other Factors

Alongside trust, culture has also been identified as an important factor in many aspects of organisations and competitive performance, especially in the sharing of knowledge, through culture's tight link to beliefs, norms and values of groups (Alvesson and Kärreman 2001). Hofstede (1983, p. 76) defines culture as a form of "collective mental programming" which ties us to our fellow countrymen but sets us apart from other nations, regions or groups. Organisational culture is another construct with many definitions.<sup>1</sup> Sweeney and Hardaker (1994, p. 4) use the definition of (Schein 1989) who define organisational culture as the "deeper level of basic assumptions that are shared by members of the organisation, that operate unconsciously, and that define in a *taken for*

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<sup>1</sup>Consensus has not been reached with regard to a definition of organisational culture. A review by Verbeke et al. (1998) found 54 different definitions of organisational culture between 1960 and 1993 in Sirmon and Lane (2004)

*granted* fashion an organisation's view of itself and its environment". Or as, according to Smircich (1983) - the social or normative glue that holds an organisation together, manifested in the the way people set individual and organisational objectives, carry out tasks and utilise resources to perform them (Sweeney and Hardaker 1994). Vaara et al. (2012) state that national culture and organisational culture differences in conjunction have an impact on knowledge sharing and should not be considered separately. Yet it is organisational culture that has been singled out as having the most impact on knowledge transfer activities, especially where these activities are potentially value-creating in nature. According to Sirmon and Lane (2004) similarity in organisational culture of two firms forging an alliance or merger has a positive effect on collaboration between partners, this includes knowledge sharing. Culture has been identified as an important contributor to knowledge sharing (Bock et al. 2005; McNeish and Mann 2010) and it was highlighted by Mayer et al. (1995) that organisational culture has an impact on the way knowledge is managed and shared. Organisational factors such as organisational structure, systems, size, and history of a firm that could have an impact on business performance. They are also seen as visible manifestations of organisational culture (McNeish and Mann 2010) as part of firm design. These factors have also been presented, together with environmental and people factors, as antecedents to organisational climate which in turn has a bearing on employee behaviour in an organisation (Hansen and Wernerfelt 1989, p. 401). "Just as geographic regions have different 'climates' as a result of the immediate interaction of temperature, humidity, wind, sunlight and rain/snow to make them favourable or unfavourable climates for living, so can a firm have as the interaction of its facilities, structures, systems and people a favourable or unfavourable work climate".

In the knowledge sharing process - the role of the individual is central. In a dyadic interaction there is always a knowledge sharer (donation) and knowledge receiver (collection) (Okyere-Kwakye and Nor 2011; Lin 2007). There are a number of individual factors that could be seen as determinants of knowledge sharing. Individual factors can be described as those factors such as skills, characteristics, motivation, attitudes

and knowledge that a person possesses that may determine their behaviour in social situations. As (Nonaka and Toyama 2003) stated, the process of knowledge creation is embedded in social interaction. Individuals share and create tacit knowledge through direct experience both within and outside an organisation (Nonaka and Toyama 2003).

### 3.4 Concluding Summary

In this chapter, I focused on the trust literature, and using the narrative overview approach attempted to present a diachronic review of the key concepts, theoretical grounding and approaches to the study of trust and its measurement. Similar to the knowledge literature, as outlined in Chapter 2, much energy has been expended in an effort to reach consensus on the definitions of trust. While there appears to be some agreement on the definition, there is also acknowledgement that there will always be contention over the trust concept because of its multi-faceted nature. I addressed the general overview of the trust concept and how it is tackled across disciplines; including psychology, economics and the management sciences. I presented some of the widely-accepted definitions of trust and key trust typologies. The review showed that there does appear to be a call for some form of standardisation in the form of trust measures, as well as a move towards a more context-orientated approach that takes into account both the psychological and the behavioural aspects of the concept. One such solution has come in the form of a process approach to trust research, that is an approach that acknowledges the dynamic nature of *trust(ing)* – which can be developed, maintained, destroyed and repaired over time. This was followed by a section on how the literature deals with the measurement of trust; before concluding with some of the *other factors* the are often bundled with trust, for example culture. In Chapter 4 I will outline the methods employed to review the top ranked knowledge management literature in order to ascertain how it treats trust in relation to knowledge sharing.

# 4

## Methods

“Belief is the wound that  
knowledge heals”.

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*Ursula K. Le Guin, The Telling*

### 4.1 Introduction

This chapter will outline the method and steps that were undertaken to select and screen the articles for the study. The chapter is laid out as follows. First I explain why I chose the systematic review method, before describing the search strategy, which includes the data sources, the search terms and search delimiting employed. I then describe the articles’ selection and screening criteria, and the results of the coding. I conclude with the limitations of the review.

### 4.2 Search Strategy

The search strategy encompasses both the sources of data and the search terms and delimiting parameters that were employed for this systematic review.



### 4.2.1 Sources of Data

The search query was performed on the *Elsevier Scopus* online database. This database is one of the largest digital databases of peer-reviewed literature in the health and social science fields. *Scopus* claims to use a robust, proprietary algorithm to sift and surface academic journal articles by generating and utilising reliable citation counts (Kulkarni et al. 2009). This reliability was essential in ensuring a return of quality articles for review.

### 4.2.2 Search Terms and Delimiting

The search query was made up of the following search keyword search terms. *Knowledge Sharing* and *Trust*. A secondary search was performed in which the terms *Knowledge Transfer* and *Trust* were inserted in the query. This was done in order to account for the interchangeable use of the two terms in some quarters of the literature. The search terms were chosen specifically to focus the search on those concepts in the literature and their interaction. The search was performed on the *8th August 2017*, online using a personal computer.

The search query was delimited in order to ensure the feasibility of the project, and find the balance between a comprehensive set of relevant articles, while “narrow enough to focus effort” (Green et al. 2006). One of the delimiters employed in this thesis was to restrict the search query to only the most highly-rated of the knowledge management and intellectual capital research journals. For this list of journals I relied on the classification of Serenko and Bontis (2017) in their updated ranking of knowledge management journal publications. The table 4.2 on the next page lists the journals that formed part of the search and were the primary sources of data. It also depicts the their rankings plus the ratings which (Serenko and Bontis 2017) assigned to them based on the scales that they operationalised in their review.

Another requirement was that a full-text, portable document format (PDF) version of the article needed to be available for download via my academic institution’s journal subscription service. Unfortunately one of the journals, the *Journal of Information and*

Pos	Journals	Rating
1	Journal of Knowledge Management	A+
2	Journal of Intellectual Capital	A+
3	The Learning organisation	A
4	Knowledge Management Research and Practice	A
5	Knowledge and Process Management	A
6	VINE: The Journal of Information and Knowledge Management Systems	A
7	International Journal of Knowledge Management	A
8	Journal of Information and Knowledge Management	B

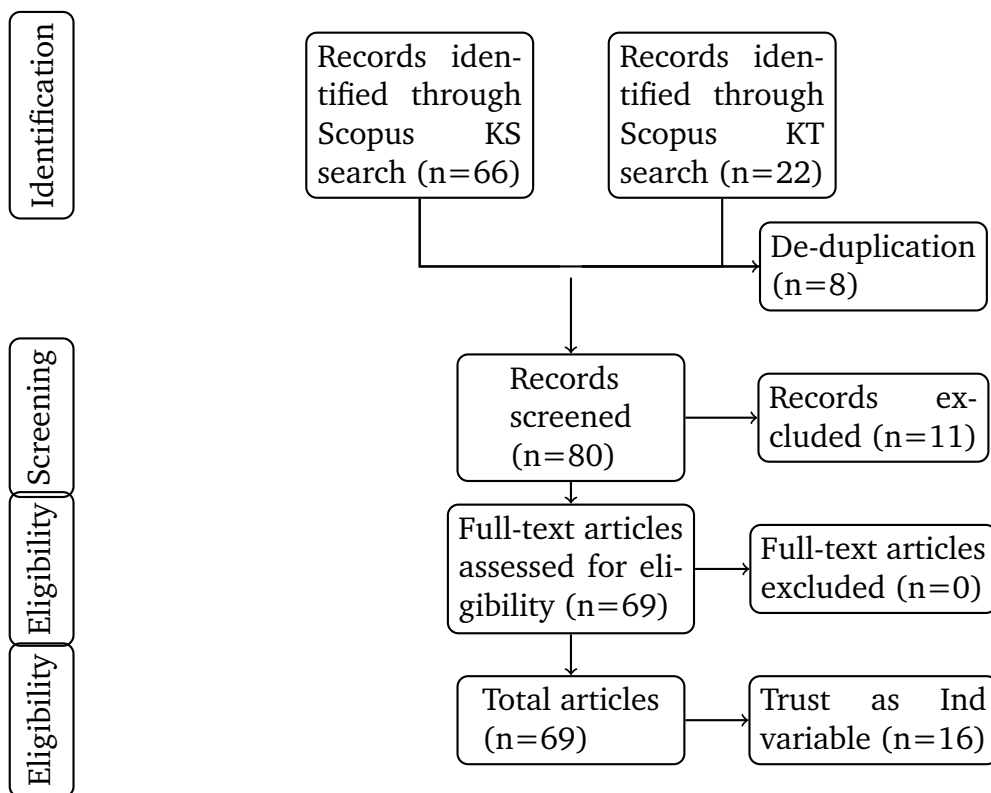
Table 4.2: Top 8 KM Journals

*Knowledge Management*, was not available to me online in and therefore had to be excluded as a result. All articles returned were in English - therefore language was not included as a de-limiter. A further narrowing mechanism was the use of a date range filter which saw the search results refined to include only those articles over a 10-year period. This was performed on the *Scopus* website after the results were returned. Therefore only those articles from 2006-2017 were included (a total of five articles from 2002-2005 were excluded as a result). As mentioned previously the search query was performed in August 2017, therefore this would, naturally, limit any later articles published in those journals that fit the search parameters. It could also exclude articles from that time period that may have been indexed after that date. The full search query is illustrated for reference in the block below:

```
( TITLE-ABS-KEY ( knowledge AND sharing ) AND TITLE-ABS-KEY ( trust ) ) AND
DOCTYPE ( ar ) AND PUBYEAR > 2005 AND PUBYEAR < 2018 AND ( LIMIT-TO (
EXACTSRCTITLE , "Journal Of Knowledge Management" ) OR LIMIT-TO ( EXACT-
SRCTITLE , "Journal Of Information And Knowledge Management" ) OR LIMIT-TO
( EXACTSRCTITLE , "Knowledge Management Research And Practice" ) OR LIMIT-
TO ( EXACTSRCTITLE , "Learning Organization" ) OR LIMIT-TO ( EXACTSRCTITLE
, "Knowledge And Process Management" ) OR LIMIT-TO ( EXACTSRCTITLE , "Inter-
national Journal Of Knowledge Management" ) OR LIMIT-TO ( EXACTSRCTITLE ,
"Vine Journal Of Information And Knowledge Management Systems" ) OR LIMIT-
```

TO ( EXACTSRCTITLE , "Journal Of Intellectual Capital" ));

( TITLE-ABS-KEY ( knowledge AND transfer ) AND TITLE-ABS-KEY ( trust ) ) AND DOCTYPE ( ar ) AND PUBYEAR > 2005 AND PUBYEAR < 2018 AND ( LIMIT-TO ( EXACTSRCTITLE , "Journal Of Knowledge Management" ) OR LIMIT-TO ( EXACTSRCTITLE , "Journal Of Information And Knowledge Management" ) OR LIMIT-TO ( EXACTSRCTITLE , "Knowledge Management Research And Practice" ) OR LIMIT-TO ( EXACTSRCTITLE , "Learning Organization" ) OR LIMIT-TO ( EXACTSRCTITLE , "Knowledge And Process Management" ) OR LIMIT-TO ( EXACTSRCTITLE , "International Journal Of Knowledge Management" ) OR LIMIT-TO ( EXACTSRCTITLE , "Vine Journal Of Information And Knowledge Management Systems" ) OR LIMIT-TO ( EXACTSRCTITLE , "Journal Of Intellectual Capital" ));



**Figure 4.1:** Article Search and Screening Process adapted from (Bornbaum et al. 2015)

### 4.2.3 Selection Criteria

The search (both Knowledge Sharing and Knowledge Transfer) generated a total output of 88 articles; 66 articles for KS and 22 using the KT search term. Six of the articles that were surfaced in the KT search were also returned as part of the KS search. However 11 articles were not available as full text, electronic format via the Stellenbosch University library website. As this was a requirement set out in the search strategy, these 11 articles were excluded from the final list of sources to be reviewed and coded, which left a total sample of 69 articles that were to be coded.<sup>1</sup>

The selection criteria employed then looked to narrow down the articles further for analysis on the basis of the following process;

1. Screened articles and coded for the independent variable (IV) and the dependent variables (DV) that were objects of study.
2. Coded articles which showed trust as (IV-Trust) the independent variable in relation to knowledge sharing/knowledge transfer as the dependent variable (DV-KS/KT) - aggregated code IV\_Trust\_DV\_KS.
3. Coded all other articles and captured the independent variables and dependent variables (Other Factors) that were studied in those articles.
4. Reviewed the final set of articles that were coded as IV\_Trust\_DV\_KS/KT
5. Analysed articles according to how they addressed the concepts of knowledge and knowledge sharing, the trust concept (definitions and typologies and functions of trust), and their operationalisation of trust.
6. Performed a final full-text search query across across full data set using the search terms “trust as process” and “trusting”.

