Human Resource Risk and Knowledge Workers: Propositions for Theory and Research

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This article advocates further development of Human Resource Risk as an area of study in human resource management and offers related propositions in the context of knowledge workers. While human resource management practices have traditionally been characterized to improve efficiency through scientific management principles or employee optimization practices, the strategic risks knowledge workers remain less addressed. To address this gap, this paper discusses Human Resource Risk as an emerging and useful area of study, elaborates upon literature that address risk, and offers recommendations for theoretical development and further research.

Keywords: Human Resources, Risk, Knowledge Worker, Knowledge Economy

INTRODUCTION

If every action has a reaction, and every benefit has a cost, what risks present themselves to organizations that create value through the employment of knowledge workers? Further, how do organizations understand and attempt to control and mitigate these risks in an economy that is shifting away from an industrial emphasis on production of goods to the production of knowledge and services? These two questions are the undercurrent of this paper and motivate the propositions presented herein.

Nearly 40% of the workforce in the United States might be considered knowledge workers (Drucker, 2000) – those who 'think for a living'. Compared to manual labour, which can be easily monitored during the process of the task being performed, knowledge workers need a greater level of autonomy and are required to manage themselves (Drucker, 1999). Further, compared with the past systems of production, knowledge is an intangible resource existing within the employees of a firm (Miller, 2002; Spender & Grant, 1996). These shifts create new complexities and vulnerabilities for organizations. For example, stronger issues of agency (e.g. Eisenhardt, 1989) may arise as workers hold more control of production, or issues of employee exit or entrepreneurial activities and taking with them knowledge as an intangible resource (Argawal et al., 2004).

Becker and Smidt (2016), informed by their literature review, suggest that the field of human resource risk is newly emerging and requires considerable theoretical and empirical development. This paper responds to their call by outlining several propositions to guide scholarly work in this domain, particularly regarding knowledge workers. The first portion of the paper describes the context and operations of knowledge workers relative to industrial workers and presents three propositions. The second portion of the paper offers an outline of three main approaches to understanding and assessing

risk. Suggestions for research in relation to the aforementioned propositions and risk approaches conclude the paper.

HUMAN RESOURCE RISKS AND KNOWLEDGE WORKERS

This section focuses on two major issues. First, that the knowledge-based view of the firm and its extension – strategic human resource management – brings workers right to the forefront of corporate production and value creation (e.g. Colbert, 2004; Spender & Grant, 1996). Although current research is increasingly focusing on how people are the major source of competitive advantage and economic rents, little research focuses on how the very same source of advantage can be a source of vulnerability (Annett, 2019). Second, that changes in types of business entitites, corporate strategies, and combinations of productive assests (including workers) impact and evolve managerial practice (e.g. Drucker, 2002, 1999; Pfeffer, 1997). It is my assertation that the emergence of new organization types and practices has created new risks that remain relatively under-developed and ignored in scholarship is explained.

Knowledge-based view (KBV) of the Firm

The Knowledge Economy (KE) is an appropriate context for exploring human resource risk. In a KE, people are the key resource, and are the primary source of economic rents and competitive advantage (Miller & Shamsie, 1996; Spender & Grant, 1996; Grant, 1996). In a knowledge-based economy, this key resource exists in the knowledge and social capital that is individually available to the employees. As such, the dangers and hazards associated with employing labour surpass those found in the industrial economy where machines and equipment play a more significant role in production and creation of value.

Scholars of strategic management are increasingly looking at the organizational attributes – resources and capabilities – of firms to understand why sustained performance differences exist across firms within an industry. This approach is referred to as the resource-based view of the firm (Barney, 1991; Wernerfelt, 1984). Such an approach (RBV) argues that sustained competitive advantage is possible only when these resources and capabilities of a firm are rare, inimitable and valuable (Barney, 1991). RBV has maintained its hegemony over academic scholarship (Hoopes et al., 2003). It has thrived due to (1) clear evidence that industry-membership does not determine economic rents (Rumelt, 1991), and (2) fair evidence that rents vary within strategic groups (e.g. Ketchen et al., 1993; McNamara et al., 2003). To Barney (1991), a resource might be (among other possible attributes) an asset, capability, knowledge, or process. These resources can be both tangible and intangible.

