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Governing Through Standards: Networks, Failure and Auditing

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Abstract

This article seeks to understand network governance within the context of the North American automotive industry. Within this industry, original equipment manufacturers (lead firms) have outsourced a substantial portion of parts production over the last 30 years. This paper argues that in an aim to govern their supplier relations, North American lead firms imposed quality assurance standards upon their suppliers. In addition, this paper considers how nodes situated in the network are called upon to pre-emptively manage failures. Utilizing the quality assurance standards themselves, and 15 in-depth interviews with quality assurance managers at different part supplier plants, this article explores the technologies of performance used to manage failures. The focus of this paper is on the creation of part narratives, and particularly, the quality audit and its role in governing the conduct of part suppliers at-a-distance. Lastly, this paper focuses on the network prudential subject who is called upon to pre-emptively manage failures on behalf of the network.

Keywords: Apparatus, Networks, Standards, Failure, Auditing

Introduction

1.1 The conventional view of power in organizations conceives of power as the ability to get others to do what you want them to against their will (Weber, 1914/1968; see Scott, 2001; Westwood, 2002). Since the introduction of the work of Michel Foucault to sociology, this conventional view regarding power in organizations has been dramatically challenged and altered (Hardy and Clegg, 2006). Power is increasingly thought of as flowing through networks and is embedded in the fibre and fabric of everyday life (see Foucault, 1977, 1980, 1990). This paper engages with the work of Foucault and utilizes his concept of 'dispositif' or 'apparatus' to analyze the governance of the North American automotive industry supply network. Here, focus is on how quality assurance standards are utilized by lead firms, such as Chrysler LLC[1], General Motors, and Ford, to govern not only those directly supplying to the aforementioned firms, but regulating the relationships between part suppliers embedded in the networked supply chain.

1.2 Drawing from the work of Foucault and scholars within governmentality studies (see Rose, et al., 2006), one of the central arguments herein is that the imposition of quality standards by lead firms upon their suppliers is an *apparatus of network standardization*. This paper focuses on the *elements* of this apparatus, specifically on the efficacy of quality standards, part narratives and the attendant practice of auditing, in governing-at-a-distance outsourced relations. This particular apparatus aims through *standards* to inscribe a specific ethical subjectivity in order to foster conduct that facilitates failure management among those suppliers that seek to maintain their positions within the automotive supply chain network. In this paper, I suggest that elemental to the apparatus of network standardization are what I call *part narratives* which produce complex detailed information on various suppliers in the supply chain. Part narratives are mutable mobiles (paper, digital data, etc., see Law and Mol, 2001) that follow automotive components through the production processes of suppliers and tell the story of production and supplier failure management practices. They tell the 'truth' of production spaces and encode detailed information regarding the production processes and bodies involved in the production of a given automotive part. Accompanied by part narratives are technologies of performance (Dean, 1999a) that are employed to manage the risk of failure. An important technology of performance is the *quality audit* which plays a pivotal role as an independent 'third party' in ensuring levels of quality standardization within the networks of part suppliers and lead firms. In this governing capacity, the audit function serves as the control of control (see Power, 1997). Elemental of this apparatus of network standardization is a constellation of standards, part narratives and the quality audit that work *in concert* to govern the failure management practices of part suppliers within the supply chain.

1.3 Through in-depth interviews with quality assurance managers at *different* part supplier plants, particular attention is paid to the ways in which they, utilizing technologies of performance, aim to limit the failure of not meeting customer (lead firm) requirements. In this paper, I examine the ways they endeavour to manage the risk of failure and, through the imposition of standard work instructions and internal audits, render shop-floor workers accountable to quality assurance standards. Productive of this apparatus of network standardization, quality assurance managers and shop-floor workers become *network prudential subjects* abiding by quality assurance standards and seeking to manage failures endemic within the new 'networked' automotive economy. A network prudential subject is defined here as subjects that possess future-based ethical subjectivities whereby they prudently seek to manage failures on behalf of their organizations and other nodes (organizations) in the network.

1.4 This paper contributes to the sociological literature on networks, governance and organizations in a number of salient ways. First, while sociology has tended to focus primarily on successful social action, there has been very little attention paid to failure (see Malpas and Wickham, 1995). The sociological research on governance, networks and organizations has followed suit in this regard and most social processes in these areas are viewed as more or less successful (for a notable exception, see Centola, 2009). This paper moves in another direction and illuminates the role of failure in governing networks and organizations and *how* network nodes attempt to manage failures. In light of recent failures in the global automotive industry, specifically General Motors and Chrysler LLC's chapter 11 reorganization and Toyota's massive part recall, it is particularly salient to understand how firms respond to and are governed by failure. Moreover, it is important to understand how failures not only have monetary effects, but *social effects* on those individuals that comprise the automotive supply network. Another contribution of this article is in regards to the examination of the impact of standardization on organizations and networks. Despite the global emergence of standards and standardization bodies, there is a paucity of empirical research on the actual impact of standardization on organizations (and even less in the sociology of networks literature), and a lack of understanding of *how* governing parties that seek to make those under their auspice adhere to standards (see Higgins and Hallstrom, 2007; Seidl, 2007). This paper contributes to a networked approach to governance (see Johnston and Shearing, 2003) by considering the role of 'part narratives' within automotive part supply networks. This paper emphasizes the human as well as non-human actors involved in the governance of the automotive industry, thus arriving at a more nuanced picture of network governance than human-centric approaches allow. In the next section, Foucault's concept of apparatus is elucidated and then the literature on governance, networks and risk is discussed.

Apparatus, Network Governance and Failure

1.6 *Dispositif,* or Apparatus[2] in English, is a decisive technical term found in the work of Michel Foucault (Foucault, 1980; see Agamben, 2009). An apparatus is a heterogeneous set of elements ranging from the linguistic to the non-linguistic including discourses, institutions, buildings, laws, objects, police measures, and philosophical propositions. An apparatus is precisely the network that is established out of these elements. As O'Connor (2002) aptly puts it: "While the elements of the social apparatus are comparable, the specificity of each apparatus derives from the *assembly and deployment of its elements* and aspects and from the kind of associations they produce" (my emphasis, 2002: 33). Equally salient is that the apparatus has a concrete *strategic* function and is always located in a power relation. Foucault (1980) explains an apparatus as "essentially strategic, which means that we are speaking about a certain manipulation of relations of forces, of a rational and concrete intervention in the relations of forces, either so as to develop them in a particular direction, or to block them, to stabilize them, and to utilize them" (1980:196). Instantiations of apparatuses are at the intersection of relations of power and of knowledge. An apparatus always implies a process of *subjectification*, that is, they produce the *subjects* they seek to govern (see Scott, 2001). They seek through practices and knowledges to govern, in ways that purport to be useful, the behaviours, gestures and thoughts of these subjects (Foucault, 1977, 1980).