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<sup>1</sup>For the full list of the articles surfaced as a result of the Scopus search, please refer to the table A.2 on page 107).

### 4.3 Coding

The coding in this paper was performed by a single coder using both inductive and deductive approaches. There is support in the literature for individual coders for analysis (Cleveland and Ellis 2015). In order to perform coding the *Nvivo* (version 12.0) qualitative research software was employed. According to the *Nvivo* website a total of 1.5 million people use *Nvivo* to analyse and organise unstructured data in over 150 countries in both the academic and corporate spheres. It is the largest privately-owned software its kind in the world. A total of 69 (n=69) articles in PDF format were imported into the program in order to perform the secondary coding and selection process. Computer software data analysis tools such as *Nvivo* are capable of assisting the qualitative researcher with many different types of analyses, so that the nascent theories, relationships (and themes) in the data can emerge (Leech and Onwuegbuzie 2011). Each article was reviewed and coded according the framework notation; IV for Independent Variable (for example IV-Trust); DV for dependent Variable (for example DV-Knowledge-Sharing). In order for the article to be included in the final sample for analysis it had to contain knowledge sharing/knowledge transfer as an dependent variable and trust as either a single variable or one of a set of variables. This set was coded IV\_Trust\_DV\_KS.

Coded terms for trust, including dis-aggregated, non-generalised forms such as affective and cognitive trust, high and low trust, vertical and horizontal trust, trust in colleagues, trust in co-workers, trust in managers, as well as the generalised form were coded as trust for the sake of completeness. As mentioned above none of the articles showed clear evidence that they could be classified as studying *trust-as-process* as the independent variable, barring one article that used process orientated terms for knowledge such as “knowing”. In order to include as many source articles as possible terms such as knowledge donation, knowledge exchange, knowledge flows and variations such as sharing knowledge, transferring knowledge were accepted as coding terms when coding for knowledge sharing processes.

After the coding process, a total of 16 articles were classified as positioning trust

as an independent variable in relation to knowledge sharing/transfer in the position of the dependent variable (IV\_Trust\_DV\_KS). In other words the main focus of the study was to find, measure or explain the impact of trust on knowledge sharing/transfer and how they addressed the relationship. This will be discussed further in the next chapter. Where trust was not shown to be the independent variable, I listed what the author was studying as the independent variable, and consolidated these into Cultural, Organisational and Individual factors. See A in the appendix.

In the next section I will be addressing some of the limitations of the study.

## 4.4 Limitations of the Study

As a thesis for a masters degree, this study is limited in the fact that the systematic review and coding process was performed by a single researcher. This type of method would benefit from a bigger team of researchers for each of the steps in the review, coding and analysis process. It would also benefit from increasing the sample size by widening the list of journals. The nature of the coding exercise whereby the articles were categorised according to the variables explored by its very nature followed a logical-scientific approach. This to a certain degree negated the surfacing of trust as process approaches. The secondary search I performed, as mentioned in the methodology chapter, confirmed that trust-as-process approaches in the top knowledge management are not prevalent. This was exemplified literature by virtue of their absence in the 69 articles reviewed in this study.

## 4.5 Concluding Summary

In this chapter I discussed the method employed to find a sample of articles for analysis. I explained how I found the target set of journals at which to focus the search. This was done by using a peer-reviewed classification of the top knowledge management journals, see Serenko and Bontis (2017). This was followed by the application of a *Scopus* search query which was aimed at returning a list of articles about trust and knowledge

sharing from the top nine knowledge management journals that could then be utilised for analysis. Next followed a discussion of the coding of the target articles, using the NVIVO qualitative research tool. I explained how this computer-based software proved useful in coding the independent and dependent variables of the sample articles – in order to categorise and surface the concept of trust in relation to knowledge sharing. In the next chapter I will present the results and a discussion of the findings.



## Presentation and Discussion of Findings

“Knowing is not enough; we must apply. Willing is not enough; we must do”.

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*Johann Wolfgang von Goethe*

### 5.1 Introduction

This thesis aims to show through a systematic review of the top-ranked knowledge management journals how the literature treats trust in relation to knowledge sharing. The chapter is laid out as follows. First I will present the results of the coding process described in the methods chapter. I will then discuss how the 16 articles addressed the concept of knowledge sharing and knowledge types, how they deal with the concept of trust, trust’s functions in relation to knowledge sharing, trust measures and finally their findings and implications. In addition, I will discuss some of the other, significant factors (not trust variables) that were shown to impact knowledge sharing. These articles fell outside of the 16 but I believe they warranted discussion. These factors included individual, organisational and cultural factors. For example motivation, fear of criticism, willingness to learn, national and organisation culture and organisational structure and unit size.

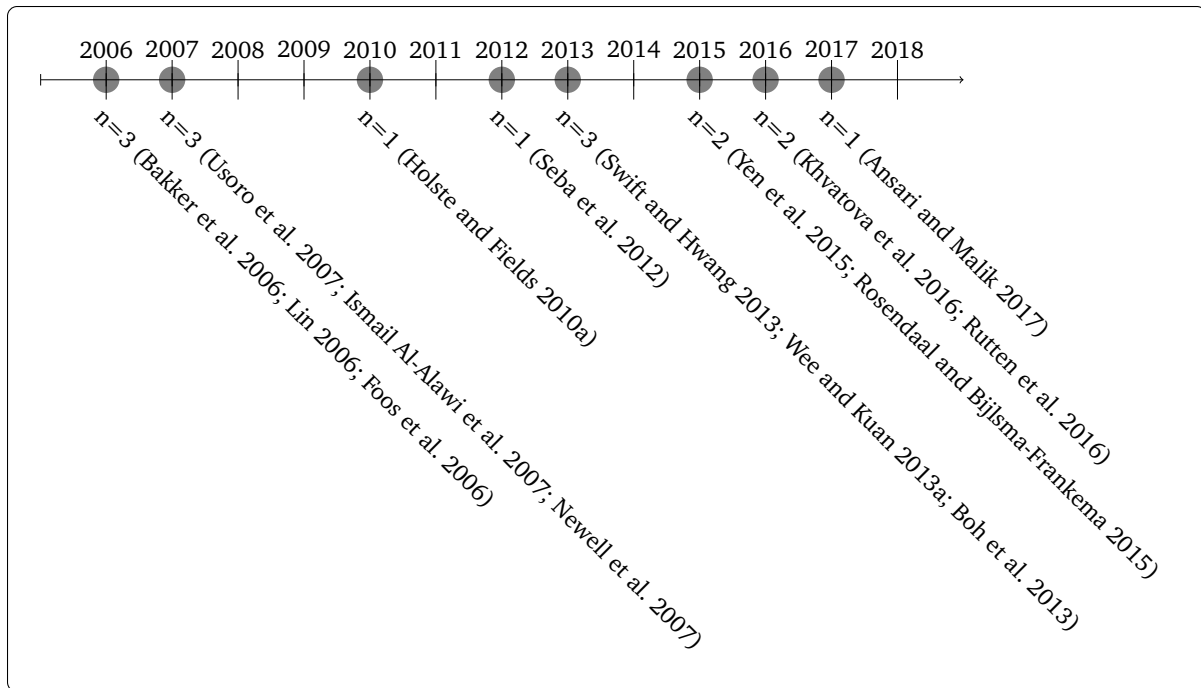


## 5.2 Results

As outlined in the methods chapter the articles were analysed and coded to find out what were the key variables studied in the literature. This coding was performed in order to explore how the top-ranked knowledge management literature addressed trust empirically as a key predictor of knowledge sharing, either on its own or with other factors. Where trust was not shown to be the independent variable, the variable was coded separately. Based on this screening, 16 articles were classified as studying trust as the independent variable. These 16 articles were then analysed in-depth using the following framework; study aims and findings, trust definitions, types of trust presented, knowledge sharing definition and types of knowledge shared. I was particularly interested in discovering if any of the articles explored a process view of trust as recommended by trust researchers such as Möllering (2013), Jagd and Fuglsang (2016), and PytlikZillig and Kimbrough (2016), i.e trusting as either an independent or dependent variable or if acknowledging at the very least that trust is a phenomenon that is built up over time. I will pick up on this in my concluding chapter in the section on recommendations and future directions. I therefore performed a secondary query of the articles in which I reviewed the n=69 articles using the terms; *trust as process* or *trusting*. Only one of the articles, the one of Newell et al. (2007) could be classified as presented more process-orientated view of trust.

The analysed articles span the years 2006 to 2017 (as the search results were delimited to that date range). Three of the articles were published in 2006, three were published in 2007, one came from 2010, one came from 2012, three from 2013, two from 2015, three from 2016 and one from 2017. Figure 5.1 depicts the articles in a chronological view spanning the years 2006-2017.

All the of the studies take place in organisational settings, 14 of which are in the private sector, barring two which are set in public sector organisations. In the next section I will discuss how the articles selected for review address the concept of knowledge sharing and knowledge, paying particular attention to definitions of knowledge sharing and types of knowledge shared.



**Figure 5.1:** Chronology of articles where trust was studied as the independent variable in relation to knowledge sharing as the dependent variable

### 5.3 Summary of Articles' Aims and Findings

Overall the review found that all the articles, barring one, confirm that trust is an important factor for knowledge sharing. The section below summarises the findings. All of the articles sought to demonstrate and/or prove the direct relationship between trust and knowledge sharing and transfer, either as a standalone variable or bundled as a set of variables. All, barring one, found that trust had a positive effect on knowledge sharing.

I shall begin with the outlier in the sample. The main finding in the Bakker et al. (2006) article was that trust was in fact a poor explanatory factor of knowledge sharing in their study. Their study sought to investigate whether trust indeed explains knowledge sharing relationships in new product development teams, or whether there is in fact much more important drivers of knowledge sharing. They found that team membership had a much larger effect on the density of knowledge sharing, thus arguing that social capital does not reside in trust but in team membership of new product development (NPD) teams, especially for longer-lived teams.

Foos et al. (2006, p. 6) focused specifically on the difficulties involved in the transfer of tacit knowledge in new product development. They found that trust was an influencing factor in knowledge transfer expectations, but that the "the subject of knowledge of tacit knowledge transfer, content and process" was poorly understood by managers. For Lin (2006) trust is not a primary focus of their study. But the authors confirmed that interpersonal trust positively impacts the intention to share knowledge in organisations. Their study developed a research model for applying innovation diffusion theory, depicting the role of interpersonal trust, as an attempt to enhance the understanding of the determinants of the intention to facilitate knowledge sharing in organisations. Secondly the results showed that organisational support is positively associated with perceptions of innovation capability and interpersonal trust, which in turn are positively related to the intention to facilitate knowledge sharing in organisations.

Ismail Al-Alawi et al. (2007, pp. 32–34) explored factors such as interpersonal trust, communication between staff, information systems, rewards and organisational structure in relation to knowledge sharing. They found that these factors are positively related to knowledge sharing in organisations. They confirmed that there is a "positive relationship between trust among co-workers and knowledge sharing in organisations". On the subject of trust only 84 per cent responded "yes" when asked if they shared their "feelings and perceptions" with their co-workers, while only 29 per cent believe their colleagues should share "personal information" with fellow staff. Usoro et al. (2007) explored the role of trust in knowledge sharing, and its tendency to lead to action in the context of virtual communities of practice. They found that the three facets of trust under investigation, namely competence, benevolence and integrity-based trust - were all positively related to knowledge sharing. The results of their study highlighted integrity-based trust as the one facet with the most predictive power in relation to knowledge sharing. They also paint a picture of the importance of the strong social networks in knowledge sharing.