More recently, there is an increasing interest in the intangible resources as source of competitive advantage. This interest is intangible resources is known as KBV, which is referred to as an extension of RBV in the literature (DeCarolis & Deeds, 1999; Grant, 1996). It focuses on knowledge as the "most strategically important of the firm's resources" (Grant, 1996: 110). According to KBV, the firm is "a set of resources" and knowledge is one such resource (Spender & Grant, 1996:7). While both RBV and KBV argue that performance varies due to differing firm capabilities, KBV is specific that (i) knowledge is the key resource, (ii) knowledge exists in the employees and organizational routines, (iii) knowledge can be integrated by firms (not industry), and (iv) firms are complex social communities that manage knowledge (Kogut & Zander, 1996:503). If knowledge is the key resource, and such knowledge exists within workers, it is fair to suggest that protection of such resources is key to the success of the firm.

A KE organization is an institution for integrating and outlaying the knowledge of its workers. As the purpose of a worker in a KE has shifted from acting as an agent of repetitive physical work or intermediary with machinery to acting as a primary cognitive creative agent, the management of that worker is becoming increasingly important, complex and risky. Three arenas organizational risk present themselves as examples. First, Regulative Risk, which is the risk of non-compliance with laws and regulation. In this case, protective law, intellectual property, need for transparency and documentation, and the potential for lawsuits have created new challenges for assuring against corporate espionage as well as conformance to employment standards (e.g. regarding hours or work and rest away from work). Second, Operational Risk, which is the risk of failure due to systems and structures of production. In this

case, re-organization / structural change, goal alignment, and reliance upon non-material goods as products have the potential to impact the organization's to operate efficiently and effectively. Third, Competitive Risk, which is the risk of declining revenue due to actions of competitors in the market. In this case, the attraction and retention of the best and brightest employees is essential to outperform their rivals and exit of workers to rival organizations might result in the transfer of knowledge, contacts, and critical information.

Subsequently, I extend these arguments and put forth the following proposition:

Proposition 1: *Knowledge workers are a source of both competitive advantage and risk.*

New Types of Organizations and Organizational Practices

As different modes of work present themselves in civilization, there is often a complementary change in the approach taken to manage labour in that context. For example, near the turn of the 20th century the industrial mode of work presented itself as a distinct contrast to the agrarian mode of work. The introduction of an industrial economy brought subsequent and substantive changes to the location, type, and method of work. The Labour Problem, defined as the general struggle for control over production and distribution of income, and its industrial economy exemplars: worker soldiering, turnover, waste and inefficiency (Kaufman, 1993) highlight the central role of resolving negative worker issues in strategies of human resource management. One well-received resolution at this time took the form of Scientific Management (e.g. Taylor, 1914). This approach to human resource management attempted to address organizations' significant concerns about inconsistencies, inefficiencies, and wastages during work. The principles of Scientific Management provided organizations with practices to gain and maintain control of production and increase workers' efficiency, thereby helping eliminate some of the perceived barriers to the organization's success in the industrial economy.

In the last decade or so there has been a shift towards a knowledge-based economy. This has led to a dramatic rise in organizations that need research and development to outperform competitors. Stringent patent and copyright laws sometimes make first-mover advantages hard to beat (e.g. Lieberman & Montgomery, 1998, 1988). As noted by Drucker (1999), the emergence of a knowledge economy has created new complexities for organizations. In a knowledge-based economy, individual expertise available through people as workers is the primary source and driver of profits (Grant, 1996; Spender & Grant, 1996).

The knowledge economy is effected through the operations of knowledge-intensive firms and knowledge-intensive activities. Some examples of knowledge-intensive firms are (i) professional service firms – such as law, consulting, and accounting firms; (ii) high technology firms – such as biotechnology, nanotechnology, pharmaceutical, and semiconductor firms; and (iii) institutions whose primary objective is the production of new knowledge such research universities. Knowledge intensive activities include, but are not limited to (i) research and development; (ii) sales and marketing where experiential knowledge is vital; and (iii) boundary spanning activities where a particular employee is the contact person for a firm and its stakeholders.

