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Sector-Based Analysis of Employer-Supported Training:
A Case Study of the Canadian Rail Transportation Industry

Richard Chaykowski (Queen's University)

Working Paper 2006 B-07

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Abstract

The focal point of this case study analysis of the Canadian rail transportation industry is the importance for training of institutional arrangements, particularly the effect of organizational (establishment) factors. The analysis is conducted at the micro-level of the individual firm – permitting one to concentrate on the variety of institutional considerations that matter with regard to employer-based training. Another center of attention is the role of technology (esp. IT) and its effects in transforming operations, including changes in jobs and job requirements, altering the level and types of skills required at *all* levels of the organization, and as an "enabler" for training and development activities. Specific areas examined include the effects on training outcomes of: corporate strategy; the firms' human resource strategies; technology; and various environmental factors, including unionization, policy, and regulation. Also examined are factors affecting Canada-U.S. differences in training activities and outcomes. The main drivers of training outcomes at the companies were found to be productivity enhancements, which were achieved through operational changes or technological change and which required training and development; and government regulation, especially the role of health and safety regulation, which were found to have positive feedback effects on productivity. Overall, regulation was found to be a major determinant of the amount and intensity of training.

Résumé

Le point central de cette étude de cas sur l'analyse de l'industrie canadienne du transport ferroviaire est l'importance des arrangements institutionnels, en particulier l'effet des facteurs organisationnels (liés à l'établissement), pour la formation. L'auteur a fait une analyse des facteurs micro-économiques de chaque entreprise, ce qui lui a permis de se concentrer sur les diverses considérations institutionnelles qui importent en matière de formation parrainée par l'employeur. Un autre point important est le rôle des technologies (surtout les technologies de l'information) et leurs effets relativement à la transformation des activités, notamment le changement d'emplois et la modification des exigences des emplois, la modification du niveau et du type de compétences nécessaires à tous les échelons de l'organisation, ainsi qu'à titre de « facilitateur » des activités de formation et de perfectionnement. Parmi les questions étudiées, notons les effets sur les résultats de la formation des points suivants : la stratégie d'entreprise; les stratégies en matière de ressources humaines de l'entreprise; les technologies; divers facteurs environnementaux, par exemple la syndicalisation, les politiques et la réglementation. L'auteur a aussi examiné d'autres facteurs qui sont à l'origine des différences entre le Canada et les États-Unis au chapitre des activités et des résultats de la formation. Les facteurs qui influencent principalement les résultats de la formation à l'échelle de l'entreprise sont les améliorations de la productivité, qui sont obtenues par les changements opérationnels ou les progrès technologiques et qui exigent de la formation et du perfectionnement, ainsi que la réglementation gouvernementale, surtout le rôle de la réglementation en santé et sécurité, qui produit des retombées positives sur la productivité. Dans l'ensemble, l'auteur a constaté que la réglementation détermine, en grande partie, la quantité et l'intensité de la formation dispensée.

Executive Summary

The focal point of the analysis is the importance of institutional arrangements, particularly the effect of organizational (establishment) factors, on training. The analysis is conducted at the micro-level of the individual firm – permitting one to concentrate on the variety of institutional considerations that matter with regard to employer-based training. Another center of attention is the role of technology (esp. IT) and its effects in transforming operations, including changes jobs and job requirements, altering the level and types of skills required at *all* levels of the organization, and as an "enabler" for training and development activities.

The case study approach permits an analysis of how training and development processes and outcomes depend upon the strategic choices made by a firm, including both the human resources strategy as well as the business strategy. The result is a broader organizational perspective that encompasses all aspects of training and development.

Specific areas examined include the effects on training outcomes of: corporate strategy; the firms' human resource strategies; technology; and various environmental factors, including unionization, policy, and regulation. Also examined are factors affecting Canada-U.S. differences in training activities and outcomes.

The main drivers of training outcomes at the companies were found to be productivity enhancements, which were achieved through operational changes or technological change and which required training and development; and government regulation, especially the role of health and safety regulation, which were found to have positive feedback effects on productivity. Overall, regulation was found to be a major determinant of the amount and intensity of training.

There were six main policy and research relevant findings of the study. First, we need a clearer understanding of the nature of *informal* training. There are several key issues. Who receives it? What are the types, prevalence and intensity of it? What is the inter-relationship between formal and informal training activity in the process of human capital formation within firms? Although informal training activity is popularly recognized as an important aspect of firm-level training, we have little systematic evidence regarding the nature of informal training and who receives it. These types of activities are resource intensive, and viewed by the firm as critical training investments; but they are difficult to quantify (e.g., soft skills) and are typically not captured in government surveys.

Second, training permeates most organizations, but in a variety of forms of activity and learning. While many important training investments relate to *managerial* employees, broadly defined, these investments may be difficult to quantify. In addition, the line between the types of training and development of traditional hourly workers and management is becoming blurred.

Third, the *type* and *amount* of training provided by the firm is likely to be closely related to how production is organized and the nature of the technological change. IT is especially important. Training on IT is required in some production processes; but IT is

also a powerful training enabler. IT expands the scope of training, the delivery of training, and the segments of the workforce that can be reached in a more efficient manner. It also reduces the significance of functional boundaries within the organization and across jurisdictional (geographic) boundaries outside the firm.

Fourth, the results highlight the importance of the business strategy as a determinant of the human resource strategy. Differences in business strategy can result in differences in training and development outcomes. One aspect of this is how business strategy affects concrete outcomes such as the production function and technology; another effect, although difficult to capture, is corporate philosophy and culture.

Fifth, jurisdictional differences matter, particularly substantive differences in legal/legislative regimes in such areas as health and safety, or labour relations. Differences in rules can directly affect how work is done, training and skill requirements, training intensity, and work rules; these in turn affect productivity.

Finally, small differences matter. With respect to workers, policy initiatives aimed at increasing labour productivity will be more successful if the regulatory environment in Canada and the US, or across provinces, minimizes small regulatory differences (e.g., operating requirements; health and safety regulations; trades training and accreditation). To the extent that harmonization of rules, accreditation requirements, or the mobility of labour, can be enhanced, the results suggest that productivity may be enhanced. Although the differences affect productivity, an area for further research is to more precisely quantify these productivity losses.

1. Introduction

One basis of Canada's competitive strategy is support for human capital formation, including through both education and training. Human capital formation, especially training, supports productivity and economic growth, and provides the skills required as key sectors grow.[1] Achieving these outcomes requires having policies that support education and training. This will ensure that the supply of skilled workers is available as the economy grows and as the structure of the Canadian economy continues to shift in favour of the employment of knowledge-based workers.[2] Employer-based training is a major component of skills formation in Canada.

At the level of the broader labour market, across firms, training is typically viewed as one form of human capital investment. According to standard economic theory, the amount and nature of the investment depends upon the expected returns to that investment. In practice, there are important issues related to the proportion of the return that is captured by the employer versus the worker, and hence how the costs of the training investment may be shared, or how training activity may be affected by the incidence of turnover, or active poaching of trained workers by other employers in the labour market.

While these considerations arise out of human capital theory, training activity also depends on such institutional factors as the state of the educational system, workers' access to capital to support training investments, and whether or not government policies support training activity and investments. For individual firms, the extent of training investments depends on a variety of firm-level characteristics.

One of these firm-level characteristics, for example, is training requirements. They depend upon management's choice of specific production technologies. Different technologies are expected to require skill sets, and there is a long tradition of debate over whether many common technologies that are implemented on balance increase skill

[1] Barrett and O'Connell (2001).
[2] See, variously, Courchene (2001); Thurow (1992); Becker (1975); Black and Lynch (1996).

requirements, or result in the deskilling of labour.[3] Recent empirical evidence clearly suggests that the net effect of technological change has been to increase the demand for the more highly educated.[4]

Some institutional arrangements relevant to firms' training activity are found external to the firm, including government policy. Other important institutional factors that affect training outcomes are found inside the "black box" of the firm – although they may be impacted by the external labour market. Chaykowski and Slotsve (2003:15) highlight the importance of micro-level institutional considerations in understanding the training decision and training outcomes at the firm level:

> "Institutional considerations within firms can have a major impact on whether or not training occurs. For example, institutional arrangements may affect the availability of internal training resources, or employee participation in outside training may be limited as a result of the nature of the internal operations of the firm. Appreciation of the importance of organizational arrangements, changing workplace characteristics, and differences in organizational characteristics across firms is important in understanding differences in training among firms of differing characteristics, especially firm size. It is equally important in gaining an appreciation of what types of policy designs may work best in practice.
>
> Understanding evolving firm production systems is essential to understanding training requirements because technology can affect skill requirements directly. Firm level training activity (incidence and intensity) also occurs within an established institutional context and is defined by the characteristics of the employment relationship, the organization of production and work including human resource practices, and whether or not the workers are covered by a

[3] For a classic treatment of the deskilling debate, for example, see Braverman (1974).
[4] Basically, skilled labour and (high-tech) capital tend to be gross complements. As a result, declining prices of high-tech capital over time are expected to increase the demand for the more educated (and skilled). In addition, industries that have increasingly utilized high-tech capital (e.g., computers) have experienced a relative shift toward employment of the more highly educated. See Autor, Katz and Krueger (1998).

collective agreement. Each of these dimensions can affect training investment decisions within the firm and whether or not public policies aimed at encouraging training at the firm level will have the intended affect."

This paper focuses on the nature of training and human capital development activity within the firm. I especially focus in the analysis on the range of institutional considerations that affect both the types of training undertaken as well as the extent of training activity. These institutional aspects include the business strategy of the firm, as well as several facets of the policy, regulatory and labour relations environment in which the firm operates.

With regard to the business strategy, I focus on the inter-relationship between the evolution of the firms' overall business strategy and the progression of their training and human capital strategy. The study provides new insights into how specific changes in the orientation of the business strategy led to increased importance being attached to training and human capital within the firm. In addition, it provides a deeper understanding of the importance of role of the policy and regulatory settings within which firms operate in their training activity.

The study therefore underscores both the importance of business strategy to the human capital (training) outcomes observed as well as the complexities associated with the various institutional factors, both internal and external to the firm, that can shape human capital (training) outcomes. It also highlights the importance of government polices, that create external-to-the-firm institutional arrangements, in affecting training outcomes.

The approach taken is that of a case study. I examine the rail industry, which now operates essentially as a North American business. I further concentrate on the two main rail firms in Canada, the CN and the CPR. These are long haul freight carriers that operate extensively both North South and East-West in both Canada and the US. These firms are notable in that they both emerged from a long period of significant corporate

consolidation in the North American industry that resulted in a dramatic decline in the number of firms in business. Both are generally viewed as highly competitive companies, and both have significantly altered both their business and human resources strategies in order to achieve this.

A key aspect of the analysis is to examine the similarities and differences in employer-sponsored training in Canada and the U.S., and to investigate the main factors that account for variations in training between the two countries. The case study methodology and the focus on key firms within transportation – a major Canadian sector that has substantial Canada-U.S. linkages – lend itself to this comparative aspect of the analysis. Industry, technology, and firm size are essentially controlled for, thus permitting examination of the processes associated with firm training programs and activities, the effects of various organizational (establishment) characteristics on training activity and outcomes, and the policy factors that give rise to any differences in training outcomes between Canada and the U.S.

The plan of the paper is as follows. In the second section I outline briefly the methodology of the paper. In the third section, I provide the economic and business context in the rail industry. I accord special attention to the emerging business strategies in rail and its impact on human resources development. I then consider the specific business context for the two rail companies, CN and the CPR.

In the fourth section I discuss the institutional and policy context in rail. I first consider the regulatory environment in Canada and the US, including the broad labour relations setting and health and safety. Second, I consider, in more detail, the unionization context in Canada and the US. Third, I examine how training and development is impacted by collective bargaining agreements in the industry.

The fifth section provides a comprehensive analysis of training and development at CN. I focus on the nature and scope of broader human resource management at the company as well as more specific skills development and training at CN. I begin by examining, in some depth, the connection between the business strategy and human resources

management strategy at the company. I then consider training and development in two broad segments of the workforce: the first is management training and development; the second is training and development of the hourly workforce. I also accord special attention to the development of information technology (IT) at the company for two reasons. First, the use of IT is transforming the operations of the companies. IT is changing jobs and job requirements, as well as and the level and types of skills required at all levels of the organization. In addition to this direct effect, IT is also viewed as an "enabler" for other training and development activities. I then empirically describe the nature of training activity and intensity at CN. I conclude the case study of CN with an overall assessment and analysis of training and development at the company.

For comparative purposes, section six provides a brief analysis of the extent of training activity at the CPR. The paper is concluded in section seven with an assessment of the findings and conclusions. Finally, it is worthwhile emphasizing that the focus of the paper is on training and development activities; this is purposefully defined as a larger envelope of human capital formation than is conventionally associated with training per se. This orientation reflects a broader approach to understanding human capital formation at the firm level. This is appropriate, since many evolving types and forms of human capital investment activity at the firm transcend (yet complement) conventional definitions and measures of training activity.

2. Institutional Arrangements and Employer-Sponsored Training Activity

In this analysis I consider institutional characteristics that determine employer-based training that are found both internal and external to the firm. Of course, the firm is itself an institutional arrangement designed to efficiently manage transactions both internal and external to the firm.[5] Further, the labour market functions within the context of shared social rules established by government policy and law as well as by custom. Yet the main focus on training activity has, arguably, been rooted in human capital theory and not on so much on the institutions and arrangements that can affect training activity. Perhaps the main exception to this is analyses of the impacts of unions on training outcomes.