Newell et al. (2007) were interested in confirming the importance of trust in organisational settings that have widely distributed work units. They found that companies

should rather focus efforts on trust-building between head office and subsidiary staff instead of investing heavily in technology to boost geographically distributed project work. Seba et al. (2012) found, in their study of knowledge sharing practices in the Dubai Police Force (DBF), that the police force have yet to show the benefits of an investment in a knowledge management programme, and has struggled to embed a knowledge sharing culture in the force. The paper identified four factors as potential barriers/enablers to knowledge sharing, organisation structure, leadership, time allocation and trust.

Swift and Hwang (2013, p. 32) investigated the role of cognitive and affective trust in establishing an organisational learning environment and promoting knowledge sharing between marketing executives. Their results indicate that affective trust is more important than cognitive trust in sharing interpersonal knowledge, but that cognitive trust is more important in creating an organisational learning environment. They also found that strong social networks, which are built largely on high levels of trust (affective), were also an antecedent of knowledge sharing. “The fact that only affective trust had a significant influence on strength of social network is revealing of the nature of such networks ...”. Their study found that affective trust had a mediating as well as independent variable role in relation to knowledge sharing. Wee and Kuan (2013a) investigated knowledge sharing in small to medium sized business in Singapore. They found SME owners (leaders) to be the key source and creator of knowledge and the sole driver of KM processes in these enterprises. Knowledge sharing occurs through cross functionality, overlapping roles and facilitated by close physical proximity in open work-spaces, and that knowledge sharing processes are enabled by the awareness of roles, mutual respect and the level of trust among employees. Boh et al. (2013) studied the factors that impact knowledge transfer in multinational companies where there are major cultural differences (Norway and Vietnam). They found that trust was a key factor, alongside openness to diversity, in predicting the successful transfer of knowledge from the corporate centre to the subsidiary in-country. The study that Wee and Kuan (2013b, p. 964) undertook looks at the key knowledge processes; knowledge

creation, knowledge transfer and knowledge re-use. They use the term transfer interchangeably with knowledge sharing and exchange. Their study found that that high levels of trust, brought about by the familiarity of employees in small to medium size enterprises (SMEs) in Singapore had corresponding, good levels of knowledge sharing. "The interviews from this study confirmed previous research on the presence of high level of trust and socialisation among employees of SMEs. Given the smaller number of people in SMEs, employees within each SME tend to be more familiar with each other compared to large organisations. The lack of trust within SMEs would impede the effectiveness of knowledge sharing, given its proximity".

Yen et al. (2015) found that that employees who trust other members of a social network are encouraged to share knowledge and information. Trust directly influences knowledge sharing and also plays a mediating role between interpersonal relationship and knowledge sharing, which suggests that knowledge sharing is likely to occur when trust exists among employees. They also focused on a cultural factor, *Guanxi*, which they found was insufficient to clarify knowledge sharing, because its presence might be superficial, especially in the process of tacit knowledge sharing. They also found, importantly in the light of the focus of this paper, that the absence of trust reduces an individual's willingness to share knowledge. Rosendaal and Bijlsma-Frankema (2015) presented a survey-based study in the Dutch primary school system and sought to explain the variation in knowledge sharing practices amongst primary school teachers by the exploring the antecedents of knowledge sharing. Their primary goal was to clarify how social relations within teams makes a difference to knowledge sharing and how these relational characteristics are linked in promoting or constraining knowledge sharing. They found that trust in team members has a positive effect on knowledge sharing. They also declared that both of these variables have a positive effect on a moderating variable, team identification, which also has a positive effect on knowledge sharing.

Khvatova et al. (2016, p. 921), in their article, attempt to show how to measure trust within a knowledge sharing network. They present a percolation model that could be used in researching the role of trust and connectivity in intra-organisational

knowledge sharing. The focus of the research is on the interaction between employees within organisations. Their findings supports the dominant view in the knowledge management literature which argues that trust is an essential factor impacting knowledge sharing, firstly, and, secondly, that there is a reciprocal effect between social interaction and trust. They also found that knowledge flows (percolation) happens more easily when connections are imperfect but receptivity is good. They base their model on the notion of trust in the context of personalised and depersonalised trust acting along horizontal and vertical planes. They position interpersonal trust between peers and that between superior and subordinates. They describe depersonalised trust as “trust placed in the system” (p. 921). They found that trust was stronger when the network node and structural connections were in place to help knowledge flow. And when combined with highly ‘useful’ knowledge, this brought about the biggest impact on intra-organisational knowledge sharing. “Compared to the development of communication paths and structural connections, trust is a stronger leverage. Besides the receptivity characteristics, it is the usefulness of knowledge shared which shows the strongest positive impact on successful knowledge sharing”(p. 930). In the article by Rutten et al. (2016), in which they aimed to explore the differences in the level of knowledge sharing between co-workers in high versus low trust environments, both for cognition-based trust and affect-based trust as well as implicit and explicit knowledge. They confirmed that there is a positive relationship between trust and knowledge sharing. They found: (a) that trust was more important for the sharing of implicit knowledge. And (b) that affect-based trust has a bigger impact on knowledge sharing than cognition-based trust.

Trust in one’s co-workers in relation to emotional intelligence and knowledge sharing was the focus of Ansari and Malik (2017) paper. In their article, they primarily looked at the moderating role of trust. In so doing they tested and proved one of their hypotheses, that trust in co-workers in the form of integrity-based trust had on its own a positive impact on knowledge sharing - thus playing the role of independent variable as well. “Moreover, of all the trust factors, integrity is the one with predic-

tive power as evidenced in the step-wise multiple regression analysis. While managers should encourage other types of trust, integrity-based trust should be given priority consideration” (p. 210).

The above section was a summary of the 16 article’s key aims and findings. I will next explore how they viewed and dealt with the knowledge and knowledge sharing concepts.

## 5.4 Concept of Knowledge Sharing and Knowledge

In order to adequately address the role of trust as an essential factor in knowledge sharing it is essential to understand how the 16 articles that explore trust in relation to knowledge sharing view the process of knowledge sharing itself as the dependent variable. Four of the articles ground their research largely on theories of social capital to underpin their notions of knowledge sharing. It is clearly presented as an example of a social activity or behaviour in which networks of individuals interact in organisational settings. This is exemplified in Rosendaal and Bijlsma-Frankema (2015), where they define knowledge sharing as an approach behaviour that forms part of a social process. An approach behaviour in an organisational setting is described as an extra-role behaviour, that is it is a behaviour that is not part of an employee’s formal job description.

Khvatova et al. (2016) present knowledge sharing as an iterative social process conditioned by the existence of a certain level of trust. They consider this knowledge sharing network to be a sub-system of an organisation in which the foundations are employees as the holders of knowledge. They build their study on the notion that this knowledge sharing network is the setting of interrelations between employees connected by social interaction ties or aggregate social networks. Rutten et al. (2016) define knowledge sharing in the context of their study to mean the willingness of individuals in an organisation to share with the others the knowledge they have acquired or created. It is an activity/behaviour involving risk for both sender and receiver. Bakker

et al. (2006, p. 597) view knowledge sharing to be part of the knowledge production process in order to support their view that innovation projects in organisations are a form of “problem solving”. They ground their study on the derivation of Swan et al. (1999) who equate knowledge exploration as a form of knowledge production. This is counter to the knowledge exploitation as (integration) view of McElroy and Mcelroy (2003).

In our opinion there is a difference between knowledge sharing as part of knowledge exploration (production) and knowledge sharing as part of knowledge exploitation (integration). Knowledge sharing in order to integrate knowledge takes place from one actor to many others at once (“broadcasting”). Knowledge sharing as part of knowledge production takes place more in the form of discussions, working together to solve a problem: actors define the problem together, discuss options, share knowledge to find a solution together (Bakker et al. 2006, p. 597)

Ansari and Malik (2017) describe knowledge sharing as an aspect or manifestation of organisational culture in which employees voluntarily exchange (individuals) their knowledge, experience as well as skills across a unit or organisation. Usoro et al. (2007) premised their study on whether trust is an antecedent of knowledge sharing, on the notion that knowledge sharing is a process of communication involving two or more participants, using verbal and non-verbal forms/mechanisms. It involves the supply of knowledge by a source, followed by the receiving and interpretation of the communication by one or more participants.

Yen et al. (2015) in their study on the effect of internal social capital on knowledge sharing; define knowledge sharing as the willingness or set of behaviours of individuals in organisations to voluntarily share tacit and explicit knowledge formally and informally using verbal communication and demonstrations. The essence of this definition is supported in the measures for knowledge sharing from Bock and Kim (2002). They broke knowledge sharing into a) knowledge sharing willingness, where knowl-



edge owners voluntarily share their work experience, technology and viewpoints with others; and b) knowledge sharing behaviours in which knowledge owners shared their work experience, technology, and viewpoints with others, expecting them to use them. Swift and Hwang (2013) present knowledge sharing as being at the core of establishing an organisational learning environment. They based this on Huber (1991)'s assertion that an organisation learns if it acquires knowledge that is useful to it and provides competitive advantage. They used survey items from Kim and Lee (2006) to measure the study of knowledge sharing and organisational learning.

Ismail Al-Alawi et al. (2007) conceptually view knowledge sharing as knowledge transfer, which requires an individual or group to share knowledge to achieve mutual rewards. In their study they express knowledge sharing as the dependent variable and uses measures to prove its existence from Davenport and Prusak (1998); namely knowledge sharing techniques, and willingness to share knowledge freely, and from Goh (2002) team-work and collaboration to accomplish task measures. Wee and Kuan (2013a, p. 961) grounded their study on a definition of knowledge sharing offered by Mitchell (2003) which is: "knowledge sharing is the process by which employees discuss practices such as know-how and know-what to enable the organisation to remain competitive". In addition they cite Hamdam and Damirchi (2011) who posit that the flat structure and open culture of SMEs encourages knowledge sharing and collaboration. Newell et al. (2007) make it clear in their article that knowledge sharing as a form of exchange would not take place without mutual trust between knowledge sender and receiver because sharing is a social activity.

Rutten et al. (2016) follow the Gibbert and Krause (2002) definition of knowledge sharing; that is that knowledge sharing is the willingness of individuals in an organisation to share with the others the knowledge they have acquired or created. To measure the knowledge sharing levels they adapted the scales of Cummings (2004). Rosendaal and Bijlsma-Frankema (2015) - who in their article tested the effects of team-work elements on knowledge sharing in the Dutch primary school system - ground their work in the notion of Tsai and Ghoshal (1998) that knowledge sharing is a social process,

a “group level phenomenon” (p.235) embedded in social relations. They argued that knowledge sharing is a risk-taking behaviour, which is based on knowledge sharing as a form of social dilemma. To measure knowledge sharing they relied on five items adapted from Van den Hooff and Leeuw van Weenen (2004) and three items they developed themselves. Holste and Fields (2010b) premise their article on the notion that tacit knowledge is more difficult to share and transfer. They sought to measure the impact of affect and cognition-based trust on the willingness to share and use tacit knowledge.

Lin (2006) view knowledge sharing as an organisational innovation that has the potential to generate new ideas and develop new business opportunities through socialisation and learning process of knowledge workers. Their study explored the impact organisational support had on an employee’s intention to share knowledge. The measures they employed were adapted from the Bock and Kim (2002) set of measures. For Rahman et al. (2016) knowledge sharing is the conduct of the knowledge provider when making knowledge accessible to other staff within the organisation. They divided knowledge sharing into two aspects. First, they put forward that knowledge sharing is a form of soliciting where the sharing of knowledge is processed based on the requests of both parties. Second, knowledge sharing is voluntary, such that, the soliciting is not reflected on the knowledge sharing process.

As outlined in the literature review the types of knowledge shared are important to the knowledge sharing process. Explicit, codified knowledge has been shown to be easier to share than more complex, tacit forms such as know-how Nonaka and Takeuchi (1995). The next section discusses how the 16 articles address the notion of knowledge types.