Drucker (1997), in his provocative piece titled 'The future that has already happened', argues that we have entered a new era of organizations. The salient feature of this new era is the rising importance of knowledge workers in knowledge-intensive organizations (Drucker, 2002, 1997). Pfeffer (1997) expresses a concern that current theories of organization and behavior pay inadequate attention to the new types of organizations and organizational practices.

A knowledge-based economy is also characterized by newer and different types and methods of workplace practices such as internet-based off-site work, collaborative concept development, and judgment-based decision making. These changes in workplace practices imply that the expectations of workers also change and necessitates the need to study organizations with a different framework.

Subsequently, I extend these arguments and propose the following:

Proposition 2: *Types of human resource risks are different in knowledge-intensive organizations as compared to industrial-based firms.*

Proposition 3: *Knowledge-based organizations require human resources practices to manage human resource risk that are different than industrial-based firms.*

CONCEPTUALIZING RISK

Although risk has become more central to organizational activities, it remains under-developed in the human resource management literature. I extensively draw upon Lupton (1999) to extend arguments of risk to the current context. The word 'risk' has many connotations, and its meaning has evolved through centuries of usage. Lupton (1999) proposes that the term risk likely originated as a means of understanding of the acts of God. In this fatalistic sense, risks were perils and dangers that were beyond an individual's control. Here, risks were externally created environmental occurrences that could neither be predicted, nor be avoided. This 'no fault / no responsibility' understanding of risk remained prevalent until the rise of modernity - commonly understood as a period where reason rose to supercede emotion, and the Industrial Era took root (Foucault, 1977). Modernity ushered a new era where mankind attempted to understand nature of risk through scientific calculation and work towards controlling it. Knowledge of natural laws and principles developed competencies and abilities to predict and subsequently prepare for adversity. As a result, the avoidance of perils and dangers became an individual responsibility, with those experiencing such misfortune deemed to be a party to, and not a victim of, the misfortune.

More recently, in the contemporary society, concepts of risk have expanded beyond the confines of human interaction with the natural world. We now think of risks in terms of potential dangers and hazards that can be caused to self and others by individual human actions (e.g. not following safety procedures) or through certain organizational choices (e.g. investment in pension plans). A close introspection of our social and professional lives makes us realize that risk is indeed an integral part of our lives across various social structures. At the individual level, the purchase of insurance plans for housing, health, travel, and automobiles is becoming increasingly common. At the HR level, the conduct of background checks, drug tests, and medical tests are becoming increasingly common risk control practices. At the organizational level, structures such as the board of directors are instituted as a counter-balance to prevent the risks of agency that might be exercised by executives. At the industry level, the potential benefits of newer technologies such as genetic engineering are counter-debated with potential risks. It is reasonable to argue that managing risk is an integral organizational activity.

Risk as a construct has a rich tradition in academic scholarship across multiple disciplines. It has been developed across multiples disciplines to include sociology (e.g. Beck, Giddens, Lupton), anthropological (e.g. Lupton, 1999), economics (e.g. Fligstein, 1990), organization theory (e.g. Sitkins & Pablo, 1992); and strategy (e.g. McEvily, Perrone, & Zaheer, 2002; Williamson, 1975). The vast array of studies and perspectives makes any review difficult; nevertheless some of the central themes on risk in the literature are discussed.