1.7 Italian philosopher Giorgio Agamben argues that concomitant with globalization and certain technological advances there has been a boundless proliferation of apparatuses (Agamben, 2009). He goes so far as to say that every moment of our contemporary lives is seemingly controlled in some degree by apparatuses. "The harmless citizen…readily does everything that he [sic] is asked to do, inasmuch as he leaves his everyday gestures and his health, his amusements and his occupations, his diet and his desires, to be commanded and controlled in the smallest details by apparatuses" (Agamben, 2009: 22-23). Accordingly, there has been an emergence of an abundance of academic literature documenting the many apparatuses across time and space (see Rose, et al., 2006). While there has been an emergence of literature documenting apparatuses, there is a tendency in these studies to focus on particular elements of apparatuses, be it just on discourses or architecture rather than elements in concert or apparatuses working in concert (for a notable exception, see Walby, 2008).

1.8 According to many authors, late modern societies are increasingly networked (Castells, 1996, Urry, 2003). Individuals, objects and organizations are embedded in complex networks that facilitate the transfer of information in real time across the globe (Spencer and Carlan, 2008). Borgatti and Foster (2003) note that within organizational research a network paradigm has emerged, characterized by a proliferation of network typologies and varying levels of analysis. In the same fashion, governance is networked tying state and non-state actors together in various governance projects (Newburn, 2001; Johnston and Shearing, 2003; Walby, 2008). Strategies aimed at governing are enacted through collaboration and cooperation between networking partners, or as Johnston and Shearing (2003) have labelled it, 'nodal governance'. The state, in general, has become only one (albeit important) node in a complex network of governing agencies and that governance is exercised under plural auspices. Contemporary governance strategies are simultaneously at arm's length and hands on (Johnston and Shearing, 2003).

1.9 By departing from state-centered models of governance, analysis of governance regimes is able to consider varying and continually changing configurations of networks that coalesce around specific issues.

This approach allows for the examination of various power and knowledge relations that are enacted within networks as well as within specific sites of control (O'Malley, 1991). This network model allows for an account of the linkage*s* and relationships that connect various nodes within networks and the governance mechanisms used in a given governance project (Johnston and Shearing, 2003). Network or nodal governance stresses that governance becomes the "property of networks rather than as the product of any single centre of action" (Johnston and Shearing, 2003: 148).

1.10 The aggregate forms of data that flow through knowledge networks foster a particular conception of governance and offer the tools to accomplish governing agendas (Haggerty 2001; Boyle and Haggerty, 2009). Through the creation and imposition of classificatory schemes upon a network, governing bodies are able to control the actions of *members and objects* within the network at-a-distance. Such classificatory schemes are encoded within documents that flow through networks as immutable (Latour, 1987) or mutable (Law and Mol, 2001) mobiles and in turn, act to shape the actions of actors (people, organizations, etc.) within networks. For example, governance through seemingly objective standards can be used to govern the production standards of companies in geographically diverse locales.

1.11 A prevalent conception of risk management within the governance literature is that risk management is infused with an ethical framework where governing bodies seek to constitute and monitor ethical or moral regimes (Hunt, 1999; O'Malley, 1999; Ericson, et. al., 2003; Walby, 2005). In this sense, ethics involve practices of the self, in terms of ways of being and behaviour that are proposed, suggested or imposed on subjects by cultures, societies, or groups (Foucault, 1984/1997). Ethics involves concern not only for one's own behaviours but concern for the ethical conduct of others. In this sense, ethics involves particular practices of self of those that govern and those that are governed (Foucault, 1984/1997).

1.12 Risk management regimes effect regulation by making people think of risks in terms of their own conduct with respect to them. Ethical conduct includes being knowledgeable about risks and doing one's part to prevent, minimize and distribute them (Ericson, et. al. 2003). Governing bodies produce ethical subjectivities that seek to responsibilize the governed subjects under the guise of prudence (O'Malley 1992). This construct of governance removes the key conception of regulating subjects by collective risk management and relays the responsibility for proper risk management to individuals and groups. *Subjects* are thus engaged in a continual process of procuring techniques to ward off future unwanted circumstances. According to O'Malley (1992), 'New Prudentialism' is where subjects must be prudent and take it upon themselves to prevent future occurrences, defending against anything that may threaten their future. In this procedure, security and welfare become the responsibility of private individuals, who, through the pursuit of self-interest, no longer reliant on 'the state' for their safety, are active participants in creating a safety net (O'Malley, 1992).

1.13 Jessop (1999) argues that the frequent emphasis on the successes of network governance overlooks a salient element of all forms of governance: the failure of governance strategies (see also, Higgins, 2004). He avers that what is important about emphasizing failure of governance is that it is the failure to fully govern and stabilize potential objects of governance that opens space for competing governance strategies and assures that the "future remains pregnant with a surplus of possibilities" (Jessop, 1999: 6). The failure to protect oneself against risk or the inability of a technique to minimize risk invariably leads to the repositioning and redeployment of additional technologies aimed at managing risks. Thus, a given apparatus should be understood as the realm of design and re-design, of invention and transformation (Miller and O'Leary, 1998). Tied to the cultivation and acknowledgement of perceived risks is an effort to pre-emptively manage systemic failures, and further, to think of failure in probabilistic terms. Institutions, accordingly, organize themselves around such knowledge and its continual transmission. Professional risk management plays a pivotal role in probabilizing and managing the risk of failure (O'Malley, 1999). Consequently, it becomes imperative for professionals to invent or procure technologies that can adequately prevent future adverse circumstances. In the new, networked capitalist economy, that which the automotive industry is embedded, insecurity of future events is a major preoccupation.

1.14 Dean (1999a) contends that regimes of governance aimed at managing risk also utilize technologies of performance. Technologies of performance are focused on the enlistment and accountability of a population within a given locus to think in terms of risk. Accounting and auditing practices serve as effective technologies of performance which enable the governance of conduct-at-a-distance (see Humphrey, et al., 1993; Rose, 1999; Miller, 2001), that is, to promote effective governance without the necessity of lead firms having to 'do too much of the governing' (see Dean, 1999b). Technologies of performance aim, as shown in this paper, to conjoin responsibility and calculation and thereby control conduct by producing responsible and calculating part suppliers within the supply chain network. In the remainder of this paper, the concept of apparatus – consisting of standards, part narratives and the quality audit – will be used to understand how a complicated network of firms supplying to Original Equipment Manufacturers (Ford, General Motors, etc.) are governed. In the next section, I offer a brief overview of the North American Automotive industry to contextualize later discussions of this apparatus of network standardization.

The North American Automotive Industry

2.1 The North American auto industry, from 1950 to 1980, was characterized as a hierarchically-oriented, vertically-integrated bureaucracy with most assembly and part production performed internally by a single corporation (Castells, 1996; Herzenberg, 1996). This 'Fordist' form of organization depended on large, stable markets to achieve efficiency though the highly specialized use of resources devoted to long runs of standardized products (Macduffie and Frits, 1997). The principle of mass standardization within the Fordist regime relied on both production and consumption (Beck, 2000).

2.2 Beginning in the 1980s, the Fordist production model was problematized for its rigidity and lack of flexibility in adapting to changing, continually fluctuating, and diverse global markets (see Piore and Sabel,

1984; Deyo, 1996; Beck, 2000). Lead firms began to contract out as a method of reducing costs, improving asset efficiency and increasing profits in an effort to keep up with global competitive markets (Clott 2004; Zullo 2004). The resultant production system, displacing the older vertically-integrated bureaucracy, is a horizontal network comprised of lead firms (in the North American context, Ford, Chrysler LLC, General Motors and Japanese transplants) and different levels of 'tiered' part supplier firms (Casper and Hancke, 1999; Rutherford, 2000; Spencer and Carlan, 2008).