#### **5.4.1 Types of Knowledge**

This section outlines how the 16 articles address the different types of knowledge in their studies. A thorough reading of the articles yielded a variety of approaches to knowledge types. These will be explained below. The importance of knowledge types

is pertinent to the argument that the more sophisticated the type of knowledge shared the bigger the impact that trust has on the process.

Bakker et al. (2006) acknowledge the importance of exploring the types of knowledge shared for their study in order to describe knowledge flows. They make the distinction between declarative and procedural knowledge. They define declarative knowledge as a “set of representations about objects, events and situations” (p. 597), while procedural knowledge is defined as the knowledge representation by “courses of action, how to do things” (ibid). They categorise knowledge based on its content. They discern four categories; namely *know-how* (*how to do things; processes and procedures*), *know-who* (*who to turn to for knowledge*), *know-what* (*knowledge about the task*), *know-why* (*why things are done; background knowledge*). For their study of new product development (NPD) teams they focused on know-how. According to Foos et al. (2006, p. 7) in their article focus squarely on tacit knowledge transfer and single out the importance of trust because of the “personal nature of knowledge exchange”. Wee and Kuan (2013a) and Ansari and Malik (2017) follow a similar typology in their studies, describing knowledge in similar terms.

Rutten et al. (2016) use the distinction between explicit, implicit and tacit knowledge, using a conceptual model based on the model of knowledge tacitness from Ambrosini and Bowman (2001). Swift and Hwang (2013) state that knowledge is the assembly of facts and processes with roots in observation, experience or study, In this study knowledge seen as the currency of organisational learning. And they state that tacit information sharing is fuelled by informal interactions. They make the important point that the more explicit knowledge is the easier it is to share. The Rosendaal and Bijlsma-Frankema (2015, p. 237) article also studies the sharing of tacit knowledge; that many of the constraints around knowledge sharing relate to the sharing of tacit knowledge. One of these relates the important of trust in mediating the “arduousness” of social relationships in order to facilitate knowledge sharing, especially where the degree of tacitness is high.

Usoro et al. (2007) follows a resource view of knowledge and makes the distinc-

tion between knowledge, information and data. In their study - information acts as a communicative representation of knowledge. A similar resource view Ismail Al-Alawi et al. (2007) and Seba et al. (2012) are not clear in their study on the knowledge that is typically shared, barring that knowledge is seen as a public good (Seba) and that knowledge and experience is shared (Al-Alawi).

I will next tackle how the issue of trust in relation to knowledge sharing was dealt with in the articles under review.

## 5.5 Trust Concept

As outlined above the coding exercise yielded a total of 16 article sources that had strong indicators that they were studying trust as an independent variable in relation to knowledge sharing as the dependent variable. Where not specified as the independent variable, words such as 'antecedent', 'positive effect' or 'positive relationship' on or with knowledge sharing were also taken to be indicative that the articles were focusing on the relationship. And thus supportive of the knowledge management literature, in which trust is widely held to be a significant factor in relation to knowledge sharing. This section outlines how the articles dealt with the complex concept of trust. First delving into the trust concept, the definitions of trust, the dimensions of trust, the functions of trust and concluding with the measures of trust the articles' implemented.

### 5.5.1 Definitions and Typologies of Trust

A popular conceptualisation of trust in the knowledge management literature is the one made popular by Mayer et al. (1995). Six of the 16 articles (Usono et al. (2007), Khvatova et al. (2016), Bakker et al. (2006), Ansari and Malik (2017), Swift and Hwang (2013), and Boh et al. (2013)) base their studies on the Mayer et al. (1995) definition. This aligns with PytlikZillig and Kimbrough (2016) who in their review of the current consensus, or lack thereof, of trust conceptualisation - state that Mayer et al. (1995), and also Rousseau et al. (1998) are the most frequently cited definitions across

a broad range of disciplines. This they argue is good for the discipline: "... the field might achieve more consensus if more and more researchers would rally around one of these definitions" (PytlikZillig and Kimbrough 2016, p. 33). A sign then perhaps that even though there is no single definition, that there is some stability in the agreement on the concept in the knowledge sharing literature. Hosmer (1995, p. 381), rather than lamenting this situation, argued that the lack of a unitary definition in fact "adds insight and understanding" to a "hazy and diffuse topic".

Pos	Trust Definitions	Freq
1	Mayer et al (1995)	6
2	McAllister	2
3	No definition of trust given	2
4	Cook and Wall (1980) <sup>a</sup>	1
5	Thomas (1996)	1
6	Huang and Vliert (2006) <sup>b</sup>	1
7	Rousseau et al (1998)	1

<sup>a</sup>Ismail Al-Alawi et al. (2007) adapted Politis (2003) who in turn used the Cook and Wall conception of trust, see discussion

<sup>b</sup>Rahman et al. (2016) used the definition; as the eagerness of an individual staff member to be open to other staff with regard to sharing valuable information to solve organisational problems

Table 5.2: Definitions of Trust

Swift and Hwang (2013), who also adapt Mayer et al. (1995), describe trust as the willingness of an individual to put one's self in a position of potential vulnerability to someone else. In addition they argue that trust is an *environmental* variable that is dependent on how one perceives one's interest may be enhanced or jeopardised in the knowledge transfer process. "Trust is a variable that is dependent on how one perceives one's interest may be enhanced or jeopardised by others in the network and in the knowledge transfer process" (Swift and Hwang 2013, p. 24). This aligns with the consensus in the trust literature that trust involves an element of risk taking on the part of the trustor. It also ties up with the exchange-based model of trust as proposed by Huang and Van de Vliert (2006), which is the trustor's willingness to trust being based on the whether the trustee's actions make it worthwhile or beneficial for the trustor to trust. This in turn can be used to explain trust's role in the key exchange behaviour of

knowledge sharing, another indicator, perhaps, of why there is a reliance on the Mayer definition in the knowledge sharing literature.

According to Newell et al. (2007) trust is especially important for the transfer of knowledge because the sharing of knowledge is heavily reliant on the social connections. This is especially true of project work that requires intensive collaboration. They utilise their own typology of three trust types namely commitment, companion and competency trust (Newell and Swan 2000); which has similarities with the competence, benevolence and integrity typology. The study undertaken by Yen et al. (2015) used as their working definition a variation of the definition used by Thomas (1996), which is based on the notion that trust typically involves the “expectation” that colleagues behave in a predictable manner without subordinating the needs of the relationship to those of personal interest. This definition is similar to the one put forward by Rosendaal and Bijlsma-Frankema (2015) who credit Rousseau et al. (1998). Rousseau et al. (1998, p. 395) formulated their definition from a review of cross-discipline approaches to the notion of trust in organisational life. It states that trust is a “psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behaviour of another”. PytlikZillig and Kimbrough (2016) argue that that there does appear to be scholarly consensus amongst proponents of trust as a psychological state on the meaning of trust in organisational settings, which foregrounds the psychological nature of trust over the behavioural aspect (co-operation and choice).

Rutten et al. (2016, p. 201) use the definition of McAllister (1995), which is that interpersonal trust is the “extent to which a person is confident in, and willing to act on the basis of, the words, actions and decisions of another”. They give two reasons for relying on this definition. Firstly it is because it foregrounds the action of the trusting party, that is the trustor needs to make a decision to share knowledge or not, and secondly the definition is widely utilised in the trust and knowledge sharing literature. Ismail Al-Alawi et al. (2007, p. 25) base their study on the trust definition of Politis (2003) which states that interpersonal trust is an “expectancy” of a group or individ-

ual in the reliability of the promise or actions of another group or individual. Politis (2003) in turn based his conception of trust on Cook and Wall (1980), who posited that interpersonal trust operates in four dimensions; two of these include (a) “faith in the trustworthy intentions of others” and two “the confidence in the ability of others” (Politis 2003, p. 57). Cook and Wall (1980) state that the above two dimensions of trust can operate horizontally (trust in peers) and vertically (trust in management) in organisational settings.

In addition to, and in all likelihood as a result of some of the conceptual and ontological differences of opinion, much of the debate in the trust literature has revolved around typologies, dimensions and bases or sources of trust (PytlikZillig and Kimbrough 2016). These can largely be categorised as either of the trust as psychological state, for example affective or cognitive in nature, or behavioural, trust as choice, or the action *to trust*, preferred by calculative-based trust notions of the economic sciences. Nine of articles, barring two, sought to dis-aggregate from a generalised notion of trust. That is break it down into bases to demonstrate the effects these types of trust have at an individual (psychological or behavioural), group or institutional level on knowledge sharing. In addition there were also attempts to distinguish between different degrees or levels of trust, that is high trust and low trust environments and their impact on knowledge sharing.

Bakker et al. (2006) in their study sought to test the role of trust in knowledge sharing in new product development teams. They use three trust types: cognitive, benevolence and integrity-based trust. While in the Usoro et al. (2007) article the bases of competence, benevolence, and integrity-based trust are addressed in the research. Similarly Swift and Hwang (2013, p. 28), use the two trust types - namely affective and cognition-based trust as variables in their study. Similarly in their article on the impact of affective and cognition-based trust on knowledge sharing and ultimately organisational learning they found that affective trust was a significantly stronger predictor of knowledge sharing, than cognition-based trust. “The impact of affective trust (emotion) and cognitive trust (reason, experience) were decidedly different in their impact

on knowledge sharing. Knowledge Sharing was positively predicted by affective trust, but not by cognitive trust". Ismail Al-Alawi et al. (2007) utilise a form of interpersonal trust – knowledge-based trust – which they say concerns strong knowledge of co-workers and their personalities. They suggest that staff that “share their feelings” in an organisational environment is a “good indicator” of high levels of interpersonal trust.

The issue of high versus low trust environments was addressed by Rutten et al. (2016). They highlighted distinctions between intra-organisational, inter-organisational, the interpersonal trust classifications of cognition-based and affective trust. They concluded in their study that the nascent literature tends to only work at the high trust level or as PytlikZillig and Kimbrough (2016) contend certainty versus low trust situations. Seba et al. (2012) also refer to high and low trust environments in their article but do not address them as variables in their study of the Dubai Police Force.

The Seba et al. (2012), Swift and Hwang (2013), and Khvatova et al. (2016) articles also take note of horizontal versus vertical trust. That is the difference in trust dynamics in organisational hierarchies and the possible impacts on knowledge flows through and across difference levels. In Khvatova et al. (2016) they also make the distinction between personalised vs depersonalised trust - another varietal of the interpersonal vs institutional, although in their case they specify personal vs trust in the system. Rosendaal and Bijlsma-Frankema (2015) specifically investigated trust in team-mates and trust in team leader as an independent variable that positively affects knowledge sharing. As do (Ansari and Malik 2017) who researched the impact of trust in co-workers on knowledge sharing. Both of these could be described as forms of horizontal and vertical trust.

In conclusion, these articles' conception of trust mirrors to a certain extent the range found within the trust literature. However, one could argue that some attempt has been made to follow a more consensus view as can be seen by the use of the Mayer et al. (1995) definition of trust or the one of Rousseau et al. (1998).

I will next highlight how the various articles addressed the functions of trust in



relation to knowledge sharing.

### 5.5.2 Functions of Trust

The review found that all 16 articles expressed the important function trust plays relative to knowledge sharing in some way or another. Ismail Al-Alawi et al. (2007) stated that trust is required in order for team members to respond openly and share their knowledge. According to Foos et al. (2006, p. 16) “trust was critical in the perceived success of the transfer of tacit knowledge” which was also confirmed by Boh et al. (2013, p. 38) for culturally diverse organisation, where they found that “the most important factor influencing the effectiveness of knowledge transfer from the HQ appears to be the amount of trust that the local employee has towards the HQ”. Usoro et al. (2007, p. 209) argued that integrity-based trust is a necessary condition or antecedent for knowledge sharing in virtual communities of practice. While for competence based trust - the more competence members of a “virtual community” possess, that is the more “knowledgeable, capable and effective” they are, the more knowledge they are “inclined” to share. Newell et al. (2007, p. 166) in their three-year case analysis at a multi-national ICT service company found that because trust was difficult to build and embed in geographically distributed companies knowledge sharing was “problematic”. This confirmed for them that trust as a building block of cohesive relationships is essential for knowledge sharing because this prime KM process depends on “personal connections”. This thread is echoed by Seba et al. (2012), who state that the primary function of trust is to underpin social relationships. This is especially relevant in an Arab cultural setting,<sup>1</sup> which by its very nature is built on trusting social relationships. Trust leads to more knowledge sharing, makes knowledge sharing less costly and increases the likelihood the knowledge acquired is understood. Wee and Kuan (2013a) also saw trust as an enabler of knowledge flows. Environments with high levels of trust and social interaction in terms of closeness and communication frequency encourage knowledge sharing and resource flows.