TABLE 1

Discipline	Component of risk	Key reference
Anthropology	Cultural differences as source of risks	Douglas (1999)
Economics	Firm-as-portfolio to control risk	Fligstein (1990)
Organization behavior	Sensemaking of risk	Gephart (1993)
Organization theory	Principal-agent problem to control agency; Risks of being illegitimate	Eisenhardt (1989); Meyer & Rowan (1977)
Sociology	Risk society as a meta-theory	Beck (1992, 2000)
Strategy	Reduce opportunism and transaction costs	Williamson (1975)

The anthropologists focus on how certain groups and communities attempt to prevent the risks of contamination by avoiding outsiders. The caste system in India might be seen as a heuristic adopted by higher castes to avoid risks associated with individuals belonging to lower social classes. Taking a different example, Rabinowitz (1992) explains the inherent distrust between Arabs and Palestinians in the city of Nazareth in Israel. *Anthropologists* focus on how people use cultural categories to identify potential risks. *Economists* focus on financial aspects of risk management. The rhetoric of firm-as-portfolio model to distribute assets across industries is an example of controlling risks. In *organization theory*, agency theory specifically focuses on the principal-agent problem and the risk associated with self-interested behavior within organizations. From a *strategic management* perspective, risks are an inherent characteristic of transactions in the open market. To curtail the risks of opportunism, organizations procure goods based on annual rates and pre-determined prices (Williamson, 1975). More recently, the literature focuses on the role of trust as a facilitator of transactions (e.g. McEvily, Perrone, & Zaheer, 2002). In *organizational behavior*, risk is studied as a personality attribute (risk taking-behavior) or as a heuristic to make sense of disasters (e.g. Gephart, 1993). In brief, the elaboration of risk is not without precedent in the literature.

Although a succinct definition of risk is evasive due to its contested application, a good starting point is provided by Sitkins and Pablo (1992: 10). They define risk as follows:

> "The extent to which there is uncertainty about whether potentially significant and/or disappointing outcomes of decisions will be realized. This definition of risk captures three dimensions that are essential for its understanding: outcome uncertainty, outcome expectations, and outcome potential."

In essence, risk is associated with uncertainty and harm. A behavior, an agenda, an entity, or an action is considered risky when the potential consequences are significant and damaging in nature. Risk, as a theoretical construct, has been developed particularly well by Lupton (1999). Lupton attempts to analyze ways in which people in western societies give meaning to and deal with risks. She argues that identification of risks takes place in the specific sociocultural and historical contexts in which we are located. She provides an overview on the implications of these risks for how we think about ourselves, other individuals, organizations, and institutions. To her, there are at least six categories risks relevant to contemporary times – *environmental risks*, *lifestyle risks*, *medical risks*, *interpersonal risks*, *criminal, and economic risks*. Economic Risk is largely concerned with the growth and decline of markets and financial instruments undergirding a nation's productive capacity and has the strongest prima facia connection to the concept of human resource risk. However, despite that line of sight, the treatment of economic risk in the literature does not yet appear to take into consideration risks related to organized groups and in particular the management of management of labour within organizations. This is ironic as organizations are perhaps the most pervasive and important social entities of modern times (Pfeffer, 1997). As such, there is considerable room within the category for further theoretical development.

Risk Frameworks

To illustrate how risk conceptualizing may be directly applied within organizational theorizating I draw upon Lupton (1999) and her four frameworks for approaching risk – a) technico-scientific, b) governmentality, c) socio-cultural, and d) risk society.

Technico-scientific Orientation

This framework directs that risks are objective facticities that can be known, understood, calculated, and managed through the scientific method. As such, risk is understood as statistically describable predictable events that may be understood and minimized through recognition, compensation, and avoidance. The techno-scientific approaches to risk emerge from fields such as engineering, psychology, statistics, and economics. These domains are interested in the notion of *hazard* and interest themselves with calculations of *probability*. Issues important to this perspective include (1) antecedents of risk

conditions, (2) risk identification and calculation methods, and (3) optimization of risk and outcome models. This framework is often applied when identifying social and psychological factors that cause public cynicism and distrust in public institutions. It offers a base assumption / condition that people's responses and conceptualization of risks are often inappropriate or unscientific. The use of psychometric testing and risk analysis to identify mental strategies or heuristics of respondents is common to this school of thought.

Lupton (1999: 22) argues that the cognitive science model "constructs individuals as calculating and emotion-free actors". It generally reduces to the individual level the meanings and behaviors associated with risk perception and assessment. However, current research situated in this paradigm is starting to address the impact of social and group membership in people's awareness and responses to risk. For example, research suggests that members of social groups that are less powerful tend to be more concerned about risks than members of powerful social groups.