The perspective adopted in this study is that a more comprehensive analysis of employer-based training can be achieved by viewing human capital theory and analyses of institutional influences as complements to each other. The focus in this study is on institutional factors that affect employer-sponsored training.

There are a variety of institutional factors both internal and external to the firm that are expected to shape training and development decisions at firms. Internal to firms, these institutional factors include the nature of the production process, the availability of resources to support training activity (in the form of a human resources department in the firm, or the availability of skilled workers in the workforce that are able to conduct on-the-job training), and the firm's human resource strategy.

The main institutional characteristic internal to the firm that is a focus of analysis in this study is management's human resources strategy. Specifically, training and development choices and investments depend upon management's decisions regarding the adoption of certain types of work practices or work organization that require particular skills. It also depends upon the expected return on human capital investments, in the context of the particular firm and its workforce.

[5] See Coase (1937).

These decisions, when made in a planned and coordinated manner, with the objective of achieving well-specified outcomes over a defined period of time, constitute a strategy. The human resource strategy of a firm is embedded within the context of the firm's overall business strategy. It is typically viewed as either an integral component of the overall strategy or as a policy, or set of policies, that function more in a supportive role. In either case, the human resources strategy of the firm can be shaped by the characteristics of the firm itself (e.g., firm size; characteristics of the production system; type of product or service; or the degree of competition).

Another important set of institutional factors affecting firms' training investment decisions are those external to the firm. Perhaps the foremost aspect of the external institutional context is the broader policy framework within which the firm operates. The broader policy framework may usefully be viewed as consisting of three (related) areas.

The first area is the general trade environment. For example, in the case of Canada and the US, the NAFTA has had a significant impact on firm's business strategies and, consequently, on institutional arrangements and structures within the firm, such as management structures and the configuration of operations. These changes in firms' organizational structures are typically associated with the expansion of markets and increased competitive pressure. These pressures, which have occurred, in the first instance, because of the changes in the institutional trade context, can have an impact on the nature of the workforce and the training required.

A second area of external policy that is relevant to firms' training and development is the regulatory environment. Aspects of the broader regulatory environment most relevant to human capital formation include such policy areas as safety and health, or regulations governing business operations (e.g., operating requirements; environmental standards). These types of regulations impact training because they may require that workers be skilled in certain activities or that they have the ability to carry out certain tasks in a specified manner.

A third area where institutional considerations can matter in human capital formation relates to the broader labour market. The composition of the labour force and functioning of the labour market are expected to have a direct impact on firms' human capital investment decisions.

A prime example is the labour relations context. The presence of a collective agreement can affect the level of training investments the firm decides to undertake, under what circumstances training takes place, and how training is conducted. Another example is the characteristics of the labour force, especially the general education level. The education level of the firms' workforce is expected to be a major determinant of the level and type of training the firm can provide. The level of skills and education available is a function of the capacity to generate human capital in the labour force; this, in turn, depends upon the capacity of trades, college and university educational institutions to produce the types and levels of skills demanded by employers.

A further institutional aspect of labour markets relates to labour mobility. In practice, the mobility of certain professionals (e.g., engineers) or managers has become widespread. But the mobility of hourly-rated workers, whether or not they are highly skilled, appears to be less so. This dimension of labour mobility is of concern in this study from the perspective of firms that operate internationally and whose employees are (potentially) mobile across international borders.

Training activity is also designed to meet the changing needs of the firm and its business strategy. As a part of a firm's human resources strategy, employer-based training may be shaped by institutional factors both internal and external to the firm. On the other hand, institutional arrangements – either within the firm or those external to the firm – can be redesigned with a view to enhancing human capital formation. A major purpose of this study is to better understand the dynamics of how changes in business strategy affect training outcomes and how changes in government policies can lead to improved firm-level training outcomes.

3. Methodology and Scope of the Case Study Analysis

The centers of attention of the case study are the leading Canadian firms in the railway transportation sector. The transportation sector has several distinctive characteristics that provide advantages relative to other possible choices for a case study analysis.

First, two large multinational firms, CP and CN, are dominant in the Canadian industry. These firms are leaders in both the Canadian and U.S. industries. Both of these firms have extensive operations in Canada and the U.S. with wide-ranging North American networks of operations. These firms own U.S. based rail companies; so corporate ownership can be examined or controlled for as a factor. In particular, we expect corporate structure to be a function of the overall business strategy and to affect firms' competitiveness strategy, including strategies to increase labour productivity.

Second, the technology in the rail industry has advanced considerably, altering work and, in effect, changing the way in which rail services are provided and the services produced. This has had a tremendous impact on the workforce, in terms of employment levels, occupations, and skill levels. Since the technology has diffused across companies, this provides an opportunity to examine the role of factors that affect training, both within the Canadian industry and between Canadian and U.S. operations, controlling for technology. Alternatively, controlling for technology, one can examine both corporate management and human resource influences on training,

Another factor that typically affects training decisions and activity are unions.[6] The transportation sector has a significant unionized segment of the labour force. Hourly employees at both CP and CN, for example, are unionized; both firms have been organized since the early years of the labour movement. Yet the unions involved have changed, and currently there are a range of unions representing railway workers in both Canada and the U.S. Union effects on training, if present, can be examined in greater detail in the context of a case study.

Fourth, at the level of the firm, there may be systematic differences in institutional arrangements (in additional to unions) that give rise to different training outcomes between Canada and the US. Differences in training outcomes may also be related to variations in policy regimes between the two countries that affect firms' training decisions and investments. The case study also lends itself to an analysis of this aspect of training and development activity.

Fifth, management and other white-collar training and development activities are often less quantifiable that other types of more conventional training activities. Yet, as more firms employ high skill, knowledge workers, including the rail industry, the emphasis on training and development may have shifted in favour of these workers. The role of information technology workers provides a good example. The number of IT workers at both the CN and CPR has increased significantly; at CN alone they number over 600. The IT function affects skill requirements directly as well as supporting training and development in other areas. The case study approach is well suited to examining the complexities of nonstandard, white collar and management training and development activities.

Sixth, the transportation sector is highly competitive, locally as well as internationally. The rail industry faces competition both within the industry as well as from other transportation modes, such as trucking. Firms' choice of business strategy is expected to affect the competitiveness of firms and the industry; alternatively, a competitive business environment is expected to induce firms to seek competitive advantages through its choice of human resource strategy. This strategy will determine employer-based training outcomes. Examination of the rail industry, and the case study approach, will therefore permit an analysis of the inter-connection between business strategy, human resources management strategy and training activity and outcomes.

[6] On unions and training refer, for example, to Gervais (2002), Green et al (1999), and Chaykowski and Lewis (1994).

Taken together, these considerations permit the case study to analyze employer-based training and development along the following key dimensions:

(i) the effect of corporate strategy, in the context of the business environment, on human resource strategies; and the effect of the firms' human resource strategies on training and development activities;
(ii) the impact of technology on skill requirements and on training and development activity;
(iii) the effect of institutional factors, including unionization and the policy environment, on training and development activity;
(iv) Canada-U.S. differences in training activities and outcomes;

The case study approach utilized inductive research methods to analyze employer-sponsored training and the factors affecting it. The data gathering involved the collection of quantitative and qualitative data by conducting field research at the firms as well as from public sources, from government-based data sources.

The field research involves two distinct methods. The first method used to collect descriptive and quantitative information and data was to visit field sites. At the sites, information is gathered about the companies and their operations, and the training and development activities that they undertake.

The second method is the use of interviews in the field.[7] The case study method utilized the following specific forms of interviews:

- Semi-structured interviews with senior managers/executives to explore business and human resources strategies, respectively;
- Semi-structured interviews with specialists (e.g., in IT) to assess strategies for technology choices and the impacts on skill and training requirements;

[7] In conformity with university guidelines regarding ethics in research involving human subjects, the research project was submitted to the Queen's University Ethics Review process for formal review and was subsequently approved.

- Semi-structured interviews with key individuals in the human resources management function responsible for training as well as other human resource practices and planning;

The interview protocols are presented in Appendix 1.[8] Several types of field interviews were developed, corresponding to the different research questions and dimensions of the study. Different persons were interviewed in each area. For example, the interview of more senior management addressed more strategic aspects of human resources development and training at the organization. The various interview protocols corresponded to the various management functions (e.g., human resource and training specialists, industrial relations, or information technology persons0.

Since the effects of institutional factors are a major focus of the analysis, quantitative information was gathered regarded the prevalence of contract clauses and training. In order to examine how clauses actually affect training approaches and outcomes, qualitative information was required from collective agreements. Collective agreements were collected and language analyzed with a view to determining how training activities were impacted by requirements set out in contract clauses. In addition, information regarding policy regimes across jurisdictions was collected and analyzed, including Canada versus the U.S.

This study of training and development is different from others on several key dimensions which, taken together, provide an analysis of how training and development functions from a systemic perspective within the firm. First, the focus of the analysis is at the micro-level of the individual firm. This permits an analysis of how training and development outcomes depend upon the strategic choices made by a firm including both the human resources strategy as well as the business strategy. It also permits an analysis of training *processes* in addition to outcomes.

[8] The interviews were semi-structured and typically covered only some of the questions in a given interview protocol. In some cases, selected questions from more than one interview

Second, I concentrate on exploring the variety of institutional considerations that matter with regard to employer-based training. Detailed quantitative and qualitative information are required in order to fully assess the possible importance of these factors as well as how they may vary between Canada and the US.

Third, I take a broader organizational perspective that encompasses all aspects of training and development. This approach has two implications. First, this approach also captures the notion that training activities are often undertaken as part of a broader human resources strategy. This is important because various types of training and development are often related or inter-dependent upon each other. Second, it provides a more comprehensive assessment of the complete range of human capital investments that a firm may undertake.

protocol would be included in the interview. The protocols were therefore essentially used to guide the interview.

4. The Economic and Business Context In the Rail Industry

4.1 The Economic Context

The Canadian and American rail industries experienced deregulation, increasing competitive pressures from the trucking industry, and broad corporate consolidation over the past several decades. The enactment of the *National Transportation Ac*t (1987) in Canada and the *Staggers Act* (1980) in the US began a long process in which competitive pressures in the industry facilitated the ability of the major railways to abandon unprofitable rail lines. In Canada, during the 1990s, there was a significant rationalization of rail lines through discontinuances (at just under 50% of all route-kilometers of rail line discarded by the major railways) and transfers to short lines (at about 50% of lines shed). (Refer to Table 1.) Of the two major class I railways, CN accounted for about 56% if the rail line rationalization whereas CPR accounted for about 36%.

Not surprisingly, total employment in the Canadian rail industry has declined from about 75,000 in 1988 to just below 40,000 in 2001 (see Figure 1). Employment at CN declined dramatically over this period from about 46,000 to 17,000, while employment at CP declined from just under 26,000 to roughly 13,500. Average compensation, over this period, increased by about 80% in Canada and increased by 50% in the US.

Overall productivity in the Canadian rail industry has increased over the past 15 years from 3,405 to 9,874 (revenue freight-tonne kilometers per employee) in 2003 (see Table 2).[9] Similarly, productivity increased at both CN and CP over the 1986 to 2001 period, from 2.78 to 9.68 and 3.57 to 9.20, respectively.[10] Revenue growth was consistent throughout the 1990s at both CPR and CN. But one of the most significant developments has been the increased revenue associated with the growing number of shortline freight railways in the industry (see Table 3). These shortlines now account for roughly 5% of total railway revenues, compared to only 1.5% a decade earlier. Further growth in short

[9] In addition, road kilometers/employee have increased by about 50% over the same period.
[10] Source: Transport Canada at www.tc.gc.ca/pol/en/T-facts3/main.asp.

lines will likely depend largely upon whether or not major railways seek to discontinue specific routes.

Developments in the US rail industry have been similar to those in the Canadian industry. Freight revenues increased dramatically over the 1960 -1980 period then increased more slowly, reflecting changes in economic growth and the intensity of competition from alternative transport modes. Employment in American rail has declined dramatically, from 780,000 in 1960, to 459,000 in 1980, to 168,000 in 2000 (see Table 4). In contrast, starting from a similar employment level of 856,000, employment in trucking and warehousing has increased to over 1.8 million in 2000 (see Table 5). One of the most significant changes in the US rail industry – as in Canada – has been the continued increase in labour productivity.[11] In 2000, labour productivity in rail greatly exceeded productivity in trucking; this is a significant reversal from the situation prior to the 1990s, when the opposite was the case.

There is a strong North-South dimension to rail transportation that reflects and supports existing trade patterns. Overall, rails' modal share of total Canada-US trade has consistently held at just under 20% over the past decade. Road transport dominates with a share of 65-70%. The share accounted for by marine has remained under 5% while the share held by air increased slowly throughout the 1990s but has declined after 9/11 and with generally adverse business conditions in the industry. (Refer to Figure 2.)

Thus the main source of competition to rail is from the trucking industry. Long haul trucking dominates the transportation of goods throughout North America. Short haul trucking partnerships are, however, is a key component of railway's competitive strategy because goods must often be transported from a rail line to a customer by truck, even if over a short distance. A similar interdependence links rail and shipping transportation modes. This interdependence is reflected in the development of *intermodal* transportation systems.