2.3 Lead firms, such as Chrysler LLC, General Motors, and Ford, now outsource a considerable portion of their parts production and assembly to smaller firms. Within this arrangement, lead firms face the problem of governing a complicated network of suppliers in an effort to achieve the timely delivery of quality parts. To address this, these lead firms have, over the last 15 years, imposed ISO/TS 16949 and QS 9000[3] quality assurance standards on their Tier 1 outsourced part suppliers - those that supply directly to lead firms.

2.4 Part of the shift to outsourcing was the reliance on just-in-time inventory procedures (Smith, 1997; Rinehart, et al., 1997). Just-in-time based manufacturing, first practiced by Japanese car makers, is a delivery system whereby lead firms order from their suppliers the exact quantity of parts needed at the precise time when they are required (Shimizu 1998). Just-in-time delivery cuts down on production costs by reducing stocks and by delivering in small and timely batches, thus encouraging efficient production and the minimization of waste (Smith 1997; Bordenave, 1998; Shimizu and Shimokawa, 1998). Tier 1 suppliers, those that supply directly to lead firms, engage in more complex, 'modular' manufacturing and face sequential just-in-time delivery, where specific parts have to be delivered in the same sequence and synchronized with the assembly process of the customer.

2.5 Within vertically integrated systems of production, final assemblers designed and manufactured most parts and kept large inventories. Consequently, assemblers had the technological capacity and time to inspect parts before they were used in assembly (Casper and Hancke, 1999). Within a network of suppliers, in which just-in-time delivery systems are the norm, lead firms and their suppliers do not keep large inventories. Lead firms consequently face two key risks: defective parts, particularly of a serial nature, can shut down the entire production chain, and the failure to coordinate the immense and complicated network of suppliers (see Fligstein and Freeland, 1995; Castells, 1996). The problem for lead firms is to ensure their suppliers are governed effectively so that parts are of sufficient quality and are delivered in a timely manner.

2.6 Lead firms in the automotive sector seek to spread risks by contracting out production to smaller producers. By developing elaborate concatenations of production, lead firms are susceptible to the negligence of producers that could supply less than acceptable goods and services. Thus, embedded within a network of suppliers and customers, corporations make assessments of the risks involved in any action. Far from relying on the obligatory element of the conventional, bilateral contractual relationships or simply trusting suppliers to maintain quality-oriented production processes, General Motors, Ford and Chrysler LLC have opted to govern through 'third party' quality assurance standards, aiming to assure quality and consequently, to reduce the presumed 'disbenefits' associated with conventional forms of governance such as internal structures of authority, the 'market' (i.e., trusting contracted parties to supply quality parts in a timely manner), or formal governmental apparatuses (i.e., using legal means to redress failed contractual obligations).

Methods

3.1 The research for this paper was conducted between 2004 and 2005 in southern Ontario, a hub of automotive manufacturing in Canada, during a period of relative stability just prior to a period of major restructuring, plant closures and significant layoffs in late 2005 and 2006. ISO TS16949 was quickly becoming the required standard to supply parts to General Motors, Daimler-Chrysler (at the time of the interview) and Ford. The standard was analysed to locate the key organization related components and form the basis for subsequent interviews with quality assurance managers. Fourteen interviews were conducted with quality assurance managers at Tier 1 automotive part supplier plants; one interview was conducted with a quality assurance manager at a tier 2 part supplier (a supplier that supplies lower value parts to Tier 1 part suppliers) plant.[4] Interviews lasted approximately 1 hour and were primarily conducted at participant's respective plants or in some cases, at their homes.[5] In terms of enquiries regarding company's quality assurance practices and the impact of standardization upon plants and more generally the automotive industry, quality assurance managers are apposite sample candidates for the following three reasons: there is only one quality assurance manager per plant; it is they who liaise with third party quality auditors; and in terms of organizational status, quality assurance managers are often tantamount to production managers.

Apparatus of Network Standardization

4.1 Within the limited literature on quality assurance standards, there is a marked accentuation on the ethical character of standards and standardization regimes. The standardization of firms is becoming the requisite for market participation. A necessary point of distinction is that these quality assurance standards entail process-based norms that deal specifically with 'how' products are made, rather than attending to the technical specifications of products and materials (Casper and Hancke, 1999; Walgenbach, 2001; Power, 2002; Ponte and Gibbon, 2005).

4.2 In the North American context, concomitant with the restructuring that occurred, Chrysler LLC (Chrysler at the time), Ford and General Motors devised and imposed quality standards upon their suppliers. Initially, major automobile companies had their own supplier certification standards. Suppliers that serviced all of these companies had to abide by proprietary standards and specifications as dictated by each lead firm. Each lead firm had their own auditing team that visited supplier facilities to assess whether suppliers were

abiding by their self-generated quality standards. These systems were problematized because of the ostensible failure of suppliers to keep up with the divergent documentation and the profusion of different inspection, testing and quality assurance activities required by each proprietary standard. This led to a replacement of these divergent systems by the QS 9000 quality standard.

4.3 In 1988, the then Chrysler Corporation, Ford Motor Company and General Motors corporations' purchasing and supply Vice Presidents, as well as the American Society for Quality Control, chartered a supplier, Quality Requirement Task Force to standardize their quality standards. In 1994, this task force presented QS 9000, which, by the end of 1997, became the standard for which all suppliers to General Motors, Daimler-Chrysler and Ford had to be certified. Conformity to the QS 9000 quality standard requirements was to be verified by third-party audit by a customer-approved QS 9000 registrar. Comprising one third of this standard is the ISO 9000[6] quality assurance standard which has as the last two sections, sector specific requirements and customer specific requirements. The aim of this standard was to integrate a continuous improvement strategy into major functions of a supplier's organization, placing emphasis on the reduction of defect, variation, and waste. The following quotations by two senior quality assurance managers with over 25 years of experience explain the rationale behind the conversion to QS 9000:

> Interviewee: Yeah, the way that we used to do it, I am going back some years, we used to do Q1 [Ford's quality assurance standard] and General Motors [quality assurance standard], and we had to do it all that way, keeping up with each customer's specification. With QS 9000, they were trying to make you more efficient, they are making you give them the best price you can, they are making you be on time with delivery, they are making you make a quality part. They were trying to make you continually improve. [Interview 2]
>
> Interviewee: …Before all three of them had different ways of doing things, now its just standardized. Its across the board, you don't have to fill out a form for Chrysler, a different form for Ford, a different form for GM, and you had to do that before, each one had their little quirks of how to do things. [Interview 4]

4.4 QS 9000 was later problematized for failing to secure the improvements in quality originally sought by General Motors, Daimler-Chrysler and Ford. This standard was then replaced by the ISO/TS 16949 quality standard. With respect to the justifications of why QS 9000 was replaced by ISO/TS16949, the quality assurance managers were asked what they saw as the reasoning behind the replacement. In all cases, they responded that the justification offered to them by Ford and other Original Equipment Manufactures (OEM) is that QS 9000 did not offer the quality returns that they expected. ISO/TS16949 is seen by OEMs as assuring that a company's entire organization is geared toward continuously improving its organization and its suppliers.