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<sup>1</sup>They presented a case study of knowledge sharing culture in the Dubai police service

Khvatova et al. (2016) underscore their study with the functional notion that trust is the social lubrication of co-operation, and that co-operation itself breeds trust. Trust is the necessary mechanism to navigate uncertainty and complexity in a co-operative network. They go further and state that personal and horizontal trust is necessary for the sharing of tacit knowledge. Added to this they are of the view that depersonalised and vertical trust are the necessary frame or environmental condition necessary for trust. Rutten et al. (2016) state that trust functions as the key variable that guides an individual in making a choice to share knowledge. Trust is believed to mitigate the perceived risk of exploitation, failure and opportunistic behaviours. While Rosendaal and Bijlsma-Frankema (2015) describes it as a mechanism that enhances two psychological states, namely team identification and diminished risk salience in favour of opportunity salience as knowledge sharing is seen as a form of risk-taking behaviour. They also contend that high intra-team trust prevents members seeing their colleagues as persons who may feed on their efforts to improve team performance or may use their colleagues' knowledge for their own self-serving purposes. Swift and Hwang (2013) shows that affective trust, especially, predicts social network and information sharing. It has predictive impact on interactions that require personal interaction such as knowledge sharing. Ansari and Malik (2017) contends that trust is important to sustain effectiveness in the context of an individual, team, or organisation. Trust can help to develop close relationships and positively impacts knowledge sharing. While in the only outlier article, Bakker et al. (2006, p. 603) expressed that higher levels of trust is a poor explanatory factor for improving knowledge sharing. It is only where there is no trust is it likely to have an effect. "Trust is likely to have most effect on knowledge sharing as a result of its absence rather than due to its presence".

In the the next section I will highlight and discuss the trust measures contained in the 16 articles.

## 5.6 Trust Measures

As discussed in the previous sections, one of key issues with research on trust in the organisational literature is the divergence in the conceptualisation of trust and the corresponding use of replicable measures for its operationalisation. Previous systematic reviews have described how there appears to be widespread use of different instruments to fit a study's particular needs (McEvily and Tortoriello 2011). The knowledge sharing literature appears to mirror the organisational literature in general. However, what is promising is the reflection of trust as a multi-faceted concept, as borne out by well-used definition of trust from Mayer et al. (1995). Of the 16 articles that have studied trust as an independent variable (see 5.3, three of them (Swift and Hwang 2013; Holste and Fields 2010a; Rutten et al. 2016) rely on the measures proposed by McAllister (1995).

McAllister (1995) presents his measures of trust inside two dimensions, namely affective and cognition-based trust. That is, affective trust which is formed as a result of emotional responses to another party or cognition-based which is informed by a careful evaluation of the trustee. He argues that a minimum level of cognition-based trust is necessary for affective forms of trust to materialise. Rutten et al. (2016, p. 212) used a total of 11 items, five for affect-based trust and six for cognition-based trust. All these items were measured on a seven-point Likert scale ranging from 1 (strong disagree) to 7 (strongly agree). For example; for affect-based trust, "*we have a sharing relationship. We can both freely share our ideas, feelings and hopes*". For cognition-based trust; "*this person approaches his/her job with professionalism and dedication*". Swift and Hwang (2013, p. 27) adapted six items - three for affective and three for cognition-based trust. A sample of the Swift version of the question for affective trust; "I have a sharing relationship with my sales co-workers. We freely share our ideas, feelings and hopes". And for cognitive trust; "*My sales co-workers approach their jobs with professional and dedication*". Holste and Fields (2010a, p. 133) used the McAllister (1995) affect-based and cognition-based trust measures. A five item scale for affect and six-items for cognition-based. For example (affect-based trust): "*I can talk freely to*

*this person about difficulties I am having at work and know that (s)he will want to listen”* and *“I would have to say that we have both made considerable emotional involvements in our working relationship”*. Example items (cognition-based trust) include, amongst others: *“I can rely on this person not to make my job more difficult through careless work”* and *“Most people, even those who are not close friends of this individual, trust and respect him/her as a co-worker”*.

This, corresponds with the organisational literature on trust (McEvily and Tortorelli 2011). McEvily stated that the McAllister instruments are the most replicated measure(s) for trust. The next most replicated trust measure comes from Cook and Wall (1980), with two of the 16 articles using their measures. They measure trust in team members (faith in intentions of peers and managers and confidence in the actions of peers and managers, see 5.4. Ansari and Malik (2017, p. 225) also used the measure for trust in co-workers by adopting three-items from the Cook and Wall (1980) scale. They adopted a three-item scale which measures faith in the intentions of co-workers/peers. I have included their questions as example: Sample questions they listed are as follows: (a) *If I got into difficulties at work I know my workmates would try and help me out;* (b) *I can trust the people I work with to lend me a hand if I needed it;* (c) *most of my workmates can be relied upon to do as they say they will do.* Rosendaal and Bijlsma-Frankema (2015, p. 247), also relied on Cook and Wall (1980) for their instruments to measure *trust in team members* using a 5-point scale, that asked questions such as; *“I trust my co-team members; My co-team members will keep their word to me”* as examples. In addition they modelled their *trust in team leader* measure on the scales developed by Bijlsma and Van De Bunt (2003). The survey instrument contained seven questions, that asked questions such as: *“Our team leader offers me help and guidance to improve my performance; our team leader deals with me in an open and honest way”*.

Despite the predominant use of Mayer et al. (1995) for the conceptual definition of trust, only one of the articles Bakker et al. (2006) under review used the Mayer three-dimensional trust model as measures for their study. The model presents trust across three dimensions, namely capability, benevolence and integrity trust. Bakker et

al. (2006, p. 599) developed three questions for each dimension as part of their survey instrument. For example under capability trust; they used the following question; “*our team is very capable of performing its job*”. For benevolence trust; “*my needs and desires are very important to my team*”, and integrity trust; “*I never have to wonder whether my team will stick to its word*”. Rahman et al. (2016, p. 458) used six items adapted from Sabbir Rahman and Hussain (2014) - they in turn had based their measures on the model developed by Mayer et al. (1995). The table 5.3 depicts what trust measures the authors used, with the frequency (replication) across the articles.

Pos	Author	Freq
1	McAllister (1995)	3
2	No measures <sup>a</sup>	3
3	Cook and Wall (1980)Cook and Wall <sup>b</sup>	2
4	Lee and Choi (2003)	1
5	Mayer et al. (1995)	1
6	Sabbir Rahman and Hussain (2014) <sup>c</sup>	1
7	Kostova and Roth (2002)	1
8	Bijlsma and Van De Bunt (2003) <sup>b</sup>	1
9	McKnight and Chervany (2001b)	1
10	Podsakoff et al. (1990) <sup>d</sup>	1
10	Costigan et al. (1998) <sup>d</sup>	1
11	Cheng (1999) <sup>d</sup>	1
12	Cummings and Bromiley (1996) <sup>e</sup>	1
13	Mishra and Morrissey (1990) <sup>e</sup>	1
14	Ford (2004) <sup>e</sup>	1
15	Luna-Reyes et al. (2004) <sup>e</sup>	1
16	Reyes (2004) <sup>e</sup>	1
17	Own measures	1

<sup>a</sup>Both Seba et al. (2012), Wee and Kuan (2013a) and Newell et al. (2007) did not operationalise any trust measures, using semi-structured interviews to collect data

<sup>b</sup>Rosendaal and Bijlsma-Frankema (2015) used instruments based on Cook and Wall for trust in team members and for trust in team leader Bijlsma and Van de Blunt

<sup>c</sup>Rahman et al. (2016) adapted their measures from Sabbir Rahman and Hussain (2014) who in turn based their 6 items to measure trust on the measures proposed by Mayer et al. (1995)

<sup>d</sup>Yen et al. (2015)used a combination of measures; each of these measures have been listed separately

<sup>e</sup>in Ismail Al-Alawi et al. (2007) they utilised a combination of measures. I have listed each of the measures separately

Table 5.3: Trust Measures

Some examples of the questions asked in their survey instrument include, amongst others: “*my superior is competent enough of solving his/her own tasks by trusting others*”.

Lin (2006, p. 30) used six items from the study undertaken by Lee and Choi (2003) on knowledge enablers of knowledge creation processes in organisations, of which trust was one of six factors that were measured. For example questions such as, “*our company members . . . are generally trustworthy; have reciprocal faith in others’ ability*”. However it is difficult to ascertain whether these measures were replicated from a previous study or whether they were developed from their operational definition of trust from Kreitner and Kinicki (1992), that is that “trust is reciprocal faith in others’ intentions, behaviours, and skills toward organisational goals” (Lee and Choi 2003, p. 222).

Usoro et al. (2007, p. 204) adapted the *Trusting Beliefs Scale* of McKnight and Chervany (2001b), which attempts to operationalise trust by measuring the “*degree to which an individual believes another party to be trustworthy*”. They modified the measures in order for them to fit with their exploration of trust as an antecedent to knowledge sharing in virtual communities of practice. They used 12 items in their survey instrument to measure benevolence, integrity and competence-based trust.

Yen et al. (2015, p. 219) utilised 19 psychometric items from Costigan et al. (1998) and Podsakoff et al. (1990) and Cheng (1999); Their study includes measures for three trust concepts: (a) trust in their organisation (7 items); for example “*I believe that the organisation keeps its promise to take care of employees*”; (b) trust in supervisors (7 items); for example “*I feel that the rationale behind the decisions of my supervisor is sensible*”; and (c) trust in their colleagues when they have job-related difficulties (5 items); for example; “*I trust in the promises of my colleagues*”.

Boh et al. (2013, p. 45) employed an eight-item scale of measures from Kostova and Roth (2002) that attempted to measure the trust a subsidiary office has in the global head office. For example: “*I think the HQ meets its agreed on obligations to my subsidiary*”.

Ismail Al-Alawi et al. (2007, p. 25) combined a mix of measures as “indicators of existence” for trust as an independent variable in relation to knowledge sharing. From Mishra and Morrissey (1990) - they used the indicators; *sharing feelings and perceptions*

and personal information, from Ford (2004) the existence of protective rules and procedures (*institution-based trust*), and knowledge of colleagues' personalities (*knowledge-based trust*), from Luna-Reyes et al. (2004) they used an indicator to measure *previous experience with trust* and for *belief in others' good intentions* they cited Cummings and Bromiley (1996). Khvatova et al. (2016) did not replicate trust measures for their computer-simulated percolation model. They, instead, developed what they termed a "real trust matrix" to capture subjects' answers to questions such as: "How important is trust to you?" and "please indicate the extent to which you perceive the other teams' as trustworthy insofar as you are in task-related contact with them" (Khvatova et al. 2016, p. 925). This data was then fed into their percolation modelling software.

As to be expected, the three case studies in the sample Seba et al. (2012), Newell et al. (2007) Wee and Kuan (2013a) did not use any replicated measures to test the impact of trust on knowledge sharing, but used various data collection methods such as face to face and telephonic interviews and focus groups. Please see table 5.4 on the next page, which presents the trust measures deployed by author and the dimensions of trust, for example affective or cognitive trust, that were measured.

The above section outlined the trust measures that were used in the 16 articles. The findings support the view that it would benefit if researchers replicated trust measures. It does appear from the findings that an attempt, at least, has been made with evidence of the use of the McAllister (1995) measures for affective and cognitive based trust. Naturally this depends on the trust dimension being measured and which of the trust definitions they employed. In the above section I described and discussed how the different articles dealt with knowledge sharing and knowledge, including the different types of knowledge in the form of explicit and tacit forms of knowledge - before addressing their conceptual handling of the trust concept, their treatment of definitions and typologies as well as the functions of trust. This was followed by a discussion of the measures of trust and how these were operationalised in the studies. In the next section, I will discuss some of the other factors, identified from a broader sample set of articles, that had an impact on knowledge sharing.