The largest proportion of trade between Canada and the US, at 31.8% of total trade, occurs between Ontario and the US central region, followed by Ontario and the US South (at 12.4%); Ontario and the Northeast US (at 9.4%) and Ontario and the US West (at 6.4% of total trade). The proportion of the total value of this trade that is moved by rail varies considerably at 22% (Ontario-Central), 14% (Ontario-South), 0% (Ontario-Northeast), and 37% (Ontario-West). The shares of trade by region and proportion rail mode used are presented in Table 6. Much of rails' share by region depends upon the configuration of the rail networks of the two major Canadian railways and the extent of competition from trucking and, to a lesser extent, air and marine transport modes.

Largely as a consequence of the consolidation of the US rail network and ongoing mergers and acquisitions, the number of companies has declined dramatically over this period from over 100 railroads in 1960, to 38 by 1980 and to only 8 by 2000 (Table 4). Currently, the main US railways include:[12]

- Union Pacific Railroad (2003 revenue of USD $11.5 billion)
- The Burlington Northern and Sante Fe Railway (2003 revenue of USD $9.4 billion)
- CSX Transportation (2003 revenue of USD $ 6.6 billion)
- Norfolk Southern (2003 revenue of USD $6.5 billion)
- Kansas City Southern Railway (2003 revenue of USD $0.58 billion)

The major Canadian railroads include CN with 2003 revenue of USD $4.2 billion and the CPR with revenue of USD $2.6 billion. By comparison, the two major Mexican railways, the Ferrocaril Mexicano (with 2003 revenue of USD $0.59 billion) and the TFM (with 2003 revenue of USD $0.7) are much smaller.[13]

[11] This holds for labour productivity measured as either output per hour worked or output per employee.
[12] *Source*: Association of American Railroads. 2004. North American Freight Railroad Statistics (October 28, 2004).
[13] *Source*: Association of American Railroads. 2004. North American Freight Railroad Statistics (October 28, 2004).

4.2 The Transformation of Traditional Business Strategies

The rail industry originally grew as a complement to the growth of the resources sector and heavy industry in the industrial age. It was characterized by many of the characteristics of mass production industries, including the utilization of high levels of physical assets that required substantial levels of financial investment. At least until the rise of long haul trucking in the early to mid 1900s, rail experienced little in the way of competitive pressures on long haul freight.

As in other heavy industries, rail was labour intensive. Although there were high levels of employment at individual firms, large segments of the workforce were unskilled, although some segments were relatively highly skilled (e.g., engineers). In addition, work was highly segmented into occupations across skill levels (e.g., general labourers; yardmaster; brakemen, yardmen, signalmen, firemen, engineers, etc.). Unionization of the industry occurred early on, in the 1800s, and reinforced the emphasis on work rules and occupational rigidities.

The traditional operating model in the rail industry is characterized by Harrison (2005) as being organized according to predetermined schedules, in which customer needs were not necessarily taken into account, and in which railroads did not face competition from competing railroads because each had its own territory. In the first half of the twentieth century, competition from the trucking industry was not yet a major factor. Railroads became asset intensive operations and were characterized as having little customer orientation. Profitability was achieved through sometimes uncompetitive pricing, the improvement of train performance, and by reducing costs. Throughout this period, Canadian railways were regulated and the CN in Canada was operated as a crown corporation. As a consequence, there were few incentives or pressures to increase the efficiency of operations or improve customer focus. As service providers, railways were, therefore, not especially responsive to the requirements of their customers.

The rise of competition from the trucking industry placed enormous competitive pressures on the rail industry. With the rise of long haul trucking, the relative importance of rail as a transportation mode declined in both Canada and the United States. Deregulation really took hold in Canada with the 1987 *National Transportation Act*, which built upon the 1967 *Canadian Transport Act*; and in the US, deregulation occurred in 1980 under the *Staggers Rail Act*.[14] Another aspect of competition arose in relation to carriers' ability to provide effective customer service. This was an era when "just-in-time" approaches to inventories began to become prevalent among customers, so that the ability to ship inputs and products in a timely manner that matched customers' schedules increased in importance. Trucking was able to achieve this high level of customer-orientation and satisfaction whereas the traditional rail operating system was not.

Largely in response to these competitive pressures, railways began to design operating schedules and provide the capacity required by customers. This system was referred to as scheduled railroading. Under scheduled railroading, "… every train operated on a precise schedule whether it was filled out with cars or not. This meant equipment was at the right place at the right time, and so were crews." (Saunders 2003:338) This was a customer service based strategy aimed organizing railroad operations in a way that met the demands of customers to a high level of satisfaction and represented a significant departure from the traditional business operating model in the industry.

However, according to Harrison (2005), two key problems that were inherent in this system were that the focus tended to be on optimizing local or regional operations, instead of the entire rail network of the company, and on the performance of the *train*, instead of the *car*:

> "With the precision railroad, daily operation is run to much higher standards than those of the "scheduled railroad. Common to them both is the need to manage train performance, which includes both scheduling and trainload. Trains must run on time in order to meet customers' needs,

[14] See Coates and Downie (1999: 246-247, Table 2).

> and trains must also maximize their productivity on each run by filling all available slots for traffic. However, the precision railroad differs from the scheduled railroad in that it focuses on the carload - the customer's shipment - rather than on the train. Customers don't care if a train is late, but they do care if their shipments are late. Focusing on the shipment, managers examine each and every process that affects its delivery, constantly fine-tuning those processes." Harrison (2005:56-57)

In essence, the new strategy of the firm is to become a *customer-oriented* service provider in the transportation industry, so that the operations of the firm are driven by the requirements of the customer. This emerging customer-oriented business strategy is well illustrated by developments at CN. At CN, this business strategy is supported by four key elements, including maximizing cost control (process improvement), asset utilization (e.g., fully deploying engines and cars), safety (e.g., reducing derailments and minimizing fatalities and injuries), and the development of human capital through the human resources function.

The role of the human resources department is to provide a service to other operating areas of the company and to maximize the return on human capital investments, broadly defined.[15] This appears to be the emergent strategy for human resources in the rail industry.

There are several significant implications of the use of precision-railroading for human capital development. First, precision-railroading requires the highly efficient utilization of physical and human assets. This, in turn, requires that the firm achieve continuous

[15] Harrison (2005: 45) explains the role of the human resources department at CN (People department):

> "The People department provides a *service* to CN's other divisions, working with managers to recruit qualified people to do the jobs, setting the right compensation levels to attract and retain them, developing and delivering training, counseling managers on people issues, negotiating collective agreements, and managing benefits and pensions. By finely tuning these *processes,* the People department controls costs and maximizes the use of expensive assets."

process improvements. In practice, achieving continuous improvements relies upon the utilization of new technologies and improved work organization.

A key aspect of technological advancement is the increased reliance on information technologies. Precision-railroading relies on the efficient management of information with respect to the functional operation of rail operations as well as vis-à-vis rail customers. Employees generally utilize more information technology in operating the railroad and in interacting with customers and are more highly skilled in its use. Both physical assets (e.g., engines and trains) and human assets (employees) are therefore more efficiently managed through the use of information technology. Thus technology is a driver of new skills and training requirements.

Precision-railroading has also given rise to new forms of work organization. Some aspects of work organization also require managing and exchanging information, which is facilitated by the use of new (information) technologies. New forms of work organization therefore also require new skills and training.

As a result of these types of changes, precision-railroading has resulted in a higher knowledge content in much of the work that is performed. This, in turn, requires a higher level of human capital investment. Employer-based training therefore becomes a significant priority for the company.

From a business strategy viewpoint, the move from an (physical) asset driven to customer needs driven company that also emphasizes human capital assets implies a different model for rail organizations. Under the "traditional industrial" model, the key determinant of productivity was physical capital and the ability of the firm to maximize load capacity. There were fewer pressures for performance improvement; employees generally required primarily technical skills; and human assets were of secondary importance.

In the new model, the skills of employees and how well employees perform their job become integral to the overall success of the company. The customer-focus requires that

employees be trained in both technical as well as “soft” skills. Therefore, it is the quality of the physical and well as human assets, together with how well they are utilized, that determine productivity under the new business strategy.

4.3 The Economic Context at CN and the CPR

Both Canadian National (CN) and the Canadian Pacific Railway (CPR) have dominated the Canadian rail industry for over a century; in the twentieth-first century, they represent North American companies. CN originated as a patchwork of smaller operating lines and eventually evolved into a major Crown corporation. The two defining events for CN of the past several decades are the privatization of the company and the subsequent acquisition of the Illinois Central (IC). While CN had always had an East-West route through the northern US states, the acquisition of the IC made CN a fully North-South railroad. The operations of the original CN and IC have been integrated.

In contrast, the CPR originated as a private corporation and has remained so. The CPR has also experienced several important corporate changes. The first involves its acquisition, in different periods, of the US based Soo Line railway and the Delaware and Hudson railway. These operations have been progressively integrated into the overall operations of the firm. The second major corporate development was the spinning off of the CPR from the larger corporate entity, CP Limited (which had major interests in shipping, rail (CPR), hotels, and mining).

The performance of both the CPR and CN has improved across a number of operating, efficiency and employment related outcomes. The corporate profiles of the CPR and CN are provided in Table 7 (Panel A and B). Over the past decade, both CPR and CN experienced an increase in gross ton-miles of freight and in freight revenues. However, whereas the increases were modest for the CPR, the increase in gross ton-miles at CN was roughly 50% and 20% for freight revenues. In the case of CN, however, the acquisition of the IC would have had a significant impact on this growth.

Reflecting the increase in productivity throughout the industry, productivity has increased significantly at both CN and the CPR; this increase in productivity occurred essentially regardless of the measure used. Both firms have had the objective of increasing productivity, and have taken a variety of approaches to achieving this, including investments in new technologies, the abandonment of marginal rail lines, employment

reductions, and increases in operating efficiencies. Employment, for example, has declined quite significantly. At CPR, total employment declined by about 30% since 1995. At CN, since the late 1990s overall employment has remained in the range of 21,000-22,000, but these are net levels that include the acquisition of the IC. One of the most important changes in performance at both companies is with regard to safety. Both the employee injury rate as well as the train accident rate has steadily declined.

The success of CN in improving its performance since the acquisition of the IC is reflected in the positive changes in the basic operating and revenue measures over the 1999 to 2004 period (Harrison 2005:107): in operations, car miles/day have increased from 133 to 168; trip plan compliance increased from 81-85%, and on-time performance increase from 77-81%; in terms of productivity, locomotive productivity (gross ton miles/HP) increased from 232 to 281; and labour productivity (million ton miles/employee) increased from 11.7 to 15; and the ratio of operating costs to revenues decreased from 75.1 to 66.9.

5. The Institutional and Policy Context in Rail

The institutional and policy context in which firms operate encompasses a range of considerations, including government policies and labour market institutions. The main government policies of interest are those that have the potential to directly affect training and development outcomes. These policies generally include those that regulate the workplace, either indirectly or directly; here I focus on labour relations legislation and health and safety regulations. The main labour market institutions in the rail industry are unions. I expect both sets of institutional arrangements to affect training and development outcomes.

5.1 The Regulatory Environment In Canada and the US

Labour Relations Policy

In Canada, responsibility for matters relating to labour and employment fall under each provincial jurisdiction as well as the federal jurisdiction; the federal jurisdiction covers roughly 10% of the labour force in such industries as telecommunications, banking, marine transport, trucking, and rail transport, among others. In the rail industry, short line railways fall under the provincial jurisdiction in which they are located whereas long haul freight railways (and VIA I) fall under federal jurisdiction. In Canada, since long haul freight rail falls under federal jurisdiction, labour relations matters are regulated under the *Canada Labour Code* (Chaykowski 1999). In the US, labour relations in rail are also regulated under federal labour relations legislation.

The main difference in labour relations regimes in Canada and the US occurs in relation to the extent to which the legislative framework supports the ability of unions to organize workers and to successfully negotiate contracts. Private sector unionization levels have declined dramatically over the past several decades. In contrast, Canadian private sector

unionization levels remain high, although they have begun to decline in recent years. In general, the Canadian legislation has been viewed as more supportive of unionization.[16]

However, in either country, the rail industry was amongst the first to become heavily organized, and they remain so today. In particular, hourly workers at long haul freight railways are essentially fully organized. In addition, for much of the past century, the same (American, or international) unions organized rail workers in both countries. The contracts "matured" early on, and long periods of patterning created many similarities, although the differences in contacts across bargaining units could be substantial because the bargaining units have traditionally formed along occupational or craft lines. In Canada, this segmentation has eroded in recent years. Nonetheless, I expect the differences in clauses related to training to matter, but that it is the differences across contracts, and not between countries, that matter. Below I examine collective agreement outcomes affecting training.

Health and Safety Regulation

Since my focus is on the long haul freight carriers, the discussion of health and safety also falls under the federal jurisdiction. Health and safety regulations governing rail in Canada originate from two main pieces of legislation. The first in the *Railway Safety Act*, which provides for health and safety regulations; in Canada, the approach is to achieve compliance and improve health and safety outcomes through a the implementation of a Railway Safety Management System.[17] Transport Canada is responsible for implementing the regulations under the RSA, ensure compliance, and monitor the effectiveness of safety management systems. The Railway Safety Handbook, for example, specifies 11 safety rules, 23 safety regulations, 25 safety orders, 2 safety standards, 2 Ministerial orders, and 1 MOU. Other legislation relevant to railway operations and health and safety includes the *Transportation of Dangerous Goods Act* (Transport Canada).