4.5 The ISO/TS16949 is a technical specification put out by the ISO (International Organization for Standardization) which serves as a comprehensive quality management standard for the global automotive industry to achieve "world class" levels of product quality, productivity, competitiveness and continual improvement. The International Automotive Task Force, which consists of an international group of vehicle manufacturers and national trade associations, developed these standards in conjunction with the ISO. Automotive part suppliers to lead firms in North America were mandated to have this certification by the end of 2006. Without such certification, Tier 1 level firms could not supply to lead firms. The common rationality of quality standards is an ethic that dictates the rules for producing goods and supplying to lead firms. Quality standards stipulate the principles for best business practices for suppliers.

4.6 Suppliers develop a matrix that pertains to all areas of their organization, from receiving, through the production process, to shipping. The efficacy of these quality standards lies in the ability to outline what are best business practices, establishing company objectives and further to this, indicating the apposite behaviours in any given action of members within an organization. Quality managers noted this element of quality standards:

> Interviewee… TS 16949, that's called an ops package, it's a matrix, that encompasses the whole plant from receiving to shipping. You know your matrix on the floor [as] your product realization…. Your customer has a need like you do, "I wanna have this part" so this starts the whole process [Interview 3].

4.7 As noted by this manager, these matrices have a strong customer focus which aims to prioritize suppliers' *subjectivities* and business *practices* continually in relation to their customers. More and more, emphasis is placed on senior management involvement in setting and communicating quality objectives, allocating resources and effectively integrating these into business plans. Suppliers are to perform in accordance with customer expectations with respect to quality and on-time delivery.

4.8 Quality standards also provide that suppliers have to demonstrate a strong commitment to improve their own supply base. Of the Tier 1 suppliers included in this study, most confirmed that their own suppliers had to have at least QS 9000 certification and eventually ISO/TS 16949 certification. This certification is necessary to ensure that their suppliers live up to the expectations of the standard, continually improve their production processes, and therefore, provide parts of sufficient quality and on-time delivery. One quality assurance manager illustrates the potential threat that their suppliers could pose to their organization if they were to supply parts of unsatisfactory quality: "You know if you're not rating your suppliers … you have to keep an eye on your suppliers because those are the ones that can hurt you the most" [Interview 2]. The effect of these standardization schemes is a spreading of conformity to the standard. This sets the ethical rules of the supplier network and in effect expels those that do not abide by and maintain their quality certifications. The following quality assurance managers reflect on the impact of ISO TS16949 on supplier firms:

> Interviewer: Why do you think OEMs had their suppliers take on ISO TS16949 certification?
> Interviewee: Increased standardization of everything. It forces suppliers to look at their systems and look at ways to improve their systems and their suppliers systems. It makes the suppliers provide a better product if they are continually improving their systems. [Interview 6]

> Interviewee: They had suppliers take on TS16949 because QS9000 did not provide the quality improvements that they wanted. Suppliers would be continually improving in one area but not in others. TS16949 makes your entire company geared toward quality [Interview 7]

4.9 Here the apparatus of network standardization works to imbue quality-oriented ethical subjectivities on their suppliers and compel organization behaviours that benefit lead firms. These quality-oriented ethical subjectivities spread throughout entire organizations from upper management to production floor workers. In the next section, the production and role of part narratives is examined.

The Making of Part Narratives

5.1 Ponte and Gibbon (2005), in their examination of the governance of the global coffee and clothing industry, note that through quality standards, lead firms are able to embed complex quality information that, in turn, communicates information about the attributes of a product. These authors argue that rules and conditions of participation encoded in quality standards are the key operational mechanisms to govern supply chains, insofar as knowledge of quality becomes embedded in technical instruments such as standards, resulting in less need for personalized relationships. In this context, this is ensured by third party certifiers who confirm that suppliers are in accordance with the specified codes of conduct for creating products that are encoded within quality standards. Firms are then able to able to determine if the narrative encoding the product follows the ethical codes of conduct laid out in the standards. As a result, governance between firms is more of a 'hands off' coordination – at-a-distance. Trust is then shifted to a specific code of conduct, rather than embedded in corporate relations (Ponte and Gibbon, 2005).

5.2 In this apparatus of network standardization, quality standards dictate that suppliers demonstrate that the design and process for producing parts (i.e., the narrative form rather than the part itself) accords with the specified standards of quality. Suppliers achieve this accordance through the Production Part Approval Process (PPAP). Beginning with QS 9000 and continuing with ISO/TS 16949, North American lead firms are able to produce complex product information through the use of the PPAP. It is required documentation, which is submitted by suppliers, along with their parts, to their customers. The PPAP describes the process of manufacturing a part, including the engineering design and the production process in terms of location, material, and machinery. Suppliers must notify their customers in the event of a change to any of the aforementioned factors. In addition, PPAP requires the provision of information regarding an organization's suppliers. The rationale of the PPAP process is to ensure that suppliers of components comply with design specifications and can run consistently without affecting the customer's production line. Without a PPAP, lead firms will not purchase a part from a supplier. This submission system creates the *narrative* of a part and allows lead firms to gather complex information about their suppliers and the process by which their suppliers have ensured that parts are of sufficient quality. In this way, part narratives act as mutable mobiles (see Law and Mol 2001) whereby it is through the flow and continual change of the PPAP throughout the network that members are governed and conformity of the suppliers to the standard is ensured. The PPAP process includes the generation and collection of information on how suppliers have managed the risk of failure by means of a design and process Failure Mode and Effects Analysis.

Probabilizing the Risk of Failure

6.1 The fulcrum for managing failure within organizations is through a Failure Mode and Effects Analysis (FMEA). FMEA is based on three fundamental questions: What can go wrong? If something does go wrong, what is the probability of it happening? And, what are the consequences? FMEA is a specific methodology of evaluating and managing a system, design, process or service for possible ways in which failures, problems, errors and risks may occur. The FMEA is part of the PPAP and automotive suppliers are required to conduct design FMEA and process FMEA. Part narratives, then, specify precise information regarding firms' failure management practices as the parts make their way through various levels of the parts production network.

6.2 In the early stages of parts design, quality managers engage in Advanced Product Quality Planning (APQP), wherein the potential risks of a part failing are probabilized in terms of detection, severity and occurrence. These failure modes are conceived of in terms of past failures experienced by a supplier, which are utilized by quality assurance managers to identify and pre-empt the probability of the recurrence of such failures in future products. A quality manager outlines this process:

> Interviewee: There's things that you look at through the design process. You look at design FMEAs; what potential things could fail in the design? There's ratings, based on risk, or detection, severity and occurrence; is it likely to happen? How serious if this would happen? What's the impact of that? And, you rate those different failure modes through the design process. So, that allows you to say; OK, there's some risk here that this could fail in this fashion and what can you do to change or modify the design? [Interview 1].