Articles	Trust Measure Author	Trust Dimensions
Ismail Al-Alawi et al. 2007	Cummings and Bromiley 1996	Belief in others good intentions
	Mishra and Morrissey 1990	Sharing personal information and feelings
	Ford 2004	Institution and knowledge-based trust
	Luna-Reyes et al. 2004	Previous experience with trust
Ansari and Malik 2017	Cook and Wall 1980	Faith in intentions of co-workers/peers
Bakker et al. 2006	Mayer et al. 1995	Capability, benevolence and integrity
Boh et al. 2013	Kostova and Roth 2002	Trust in global headquarters
Holste and Fields 2010b	McAllister 1995	Affect and cognition-based trust
Khvatova et al. 2016	Own measures	
Lin 2006	Lee and Choi 2003	Reciprocal faith in employees' intentions, behaviours and skills
Newell et al. 2007	Own model Newell and Swan 2000	Commitment, companion and competency trust
Rahman et al. 2016	Sabbir Rahman and Hussain 2014	Ability, benevolence and integrity <sup>a</sup>
Rosendaal and Bijlsma-Frankema 2015	Cook and Wall 1980	Trust in team members
	Bijlsma and Van De Bunt 2003	Trust in team leader
Rutten et al. 2016	McAllister 1995	Affect and cognition-based trust
Swift and Hwang 2013	McAllister 1995	Affect and cognition-based trust
Seba et al. 2012	no measures	
Usoro et al. 2007	McKnight and Chervany 2001b	
Wee and Kuan 2013a	no measures	
Yen et al. 2015	Costigan 1998	Trust in their organisation
	Cheng	Trust in their employees
	Podsakoff	Trust in supervisor

<sup>a</sup>Rahman et al. (2016) adapted their measures from Sabbir Rahman and Hussain (2014) who in turn based their six items to measure trust on the measures proposed by Mayer et al. (1995)

Table 5.4: Trust Dimensions



## 5.7 Other Factors

The review also found that there were a number of other factors that were studied that have an impact on knowledge sharing, either bundled with trust or as a standalone factor. Although not a key focus of this study, I decided that it would be beneficial to show the significant variables, which included cultural, organisational, individual and leadership factors that emerged during the analysis, because of the important role they play in knowledge sharing.

In the coded articles the next most significant factor impacting knowledge sharing were various cultural factors (n=6). Six out of the 69 articles were coded as proposing culture as a variable that has a bearing on knowledge sharing. With the rise of globalisation, and the fact that many large organisations now operate across many geographies, languages and cultures, research interest in national cultures and its impact on business process and practice, especially in mergers and acquisitions has increased. I will now turn to the articles in my sample that returned culture as antecedents to knowledge sharing.

Tong and Mitra (2009, p. 431), in their study, delve into a specific national culture's impact on knowledge sharing. In their case study of a mobile software manufacturer in China, they investigate how the specific cultural characteristics of Chinese culture; hierarchy-consciousness, fear of losing face, modesty, competitiveness and preference for face to face communication could all be attributed to Chinese culture and had an impact on the sharing of knowledge. Heavily linked to this is the *Guanxi* social network in the Chinese work environment. They found that incumbent employees are encouraged to help recruit new staff members from existing or former networks. "... most employees are expected to be part of their own social networks prior to joining the organisation. Good personal relationships help them to track down information they need". These close networks in organisations are close-knit units that allowed for the generation of good trust relations between work mates.. There were four articles that expressed various organisational factors as variables of significance. Where organisational culture should be classed as part of the intangible, implicit strata of variables;

the organisational factors in this context ought to be bundled with the tangible, explicit class of variables. Seba et al. (2012, p. 122) included organisational structure as a key mechanism related to knowledge sharing in their article which described a study they undertook at the Dubai Police Force. “There is considerable evidence that the hierarchical structure of the Dubai Police Force has a significant effect on communication, and therefore knowledge sharing, at various different levels”. In their article Serenko et al. (2007) are one of the few of the articles to present a grounded theory<sup>2</sup>, they call *Gita’s Rule*, in which they suggest a link between organisational unit size with improved knowledge sharing, that is the smaller the business unit (less than 150 members) the easier it is to share knowledge. They recommend that an organisation with limited knowledge management procedures and process in place, can begin by limiting their organisational unit size to less than 150. They highlight especially the role of trust, which comes about as a result of improved interpersonal relationships and suggest more research needs to be undertaken regarding moderators such as national culture or societal factors and their links to other variables. Interestingly they state that theory suggests that an organisational unit led by trustworthy (likeable) person, knowledge tends to flow better between units. In their study Ismail Al-Alawi et al. (2007) highlighted that organisational factors such as participatory decision-making, structure of teams and communities of practice are good for knowledge flows in a firm. Søndergaard et al. (2007) present a case study at a large aerospace company. They propose a framework which describes how organisational factors, individual factors and leadership have a bearing on a knowledge sharing culture which in turn has a moderating affect on knowledge sharing behaviours. They also show that knowledge sharing behaviours in turn can also have a bearing on culture of an organisation.

Søndergaard et al. (2007) highlighted individual factors in their case study. They broke their variables into organisational factors, individual and leadership factors and their relationship to knowledge sharing culture. For individual factors they found that interpersonal relationships, personal experiences, motivation, expertise, and personal

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<sup>2</sup>A grounded theory is the systematic generation of theory from systematic research

and professional backgrounds “cannot be overstated in relation to personal preferences of knowledge sharing” [pg 429]. Jha and Pandey (2016) developed a structural model in which job satisfaction, mediated by psychological safety and trust in management, had a positive impact on knowledge sharing. The characteristics of a person receiving knowledge (knowledge recipient), for example showing a willingness to learn (positive learning attitude), professional competence and strong relationship were found to be a significant factor in motivating a sharing behaviour in a knowledge sharer in a two-stage study by Zhang and Jiang (2015, p. 283). They used a *Situational Motivational Perspective* for the study. In developing their findings they proposed two forms of knowledge sharing scenarios in dyadic situations, one in which a knowledge seeker asks for ‘knowledge’ from a colleague (responsive knowledge sharing) and the other form where a knowledge sharing seeks out a trustworthy colleague to whom they can impart their knowledge (proactive knowledge sharing). They believe that this “recipient perspective” is an important contribution to the literature on knowledge sharing motivating behaviours. They developed a “cue-trigger theory”, in which some workplace behaviours such as knowledge sharing behaviours are not necessarily planned but are episodic and spontaneous in nature. Interlocutors, therefore, use cues and characteristics of past encounters to trigger knowledge sharing responses in real time. They found that in responsive knowledge episodes that learning willingness and personal relationship between knowledge giver and receiver had a positive impact on knowledge sharing behaviours. For proactive knowledge sharing recipients’ professional competence and personal relationship with donator was confirmed.

Two of the articles highlighted leadership as a key factor in knowledge sharing practice. Seba et al. (2012, p. 120) foregrounded leadership, as well as organisational structure, time allocation and trust (which I have dealt with in the previous sections). Interviews with key staff in the Dubai Police Force confirmed that characteristics of a good leader; trust building, tolerance of mistakes, valuing sub-ordinates contribution to decision making, were all factors that lead to improved knowledge sharing behaviours. This could be classed as another example of intrinsic qualities holding sway

over extrinsic factors when it comes to their collective impact on knowledge sharing. “Interviewees agreed that when the leader gives employees a chance to express their opinions and encourages them to make suggestions this may help employees to influence decision-making and employees might therefore feel that their knowledge sharing is practically relevant”. Søndergaard et al. (2007, p. 429) also singled out good leadership as an antecedent to knowledge sharing culture which in turn was a key factor for encouraging knowledge sharing behaviours. “The leaders act as role-models for the manner in which knowledge sharing occurs, as well as setting the incentives for doing so. The leaders furthermore facilitate networks of knowledgeable members of the organisation and provide best practice of coordination and collaboration activities”.

This supports previous studies done on employee perceptions of management support for a knowledge sharing culture being a strong predictor of a knowledge sharing culture (Connelly and Kelloway 2003), coupled with research that shows that an empowering leadership is also an important determinant of knowledge sharing (Srivastava et al. 2006).

Yeo and Marquardt (2015) looked at knowledge sharing behaviour in two Saudi Arabian organisations where there is a high proportion of western ex-patriots working alongside Saudi nationals. They found that knowledge sharing in complex organisational, multi-cultural contexts is directly related to the way employees interpret their roles and engagement in their immediate environment. Their research was underpinned by two theoretical perspectives namely; cognitive participation and behaviour participation. Cognitive participation looks at how individuals govern the tension between sharing and holding on to knowledge for self-protection within an organisation. The second perspective involves how one participates in knowledge sharing behaviour based on one’s role identity and perception within an organisational context. This confidence in one’s role or position gives the individual the ability to know when or how much knowledge they would need to share in a particular context. The writers of this study expand upon the theories of Carlile (2002) and Orlikowski (2002).

Despite not measuring trust as an independent variable Søndergaard et al. (2007,

pp. 423–435) describe trust as a “double-edged factor”, that is a factor that could be both a facilitator or inhibitor of knowledge sharing. They identified trust, in addition to geographical location and individual motivation, as some of these double-edged factors. "Trust is then seen as positive in terms of trusting a recognised expert, however, this factor may be seen as a double-edged sword, particularly in situations with ambiguous knowledge, which is transferred and trusted in situations that are not questioned by the recipient leading to inappropriate application. Trust can then facilitate knowledge sharing if the trust is warranted. Yet, if it is unwarranted, it may lead to little questioning of the knowledge itself, its context and its application to a particular situation".

## 5.8 Concluding Summary

In the above the chapter I presented the results of the review, and described how the 16 articles dealt with knowledge sharing and knowledge, including the different types of knowledge in the form of explicit and tacit forms, before concluding with the other variable that of trust concept, their treatment of definitions and the functions of trust. This was followed by a discussion of the measures of trust and how these were operationalised in the studies. In addition I discussed some of the other significant factors that emerged from analysis, namely, culture, individual and organisational factors and leadership that have a bearing on knowledge sharing, either as variables on their own or bundled with trust as compounding factors. In the next chapter I will be concluding and offering some recommendations for researchers in tackling trust and knowledge sharing.

# 6

## Conclusion and Recommendations

“New knowledge is the most valuable commodity on earth. The more truth we have to work with, the richer we become”.

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*Kurt Vonnegut, The Breakfast of Champions*

### 6.1 Introduction

In the previous chapter I described and discussed the findings from the 16 articles that explored trust as the independent variable in relation to knowledge sharing as the dependent variable. Areas of focus included a summary of the articles’ aims and finding, an exploration of how they addressed the concept of trust and knowledge sharing and knowledge types, and the trust measures they employed. In addition I discussed some of the other key factors from the batch of articles that were surfaced as a result of the coding exercise. These included individual, leadership, cultural and organisational factors. In this chapter I will present the conclusion as well as recommendations for researchers as well as practitioners that could help the field in addressing the complex relationship between trust and knowledge sharing.

## 6.2 Conclusion

In the introduction I outlined the contextual background of the key concepts of knowledge, knowledge sharing and trust. I highlighted the importance of the knowledge sharing process in the broader field of knowledge management, and how this process has garnered much research attention as a result. I explained why the issue of trust is so important to the effective functioning of society as a whole and how it plays out at both the individual, group, organisational, institutional and societal levels. I introduced the importance of trust in reciprocal exchange interactions, such as knowledge sharing, and its hand-in-glove relationship both as an antecedent of knowledge sharing, as well as an outcome or result of the sharing process. I briefly outlined the difference between the two knowledge types, explicit and tacit knowledge, and how their varying properties has a bearing on the role of trust in the exchange. That is the more tacit the knowledge the more difficult it is to share, which means trust has an even more important role when this type of knowledge is shared. I give an overview of some of the problems that researchers of trust face, both regarding definitions but largely as a result of reliance on logico-scientific methods. I introduce an alternative method in the form of trust-as-process, which looks to address some the shortcomings of traditional survey-based methods by focusing on how trust can be created, managed and repaired over time.