[16] See Kumar (1993) and Riddell (1993).
[17] *Source*: Transport Canada. 2001. Railway Safety Management System Guide. TP 13548. (February).

The *Canada Labour Code* (Part II) also regulates railway health and safety. Health and safety requirements are specified in the *Canada Occupational Safety and Health Regulations*, and include requirements such as establishing joint health and safety committees in workplaces and providing training for committee members, and providing health and safety training required to ensure safe work practices.[18] The government ultimately ensures compliance with the legislation through such means as health and safety officers.

In the US, most of the health and safety requirements for railroads emanate from federal legislation that is enforced by agencies of either the Department of Transportation or the Department of Labor. First, the Federal Railroad Administration is an agency that operates under the auspices of the US Department of Transportation. The FRA operates an Office of Safety, and its role is essentially to "…enforce railroad industry compliance with safety regulations and statutes…".[19] The FRA establishes, monitors, and enforces safety regulations, investigates accidents, and works with industry stakeholders to promote safety.

A second major source of health and safety requirements follows from the Occupational Safety and Health Act of 1970 (OSH Act), which created the Occupational Safety and Health Administration (OSHA) to create a safer work environment in terms of accidents, deaths and illnesses that are work-related.[20] OSHA, as an agency of the US Department of Labor, develops and enforces health and safety standards, monitors compliance with regulations (e.g., through inspections), engages in health and safety education and training programs, and ensures that proper reporting is carried out. The *OSH Act* essentially covers most employees in the US private sector in all jurisdictions.

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[18] Specifically, the *Canada Labour Code* stipulates that (Para. 125 (1)q: "… the employer shall provide, in the prescribed manner, each employee with the information, instruction, training and supervision necessary to ensure their health and safety at work."

[19] Source: US Department of Transportation. (2004). Safety Assurance and Compliance Program (SACP). Year-2003 Accomplishments. Office of Safety. (June) p.3. For example, the FRA enforces the US *Code of Federal Regulations* in rail.

[20] *Source*: US Department of Labor. 2003. All About OSHA. Occupational Safety and Health Administration. OSHA 2056-07R.

For railways operating in either Canada or the US, these safety regulations have far-reaching implications for training because they influence both ongoing operating requirements as well as the skill content of jobs. Training is required in order to develop the required skill sets of employees and to maintain the currency of the knowledge required to function in a safe manner on the job. Since safety manifests itself differently on different jobs and in different functions within railway operations, the training required, from a functional viewpoint, is substantial. It requires a wide variety of training modules, sometimes multiple training events, and extensive coverage throughout the workforce. For CN and CP, which operate in both countries, the extent of safety compliance would be greater than for firms operating within only one country; although many of the safety requirements would be similar, some would not.

5.2 Unions, Labour Relations and Training Outcomes in the Rail Industry

The expansion of the Canadian and American railways was intimately interconnected with the development of the industrial age. Just as the early development of craft and industrial unionism was associated with the rise of the mining, steel, rubber tire, and auto manufacturing industries so, too, was it associated with the growth in the rail industry. Thus the rail industries of the United States and Canada were among the earliest to become unionized. Industrial conflict was not uncommon in either country, and some of the earliest significant industrial action by workers was recorded in the rail industry.[21]

Naturally, then, some of the earliest labour legislation in Canada was aimed at promoting industrial peace in rail, including the *Railway Labour Disputes Act* (1903) in Canada. Currently rail labour relations fall under the federal *Canada Labour Code*. Rail disputes in Canada, because of their large scope and capacity to affect large segments of the economy, have typically been limited by federal back-to-work legislation and the use of interest arbitration to determine the contract outcomes (Coates and Downie 1999).

The conduct of labour relations and the nature of collective bargaining remain very traditional in rail (Chaykowski 1999). Union-management relations are arms-length and collective bargaining is essentially adversarial. Over the past decade, the degree of conflict in the rail industry has been relatively modest compared to other transportation industries. Between 1997 and 2003, for example, there have been only 8 stoppages in the entire industry (including all railroads) and the strike volume (person-days lost) in these stoppages has been low relative to the strike volume in other modes of transport (see Table 8).

Collective bargaining traditionally remained focused on annual wage increases and improved benefits, job security, and strengthening of rules to regulate work (e.g., crew sizes; seniority rules) and governance of the workplace with the aim of improving

industrial justice (Chaykowski and Verma 1992; Cappelli et al 1997; Verma and Chaykowski 1999; Coates and Downie 1999). Over the past several decades, the companies have obtained increased flexibility in terms of employment (e.g., reduced crew sizes) and work organization (e.g., combining jobs; limiting work rules).[22]

It is important to emphasize that, in the past, collective bargaining outcomes were often patterned after each other across the industry. This was facilitated, in earlier decades, by joint or multiemployer bargaining, and associations of unions for purposes of bargaining Coates and Downie (1999: 257. In recent decades, this patterning clearly broke down, along with joint bargaining structures that facilitated it. But relative to other industries, collective agreements in rail generally maintain a fairly high degree of similarity. Since the industry was, historically, organized by unions with strong (formal) Canada-US linkages, I expect the degree of similarity between Canada and the US to be high as well.

The traditional unions in the rail industry were international unions, being American based and affiliated with the AFL-CIO. These included such unions as the United Transportation Union, the Brotherhood of Locomotive Engineers, and the Brotherhood of Maintenance of Way Employees. The unions organized three general groups of workers, including the running trades (e.g., engineers; yardmen), non-operating workers (e.g., signalers or dispatchers) and shopcraft workers (e.g., machinists; metal workers in repair and maintenance shops) (Coates and Downie 1999: 254-255).

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[21] In the US, there were massive strike actions in the railways in 1877, and the infamous Pullman Strike occurred in 1894 (Perlman (1922: 58,59,137).

[22] Not all changes were successfully negotiated. In some cases the changes sought by management were only obtained through an arbitrated settlement, where the government imposed the arbitration after a work stoppage. A good example of this was the 1993-1995 negotiations at CPR, which culminated in settlements achieved only through mediation-arbitration (Coates and Downie 1999:280-281):

> The arbitration award recognized a need for greater flexibility in workplace practices and relaxed some of the restrictions on the amount and type of work performed by conductor-only crews at locations between terminals (Mediation-Arbitration Commission 1995b). The decision also gave the company the ability to assign pre-1979 employees to required positions at the employee's home terminal.

More recently, since the 1980s, there has been considerable change in the unions representing workers at the major rail companies in Canada, as new unions have entered the industry to represent workers, established unions have merged, and bargaining units have been consolidated (Coates and Downie 1999: 254-256). As a result of this consolidation, the number of unions in the industry has declined; and the size of bargaining units has also decreased, largely as a result of overall declines in employment at the large railroads.

These changes are well illustrated by developments at CPR. In 1984, the running trades (6071 employees) were represented by the Canadian Council of Railway Operating Unions (formerly the Brotherhood of Locomotive Engineers and United Transportation Union) whereas in 2004 this segment of the workforce (now numbering 4280) was represented by the Teamsters Canada Rail Conference; the shopcraft workers continued to be represented by the Canadian Auto Workers, but the size of the unit had dropped from 7009 to 2341; and in 1984 various segments of the non-operating workers were represented by the Brotherhood of Maintenance of Way Employees, Transportation and Communications International Union, International Brotherhood of Electrical Workers (IBEW) and the Rail Canada Traffic Controllers Union, respectively, whereas by 2004 the IBEW remained but the other unions were no longer representing workers – instead, the Teamsters Canada Rail Conference and United Steelworkers of America had emerged to represent non-operating employees (see Table 9).[23]

[23] For the unions representing employees at the CPR in 1984, by workforce segment, see Coates and Downie (1999: 255, Table 4).

5.3 Training Outcomes in Collective Agreements

Training and education provisions are fairly common in transportation and rail collective bargaining agreements. Focusing on collective agreements in the Canadian federal jurisdiction (the jurisdiction that covers employees of Class I railways), we find that (refer to Table 10 and Table 11):

- approximately 60% in rail (compared to 52% in transportation) paid education leave;
- 20% in rail (and 13% in transportation) have general education leave;
- 20% in rail (16.5% in transportation) have paid education leave related to technological change;
- 7% in rail (55 in transportation) have a provision covering multi-skilling and flexibility for employees; and
- 33% in rail (37% in transportation) have a clause providing for apprenticeship programs.

There are two main ways in which training-related clauses enter the collective agreement. First, training may be related to, or associated with, employees' working conditions, job security or promotion opportunities.[24] In these cases, the purpose is to ensure that training occurs where it is a *necessary* condition to ensure job security or a promotion. For example, employees undertaking job changes or promotions may require training in order to perform the new job. Rules regarding the promotion criteria (e.g., ability; seniority) as well as access to training therefore become important. In many collective agreements, seniority is a significant criterion. In strong clauses, where training may be required in order for the most senior person to perform the new job, seniority may be a factor in training activity as well.[25] Job security is another area where training is affected. A

[24] In cases where seniority rules govern job changes or promotions, training may nonetheless be required in order for the most senior person to perform the new job. Rules regarding access to training therefore become important.

[25] An example of a conventional contract clause relating seniority and training is:

comprehensive Job Security Agreement between the CPR and Brotherhood of Maintenance of Way Employees illustrates this link. This agreement, which is similar to others in the industry, stipulates that employees subject to job loss will be eligible for extensive training benefits:

- Employees eligible for protection under the job security clauses of the collective agreement receive:
  - access to retraining for another job at the firm;
  - full pay during the retraining period;

- Employees eligible for protection under the job security clauses of the collective agreement receive:
  - training for an alternative job
  - 80% of their normal pay during the retraining period
  - all direct costs of the training paid;

- Employees requiring new skills as a consequence of technological change, or upgrading of job requirements, are provided the required training at full costs to the company.

The training clause in the job security agreement is also subject to full arbitration of disagreements over any matter of interpretation or implementation. The full training clause under the Job Security Agreement is presented in Appendix 2.

A second and direct way in which training is affected by collective agreements is with regard to creating processes and rules under which training activity can occur. In many cases, contracts specify that the company, in consultation with the union, will develop

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> "Employees placed on a Locomotive Engineer Seniority District List, shall have prior rights to all Locomotive Engineers work on their seniority district and shall be trained in seniority order."

Source: Seniority article 21.02 s. (4) from the *Collective Agreement Between Canadian Pacific Railway And The Canadian Council Of Railway Operating Unions (BLE) On Behalf Of*

some types of training programs; this allows unions input into skill requirements. The degree of consultation over training may be considerable and may have well-defined processes for resolving differences between the union and management.[26] In some other cases, contracts may, in effect, specify training content and duration; [27] the intent, in this case is likely to ensure that the employee is not required to engage in extra training outside of normal paid time.

Locomotive Engineers Employed In Canada By Canadian Pacific Railway Thunder Bay And West (effective through 2002).

[26] For example, the "5.11 Training Program Development clause in the collective agreement between the CPR and The Canadian Council Of Railway Operating Unions states:

> "1) Classroom instruction and on-the-job training (OJT) will be performance based and will not be tied to any obligatory number of working tours of duty prior to being declared qualified.
> 2) Training programs for Rules Qualification and other related subjects will be developed
> in consultation with the General Chairmen or their designates.
> 3) Within six (6) months of the implementation of a new training program, the Company and the Union will meet to review the course material to determine if changes are appropriate, based on the first six (6) months of training that has been completed. The time period within which this review will be conducted, may be adjusted as deemed appropriate by the parties.
> 4) In the event of a disagreement with respect to the structure and/or content of a training program, the General Chairman or his designate may raise such concerns with the Director Labour Relations or his designate. Failing resolution at this level, the Chairman, may progress the matter with the Vice-President, Industrial Relations."

Source: Clause 5.11 Training Program Development from: Collective Agreement Between Canadian Pacific Railway And The St. Lawrence & Hudson Railway And The Canadian Council Of Railway Operating Unions (BLE) On Behalf Of Locomotive Engineers Employed In Canada By Canadian Pacific Railway East Of Thunder Bay.

[27] The collective agreement between the Canadian National Railway Company and the Brotherhood Of Locomotive Engineers relating to locomotive engineers stipulates the specifics of an "Engine Service Training Program":

> "Engine Service Training Program
> *Technical & Rules Training - Gimli Manitoba 14 Days*
> - Basic Air Brake training Program
> - Motive Power
> - Simulator Training - 10 structured hours
>
> *On Job Training*
> - Joint Selection Process On Job Trainer
> - Training with credible On Job Trainer - 2 weeks
> - Review of runs with local officer, trainee and OJT, using downloads and evaluation sheets."

A third way that unions affect training is by determining the conditions under which employees receive training. Contracts may specify employer responsibility for a range of training related benefits and pay including: the requirement that the company provide training; provision of training; payment by the firm of costs associated with the training activity (including transportation and accommodation); payment of meal allowances during training days; and pay rates while the employee is engaged in company-sponsored training. [28]

These outcomes underscore the range and extent of the impacts that collective bargaining has on the distribution and extent of training activity across employees, as well as training intensity, at unionized firms. One effect of these contract requirements is that a substantial amount of training becomes mandatory. Unions also have a significant effect on how training activity is undertaken, thereby further reducing managerial discretion in the investment decision. These influences, taken together, are expected to affect the choice and delivery of training.