6.3 This probalistic technique accounts for the perceived failure areas of a part and in turn change the design to make it more robust. Further to this, the central mentality of this probablization of failures is to conceive of things in terms of the potential harms incurred by the customer when the part fails. Here the part narrative is enhanced and elaborated through this information feedback.

6.4 The other form of FMEA centres on contingencies related to process. A process FMEA is a document which is first developed in the APQP stage where a supplier will probabilize the failure modes of their production system and determine what their contingency plan will be when their system fails. One quality manager explains this process:

> Interviewee: Well we need FMEAs to get through PPAP. In order to pass a PPAP, to get a signed off warrant, they have to agree with your FMEA, and your failure modes have to be accurate somewhat. Like, what would happen if, this, and this, and this. Right, what would the impact be, and what would your contingency plan be. Those are already in place before we even make a part. Before we even turn the machine on, they have to be agreed upon [Interview 5].

6.5 While in production, a FMEA in process is a live document to which quality managers, through the identification of defects, generate possible failure modes that can occur in process. Upon identifying possible failure modes, suppliers must continually improve their systems in order to manage these failure modes. In this fashion, the creation and transmission of part narratives act discursively to provide information regarding how nodes (organizations) within the network manage their failures and affirms that they are being prudent in the identification of possible failure modes of parts.

Technologies of Performance and the Management of Failure

7.1 The development of standard work instructions and quality oriented training regimes are the key technologies of performance in this apparatus of network standardization. The quality assurance standards *dictate* that for every part produced there must be an attendant work instruction that provides the method for producing a part as well as a means for identifying potential failure areas of a part in process and in design. These standard work instructions for the production of a specific part are developed in the APQP stage to which design FMEAs and process FMEAs are developed and translated into standard work instructions of a specific part with the *aim* of making operators responsible for those potential failures. One of the quality assurance managers explains this process:

> Interviewee: Instructions are developed through the quality system through the APQP, feeding down from the FMEA, the control plan to the operator's instructions. And the operator would take those instructions and follow the instructions, be it checking the parts on a check fixture to make sure that at whatever frequency they are correct, or be it, just testing parts for weld, quality assurance or any other checks that are required [Interview 1].

7.2 Coupled with standard work instructions is a requisite training regime. Required within the quality standards, suppliers are to ensure that at every stage of the production process of a specific part, the operator (labourer) must be trained to look for the specific failures that may occur in a part. Once they have completed the training, operators are to sign off that they have received training in relation to a specific part. In turn, quality managers build up records for each operator with respect to every part being produced. Quality assurance managers see the efficacy of training as creating a greater level of awareness among the operators as to the possible failure areas of a part. One quality assurance manager explains this effect of training:

> Interviewee: The major contribution was the continuity of workers on the floor for knowledge, but it was training and accountability. Getting people to follow what they were supposed to do… We have been trying to give them self worth, for their jobs, more accountability, which equates into more responsibility, which equates into job pride [Interview 3].

7.3 Quality assurance managers, vis-à-vis standard work instructions and training regimes, utilizing a language of empowerment ('self-worth'), were able to create the accountability of operators, mandating them to look for the potential failure areas of a part (cf. Rose, 1999). Quality assurance managers assert that the provision of standard work instructions and quality training regimes assures that it is the operator's responsibility to account for the physical condition of a part as it passes through the production process. If a defective part is found, operators are obligated to bring it to the attention of supervisors. The following quality assurance managers explain this responsibilization:

> Interviewer: How does your company account for or ensure quality?
> Interviewee: Everyone is encouraged, I guess if there is something wrong to bring it to someone's attention and document it.
> Interviewer: Do workers account for the physical condition of the part?
> Interviewee: Yes, the operators are fully responsible.
> Interviewer: So it is their responsibility to account for the physical condition of the part?
> Interviewee: Yes, exactly [Interview 4].

> Interviewee: ….They [operators] log on to the system, every one of our components is individually logged and traced. They are accountable for all the operations that they do on their particular [names company part], in this particular case. They don't currently log their own production numbers, they are responsible for their own SPC [Statistical Process Control] and inspection checks, and they are logged on to every station they work at [Interview 14].

7.4 Further to the responsibilization of operators to detect and account for the physical condition of a part, quality assurance managers need a mechanism for assuring that operators do in fact report and manage the failures of a part. This responsiblization of operators is achieved through tracking.

7.5 Depending on the level of automation of a production process, quality managers account for the level of scrap produced through paper-based and electronic-based tracking systems. These tracking systems

allow for the accounting of part failures in production that is then reported and logged in some cases to the accounting department of a supplier. If an operator reports an additional unforeseen failure area of a part in production, this is identified and the standard work instruction is updated and integrated into the quality training regimes. As such, a cybernetic system is created whereby this responsibilization has the effect of creating additional failure areas of a part in production, which in turn feeds back action. As illustrated by two quality managers, this responsibilization has a two-fold effect upon into the process FMEA and subsequently, the PPAP. Also, if defective parts are shipped to a customer and it is determined that it is of a known failure area and the operator is responsible for that part, through tracking quality assurance managers are able to render product floor operators accountable and subject them to disciplinary operators:

> Interviewee: … If an operator does not do their job right, we write them up for job performance and it's put down on their record. They have no leg to stand on, 'cause they have clear cut work instructions on how to perform their job. So it actually works in two ways, one so that we can use it as a disciplinary, if we need to. They have been trained on it, they signed off, they said they understood it, their trainer said they did, and yet they didn't do the job. They are going to get job performance, and if they continue they are going to lose their job. The other thing for the operators is if they have a question or not sure about … a part, they will not hesitate to say, can I have work instruction [Interview 8].

> Interviewee: If a guy screws up and he's kind of negligent in looking at the parts, I guess it's kind of dependent on the situation. You know, if its one piece and he doesn't catch it, and he is looking at 1000 a shift, it doesn't really help him. He's bound to miss a couple, but you try to talk to him and try to make sure he does not do something like that again. But, then there are guys that constantly not doing their job, those are guys you have to make sure you talk to and discipline. It really does depend on the situation every situation is different [Interview 13].

7.6 Through the tracking of parts, quality assurance managers are able to create clear lines of responsibility, both in rendering operators responsible for recognizing defective parts and in highlighting additional deficiencies in a part. In the case of failing to recognize known failure areas of a part, quality assurance managers are able to subject workers to disciplinary action. Technologies of performance, through the collecting of information by operators, discursively contribute to the production of knowledge regarding additional failure areas of a part. In addition, the updating of standard work instructions and training regimes and, in effect, the part narratives, contribute to a discursively richer information source. This facet further indicates that these part narratives serve as the linchpin for ensuring that nodes within the supply network are prudent in failure mode identification and management. In light of this responsibilization strategy and the apparent possibility for defective parts going on to a customer, quality assurance managers need some mechanism for pre-emptively controlling defective parts from being delivered. This is achieved through the quality audit.