I also outlined the rationale for the study. How the Global Financial Crisis (GFS) of 2007-2008 put in stark relief the importance of trust, and how its breakdown had massive ramifications both economically, socially and politically, and resulted in a renewed interest in the study of trust. I highlighted how the recent exposure of the misuse of personal data at Facebook has led to much introspection from the field of data science as they try and rebuild trust in so-called Big Data and its associated benefits. I also outlined my own observations around the sharing of knowledge on social media and internal company networks. I discussed how my involvement in large-scale KMS systems implementations, and their failure to deliver promised benefits, has led to my questioning of technology-first approaches pioneered by early knowledge management practition-

ers. Yet there has been a definite resurgence in interest in the technology represented in the form of Personal Knowledge Management (PKM) platforms such as *WhatsApp* in the West and *WeChat* in the Far East and cloud-based collaboration networks such as *Slack* and *BaseCamp*. The literature review was divided into two parts. In the first chapter I explored the literature's treatment of knowledge, knowledge management, knowledge sharing and trust. It began with the presentation of a broad overview of knowledge, knowledge management and the key knowledge management process of knowledge sharing. As discussed it's a topic that has captured the attention of scholars across disciplines, and has as a result multiple conceptions. A situation that can prove difficult for researchers looking for a standard approach, as the literature shows how knowledge has been differentiated into different levels and types, such as explicit and tacit knowledge, with contention around the distinction between the two, especially in the information systems (IS) literature. What is clear is that the tacit form of knowledge is that much more difficult to articulate, share and integrate. The review of the literature also shows how the KM literature values the importance of the process of knowledge sharing and how the concepts of knowledge, knowledge management and knowledge sharing are still contested 30 years since the discipline entered the scene. And, once again similar to trust, the problem of a lack of a coherent definitions has led to much cross-field academic dissonance. Despite competing framings of the nature of knowledge between structural school and the socially-orientated process and practice perspectives, it can be safely asserted that a large section of the knowledge management literature has begun addressing knowledge sharing as a deeply social process. This can be attributed in part to the failure of many KM initiatives that followed the view that they would achieve success by simply identifying tacit knowledge, making it explicit and sharing it across the business. As a result there does appear to be a shift in the literature that foregrounds individual and organisational factors, such as trust, that influence the knowledge sharing process.

This extensive review of the literature also outlined how the concepts of knowledge sharing and trust—both on their own and as separate constructs—in organisational



settings have gripped researchers and practitioners alike. It showed that, while consensus may have been reached in certain areas, there is still much ground to be made in others. In Chapter 3, I showed how the trust literature has expended similar energy (as their KM counterparts) in an effort to reach consensus on the definitions of trust. There appears to be some agreement on the definition or at the very least acknowledgement that there will always be some contestation surrounding trust because of its multi-faceted nature. There does appear however to be a consistent call for some form of standardisation in the form of trust measures, as well as a move towards a more context-orientated approach that takes into account both the psychological and the behavioural aspects of the concept. One such solution has come in the form of a process approach to trust research, that is an approach that acknowledges the dynamic nature of trust(ing) - which can be developed, maintained, destroyed and repaired over time.

In the methodology chapter I discussed the systematic review method employed to find a sample of articles for analysis. I explained how I found the target set of journals at which to focus the search. This was done by using a peer-reviewed classification of the top knowledge management journals, see Serenko and Bontis (2017). This was followed by the application of a *Scopus* search query aimed at returning a list of articles that could then be utilised for analysis. Next followed a discussion of the coding of the target articles, using the *NVIVO* qualitative research tool. I explained how this tool proved useful in coding in that it aided the classification of the articles as to how they dealt with the concept of trust in relation to knowledge sharing.

The findings showed that despite the field of knowledge management reaching a certain level of maturity, there are still many facets that require further exploration, specifically in the area of trust and its impact on the key knowledge management process, knowledge sharing. This was supported by the fact that a specific search on the terms of trust and knowledge sharing which returned a total of 69 articles, but that only 16 of those articles could be shown to be exploring and measuring trust in a direct relationship with knowledge sharing. It is comforting to know, however, that there appears to be a move to consensus with regards to conceptualisations and definitions

of trust. The definitions of Mayer and Davis (1999) and Rousseau et al. (1998) are the most widely accepted according to the literature. In the case of this paper and the 16 articles, six of the articles utilised the Mayer et al. (1995) definition. A positive move towards a form of consensus around the definition, which supports the literature's view on the state of trust research. It appears that a standardisation of measures of trust still has some ways to progress, although it is clear that the measures for affective and cognitive trust from McAllister (1995) has been generally accepted in the knowledge management literature. There are others that ought to be tried out according to McEvily and Tortoriello (2011). While trust is widely held to be an essential factor in knowledge sharing success, this thesis supports the need to move away from generalisations and delve into the complex, dynamic relationship between trust and knowledge sharing.

What is encouraging is that of the 16 articles that specifically target trust as the independent variable in their research, nine explore different types of trust. For example how different dimensions of trust, such as affective and cognitive or knowledge-based trust, might impact knowledge sharing. It is also noted that there are attempts to explore different forms of trust, such as trust across organisational boundaries and hierarchies, such as trust in colleagues or managers (vertical vs horizontal trust). In addition, it would be helpful if the quality of trust, and the intensity of trust and their respective impacts were also given attention in future studies. The addressing of high versus low trust in organisational settings and their bearing on knowledge sharing would be a worthwhile exercise.

It is certainly a positive development that there's a move in the knowledge management literature away from a generalised and unitary notions of trust in most of the articles under review. For example the study of the impact of different types of trust such as affective and cognitive forms, have on knowledge sharing. However some trust researchers, such as Möllering et al. (2004) believe that trusting will always involve and an emotional and cognitive component. Taking this further it has been noted in some quarters—as discussed in the literature review—that there is now general acceptance

that trust is a dynamic, multifaceted concept (McEvily and Tortoriello 2011), which is developed and replicated through processes of social interaction (Jagd and Fuglsang 2016). Yet there is still a propensity for researchers to favour variance approaches in researching trust (Jagd and Fuglsang 2016). This was supported by the findings of the coding. The majority of the 16 articles, barring the three case studies, could be classified as following static survey-based methods. By relying on these approaches they have missed an opportunity to show how trust is developed, maintained or destroyed over time, and its subsequent correlation to knowledge sharing. One relatively simple way to address this would be to employ more longitudinal studies with several points of reference instead of cross-sectional studies of trust as a stable variable. This is one of the key recommendations coming out of the trust as process literature (Möllering 2013).

In my secondary search of the full sample of articles for “trust as process” or “trusting” none of the articles were found to be utilising such an approach. This could be attributed to the fact that trust-as-process approaches are still very much in their infancy, with their own conceptual debates. There is therefore an opportunity for researchers of trust in the knowledge management literature to foreground research of trusting and knowledge sharing as inter-related, dynamic processes. A *trust-as-process* approach does not, as described in the literature review “stretch” the trust concept, according to PytlikZillig and Kimbrough (2016, p. 30), but allows researchers to dis-aggregate trusting concepts that are fit for the purpose of the research. A process view would go some way in addressing semantic differences between different fields by focusing on how, why, when, and with whom impacts different trusting processes, be they trust as psychological state or behaviour. A process approach would make it easier to show trust or trusting being created, developed, maintained, increased, destroyed, repaired over time. It would also show how these processes interact with other processes, such as the knowledge sharing process across various contexts.

It would also be beneficial to explore how trust can be built and developed. While most of the studies acknowledge and show that trust has an impact on knowledge shar-

ing, which supports the widely-held notion in the literature, there is very little in the way of solutions for practitioners on how trust can be developed. Most of the recommendations put forward focus on increased social interaction, encouraging openness and improving communication. Another area that could be helpful to practitioners would be research on how to repair trust should it break down between actors.

In terms of the types of knowledge and in support of the literature, the findings confirmed that the type of knowledge (i.e either explicit or tacit knowledge) shared was a determining factor in relation to how important trust was a variable. Therefore trust was less of a factor when explicit knowledge is shared versus tacit knowledge which requires high levels of trust. My findings also confirmed that there is at least some consensus in the KM literature on level of definition. With the majority of the articles favouring the trust definitions of Mayer et al. (1995), and to a lesser extent Rousseau et al. (1998). In areas of trust measures, however, there appears to be to be less standardisation and lack of replication. After trust, the next most significant factors impacting knowledge sharing were cultural, organisational and individual factors. While not the focus of this study, it is interesting to note they all mentioned trust, and in many cases trust was seen as an important mediating and environmental factor, especially where leadership, organisational size and structure and cultural factors were being measured.

The findings of this study support the view that trust is a significant factor in relation to the successful sharing of knowledge. It also supports the notions that effective knowledge sharing is a key driver of competitive advantage in organisations and that future research on trust and knowledge sharing could benefit greatly from employing a trust-as-process approach, which will ultimately benefit those practitioners driving efforts to build, maintain and repair trust in order to improve knowledge sharing.

### 6.3 Recommendations and implications for future research

For future research it is recommended that researchers become less reliant on variance-based approaches, and look to bring in some of the benefits of trust-as-process techniques, when looking at the relationship between trust and knowledge sharing. One suggestion would be to employ more longitudinal studies in order to show how trust is created, maintained or eroded over time. Rather than over-reliance on survey-based instruments in cross-sectional studies. Studies in which trust is researched as an outcome of knowledge sharing would also be useful.

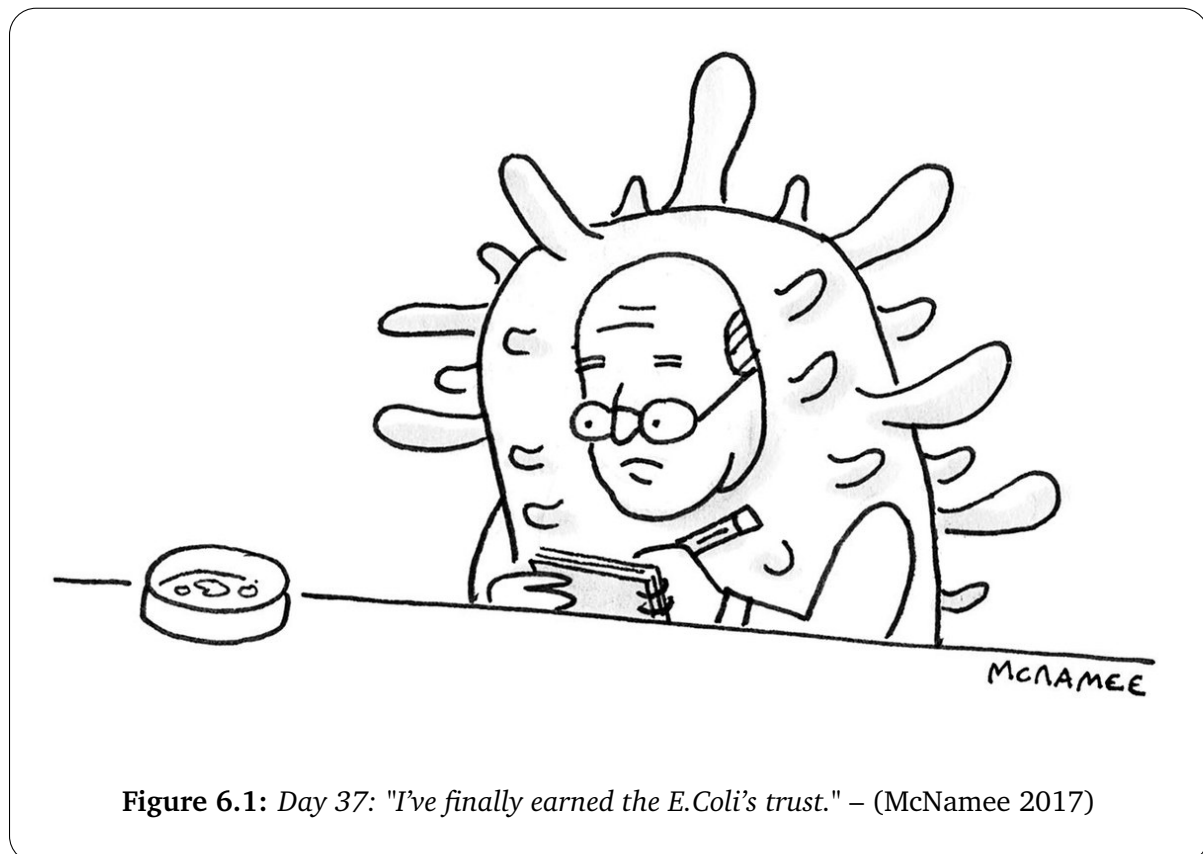
In respect to definitions both constructs, knowledge sharing and trust, have their fair share. The fact that knowledge sharing and knowledge transfer are often used interchangeably is not helpful for practitioners and researchers alike. It is important to make the distinction explicit to avoid further confusion. In the area of trust, while there are a multitude of definitions in the trust literature—it does appear that there is at least some consensus in the KM literature in relation to trust, with the use of the definitions of Mayer et al. (1995) and Rousseau et al. (1998). However, there is definitely a need for more standardisation in the operationalisation of the construct and the use of a set of measures such as the McAllister (1995) set of measures for affective and cognitive trust. This would go some way in avoiding problems of replication, allowing researchers to build on previous research in a methodical manner.