Source: Addendum No. 78 of: Agreement 1.2 Between Canadian National Railway Company And Brotherhood Of Locomotive Engineers Governing Service Of Locomotive Engineers On Western Seniority District Prairie And Mountain Regions Revised February 2002.

[28] The collective agreement between the Canadian National Railway Company and the Brotherhood Of Locomotive Engineers relating to locomotive engineers also stipulates the rates of pay when employees are trained:

> "41.7 Locomotive Engineers required to report prior to the starting time of an assignment in order to take Company training programs such as safety seminars, dangerous commodities instruction, careful car handling, etc., such reporting will not result in a tour of duty being compensated at time and one-half rates as outlined by paragraphs 41.2 and 41.4. When required to report prior to the starting time for such training programs, employees will be compensated at one and one-half times the basic rate for the time required to report until the on-duty time of the assignment. Every effort will be made not to keep employees beyond the completion of their tour of duty solely for the purpose of training. In any case, such training will not exceed a period of one hour."

Source: Agreement 1.2 Between Canadian National Railway Company And Brotherhood Of Locomotive Engineers Governing Service Of Locomotive Engineers On Western Seniority District Prairie And Mountain Regions Revised February 2002.

6. Human Resource Management, Skills Development and Training at CN

6.1 The Business Strategy and Human Resources Management Strategy Nexus at CN

The period of the 1980s and 1990s was one of considerable consolidation in the North American – especially the American – rail industry (Saunders 2003). The consolidation essentially took the form of mergers and acquisitions in the US, while CN (and CP) consolidated their Canadian operations either by decommissioning lines, or by spinning off operations that would become short lines.

The most significant corporate change for CN was the acquisition, in 1997, of the Illinois-Central (IC), which had lines running North-South through the central United States. This merger gave CN both a comprehensive Atlantic to Pacific coverage as well as North to South routes. Importantly, the IC had been run according to a new operating model brought about by its President, E. Hunter Harrison. This new system for operating the railroad, known as "precision railroading," transformed the profitability of the IC. Following CN's acquisition of the IC, the entire company adopted the precision railroading model and it is widely viewed as underpinning CN's dramatically increased competitiveness and profitability.

By 2000, CN and the IC had integrated their operations, thereby creating what is essentially a North American railway. One of the major challenges in successful business mergers and acquisitions is integrating two organizations. In some cases, corporate business strategies, objectives, cultures and product lines may conflict; in each area, one of the important processes that must be undertaken is alignment of operations (e.g., eliminating redundancies in operations), coordinating business objectives (e.g., market share; revenues; productivity), and harmonizing corporate cultures. The issue of "corporate culture" is difficult to capture, in economic terms, but is well recognized in the business and organizational studies research as a critical factor.

For example, some firms have been recognized as being oriented toward technology and technology adoption (i.e., an engineering orientation), while others emphasize human capital and people skills (i.e., a communication and service orientation). While not inconsistent with each other, the important point is that management can, and does, make strategic decisions to emphasize certain business outcomes and operating methods, and certain values and approaches to operating the organization and managing the workforce. While these decisions are typically shaped by environmental conditions, such as economic factors, they can also be influenced by managerial *values*. Taken together, these factors combine to create corporate cultures. In the present context, the issue is how corporate culture shapes human capital formation – specifically, human resources management and training and skills development outcomes.

Two factors have shaped the approach to human resources management at CN. The first is the impact of the merger of CN and the IC to form the new North American CN (NACN). The second is the cross-influence of the predominantly Canadian CN culture on the NACN and of the American business culture of the IC on the overall NACN. The outcome of the business acquisition was that the business model and the operating model of the IC was leveraged to transform the new CN; while, in many ways, the approaches to human resources management at the Canadian CN have influenced the US (formerly IC) operations. In particular, Canadian CN has had a significant emphasis on training and development relative to the IC; the transformation of the new CN into a service business utilizing precision railroading has required a significantly increased emphasis on broad-based human resources management throughout the firm. This is referred to within CN as "people development." There is a direct linkage between the business model (a service model) and the operating model (precision-railroading) with human resource management and skill strategies.

In the case of CN, the entire program of people development is given substantive support at the most senior leadership levels of the organization. A major focus of the people development approach is to create HR programs that identify the persons and that produce the required human resource enhancements in key competencies in the workforce that ensure successful succession, throughout the levels of the organization.

The people development (HR) function spans most conventional areas of human resources development with the exceptions of areas such as compensation and benefits. The perspective of the company is that the scope of people development is very broad, taking into account the full range of areas that actually provide the "development" of the skills and ability of employees at all levels of the company. This essentially reflects the perspective that people development encompasses all employees and employee functions – from hourly rated employees up to the most senior ranks of the organization.

Even so, there are meaningful distinctions between the nature and scope of training and development amongst hourly rated employees (who are typically unionized) and those in management (including all white-collar employees). One critical difference is that much of the training undertaken amongst the hourly workers is driven by operational requirements, including technical and skills training, or health and safety. In the case of management, human resources development is viewed as more broadly contributing to the capacity of the organization to meet its business and productivity objectives.

Forward strategic planning also involves identifying more specific programs and approaches to enhancing human resources development. In the area of field training, for example, traditional training and development would typically involve moving workers off the job, sometimes to a different location, to provide training and development. Future strategic planning is beginning to focus on trying to increase supervisors' access to centers in order to further enhance employee development and to develop news ways of delivering information and training to workers in the field. Developing new approaches to supporting training in the field requires that information technology be developed to support these new initiatives.

6.2 Management Training and Development At CN

Management development is a central component of the firm's overall human resources development strategy. For management, skills development is strategically driven in the sense that changes in the business environment are viewed as having a profound effect of the nature and extent of skills development required.

Management development training encompasses human resources development in the broad areas of business skills, leadership skills, and policy. Policy encompasses a range of areas that are either mandated externally by government or internally as a matter of policy. There are five identifiable programs or initiatives aimed at human resources development among management employees. The include Retreats, led by the President of the company, the ABC program, the university recruitment program, the Railroad MBA, and the Human Resource Management Certification Program. One area of skills development that has evolved in the past two decades are "soft-side" skills, including skills related to effective communication, team skills, conflict resolution, and leadership. Skills related to communication, time management, conflict management, coaching, problem-solving and motivating employees are all emphasized at CN. The primary focus for skills development in these areas is management.

It is important to emphasize several aspects of these programs. First, management sees the programs as functioning in a coordinated way with each other; they are viewed as complementary elements of the broader people development strategy. The programs do not follow any hierarchical structure or arrangement; rather, as complementary programs, they are best conceptualized as elements of a larger strategy that are implemented in concert with each other. Second, the effect of these programs, although focused on management, is viewed as filtering down to the hourly rated workforce. The concept, then, is to create a people development strategy for the entire organization. Third, the programs are typically in a state of ongoing adjustment and development, in response to changing objectives and to emerging requirements.

Hunter Camps

These are periodic and ongoing retreats led by the President and CEO of the company.[29] The retreats are typically attended by 20-25 persons, last about two and a half days, and are held a various locations around North America. Participants are drawn from across management ranks, functions within the organization, and regions in which the firm operates. Participants are selected with a view to achieving diversity within the group (e.g., by sex and age, or functional area). The purpose of the retreats is to discuss issues confronting people in their areas, exchange ideas, and brainstorm about solutions to problems and new approaches to the business.

A typical retreat profile is presented in Exhibit A. The Hunter camp events were initiated in 2003 with 4 retreats, increasing to 8 in 2004 and 12 planned in 2005; the expectation is for possibly more than 12 in 2006. These retreats have been judged as a major success for the organization. The outcomes include increasing knowledge about people across the organization, increasing knowledge about management, and enhancing understanding of leadership (skills and roles) within the organization. Participants are asked to follow up on the retreat, after a period of time, with a report about how the results arrived at in the retreat have been implemented in their workplace context.

An important dimension of these retreats is the personal leadership, interest and investment in the process on the part of the President/CEO. The Presidents personal leadership and time investment demonstrate the importance placed on this initiative. This commitment, from the most senior level of the organization, underscores the major commitment to people development at the firm.

[29] The President and Chief Executive Officer of the Canadian National Railway Company is E. Hunter Harrison; hence the term "Hunter Camps."

Exhibit A:

The Hunter Camp: CN Development Retreat

Pre-reads:
How We *Work and Why:* The Book
Leadership Styles : Golman /HBR article
Performance-Based Leadership: CN Too/book (ABC Model)

Session I: Introduction by President

Why we are here.
It's about change!
Precision Railroading: What it means.
The Five Principles
How to use this framework everyday.
Where the Company is going. New types of railroading.

Session II Railroader Roundtable. "The Case of the Conflicted Railroader"

Each participant puts forward a challenge they are facing in their business for the group to discuss. President offers his views as to solutions and thought processes that a precision railroader would use to make the right decisions. Provide examples from past decisions that our people have faced and what was done.

Session III Leadership How Leadership will drive the precision railroad
-What leaders do and how they act.
-Your role in the leadership.
-Different styles of leadership with a common core.
- Importance of clarity in defining the ABC's.
(Do people clearly know what is expected, the behaviours and consequences)
- Importance of your role in driving change

Session IV A.B.C. Performance Model
-What is the model.
-How is it applied.
-Group discussion.

Session V Leadership roundtable "The Case of the Conflicted Leader"
Each participant discusses a leadership, people or union issue that is confronting them. The President and the group offer insights into their experiences. Everyone is expected to have an issue to discuss.

Session VI Spreading the Precision Railway message
How do we achieve understanding and commitment by every employee to the principles of precision railroading?
What do you need to achieve this?
What gets in your way?
The commitments and timetable we expect from attendees.
What you need to do when you go back.

Note: Social and group activities are included in the retreat but not shown in the agenda.
Source: Provided by CN upon request.

Executive Development Program

The Executive Development Program consists of two levels, with a third level under development. The specific objective is to determine the available competencies among people within the organization, and to build on those areas that would benefit from further development. An overall objective is to ensure that the required talent is currently in place and available for purposes of succession.

The first level is intended primarily for very senior management. A major focus of this program is to assess needed competencies. The second level of the program is aimed at senior management. The program involves an eight-part session, background preparation by the participants, and participation in a business related case (simulation) that may run over a two-day period. Sessions are also conducted in order to build up competencies where they are required. Examples of the types of skill areas that are examined and for which competencies may be strengthened include financial acumen, coaching, and conflict management.

A new (planned) initiative in this area is the development of a third program level corresponding to the first-line supervisor and junior management ranks of the organization. The objective is to identify potentially qualified candidates for further development and promotion, from the first-line supervision level to middle management, and from middle management levels into more senior ranks, respectively. As in other areas of the executive development program, the goals are to identify competencies among existing employees and then to follow up with other training and development programs (or new ones) where further skills development are advantageous.

The ABC Plan

The ABC plan is a performance management program aimed at development relating to organizational behavior.[30] The overall objective of the program is to develop and enhance internal management effectiveness. One outcome of this program is more effective management of the hourly workforce.

[30] The acronym ABC stands for "antecedent– behavior-consequence."

Railroad Training Program (University Recruitment Program)

The university recruitment program is aimed primarily at new hires, which are typically drawn from among (relatively) new university graduates. In some cases, however, existing employees have participated in the program. Under this program, employees rotate through various assignments to different jobs in different functional areas of the organization. The goals are to have the employees gain some expertise in each of the areas to which they obtain an assignment and to broaden their knowledge of the organization as a whole, thereby making them more effective in future management functions.

Railroad MBA (RRMBA)

The RRMBA is a formal program designed and run entirely internal to the firm.[31] Within the firm, this is program intended for senior level management.[32] The program is designed as a self-driven learning and skills development program that is intended to cover many areas within the company. While oriented toward technical field operations, it could also include a management skills area such as marketing. The program usually runs for 12 to 24 months and involves internal self-reporting on learning achieved in each area. One overall objective of the program is to build internal management capacity, with a view to creating depth of expertise to support succession requirements.

Human Resource Manager Certification Program (HRMCP)

The HMCP in a program that is also internal to the firm. The program is aimed at increasing the human resource management and labour relations related skills of persons in the human resources and labour relations function of the organization. As examples, skills in such areas as compensation, pensions and benefits, or labour relations could be included in the program.

[31] The RRMBA is not associated with any university MBA program.
[32] The relevant functional levels are Director level and more senior.

6.3 Training and Development of the Hourly Workforce

Training of the hourly workforce is driven by essentially three factors: new processes (e.g., in operating); new technologies; and changes in the regulatory environment, which typically takes the form of new rules and regulations. These factors are often closely (inter)related in their occurrence, so that their impact on training would, in the first instance, be difficult to disentangle. For example, new methods of loading or unloading trains, or moving cars in a yard, would be facilitated by new technology and could require changes in job design and new safety rules and procedures. In this case, both the new technology and safety rules would likely give rise to new training requirements. Although the technical skills would be readily distinguishable from the safety training, there is not necessarily an independent effect of either the technology or the new regulations on either form of training.

Other factors giving rise to new skill or training requirements include organizational change, changes in work organization, or safety incidents. In the latter case, an accident may give rise to a new operating procedure and related training for the new operating procedure and/or the safety practice. In the former situation, organizational rationalization, or changes in job design aimed at increasing the efficiency of operations or work, could require new training investments.