Auditing Failure

8.1 Within this apparatus of network standardization, suppliers are mandated to perform internal audits to ensure that their quality assurance systems are in conformity with the standards. For quality assurance managers, internal audits serve as a heuristic device, allowing them to gain knowledge of the production environment and of possible non-conformances within their quality assurance systems. In addition, internal audits allow quality assurance managers to verify that the necessary documentation and training is in place along the production process (Power, 1997). One quality assurance manager notes the efficacy of the internal audit as a verification ritual:

> Interviewee: [The audit] verifies that everything is in place and that everything is being done correctly... I will have another guy at another facility and come in and internal audit our control methods and he will go in and check my fixtures and make sure everything is being calibrated properly and [with] proper documentation. It's getting a second person to look at it, because everybody makes mistakes … [D]oing an audit reduces the chance of a problem actually getting out or being a bigger problem [Interview 7].

8.2 Auditing aims to manage the possibility of failure and of improper documentation being in place, thus, resulting in something becoming a "bigger problem." Along with ensuring that proper documentation is in place, auditing also serves to verify that operators in the production process have the necessary training to carrying out their tasks. Through an audit, quality assurance managers are able to determine whether an operator has the necessary training to carry out a given task.

8.3 The audit serves as a mode of control, rectifying non-conforming procedures and managing problem areas in the quality assurance system. When asked what resistances employees had to the audit, one quality assurance manager stated:

> Interviewee: The only place that has not been favourable is on the whole internal auditing process. That whole phenomenon of internal auditing [is] trying to convert from a punitive system into a supportive system … [But], people just don't want to be told that they are delinquent in something or have a gap in their area. …I think a lot of that has to do with pride, very few of us like to hear: "Look at what we found, this is what is supposed to be happening; This is what is actually happening; It is your responsibility" [Interview 6].

8.4 Internal auditing in this sense serves as a method of control assuring the accountability of operators and, as such, assuring that their conduct is in line with the standard. In addition to having the ability to gain knowledge of the production environment and rectifying potential problems, internal auditing serves as a method of ensuring that operators comply with the quality standards. In effect, the internal audit ensures

the accuracy of part narratives and that the potential failure modes are identified pre-emptively. The audit serves as a battery of control, ensuring that quality assurance managers' respective organizations are prudent in their failure management. While the internal audit focuses on ensuring conformance to the system of internal controls, the external audit by third party registrars serves as the control of control (Power, 1994, 1997).

Ensuring the Management of Failure

9.1 With the need for greater transparency among firms, and in a corporate culture characterized by distrust (Power 1997; Dean 1999a), organizations need to have some mechanism to verify the effectiveness of the control systems of firms. As part of this apparatus of network standardization, to attain and maintain certification, suppliers are subjected to external audits by a third party registrar. These registrars are accounting firms that are certified to conduct quality audits. The primary role of these external auditors is to verify that a supplier is compliant with the standards and to indicate non-conforming elements of a suppliers' organization. External auditors verify that there is necessary documentation of standard work instructions and in turn, verify that operators are performing their tasks in accordance with the standard work instructions. External audits review suppliers' process FMEA and verify that operators are trained to identify failure areas. One quality assurance manager explains this ritual of verification:

> Interviewee: The auditor would basically review the paperwork and start pulling out a FMEA control plan, and start auditing your process and starting asking questions with the operators, the supervisors on line and we would be there to assist him and answer any questions, or proving that the documentation is there to prove the system is effective [Interview 9].

9.2 The act of verifying a supplier's modalities for controlling failures also provides necessary information on a supplier's failure management practices. Quality assurance managers note the salience of demonstrating to external auditors that the necessary systems for managing failure are in place. Further to this knowledge procurement of a supplier's failure management practices, audits verify the prudence of a supplier in identifying and managing failure areas. This control mechanism outlines the conduct necessary for maintaining a node's position within the automotive network. This serves to further outline what is prudent comportment of suppliers vis-à-vis defining and inferring conformance to the standards.

9.3 External audits continuously expose system non-conformances. Quality assurance managers expressed that external auditors always found non-conforming elements of their quality assurance systems. Non-conformances came in two forms, namely major non-conformances and minor non-conformances. One quality manager explains:

> Interviewee: A major non-conformance is where you have a complete system failure in one specific element. Where for example…you can't find a training record for anybody. That would be a major non-conformance. Where a minor would be ok, one or two people are not trained, do you have the training scheduled? Yes, it's coming up. Ok. A major is also a repeat issue on a minor. So if an auditor comes in and says: OK, those three people aren't trained, we'll fix it and write it up as a minor. You come in here next time and there's three people still, or even three other people, aren't trained, then they're going to write you up as a major because you have had a system breakdown over a period of time [Interview 2].

9.4 After a non-conformance is found, suppliers have to rectify their non-conformances within thirty to ninety days, or lose their certification and possibly their position within the supply network. One quality assurance manager reflects the salience of certification:

> Interviewee: If [external auditors] came in and there was a bunch of majors and we did not implement corrective action, then they would basically … pull our certificate and notify our customer base. Which means our customer would basically say "well, that's it folks, we are going to pull our business" [Interview 9].

9.5 Firms seeking to maintain their positions in the supplier network have to continually manage their failure areas and in turn, improve their quality assurance systems. External audits are a means for customers to gain information and to verify the robustness of a supplier's failure-management practices *at-a-distance*. The external audit then serves to confirm that nodes within the network are prudent in their failure management practices. Consequently, those that fail to comply with the standard and adequately manage failure, in effect placing other nodes at risk, are excluded from the network. The creation of part narratives, coupled with the external audit, serves to secure the network habitat, setting the proper behaviours and failure management practices necessary for inclusion within the network. Suppliers that fail to contribute to the securitization of the network will not maintain their positions as suppliers to General Motors, Chrysler LLC and Ford.

The Network Prudential Subject

10.1 Apparatuses always imply a process of subjectification whereby individuals are inscribed with particular subjectivities. They produce the very subjects that they seek to govern and as such, aim to inscribe subjects with particular mentalities (Gerlach, et al., 2010). As noted earlier, within this apparatus of network standardization there is a continuous improvement mandate for quality assurance systems. However, as illustrated by quality assurance managers, "continuous improvement is set up to fail. That means it's linear, on its way up, with no failures, and that's impossible" [Interview 3]. Quality assurance managers acknowledge that failures are endemic to the system and that the imperfections of their systems lead them to think in terms of the risks they may pose to their customers and the risks imposed on them by their suppliers. This is clearly reflected in the testimony of quality assurance managers: there is an admission that failure is a constant feature of their production systems. Through the deployment of these

information technologies, lead firms are able to gain complex information on network prudential subjects who are pre-emptively called to 'account' for failures. Coupled with the external audit, which fulfills the role of gaining knowledge on, and verifying firms' failure management practices, lines of responsibility are relayed upon quality assurance managers and their respective firms to manage failures on behalf of their customers.

10.2 In the supply chain network, nodes come to think of their relations with other nodes in terms of potential risks because of the quality standards governing their relations. Thus, quality assurance managers supplying to lead firms engage in a form of prudentialism constituting a *network prudential subject*, whereby the management of failure becomes a focal concern. A quality assurance manager's testimony is indicative of this subjectivity:

> Interviewee: [W]hether we like it or not, it's based on risk … We need to manage this timeline. We can't have unsatisfied customers internally or externally. How do we manage the risk? Where can we make concessions and still accomplish objectives with the least amount of risk [Interview 6].