Faced with significant and growing costs associated with risks, the science of risk has evolved to improve knowledge, understanding, and ultimately the effective management of risk. Traditionally a branch of applied economics, Risk Management "is a scientific approach to dealing with pure risks by anticipating accidental losses and designing and implementing procedures that minimize the occurrence of loss or the financial impact of losses that do occur" (Vaughan 1997:30). Two broad Risk Management tools are Risk Control – the minimization of costs, and Risk Financing – the guaranteeing of funds to meet losses.

This kind of conceptualization of risk and risk management applies cleanly to the management of labour, particularly under strategies to build employee continuance commitment to reduce turnover and maintain productivity. Continuance commitment is attained when employees view the costs of leaving the organization as greater than the costs of remaining with the organization. Although this cost/benefit analysis implicitly suggests the management of risks through a Risk Control method, more explicit are the Risk Financing strategies of the provision of benefit programs and long-term disability insurance. Coincidentally, these programs provide a dual risk management function in that they insure against the costs of illness and disability for the employee (insurance the employee may not receive at other employers), but also insures the organization against the costs of ill or disabled employees.

Governmentality

Based largely upon the work of Foucault (1991), the Governmentality framework takes the view that State/Governmental apparatus manage or regulate populations through knowledge and power relations. They do so in part by identifying activities risky to the society and protecting the society from such activities. These risky or deviant activities vary in scope and magnitude, but include protection against risks of insanity, poor hygiene, criminal activity, white-collar crime, and so forth. While the governmentality perspective presupposes that risks are socially constructed, it argues that there exists certain expert knowledge on these risks. Such knowledge is gained through surveillance or other information acquiring practices such as the 'panoptic-gaze' that provides context for the 'truths' of that society.

Foucault, like Beck (2000, 1996) and Giddens (2002), also sees the role of expert knowledge collected and analyzed via a heterogeneous network of researchers, statisticians, lawyers, and other such actors. Through these efforts risks are problematized and rendered governable. He uses the exemplar of pregnancy to explain the phenomenon of governmentality. A pregnant woman is given a plethora of medical advice on how to care for and manage the risks of her pregnancy at every stage. She is also given advice on what construes a healthy lifestyle, and in case she were to ignore expert advice, she is responsible if her baby is born with a defect. Although she is not forced to adopt these lifestyles, she is obliged to conform to certain normative expectations from the society (Lupton, 1999). Risk-control, therefore, becomes a moral enterprise relating to issues of self-government, self-knowledge, and self-improvement.

With change from the classical age to the modern age, the mechanisms through which normalization of behavior take place have evolved. In the classical age, sovereign powers controlled deviation and risk,

but in the modern times, normalizing power is extended from the state into non-juridical institutions where individuals 'self-regulate'. Self-regulation is based upon the values, norms, and mores of the society. With modernization there has become a movement away from institutional responsibility for risk, to personal responsibility for risk.

As an authoritative body responsible for setting policies and procedures for appropriate conduct in the organization, the Human Resources Department operates similarly to a state/government. Examples of the human resource risks facing the organization in terms of this approach are deviant behavior - such theft and willful neglect; absenteeism; and low/poor productivity. The Human Resources Department uses a variety of surveillance techniques including, for example, video cameras, inventory checks, time sheets, dress codes, performance reviews, and 'walk-arounds'. Normalizing to appropriate behavior is achieved through many different power techniques including organizational culture, employee assistance programs, employee relations activities, and self-regulation through codes of conduct and ethics.

Socio-Cultural

The Socio-Cultural framework is a subjective and relativistic perspective to risk. Douglas (1966, 1969) is a major contributor to this approach, exploring purity and contamination from a cultural anthropological background. In this approach, notions of risk are culturally specific and help form ideas of self and others. Culture not only helps individuals understand risk, but sets-up a communal notion of risk: not what is risky to one person, but what is risky to us (Lupton 1999). The Socio-Cultural approach considers the boundaries between the cultural and social and the individual and groups, and conceptualizes risks as threats to the body/symbol/society. Risks are often recognized as pollutants, which if not controlled against may invade the social body and cause damage.