The need for worker training generally arises in three circumstances. (Refer to Exhibit B.) In the first case, training is undertaken because it is deemed to be mandatory. This could arise under government regulations, collective agreements, or company policy. One approximation provided by CN suggested that roughly two-thirds of training is driven by either regulation or by law. Second, training may be required in order to recertify workers. The government would typically specify the training cycle for recertifcation. Third, training may be undertaken with a view to refreshing workers' skills as a matter of company policy. Amongst the hourly, unionized workforce, the first priority is meeting mandatory training requirements; this is closely tied to technical training requirements. At CN, the role of training driven by internal company policy appears to have

diminished. Finally, much of CN's capacity to deliver training is in-house; the incidence of outsourcing for development is likely to be higher at higher management levels in the organization. E-learning modules are available to employees who have access to a computer.[33] This is most limiting for workers in field operations. Web casting is another example of the use of technologies to deliver training and enhance development throughout all levels of the organization.

[33] E-learning modules may target such skills as inspecting freight cars, or reviewing the types and characteristics of car equipment.

Exhibit B:

The Training Cycle: Mandatory, Recertification, and Refresher Training At CN

Mandatory Training: This category identifies training and/or testing that is required by government legislation/regulation or by collective agreement for employees performing a certain activity or task. This includes "voluntary compliance" where the company has formally committed to a government agency that it will train employees for a specific activity or skill, although no regulation requires training.

A course is only mandatory for those employees for whom it is relevant to perform the job, activity or task for which training is mandated. For example, crane operator training is required for a new crane operator, but not for any other employee.

- Examples of mandatory training: Equipment Operation (Canadian and US legislation), Operating Rules (Canadian and US legislation), Fall Protection (Canadian and US legislation), Hazardous Materials (US legislation), Dangerous Goods (Canadian legislation), First Aid (Canadian legislation), Alcohol and Drug (US legislation)

- An example of voluntary compliance is training for Shoptrack Locomotive Operation (Canadian commitment).

Mandatory training, as a company category, also includes Company Policy training. This training requirement is not mandated by government regulation or collective agreement, but by company policy. An example of company policy training is harassment training.

Recertification Training or Testing: This is re-qualification or recertification training/testing that is mandated by legislation. Mandatory training is required to qualify an employee initially and for the most part that is all that is required. However, certain legislation requires recertification training or testing on a specified cycle to ensure that an employee continues to be qualified. The cycle is determined by the legislation and is generally a one, two, or three year cycle.

- Examples of recertification training or testing:
    - Operating Rules (Canadian and US legislation);
    - Hazardous Materials (US legislation);
    - Dangerous Goods (Canadian legislation);
    - First Aid (Canadian legislation);
    - Engineering Fall Protection (US legislation);
    - Shoptrack Locomotive operator (Canadian voluntary compliance)

Refresher Training or Testing: This is training/testing required by company policy on an established cycle to refresh an employee on an activity or task. It is similar to recertification training in that it is required on a regular cycle and is based on a regulatory (mandatory) requirement for initial training. The key distinction is that refresher training is not mandated by government regulation or collective agreement. The requirement is based on a written company policy.

- Example of refresher training: Crane operation refresher training every three years

Source: Provided by CN upon request.

There are three core functional areas of training of hourly workers at CN:

(i) Computer

Computer related skills development encompasses a range of training, including information technology, software and software applications.[34] The operations of the railway systems require that a variety of related computer skills be developed.

(ii) Safety

Safety training is accorded a fairly narrow definition in terms of scope, including training that is required by a safety procedure. As examples, this would include training for a workplace health and safety committee, or first aid.

(iii) Technical

Technical training refers to job-specific technical skills. These skills may, in turn, be partly comprised of safe practices and procedures where safety is a relevant factor in the job). As examples, procedures for slowing down to enter a rail siding requires training in railroad signaling; and the repair of wheel sets on cars embodies both training in technical procedures as well as safe practices.

Some areas of training are essentially "cross-cutting" in nature, in the sense that they are either jointly undertaken, or that training activities contain elements of more than one type of training activity or skill. The prime area in which this occurs is computer-related skills. The development of computer related skills is considered almost entirely cross-cutting in nature, affecting all functional areas of the organization, all levels, and most skill sets. Other areas are far less so. At CN, a rough estimate suggests that management related skills are developed primarily among management employees; both technical skills and safety skills are almost entirely relevant to the hourly (unionized) segment of the labour force, which accounts for roughly 85% of all employees at the firm.

[34] Typical examples include JAVA and the range of Microsoft applications.

One aspect of "soft skills" that are emphasized among the hourly workers is policy-related skills. Policy development that is undertaken with the hourly (unionized) workforce typically relates to government guidelines; examples include policies on harassment or alcohol and substance abuse. Other exceptions exist, but the degree of soft-skill development among the hourly workers remains limited.[35]

There appears have been some difference in the approach to delivering training among hourly workers in Canada and the US; this was evident at CN, for example, upon the initial acquisition of the IC by CN. In Canada, there was a substantial emphasis on formal classroom training sessions that utilized a formal instructor; the perception is that this resulted in an emphasis on the depth of learning.[36] In contrast, in the US operations, the approach was more oriented toward using the supervisor to deliver training; this imparted an essence of information sessions that covered the required material but may have had less emphasis on the depth of learning.

Since the merger, the US operations have moved, on the margin, toward greater use of classroom instruction. New training has been added in the US operations, so that approximately half of the training is now formal classroom training. On the other hand, supervisor-based training is being accorded a higher priority in Canada because of a set of perceived benefits including: this form of training is viewed as more efficient, because workers remain closer to the field operations; it enhances supervisor-worker contact, which supports better communication; it supports a more positive worker-supervisor interpersonal relationship; it provides an efficient way to refresh employee knowledge and requires supervisors to become expert in rules and procedures in order to effectively convey this to employees in a learning setting; and rules and procedures are explained in a local worksite setting, which provides an opportunity for feedback on field issues. The

[35] An example where it has been relevant in the hourly workforce is for the "lead hand" who, although an hourly rated employee and covered by a collective agreement, has the responsibility for coordinating the work of a group during a shift but who has no management responsibilities per se). Workers in this position can receive training of roughly 5 days that includes a range of skills related to problem-solving, teamwork, conflict resolution, interpersonal skills, and some business-related skills.

[36] This is in contrast to an approach of "covering material" with a view to exposing employees to the information as opposed to ensuring that employees know and understand the material.

role of on-the-job training remains important in both countries. It remains largely unstructured (from the viewpoint of formality) across CN's operations. Since the time of the acquisition, the ongoing merger of management, operations and so forth appears to have worked to significantly diminish differences in approach between the two countries.

6.4 Information Technologies and Training At CN

The information technology function of the company is critical because it is viewed internally as an "enabler" of change.[37] It supports change across a range of activities and functions, including changes occurring in the day-to-day operations of the company, broader changes in operations, and significant events associated, for example, in business acquisitions. Across these activities, IT is utilized to support changes in the workforce and in people development. In this way, IT is viewed as being integrated with the overall business strategy of the firm.

The basic strategy of IT is to provide support for all operations and functions in ways that permit the operations to achieve their objectives. In practical terms, this requires that people within the IT function understand the railroad business and industry. For example, in order for CN to achieve maximum efficiency in its intermodal operations, it requires that the firm maximize asset utilization (i.e., *cars*), while reducing the number of *trains*. The business objective is to allow customers to purchase and book capacity in advance and that the shipments be efficiently scheduled. The role of IT, in this case, is to functionally develop and support the technological capacity to achieve this way of running train operations. The IT function is also currently involved in the development of the "Smartyard" which will permit the firm to optimize the movement of freight cars and engines in the yards in a way that matches the overall scheduling requirements of the entire railroad.

Similarly, IT supports the people development function at the firm in several ways. The first is with respect to information. The role and importance of knowledge workers is increasing within the company. Consequently, the role of IT is to provide efficient access to information, in ways that are as useful to those workers as is possible. Second, IT, along with other forms of technological change (e.g., in engineering technology)

[37] The IT department at CN is quite large, consisting of approximately 670 staff, including 150 consultants. Training among IT workers themselves occurs largely through a combination of participation in external seminars and conferences, along with classroom training.

facilitates automation, which tends to reduce the amount of low value-added work and associated employment, in favour of jobs that require knowledge workers; IT then serves to support the work of these knowledge workers (e.g., through information). In general, the IT function already supports computer-based training; this is an area that may experience further development.

One of the main challenges for IT in facilitating human resources development is to deepen IT access throughout the organization in order to make skills development more available. A prime example of this relates to field operations access to information technologies. Access in the field is somewhat limited; alternatives to enhance access, such as the use of kiosks in the field, do not appear to be viable. Another approach that is being developed is providing workers access from their home, so that they can engage in learning activities on an ongoing basis.[38] A second challenge identified is the need to further develop learning applications; both e-learning and collaborative learning are viewed as future areas in which IT can support the human resources development of the workforce.

[38] This is consistent with the IT objective of moving toward employee "self-service" across a range of activities and job requirements.

6.5 Training Activity and Intensity

From 1996 through 2002, there was some minor variation in the total number of training events at the company (the range was from 12,869 in 1996 to 14,969 in 2001); overall, the total proportion of employees trained remained in the range of 60-70%. There was greater variation over time in the overall average training days – from just over 3 in the late 1990s to a low of 2 in 2002 (see Figure 3).

The company generally categorizes training along for functional areas, including computer, management development, safety and technical training. Over the period from 1997 through 2003, the share of total training (hours) fluctuated but changed with some discernable trends. First, (straight) safety consistently accounted for roughly 20% of total training activity. Management development has varied, but generally remained in the range of 5-12% of total training. The share of computer training has varied the most, in the range of about 4-7% up to 2000, but then declining to about 1% thereafter. Technical training consistently accounts for the largest proportion of total training, at 60-70% of the total up to 2001 and then moving upward in 2002 and 2003. (Refer to Figure 4.)

A cross-section perspective for 2002 on training activity, by region and less refined training area (two way), is provided in Figure 5; and by more refined functional area (four way) in Table 12. Looking within the US region, the share of management development training (total training hours), as a proportion of total training within the US region, is comparable to the shares in other Canadian regions (at just under 10%) – indicating that in a North American context, the US is basically treated as another railway region. There is more variation in management development shares cross marketing, network operations and corporate functions. Across regions, and in particular comparing the US region to Canadian regions, technical training activity accounts for the overwhelming majority of training activity (at 70-80%) followed by safety training (at 10-23%).

A cross-section profile of training activity at CN for 2004 provides some Canada –US comparative insight (see Table 13). In 2004, there were 29,200 training events, representing roughly 1.3 training events per employee. The distribution of training events and hours across region indicates that the US accounted for about 40% of training events and 1/3 of total training hours. Overall average training per employee was 8.2 hours; among the lowest was the US region at 6.6 hours/employee and the highest was the Eastern Canada Region at 10.7.

6.6 Assessment and Analysis of Training and Development at CN

The human resources management strategy and objectives of the firm may best be viewed in a dynamic context. In the short run, the objective is to match skills available to the skills required at each level of the organization. This is attained both by building the skills of employees in their current jobs and, in some cases, moving (matching) employees to new jobs based upon an analyses of competencies.[39] In the long run, this matching must be optimized in the face of shifting constraints in the business environment and changing corporate strategies. Recognition of this long term matching problem has a practical implication for the firm: it has resulted in a human resource strategy that emphasizes identifying and investing in training and development to meet current and future requirements – this is conceptualized within the company as the ability to succession plan in the context of the development of the current workforce. The leadership and support provided by the company's President has translated into a clearly defined role for human resources management ("people development") in the firm's overall competitive strategy.

Leadership is viewed as a key element of the human resource strategy of CN. The stated objective is to create a "culture of leadership" throughout the organization. In practical terms, this translates into developing the skills required of leaders through training while providing reward structures for performance.[40]

The most senior leaders of CN also emphasize the use of metrics to help determine the outcomes of human resource management initiatives.[41] Where possible and relevant, for example, this takes the form of actual productivity measurements. Since human resource

[39] This matching approach is captured by the descriptor used in the company of "The right people in the right jobs."
[40] Rewards consist of both monetary awards (e.g., through flexible compensation for management; recognition awards; gainsharing for hourly (unionized) workers).
[41] The over-riding motivation, according to the A VP People Management at CN is to "Convert the results to the bottom line."

development at the firm represents a very sizeable investment, the philosophy is to ensure that there is an appropriate return on investment.

There are two drivers of training at the company. The first is productivity enhancement, which is achieved through such things as operational changes or technological change, and which requires training and development. The second is government regulation, especially in the area of health and safety. The role of regulation as a determinant of the amount and intensity of training is viewed as considerable.

One significant difference between Canada and the US is the legal and legislative environment. There are two aspects to this difference. The first is the substantive difference in legal/legislative regimes in such areas as health and safety, or labour relations. Differences in safety rules, for example, can directly affect how work is done, training and skill requirements, training intensity, and work rules; these can, in turn, affect productivity.[42] In human resources, for example, the CN HRMCP program is offered in both Canada and the US, but the content of the program is different between the two countries. These differences in program content reflect differences in labour legislation and labour law. A second aspect concerns organizational approaches to managing in the US versus Canada. Simply, there is recognition that, in the US, management has a stronger perception of the legal implications of any practices that are introduced. Although this is a very intangible observation about differences in management behavior, it is important because it highlights the role of the legal environment in shaping approaches to human resources management practices.[43] These are important examples of "small differences that matter" between Canada and the US – a theme to which I return in the conclusions.