10.3 The network prudentialized subject seeks to manage failure so as to avoid subjecting their customers to the risk of delivering defective and untimely parts. The standards act as an *ethical* guide for the network prudential subjects' conduct. As such, these network prudential subjects and their respective organizations are responsibilized into managing failure on behalf of themselves and other suppliers situated within the network. Cutting through organizations within the network, this apparatus of network standardization is not limited to producing subjectivities amongst management but makes production floor workers network subjects insofar as they are trained and disciplined to think in terms of failure management. Furthermore, *net-workers* are responsibilized to think in terms of failure and the risk of part failure that their production processes pose to those further along the production chain.

Conclusion

11.1 In framing failure as a constitutive element of network governance, this paper has suggested an alternative to analyses that focus on the successes of network governance. This apparatus of network standardization aims to create network prudential subjects to manage failure and produce part narratives that serve as the linchpin to discursively account for prudential subjects' pre-emptive failure-management practices. Fundamental to note is that part narratives, acting as mutable mobiles, serve to put network into discourse and to establish the proper conduct amongst firms within the network. Further to this, part narratives serve as a means for lead firms to gain knowledge of supplier failure management practices within the parts supply network and to govern the conduct of these suppliers. In this sense, supply network nodes are not only materially connected through the production and movement of parts, they are also ideally connected (and controlled) through the production and movement of information. Technologies of performance serve as the means to render accountable production floor operators to think in terms of potential failure areas of the part and enlist them to feed the information system cybernetically, contributing discursively to the generation of additional failure areas of the quality assurance systems. Further to this, the internal audit serves as a heuristic device, aiming to pre-emptively identify failure areas and verify that the operators are in accordance with the standard. The external audit serves as a method to govern outsource relations at-a-distance, allowing lead firms to verify failure management practices within network nodes and remove those less prudent. Through elucidation of this apparatus of network standardization, this paper has sought to attend to the discourses, through an examination of quality standards and part narratives, and the practice*s*, through the elucidation of the network prudential subject and the attendant technologies of performance that govern relations within automotive supply networks. Rather than being either encouraged or discouraged by the power of this industrial assemblage, this paper illustrates how governance is enacted in automobile parts supplier networks (of automobile parts suppliers). More importantly, this study has examined how one kind of information- and object-centered network has concomitantly been rendered governable.

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Notes

[1]At the time of the interviews, Chrysler LLC was named Daimler-Chrysler. Prior to 1998, this company was called Chrysler. From 1998 to 2007, this company was called Daimler-Chrysler after the purchase of Chrysler by Daimler-Benz AG. 80.1 percent of the American Chrysler group was sold in 2007 to Cerberus Capital Management. The firm is now known as Chrysler LLC.

[2]Important to note is that this is not an exact or precise translation of 'Dispositif' from the French. It can also signify 'device' in English.

[3]QS 9000 was a quality standard produced by General Motors, Ford and Daimler Chrysler (Chrysler) and imposed on their suppliers in 1997. ISO TS16949 came to replace QS 9000 in 2006 as the official quality standard of the North American Automotive Industry.

[4]In this case, the quality assurance manager's source company transitioned from a tier 1 to a tier 2 part

supplier one month prior to conducting the interview. The quality assurance manager reflected on his experiences as a manager prior to this transition and after.

[5]Interview subjects were contacted through snowballing and cold call recruitment strategies. In terms of snowball recruitment, based on growing up in the area where the study was carried out and having friends and family that work in the automotive industry, I was able to draw on these connections to recruit research subjects.

[6]ISO 9000 is a quality assurance standard created by the International Organization for Standardization and is a standard specific to the processes companies engage in to produce products, not products themselves.

References

AGAMBEN, G. (2009) *What is an Apparatus? and other essays.* Stanford, California: Stanford University Press.

BECK, U. (2000) *The Brave New World of Work*. Cambridge: Polity Press.

BORDENAVE, G. (1998) 'Globalization at the Heart of Organization Change: Crisis and Recovery at the Ford Motor Company' in M. Freyssenet, A. Mair, K. Shimizu, and G. Volpato (editors) *One Best Way?: Trajectories and Industrial Models of the World's Automobile Producers*. Oxford: Oxford University Press.

BORGATTI S.P. and P.C. Foster (2003) "The Network Paradigm in Organizational Research: A Review and Typology", *Journal of Management,* Vol. 29, No. 6, pp. 991–1013.

BOYLE, P. and K.D. Haggerty (2009) 'Spectacular Security: Mega-Events and the Security Complex', *International Political Sociology* Vol. 3, pp. 257-274.

CASPER, S. and B. Hancke (1999) 'Production Regimes: ISO 9000 Standards in the French and German Car Industries', *Organization Studies,* Vol. 20, No. 6, pp. 962-985.

CASTELLS, M. (1996) *The Rise of the Network Society*. Oxford: Blackwell Publishers.

CENTOLA, D. (2009) 'Failure in Complex Social Networks', *Journal of Mathematical Sociology* Vol. 33, pp. 64-68.

CLOTT, C.B. (2004) 'Perspectives on Global Outsourcing and the Changing Nature of Work', *Business and Society Review,* Vol. 109, No. 2, pp. 153170.

DEAN, M. (1999a) 'Risk, calculable and incalculable' in D. Lupton (editor) *Risk and Sociocultural Theory: New Directions and Perspectives*. Cambridge: Cambridge University Press.

DEAN, M. (1999b) *Governmentality: Power and Rule in Modern Society*. London, Thousand Oaks and New Delhi: Sage.

DEYO, F.C. (1996) 'Introduction: Social Reconstruction of the World Automobile Industry' in F.C. Deyo (editor) *Social Reconstructions of the World Automobile Industry: Competition, Power and Industrial Flexibility*. New York: St. Martin's Press.

ERICSON, R.V., Doyle, A., and Barry, D. (2003) *Insurance as Governance*. Toronto, Buffalo and London: University of Toronto Press.

FLIGSTEIN, N. and Freeland, R. (1995) 'Theoretical and Comparative on Corporate Organization', *Annual Review of Sociology,* Vol. 21, pp. 2143.

FOUCAULT, M. (1977) *Discipline and Punish*. New York: Vintage.

FOUCAULT, M. (1980) 'The Confession of the Flesh' in C. Gordon (ed.) *Power/Knowledge: Selected Interviews and Other Writings, 1972-1977*. New York: Pantheon Books.

FOUCAULT, M. (1984/1997) 'The Ethics of the Concern for Self as a Practice of Freedom' in P. Rabinow (ed.) *Michel Foucault, Ethics: Subjectivity and Truth.* New York: The New Press.

FOUCAULT, Michel (1990) *The History of Sexuality. Vol. 1.* New York: Vintage.

GERLACH, N., Hamilton, S.N., Sullivan, R., and Walton, P.L. (2010) *Becoming Biosubjects: Governing Biotechnology in Canada*. Toronto: University of Toronto Press.