More studies on the different types and levels of trust and their impact on knowledge sharing would also be helpful. For example the difference between high and low trust environments, organisational hierarchies (vertical and horizontal trust), and the role of trust in relation to knowledge sharing when interpersonal ties are either strong or weak.

Due to the fact that both knowledge sharing and trust are deeply social processes—there is a dominance of studies on interpersonal trust in the KM literature. The literature could be bolstered by addressing institutional trust as a subject or agent of trust.

In terms of factors other than trust, culture has emerged as a significant factor that has a direct impact on knowledge sharing. Further study on how different cultures “trust” beyond studies of ex-pat workers in the Middle East and in the East would be useful, with particular focus on organisations in developing countries.

I believe a re-examination of Knowledge Management Systems and the role of Personal Knowledge Management systems (PKMs), for example the usage and impact of encrypted mobile messenger applications such as *WhatsApp* and work collaboration tools such as *Slack* and *Basecamp* is long overdue. These applications allow dyadic and group-based information sharing outside of traditional KMS tools. A deeper look into these systems in relation to knowledge sharing would be useful, especially since some of these solutions promise encrypted communication and are often situated beyond company firewalls, thus creating space for individuals to share information and knowledge without fear of censure.



**Figure 6.1:** Day 37: "I've finally earned the *E.Coli's* trust." – (McNamee 2017)

# Appendices

## A

## Appendix

**Table A.2:** Full list of articles

No	Articles	Title	Year	Citations
1	Al Hawari 2012	A comparative study of trust as a knowledge sharing enabler and its influence on organisational culture	2010	2
2	Ismail Al-Alawi et al. 2007	Organizational culture and knowledge sharing: Critical success factors	2007	962
3	Al-Ammary 2014	The strategic alignment between knowledge management and information systems strategy: The impact of contextual and cultural factors	2014	1

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Articles	Title	Year	Citations
4	Ansari and Malik 2017	Ability-based emotional intelligence and knowledge sharing: The moderating role of trust in co-workers	2017 0
5	Armaghan and Renaud 2017	Evaluation of Knowledge Management in an Organisation	2017 0
6	Assem and Pabbi 2016	Knowledge sharing among healthcare professionals in Ghana	2016 0
7	Bakker et al. 2006	Is trust really social capital? Knowledge sharing in product development projects	2006 115
8	Barachini 2009	Cultural and social issues for knowledge sharing	2009 37
9	Boh et al. 2013	Knowledge transfer across dissimilar cultures	2013 81
10	Brachos et al. 2007	Knowledge effectiveness, social context and innovation	2007 68
11	Cantu and Mondragon 2016	Knowledge management in Mexican NPOs: a comparative study in organizations with a local and national presence	2016 16
12	Casimir et al. 2012	Knowledge sharing: Influences of trust, commitment and cost	2012 45

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Articles	Title	Year	Citations
13	Chu 2016a	Beginning a journey of knowledge management in a secondary school	2016 2
14	Chu 2016b	Leading knowledge management in a secondary school	2016 0
15	Cleveland and Ellis 2015	Rethinking knowledge sharing Barriers: A content analysis of 103 studies	2015 4
16	Connell and Voola 2013	Knowledge integration and competitiveness: A longitudinal study of an industry cluster	2013 27
17	Cormican and Dooley 2007	Knowledge sharing in a collaborative networked environment	2007 10
18	Crane 2012	Trust me, I am an expert: Identity construction and knowledge sharing	2012 10
19	Darby and Kirke 2016	The development of a KIM behavioural framework to support science and technology knowledge transfer in the UK defence sector. A case study approach	2016 2

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Articles	Title	Year	Citations
20	Fahey et al. 2007	The impact of rewards within communities of practice: A study of the SAP online global community	2007 16
21	Foos et al. 2006	Tacit knowledge transfer and the knowledge disconnect	2006 232
22	Ford and Staples 2010	Are full and partial knowledge sharing the same?	2010 27
23	Gammelgaard 2011	Virtual communities of practice: A mechanism for efficient knowledge retrieval in MNCs	2011 15
24	Geofroy and Evans 2017	Are Emotionally Intelligent Employees Less Likely to Hide Their Knowledge?	2017 0
25	Goh and Nee 2015	Pseudo Knowledge Sharing: The Influence of Trust and Guanxi Orientation	2015 0
26	Gokakkar 2007	Effects of social identity processes on coordination and knowledge sharing in geographically distributed software teams	2007 1
27	Gupta 2008	Attitudes towards knowledge transfer in an environment to perform	2008 78

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Articles	Title	Year	Citations
28	Gururajan and Fink 2010	Attitudes towards knowledge transfer in an environment to perform	2010 58
29	Hamel et al. 2012	Determinants of participation in an Inuit online community of practice	2012 4
30	Holste and Fields 2010b	Trust and tacit knowledge sharing and use	2010 120
31	Huang and Chang 2008	Embedded ties and the acquisition of competitive advantage	2008 48
32	Jha and Pandey 2016	Spreading the light of knowledge: Nexus of job satisfaction, psychological safety and trust	2016 0
33	Juriado and Gustafsson 2007	Emergent communities of practice in temporary inter-organisational partnerships	2007 20
34	Kang and Hau 2014	Multi-level analysis of knowledge transfer: A knowledge recipient's perspective	2014 38
35	Khamseh and Jolly 2014	Knowledge transfer in alliances: determinant factors	2008 178
36	Khvatova et al. 2016	Emergent communities of practice in temporary inter-organisational partnerships	2016 0

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*Table A.2: continued from previous page*

Articles	Title	Year	Citations
37	Li et al. 2014	Meta-analytic comparison on the influencing factors of knowledge transfer in different cultural contexts	2014 42
38	Lin 2006	Impact of organizational support on organizational intention to facilitate knowledge sharing	2006 11
39	Ma et al. 2014	What matters for knowledge sharing in collectivistic cultures? empirical evidence	2014 4
40	Marouf and Agarwal 2016	Are Faculty Members Ready? Individual Factors Affecting Knowledge Management Readiness in Universities	2016 1
41	Mu et al. 2008	Interfirm networks, social capital, and knowledge flow	2008 23
42	Mueller 2012	Knowledge sharing between project teams and its cultural antecedents	2012 25
43	Nakano et al. 2013	Engaging environments: Tacit knowledge sharing on the shop floor	2013 9
44	Newell et al. 2007	An analysis of trust among globally distributed work teams in an organizational setting	2007 94

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Articles	Title	Year	Citations
45	Okoroafor 2014	The barriers to tacit knowledge sharing in franchise organizations	2014 5
46	Ozlati 2015	The moderating effect of trust on the relationship between autonomy and knowledge sharing: A national multi-industry survey of knowledge workers	2015 2
47	Pangil and Chan 2014	The mediating effect of knowledge sharing on the relationship between trust and virtual team effectiveness	2014 15
48	Paroutis and Al Saleh 2009	Determinants of knowledge sharing using Web 2.0 technologies	2009 145
49	Ferreira Peralta and Francisca Saldanha 2014	Knowledge-centered culture and knowledge sharing: The moderator role of trust propensity	2014 6
50	Qureshi and Evans 2015	Deterrents to knowledge sharing in the pharmaceutical industry: A case study	2015 2

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Articles	Title	Year	Citations
51	Rabiee 2017	Study on Barriers to Knowledge Management Implementation in Iranian Companies; Case Study: PDSCO (Projects Development and Solution Company)	2017 0
52	Ragsdell et al. 2014	Knowledge management in the voluntary sector: A focus on sharing project know-how and expertise	2014 11
53	Rahman et al. 2015	Trust and work place spirituality on knowledge sharing behaviour: Perspective from non-academic staff of higher learning institutions	2015 3
54	Rahman et al. 2016	Effects of workplace spirituality and trust mediated by perceived risk towards knowledge sharing behaviour	2016 0
55	Ranucci and Souder 2015	Facilitating tacit knowledge transfer: routine compatibility, trustworthiness, and integration in M&As	2015 46

*Table A.2: Continued on next page*

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Articles	Title	Year	Citations
56	Razmerita et al. 2016	What factors influence knowledge sharing in organizations? A social dilemma perspective of social media communication	2016 3
57	Reychav and Sharkie 2010	Trust: An antecedent to employee extra-role behaviour	2010 15
58	Reychav 2011	Antecedents to acquisition of knowledge in trade shows	2011 1
59	Rosendaal and Bijlsma-Frankema 2015	Knowledge sharing within teams: Enabling and constraining factors	2015 1
60	Rutten et al. 2016	The impact of (low) trust on knowledge sharing	2016 1
61	Samadi et al. 2015	The Influence of Trust on Knowledge Sharing Behaviour among Multigenerational Employees	2015 1
62	Sankowska 2013	Relationships between organizational trust, knowledge transfer, knowledge creation, and firm's innovativeness	2013 155
63	Seba et al. 2012	Knowledge sharing in the Dubai Police Force	2012 35
64	Serenko et al. 2007	Organizational size and knowledge flow: A proposed theoretical link	2007 40

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Articles	Title	Year	Citations
65	Shanshan 2014	A comprehensive relational model of factors influencing knowledge sharing: An empirical study	2014 4
66	Stadler and Fullagar 2016	Appreciating formal and informal knowledge transfer practices within creative festival organizations	2016 12
67	Swift and Hwang 2013	The impact of affective and cognitive trust on knowledge sharing and organizational learning	2013 25
68	Søndergaard et al. 2007	Sharing knowledge: Contextualising socio-technical thinking and practice	2007 30
69	Garavan et al. 2007	Managing intentionally created communities of practice for knowledge sourcing across organisational boundaries Insights on the role of the CoP manager	2007 10
70	Tong and Mitra 2009	Chinese cultural influences on knowledge management practice	2009 29
71	Usoro et al. 2007	Trust as an antecedent to knowledge sharing in virtual communities of practice	2007 91

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Articles	Title	Year	Citations
72	Verma and Sinha 2016	Knowledge Sharing in Cross-Functional Teams and its Antecedents: Role of Mutual Trust as a Moderator	2016 0
73	Wee and Kuan 2013a	The peculiarities of knowledge management processes in SMEs: The case of Singapore	2013 34
74	Werr et al. 2009	Gaining external knowledge-boundaries in managers' knowledge relations	2009 42
75	Yen et al. 2015	The effect of internal social capital on knowledge sharing	2015 3
76	Yeo and Marquardt 2015	To share or not to share? Self-perception and knowledge-sharing intent	2015 3
77	Youssef et al. 2017	A structural equation model for knowledge sharing behavior in an emerging economy	2017 16
78	Zhang and Jiang 2015	With whom shall I share my knowledge? A recipient perspective of knowledge sharing	2015 17
79	Zhang and Sundaresan 2010	Knowledge markets in firms: Knowledge sharing with trust and signalling	2010 14
80	Zhou et al. 2010	Effects of social tie content on knowledge transfer	2010 73

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Table 4.1 below shows the results of the coding exercise.

<b>Nodes</b>	<b>Sources</b>
DV_Learning	1
DV_Extra_Role_Behaviour	1
DV_Trust	1
DV_Collaboration	1
DV_Interpersonal_Knowledge_Sharing	1
DV_Organisational_Learning_Environment	1
DV_Knowledge_Sharing_Transfer	41
DV_Online_Knowledge_Sharing	1
DV_Other_Or_No_DV	23
IV_Communication	1
IV_Cultural_Factors	4
IV_Knowledge_Sharing_Systems	1
IV_Learning_Willingness	1
IV_Personal_Relationship	1
IV_Knowledge_As_Public_Good	1
IV_Organisational_Factors	10
IV_Knowledge_Market	1
IV_Knowledge_Sharing	2
IV_Individual_Factors	8
IV_Time_Allocation	1
IV_Knowledge_Management_Process	1
IV_Trust_DV_KS	16
IV_Other_Or_No_Variable	23

Table A.3: The independent and dependent variables identified in articles.





## Study Articles

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