[42] An example of differences in safety regulations relates to how repairs to broken wheel sets on train cars are handled. In the US, repairs can only be done at the point where the breakdown occurred; in Canada, the car can be moved to a site where the infrastructure is readily available to effect the repair.

[43] An illustration from labour relations is instructive here. In the US, nonunion forms of employee representation in the workplace are illegal; in contrast, they are not in Canada (see Taras 1997). This difference has very far-reaching and practical implications for how approaches to, and structures relating to, employee-management relations have developed in the workplace.

It appears, however, that differences in national culture have little impact on the human resources management and training programs.[44] Further, programs developed in one country appear to be quite transferable so that little, if any, customization of programs is required. The result is that the emphasis is on developing programs that can be applied across the firm. Aside from program differences relating to the considerations identified above, variations in programs therefore correspond to operational characteristics rather than to geographic region.

[44] There is recognition of some Canada-US differences in work-related expectations that appear embedded in the culture. For example, there is a perception that there are differences in expectations around work-life balance between the two countries – Canadians having somewhat higher expectations. However, any such differences in work-related expectations are observed across all geographic regions in which the firm operates, not just Canada and the US.

7. Skills development and Training at CPR

7.1 The CPR Business and Training Context

The major railways are at capacity and the cost of new capital required to increase capacity is significant (because rail is highly capital intensive). In order to increase capacity, the railways have attempted to increase asset utilization. In transportation terms, this increased asset utilization translates into increased "flow" of equipment (cars). In practice, this has meant moving away from maximizing load, number of cars, and horsepower/ton ratios in order to cost minimize on transportation of goods.

As in the case of CN, CP has also adopted a "scheduled railway" approach to managing assets. The objectives here are to "run on time" – to deliver customer goods "on time" in order to meet customer requirements. The goal is to maximize the flow of transportation assets (trains) in order to achieve a more efficient fleet. This requires, in turn, that filed operations, engineering and mechanical functions all operate in a manner that supports achieving this outcome. This gives rise to the importance of human capital development at CPR.

7.2 Training Activity at the CPR

The nature and extent of training activity at the CPR provides a useful comparison to the CN. As expected the importance of the regulatory environment, especially health and safety regulations, of training activity is substantial. In addition, the collective agreements at the CPR also create mandatory training. Training activity at CP is organized North American wide by functional area, not by geographic region or country. However, the content of training can be different in Canada versus the US, according to health and safety requirements, road operations rules, and so forth.

Overall, using technical skills and the running trades as an example, the types of training delivered to workers at the company breaks out into four broad components. The majority

of training – about 60% – is driven by regulatory requirements, most of which is related to safety. About 20% of training is made available as a matter of company policy; this usually includes safety-related training and includes refresher training provided on an ongoing, as-needed, basis on a regular cycle. Roughly 15% of training relates to production related issues, such as the development of "best practices" and job skill enhancement. The final approximately 5% may be related to a variety of training needs of various operations groups throughout the company, such as awareness training (e.g., equity-related training).

Therefore the overwhelming majority of training (about 80%) is provided in order to support health and safety related outcomes, broadly defined. Much of this training is provided as a result of regulatory requirements, although the company also recognizes that this training can have positive "efficiency feedback effects." As examples, increased safety training can reduce accidents and therefore production downtime (losses) as well as the direct costs associated with lost labour time. These gains are in addition to the importance, in its own right, of preventing injury to workers. Training aimed at direct productivity enhancement accounts for only about 15-20% of all activity.

One of the key areas for future focus of the company is to increase the efficiency of training delivery, including how training is conducted. The main focus here is on E-learning. E-learning potentially allows employees to training when they are in a period of production downtime, or at a distance from a work site or formal training site. This is expected to decrease the opportunity cost of training time by decreasing the amount of regular work time required to be used for training and by creating flexibility in training delivery.

Amongst unionized workers, the firm pays for training and is bound by the contract to consult with the union on training activities. As examples, CP consults with the union regarding training associated with the various running trades, including conductors and locomotive engineers. In some cases, traditional collective agreement rules around training requirements have become an impediment to efficiency and they have been modified. For example, conductor training required a minimum number of tours of duty

(i.e., hours of training) before the trainee was deemed to be qualified. This minimum number was found, in some cases, to exceed the number of tours required, in practice, for the trainee to become qualified. As a result, the company and union have agreed to consult on what training needs to be done, and the required number of tours, taking account of the requirements of a particular location or train run/route. This accommodation increases the efficient utilization of human resources, decreases training costs, and allows trained conductors to begin their new positions in a timely fashion. This arrangement also illustrates the importance of labour relations solutions to ongoing training issues.

Table 14 outlines the areas in which training is normally conducted at the company, along with examples of training sessions offered in each functional area. The figure in parentheses is the duration of the training session in days. The third column provides the total number of types of sessions (skill areas) offered under each service area. Finally, the number of training events in each service area in 2004 is provided. The distribution of training events is heavily weighted toward mandatory training requirements.

The total number of training events among unionized workers at the CPR is roughly 10,000 per year, representing an average of just less than 1 training event per year for every unionized employee (Figure 6).[45] The total number of training events among unionized workers in Canada is roughly three times the number in the US. In 2003, for example, the number of training events per unionized employee was also greater in Canada.[46] Another measure of training activity is training intensity, measured by hours of training (see Figure 7). The total number of hours of training for unionized workers varies considerably over time. For example, in 2001 total firm training hours were about 300,000, rising to 500,000 in 2003, and then declining modestly to about 460,000 in 2004. In the period 2001 to 2004, total training hours in Canada exceeded training hours in the US by roughly 2-2.5 times. On a per unionized employee basis, in 2003 workers in

[45] The average is .8, based on an estimate of 2003 total employment of 15,645 and 39% of employees located in the US at a unionization rate of 78%. (*Source*: Corporate Profile and Factbook. 2004. CPR.)

[46] Among unionized workers, the number of training events per employee is roughly .75 in Canada compared to about .5 in the US.

Canada received, on average, roughly 37 hours per year whereas American workers received less at about 29 hours per year.

Both training activity and intensity vary across operational areas, including engineering services, field operations, and mechanical services. Most training in Canada, measured by either events or intensity, occurs in field operations, followed by engineering and then mechanical services. In the US, this pattern holds for training intensity, but the variance in events across operational areas and years is higher (refer to Figure 8 and Figure 9). The Canada-US differential in training events and training intensity is also reflected in each of the operational areas in Canada and the US, with very substantial (level) differences in training in field operations.

What accounts for the significant differences in training activity between Canada and the US? There are three possible factors, including differences in training driven by legislative and regulatory differences in mandatory training requirements, differences in training arising from differences in collective agreements, and differences in management human resources development priorities and or strategies between the two countries. The third factor is unlikely to hold, given the unified approach to human resources strategies developed at the CPR (as is the case at CN). The CPR rail system in both countries is integrated so that it is operated as a unified firm, with cohesive human resources management strategy. Regulatory differences exist, and these institutional differences are most apparent with regard to health and safety training requirements.

The collective bargaining regime also differs significantly between the two countries, and this may be a major factor affecting training outcomes. In Canada, the CPR has only seven bargaining units whereas in the US it has 14 at the Delaware and Hudson and another 16 at the Soo Line.[47] While I expect a significant degree of patterning of contracts, the large number of contracts in the US is expected to yield higher variance in training related clauses compared to Canada. This is especially the case because, in Canada, the process in recent years of consolidating bargaining units has led to

[47] *Source*: Corporate Profile and Factbook. 2004. CPR.)

consolidated contracts. In the US, collective agreements tend to span a greater range of individual employee groups, such as clerical, car repair, signal maintenance, engineers, pipefitters, electricians, yardmasters, and so forth. Each of these groups may tailor general approaches to training issues to the particular requirements and preferences of their craft or occupation.

7.3 Institutional Context and Inter-Jurisdictional Differences in Trades Programs

There are several issues that arise from the regulatory context in which training occurs. First, the government mandates many training requirements, by virtue of health and safety regulations, but provides no financial (little logistical) support to firms to carry out this training. Essentially, the firms absorb the costs of meeting the regulatory requirements. Given the extent of these requirements, this can create a competitive disadvantage relative to other modes of transportation.

Second, the federal government sets the regulatory context that determines training requirements, which are usually met through provincial apprenticeship or college programs, which are controlled by the individual provinces. As an example of the costs that this can impose, suppose that a company has new formal training requirements (e.g., apprenticeship) arising from federal legislation. A given provincial government would then determine the fit with their existing (related) apprenticeship program. If the existing provincial apprenticeship program matches the required training, then the government would pay for that training. If there is no fit with an existing (provincial) program, and the government cannot readily tailor an existing program, then the company would be required to provide the program “in-house” at full cost. In this way, the company bears the training cost of a federal regulatory requirement because the provincial training programs do not match federally driven requirements.

One example of important small differences in training and that affects the CPR relates to apprenticeship programs across Canadian jurisdictions. Provincial governments regulate

apprenticeship programs. For most trades, the provinces offer an apprenticeship program or have provision for colleges to provide the training. In some cases, provinces allow trainees with significant on-the-job training to qualify if, for example, they can pass written and/or practical exams, sometimes after a period of classroom training.

Requirements related to the rail car mechanic (specific to rail), welder, and electrician trades are provided, for a variety of Canadian jurisdictions, in Tables 15, 16, and 17, respectively. The differences across jurisdictions are illustrated for the case of rail car mechanic. The key characteristics of apprenticeship requirements for a rail car mechanic trade in Manitoba are summarized in Table 15. Manitoba does not currently offer this trade. The trade would take approximately 3 years to establish. While the curriculum could be based upon one that has been already developed by a company, the province would require that it do the actual training. The provincial Board establishes training requirements and program structure. In Manitoba, the industry as a whole would apply for a trades program to be established and the Board would make a determination based on expected demand as well as whether or not it corresponds with the broader provincial training strategy. Funding to establish the trade program would be provided only on a competitive basis against other trades programs in the province. Once established, the Board would determine the number of participants required to sustain the program; in Manitoba the programs also require that journeymen match trainees in the ratio of 1:1.

Note that the requirements can vary considerably between Manitoba and the various jurisdictions included in Table 15. The variation in requirements across jurisdictions is also evident for the welding and electrician trades. For the major rail firms, which operate across most Canadian jurisdictions, the variation in requirements and availability can impose direct administrative costs, costs on operations in some jurisdictions that are not imposed in another, and result in skill/trade bottlenecks. In the area of trades apprenticeship programs, inter-jurisdictional differences can matter a great deal to firms.

Table 15: Comparative Requirements for Establishment of Rail Car Mechanic Trade: Selected Provinces

Selected Characteristics	British Columbia	Alberta	Saskatchewan	Manitoba	Ontario	Quebec
Rail car mechanic trade currently exists.	Yes	No	No	No	Yes	No
Minimum time required to establish the trade.	NA	3.5 years	3 years	3 years	1 year min.	SC approval required.
Number of classes required per year to operate program.	Varies with need	NA	NA	No Standard	1	Determined by SC
Class size required	16	24	12	12	20	Determined by SC
Classroom sessions and duration						
Industry support is required for the program (versus one or more large individual firms).	Yes	Yes	Yes	Yes	Yes	Yes
Journeymen are required in the ratio (x:y) to run apprenticeship programs.	No	No	Yes 1:1	Yes 1:1	No	NA
A company can internally deliver/teach the curriculum for the trade (versus college or other provincial institute).	Yes	Yes	No	No	Yes	No
Company site inspection is required to validate the occupational profile.	No	Yes	?	Yes	Yes	Yes

Source: "Report on Skilled Trades Meetings with Provinces," (unpublished document). Document provided by Canadian Pacific Railway upon request.
Notes: The report and information focused on the development of skilled trades in rail. It was developed jointly by the Canadian Pacific Railway and the Canadian Auto Workers Local 101 and was based upon a survey and interviews with the provinces.
SC = Sectoral Council.

Table 16: Comparative Requirements for Establishment of Welder (Inter-provincial) Trade: Selected Provinces

Selected Characteristics	British Columbia	Alberta	Saskatchewan	Manitoba	Ontario	Quebec
Welder Red Seal trade currently exists.	Yes	Yes	Yes	Yes	Yes	No
Total program duration	2 years	3 years	3 years	3 years	3 years	NA
Classroom length and duration	3 sessions of 8 weeks	3 sessions of 8 weeks	3 sessions of 8 weeks	3 sessions of 8 weeks	3 sessions of 8 weeks	NA
Journeymen are required in the ratio (x:y) to run apprenticeship programs.	No	Yes 1:1	Yes 2:1	Yes 1:1	No	NA
Signoff book is required for OJT skills.	Yes	Yes	Forms	Yes	Yes	NA
A company can internally deliver/teach the curriculum for the trade (versus college or other provincial institute).	Yes	Yes	No	No	Yes	NA

Source: "Report on Skilled Trades Meetings with Provinces," (unpublished document). Document provided by Canadian Pacific Railway upon request.
Notes: The report and information focused on the development of skilled trades in rail. It was developed jointly by the Canadian Pacific Railway and the Canadian Auto Workers Local 101 and was based upon a survey and interviews with the provinces.
SC = Sectoral Council.