HARDY, C. and Clegg, S. (2006) 'Some Dare Call it Power', in S. R. Clegg, C. Hardy, T.B. Lawrence, W.R. Nord (editor)*The Sage Handbook of Organization Studies.* London, Thousand Oaks and New Delhi: Sage.

HAGGERTY, K.D. (2001) *Making Crime Count*. Toronto: University of Toronto Press.

HERZENBERG, S. (1996) 'Regulatory Frameworks and Development in the North American Auto Industry' in F. Deyo (editor) *Social Reconstructions of the World Automobile Industry: Competition, Power and Industrial Flexibility*. New York: St. Martin's Press.

HIGGINS, V. (2004) 'Government as a Failing Operation: Regulating Administrative Conduct 'at a Distance' in Australia', *Sociology,* Vol. 38, No. 3, pp. 457-476.

HIGGINS, W. and Hallstrom, K. T. (2007) 'Standardization, Globalization and Rationalities of Government', *Organization* Vol. 14, No. 5, pp. 685-704.

HUMPHREY, C., P. Miller and R.W. Scapens (1993) 'Accountability and Accountable Management in the UK Public Sector', *Accounting, Auditing & Accountability Journal* Vol. 6, No. 3, pp. 729.

HUNT, A. (1999) *Governing Morals: A Social History of Moral Regulation*. Cambridge: Cambridge University Press.

JESSOP, B. (1999) 'The Governance of Complexity and the Complexity of Governance: Preliminary Remarks on some Problems and Limits of Economic Guidance'. <http://www.comp.lancs.ac.uk/sociology/papers/Jessop-Governance-of-Complexity.pdf>.

JOHNSTON L. and Shearing, C. (2003) *Governing Security: Explorations in Policing and Justice*. London and New York: Routledge.

LATOUR, B. (1987) *Science in Action*. Cambridge: Harvard University Press.

LAW, J. and A. Mol (2001) 'Situating technoscience: an inquiry into spatialities', *Environment and Planning D: Society and Space,* Vol. 19, No. 5, pp. 609 – 621.

MACDUFFIE, J.P. and P. Frits (1997) 'Changes in the auto industry employment practices: An international overview' in T.A. Kochan, R.D. Lansbury, J.P. MacDuffie (editors) *After Lean Production*. Ithaca: Cornell University/ILR press.

MALPAS, J. and G. Wickham (1995) 'Governance and Failure: On the limits of sociology', *Journal of Sociology*, Vol. 31, No. 3. pp. 37-50.

MILLER, P. and T. O'Leary (1998) 'Finding Things Out', *Accounting, Organizations and Society,* Vol. 23, No. 7, pp. 709-714.

MILLER, P. (2001) 'Governing by Numbers: Why Calculative Practices Matter', *Social Research,* Vol. 68, No. 2, pp. 379386.

NEWBURN, T. (2001) 'The Commodification of Policing: Security Networks in the Late Modern City,' *Urban Studies* Vol. 38, No. 56, pp. 829848.

O'CONNOR, Daniel (2002) *Mediated Associations. Cinematic Dimensions of Social Theory*. Montreal and Kingston: McGill-Queens University Press.

O'MALLEY, P. (1991) 'Legal Networks and Domestic Security' in *Law, Politics, and Society*. Austin Sarat and Susan S. Silbey (eds.), 171-190. Greenwich: Jai Press.

O'MALLEY, P. (1992) 'Risk, Power and Crime Prevention' *Economy and Society* Vol. 21, No. 3, pp. 252275.

O'MALLEY, P. (1999) 'Governmentality and the Risk Society', *Economy and Society,* vol 28, No. 1, pp. 138148.

PIORE M.J. and C.F. Sabel (1984) *The Second Industrial Divide: Possibilities for Prosperity*. New York: Basic Books.

PONTE, S. and P. Gibbon (2005) 'Quality standards, conventions and the governance of global value chains', *Economy and Society,* Vol. 34, No. 1, pp. 1-31.

POWER, M. (1994) *The Audit Explosion*. London: Demos.

POWER, M. (1997) *The Audit Society: Rituals of Verification*. Oxford: Oxford University Press.

POWER, M. (2002) 'Standardization and the Regulation of Management Control Practices', *Soziale Systeme,* Vol. 8, pp. 191-204.

RINEHART, J., C. Huxley and C. Robertson (1997) *Just Another Car Factory: Lean Production and its Discontents*. Ithaca Cornell University Press.

ROSE, N., P. O'Malley and M. Valverde (2006) "Governmentality" *Annual Review of Law and Social Science* Vol. 2, pp. 83-104.

ROSE, N. (1999) *Powers of Freedom: Reframing Political Thought*. Cambridge: Cambridge University Press.

RUTHERFORD, T.D. (2000) 'Re-embedding, Japanese Investment and the Restructuring Buyer-Supplier Relations in the Canadian Automotive Components Industry During the 1990s'. *Regional Studies* Vol. 34, No. 8, pp. 739-751.

SCOTT, J. (2001) *Power*. Cambridge: Polity.

SEIDL, D. (2007) 'Standard Setting and Following in Corporate Governance: An Observation-Theoretical Study of the Effectiveness of Governance Codes', *Organization,* Vol. 14, No. 5, pp. 705-727.

SHIMIZU, K. (1998) 'A New Toyotaism?' in M. Freyssenet, Mair A, Shimizu K, Volpato G (editors) *One Best Way?: Trajectories and Industrial Models of the World's Automobile Producers*. Oxford: Oxford University Press.

SHIMIZU, K. and K. Shimokawa. (1998) 'The Unique Trajectory of Mitsubishi Motors' in M. Freyssenet, Mair A, Shimizu K, Volpato G (editors) *One Best Way?: Trajectories and Industrial Models of the World's Automobile Producers.* Oxford: Oxford University Press.

SMITH, V. (1997) 'New Forms of Work Organization', *Annual Review of Sociology,* Vol. 23, pp. 315339.

SPENCER, D. and Carlan, N. (2008) 'Complexities of the Automotive Industry: positive and negative feedbacks in production systems', *Canadian Journal of Sociology,* Vol. 33, No. 2, pp. 265-290.

URRY, J. (2003) *Global Complexity*. Cambridge: Polity.

WALBY, K. (2005) 'Open-Street Camera Surveillance and Governance in Canada' *Canadian Journal of Criminology and Criminal Justice* Vol. 47, No. 4, pp. 655-684.

WALBY, K. (2008) 'Hunting for Harm: Risk-Knowledge Networks, Local Governance, and the Ottawa Needle Hunter Program' *Canadian Journal of Law and Society* Vol. 23, No. 1-2, pp. 161-178.

WALGENBACH, P. (2001) 'The Production of Distrust by Means of Producing Trust', *Organization Studies,* Vol. 22, No. 4, pp. 693-714.

WEBER, M. (1914/1968) *Economy and Society.* G. Roth and C. Wittich (eds.) New York: Bedminster Press.

WESTWOOD, S. (2002) *Power and the Social*. New York: Routledge.

ZULLO, R. (2004) 'Insourcing as a Strategy for Reclaiming Union Work', *Labour*

Studies Journal, Vol. 29, No. 1, pp. 91108.