Douglas advances the argument that cultures use classification systems in order to organize, understand, and mitigate risks. One common catch-all classification is that of other or 'dirt'. Dirt is seen to be a foreign body that brings disorder and/or has the potential to unseat the group's unity. The relativism of this classification becomes more apparent when considering that, for example, "shoes are not dirty in themselves, but become dirty if placed on a dinning table" (Lupton 1999: 41). As dirt typically enters the social body as its margins, this is where the greatest amount of effort against dirt is focused. However, as dirt does infiltrate the social body, mechanisms are also in place to remove the dirt. This is often accomplished through various rituals and rites of purification.

As suggested earlier, a risky activity is the introduction of a new workers into an organization. The dangers and costs of a 'bad hire 'are significant: the new employee could negatively impact existing employees, turn-off clients resulting in lost business, or simply be not able to perform the job function adequately enough to help the organization meets its goals. Given the costs to hire, let alone the costs of a bad hire, organizations are greatly predetermining what 'kind' of employee they wish to hire to a position, ultimately resulting in a distinction between candidate as a 'self' or an 'other'. Those applicants with qualities not valued by the organization are the 'other' or 'dirt,' which the organization seeks to guard itself against.

Risk Society

Advanced by Beck (2000, 1992) and Giddens (2002), Risk Society focuses upon reflexive modernization. Beck takes forward the argument that the contemporary society is in transition between the first and second modernity. As an evolutionary step, the second modernity is reflexive and is critiquing the ways and methods of the first, including the treatment of the earth's natural resources and organic inhabitants. According to Beck one of the main differences between the modernities is that while the first modernity was characterized by a "work society" the second modernity is characterized by a 'risk society' and will eventually become a civil society… a society where paid labour will be replaced by civil labour. Giddens echoes Beck's views on reflexivity, but focuses upon institutions and individuals (Lupton, 1999). He also addresses the double-edge nature of modernity, recognizing both the benefits and effects of progress (Lupton, 1999). A key commonality of the two authors is the growth of globalization, and that globalization will have a significant impact upon the world, and how the world understands and

deals with risks. Risk in this context has many outlets, but includes family vs. work issues, global organizations vs. local governments, and environmental concerns.

Within the Risk Society approach, risk is understood as a system for dealing with and understanding the hazards of modernization (Lupton, 1999). In terms of its fit in the risk perspective framework, it is a combination of the subjectivist and realist concepts. It is subjective as it recognizes that social process influence members conceptions of risk. It approaches a realist stance on risk as it recognizes that risks are prevalent – they may just be unknown at this time. For example, one risk associated with globalization is that of 'local isolation – global association', meaning neighbors may not know and interact with each other as each is busy networking and conversing with distant others using advanced technologies.

Distinguishing itself from the other socio-cultural perspectives, risk society looks primarily at "how risk is generated at the macro-structural level of society" (Lupton, 1999:81). It contends that large institutions are the main producers of risk: institutions – as employers - are central to the work society and in the process of modernizing the world is responsible for creating new risks to human health directly through elevated stress and decreased sleep, and through environmental damage (e.g. pollution and toxins). Until the process of reflexive modernization has produced a civil society, the contemporary world will face significant danger and hazards.

It is reasonable to argue that the risk society approach presents issues to the management of workers at a very high level. As society changes from a norm of full-time employment to a maximum of part-time of employment, organizations must address the following risks: shortage of employees, lack of employee commitment, migrating work forces (internationally), and incomplete/ineffective transfer of knowledge. These pose a new set of risks.

ADVANCING RESEARCH FOR HUMAN RESOURCE RISK AND KNOWLEDGE WORKERS

Knowledge workers present exciting opportunities and new risks to employing organizations. If organizational success is characterized by survival in the modern marketplace, a key facet to that survival is the ability of the organization to understand and redress its human resource risks. Some of these risks are directly related to the knowledge workers themselves. As owners of both the tools and the method of production, knowledge workers are a potent source of organizational value, if they can be harnessed. Coincidentally, the practices with which the organization attempts to harness the value of the knowledge worker are sources of risk in themselves. For example, liberal work time and location schedules substantially negate the ability of management to assess work status or progress, provide input into the product, and redress deviant behavior.

I now present three specific suggestions to researchers who are willing to embrace the proposed paradigm on human resource risk. The first and obvious starting point is to accept the limited ability to govern knowledge workers through traditional governance methods as elucidated in theories such as agency theory, transaction cost economics, behavioural perspective, and resource-based view of the firm. These theories, as elaborated upon below, seek to maximize the human capital of the organization. These upward and forward-looking approaches fail to provide a proportional amount of weight to the minimization of 'bad' and consideration that minimization of bad may be a fundamental component of effective human resource practice. Subsequently, I encourage research on area of trust as a possible governance mechanism (e.g. McEvily, Perrone, & Zaheer, 2003). In specific, I urge researchers to pursue questions related to protecting integrity in an era characterized by betrayals of trust (e.g. Elangovan & Shaprio, 1998). I propose that the challenge of protecting the integrity of knowledge workers presents the most formidable challenge to human resource practices in this knowledge-based era. This is consistent with the literature on trust which argues that trust within organizations constitutes three elements – ability, benevolence, and integrity (e.g. Mayer, Davis, & Schoorman, 1995; Mayer & Davis, 1999). Understanding integrity is the corner-stone for progress on human resource risk and knowledge workers.

My second suggestion urges the need to divert attention to the lenses of social/cultural, governmentality, and risk society perspectives (Lupton, 1999). I recognize that this is going to be a messy exercise. Nevertheless, any theorization that does not deal with these ambiguities and subjectivities is

bound to produce inadequate theory. I acknowledge that the Technico-Scientific framework is the most widely diffused risk perspective to observe in the human resource theoretical perspectives. Several theoretical perspectives provides a risk to be addressed in this manner. For example, Agency Theory – the agent's self-interest, Behavioural Perspective – the employee's inappropriate actions/attitudes, and Resource-based view of the firm – the employees lack of knowledge, skills, or abilities. Once recognized, these risks can be mitigated by certain calculated strategies, for example: corporate governance, compensation based on performance, and increased training and development effort. What appears to be missing from the human resource theoretical perspectives is not an understanding of how to resolve the things that are 'bad', but a true understanding of exactly what is bad, why it is bad, and why it needs to be fixed in order for the organization to be successful. Clearly, a theoretical approach that addresses risk, particularly the social-based perspectives, fills a gap in human resource theoretical landscape.

The perspectives of governmentality, socio-cultural, and risk society have the potential to significantly improve understanding of organizational success and survival and employee – employer relationships and the human resource practices surrounding that relationship. For example, exploring the question 'what is dirty to this organization?' can provide substantial information about the norms, values, perceptions of the organization, which subsequently has enormous informational value to the Human Resource Department. Understanding an organization's tolerance for new and innovative concepts, desired composition of the labour force and methods with which the organization attempts to remove 'dirt' is invaluable.

Finally, a review of the literature on how risk has been studied in the organizational literature is a worthy contribution in itself. Becker and Smidt (2016) undertook one such review, and produced a useful synthesis of risk archetypes in the literature. Further reviews that 1) apply these archetypes, 2) loosen paramaters for scope, domain, and time period of source materials, and/or 3) explore knowledge workers directly, may produce additional foundational understandings of human resources and risks.

Literature development exercises, such as this current paper and those recommended herein, need to be undertaken by authors across different functional disciplines. My focus was dominantly strategic and sociological to aid development of human resource management theories. A potential limitation though is the limited review of how the psychological literature understands risks. I encourage more debate and cross-disciplinary initiatives to extend knowledge on how risk has been studied and what does it mean to study risk in these ways.

The challenges of theory building on the risks of engaging a certain form of resource (i.e. knowledge workers). This paper attempted to present a coherent start to this exercise. Researchers are urged not feel deterred by the fuzziness of risk as a theoretical agenda. The challenges of understanding human resource risks are both rewarding and necessary.

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