Table 17: Comparative Requirements for Establishment of Electrician Trade: Selected Provinces

Selected Characteristics	British Columbia	Alberta	Saskatchewan	Manitoba	Ontario	Quebec
Panel A: Construction Electrician						
Total apprenticeship program duration	8000 hrs	8000 hrs	8000 hrs	8000 hrs	10000 hrs	8000 hrs
Classroom length and duration	4 sessions of 8 weeks	4 sessions of 8 weeks	4 sessions of 8 weeks	4 sessions of 10-8-8-10 weeks	4 sessions of 8 weeks	NA
Journeymen are required in the ratio (x:y) to run apprenticeship programs.	No	Yes 1:1	Yes 1:1	Yes 1:1	Yes 2:1	Yes 2:1
Signoff book is required for OJT skills.	Yes	Yes	Forms	Yes	Yes	Yes
A company can internally deliver/teach the curriculum for the trade (versus college or other provincial institute).	Yes	Yes	No	No	Yes	No
Company site inspection is required to validate the occupational profile.	No	Yes	Yes	Yes	Yes	Yes
Panel B: Industrial Electrician						
Industrial apprenticeship	No	No	No	Yes	Yes	No
Total apprenticeship program duration	NA	NA	NA	8000 hrs	8000 hrs	NA
Classroom length and duration	4 sessions of 8 weeks	4 sessions of 8 weeks	4 sessions of 8 weeks	4 sessions of 10-8-8-10 weeks	5 sessions of 8 weeks	NA
Journeymen are required in the ratio (x:y) to run apprenticeship programs.	NA	NA	NA	Yes 1:1	No	NA

Source: "Report on Skilled Trades Meetings with Provinces," (unpublished document). Document provided by Canadian Pacific Railway upon request.
Notes: The report and information focused on the development of skilled trades in rail. It was developed jointly by the Canadian Pacific Railway and the Canadian Auto Workers Local 101 and was based upon a survey and interviews with the provinces.
SC = Sectoral Council.

8. Assessment and Conclusions

While there is a growing body of evidence regarding the incidence and duration of employer-based training activity, we have much less knowledge about what gives rise to training activity, how training is carried out, and what are the institutional factors that affect training. The case study provides an opportunity to analyze training inside the "black box" of organizations and to address these questions.

The study has yielded several key results. First, training activity should best be interpreted in the broader context of the full range of the types and modes of human capital development within the firm. For example, much of the human capital development among management employees occurs in the form of retreats where information and ideas are exchanged among employees, participants brainstorm new ideas, informal problem-solving occurs, and employees gain a deeper understanding of how different aspects of the organization function. Consideration of this type of human capital development, as well as formal, well-defined, training permits a better accounting of the full range of human capital investments undertaken within firms. It is also consistent with the emerging literature on the growth and importance of organizational capital (Black and Lynch 2002).

Second, and related to this point, gauging the full extent of firms' training activity requires accounting for the complete range of informal and formal training activities. While a significant proportion of the training activity undertaken at the firms was formal and measurable, many of the key training and development activities are informal in the sense that they are unlikely to appear in reported training statistics. Particularly important are the use of retreats, or the use of mentoring programs, or the use of internal skills development programs. These types of activities are resource intensive, and the firm views them as critical training investments, but they are difficult to quantify (and in typical government surveys of training may not be captured). In addition, the increased emphasis on "soft skills" is difficult to quantify; but training aimed at the development of

these skills is increasingly important within firms. Thus these informal and soft skill investments are significant components of firms' human capital investment.[48] Another form of training investment occurs through the use of outside trainers and experts. Some of the training activities they undertake are somewhat unique and potentially difficult to measure. Thus there are a variety of skills development initiatives that do not fit conventional approaches to measuring training and may also be difficult to quantify.[49]

Third, many of the major training investments occur with regard to managerial employees, broadly defined across levels of the organization. These training activities, which are well illustrated by the range of programs at CN, constitute major investments by the company. In addition, the line between the types of training and development of traditional hourly workers and management is becoming blurred. This blurring has occurred because of the increased emphasis, at all levels of the organization, on the development of "soft" skills, on the use of information technologies (e.g., relating to communication), and on increasing the transfer of knowledge about the organization to all employees. At CN, for example, there are plans to try to extend activities such as retreats to the hourly employees. Thus the types and extent of human capital investments in managerial employees is quite open-ended and it has the potential to become much more open0ended among hourly workers.

A fourth finding concerns the role of information technologies. In many cases, IT is driving the possibilities for training throughout the organization. It is expanding the potential scope of training, the delivery of training, and the segments of the workforce that can be reached in a more efficient manner. In this way, IT is reducing the

[48] One way of thinking about this is that much of the training typically measured accounts for training among hourly rated workers; much of this training is mandated by either government regulation, collective agreements, or by company policies. It does not capture well the nature of soft skill training, yet much of this training (e.g., broadly, leadership skills). Yet management skills are leading change in these companies; moreover, there are clear indications that these skills and approaches are filtering down within the organizations represented by these companies.
[49] It is worth emphasizing that some financial parameters can be attached to the investment represented by these types of programs, but it requires different direct and indirect measures than those typically used to quantify the investment represented by more conventional training sessions, for example.

significance of functional boundaries within the organization, and of jurisdictional (geographic) boundaries outside the firm.

A fifth, and critical finding, concerns the importance of the business strategy as a determinant of the human resource strategy of the firm. This, in turn, determines the types and levels of training and development investments that are undertaken. In rail, the emergence of a true "service" business model has had significant implications for training and development. Overall, it has resulted in a much higher level of importance being attached to human capital at all levels of the organization and higher levels of tangible investments. At CN, a unified business strategy has resulted in similar outcomes between Canada and the US. The results of the study clearly indicate, however, that across firms in an industry, one can expect differences in business strategy to result in differences in training and development outcomes.

Even controlling for the industry, firm, technology and business strategy, there remain important Canada-US differences as well as differences across Canadian jurisdictions. These differences arise primarily from institutional factors that determine training activity and outcomes. Institutional factors that matter include the regulatory context, labour market institutions (i.e., unions), and training systems.

Differences in the regulatory environments affect training through their effects on the firm's operations and training. In the case of rail, the set of regulations relating to safety and health are the most important. These regulations have a direct effect on training requirements but also a significant indirect effect because they affect the content and frequency of technical training as well. The laws in Canada and the US are different, but by one informal approximation, roughly three-quarters or more of the laws are the same. By this measure, the extent of the differences is not considerable. Even so, the differences that do exist mean that the companies are unable to standardize rail-operating rules between the two countries. Do these small differences in legal regimes matter?

It appears that rules differences can affect productivity. Several examples illustrate this point. First, differences in how rail car wheel repairs are handled (safety) between Canada and the US means that different training practices and operating procedures are followed. This type of difference could affect productivity in the context of a firm that operates a North American business.

A second example concerns labour mobility between Canada and the US. Currently, there can be impediments to crews from one country operating a train in(to) the other country. On the one hand, productivity is enhanced when crews operate over lines with which they are familiar (i.e., they know their road).[50] On the other hand, crews in one country could acquire the relevant knowledge about the segment of the line from the border to the destination in the other country, or even of lines wholly within the other country. Currently, small differences in regulations between the two countries would still affect training and possibly operating requirements. But the location of the international border is arbitrary from the viewpoint of operating a North American transportation system, so we would expect this type of "small" difference to, in fact, matter.

A third example concerns the differing structure and requirements for trades and apprenticeship programs across Canadian jurisdiction. The variation across provinces, even for well-established trades, can be significant. In some cases, unless close to all firms in the industry requires the training program, the provincial government may not mount the training program, thus imposing direct costs on firms that need workers trained in various trades. More generally, variations in program requirements and characteristics across jurisdictions can impose costs on firms that operate across those jurisdictions in the form of administrative costs and in potential supply bottlenecks in a particular province.

[50] It is important because different lines have different physical characteristics, potential hazards, etc. that affect the appropriate ways of operating trains over certain sections of the line. Knowledge of a rail line (track) or route is therefore critical and highly valued. This is firm-specific, even operations-specific, knowledge that is learned through experience.

A key recent national initiative is the development of a "smart regulation" strategy.[51] According to the participants in this study, small institutional differences can arise in a variety of ways, but can add up to productivity losses. With respect to workers, policy initiatives aimed at increasing labour productivity will be more successful if the regulatory environment in Canada and the US, or across provinces within Canada, minimizes small regulatory differences (e.g., operating requirements; health and safety regulations; trades training and accreditation). To the extent that harmonization of rules, accreditation requirements, or the mobility of labour, can be enhanced, the results suggest that productivity may be enhanced. Thus a main finding of the study is that "small differences' matter. Although the view of management participants in the study is that the differences affect productivity, an area for further research is to more precisely quantify these productivity losses. Interestingly, although differences in training programs and accreditation across Canadian jurisdictions have long been identified as potentially costly differences, some of the other labour-related differences identified in this study have received less attention. Even so, as markets and competition expand, these small differences stand to matter more to firms.

Another institutional factor affecting training is unions. Collective bargaining agreements can also have a significant effect on training activity in terms of how it is conducted, how much is undertaken, and how costly it is. Differences across collective agreements matter with respect to training, because there remain a large number of bargaining units, especially in the US, that represent different occupational and operational groups of workers. These different groups of workers (with different collective agreements) can have significantly different training requirements. The variation across collective agreements is expected to dominate the effects of differences between Canada and the US.

Even so, there are potentially significant differences in training and development between Canada and the US that arise from the collective agreements. Differences in clauses

[51] See External Advisory Committee on Smart Regulation. 2004. Smart Regulation: A Regulatory Strategy for Canada. Report to the Government of Canada.

relating to training do exist between Canadian and American collective bargaining agreements. This aspect of institutional variation should be the subject of further analysis.

A micro-level approach to analyzing employer-supported training is important in order to gauge the within-firm processes and factors that affect training outcomes. This case study of employer-based training within firms underscores the importance of understanding how training decisions are made as part of a firm's human resource strategy, in the context of the firm's business strategy. It also provides new evidence on the importance of institutional considerations, that are typically not captured in broader labour market analyses, but that are important determinants of employer-sponsored training outcomes.

One outcome of the study relates to the importance of organizational learning. Clearly, the merger of the IC and CN required significant new organizational learning for both organizations. In the case of CP, the adoption of scheduled/precision railroading approaches also required new organizational learning. A fruitful area for further case study research would be to consider how organizational learning impacts human capital development; another is whether or not there is a role for government to support more efficient and effective organizational learning.

Table 1: Railway Rationalization in Canada, 1990-2003 (Route-kilometers)	
Discontinuances	
CP	4,244
CN	4,353
Other	839
Total	9,437
Transfers	
CP	3,829
CN	8,002
Other	864
Total	12,695
Total	
CP	8,073
CN	12,355
Other	1,703
Total	22,131

Source: Extracted from: Transport Canada. 2003. *Transportation in Canada. 2003. Annual Report* . Catalogue No. T1-10/2003E-PDF. AddendumTable A6-1, p.A67.

Table 2: Canadian Rail Industry Trends, 1988-2003

Year	Revenue Tonne-Km	Ave. Number of Employees	Ave. Annual Wage/ Employee	Freight Revenue / Tonne	Revenue tonne-km/ Employee (000)	Road Km/ Employee
1988	256,257	75,267	38,574	29.40	3,405	1.08
1989	233,021	71,405	39,574	29.19	3,264	1.11
1990	233,460	65,637	41,258	30.39	3,557	1.09
1991	246,032	62,455	43,407	30.52	3,940	0.97
1992	237,515	60,111	46,272	30.39	3,951	1.01
1993	243,673	57,410	47,263	29.43	4,244	1.06
1994	281,108	54,427	49,148	27.35	5,165	1.11
1995	279,766	50,995	52,307	23.82	5,486	1.14
1996	281,951	47,556	52,671	24.68	5,929	1.16
1997	304,171	46,174	54,580	25.34	7,070	1.14
1998	296,953	44,641	56,959	26.08	7,158	1.16
1999	301,951	43,109	59,092	23.85	7,587	1.17
2000	322,157	41,118	60,795	24.29	8,581	1.24
2001	321,714	39,511	62,675	24.73	9,003	1.3
2002	308,759	37,296	64,229	25.23	9,225	1.4
2003	323,581	36,599	65,901	24.83	9,874	1.43

Source: Railway Association of Canada. *Railway Trends 2004*. (December) pp. 14, 18, 26, 27; and various issues.

Table 3: Railway Revenue in Canada, Class I and Short Lines, 1990-2002 (millions $)

Year	CN	CP	Shortlines	Total
1990	3,385	2,488	96	6,977
1991	3,469	2,549	95	7,110
1992	3,440	2,338	87	6,865
1993	3,417	2,477	94	6,959
1994	3,690	2,736	79	7,641
1995	3,517	2,611	90	7,168
1996	3,534	2,616	134	7,194
1997	3,947	2,830	172	7,877
1998	3,727	2,709	249	7,558
1999	3,742	2,760	311	7,682
2000	3,880	2,945	369	8,101
2001	3,917	2,950	384	8,145
2002	3,971	2,943	392	8,215

Source: Extracted from: Transport Canada. 2003. *Transportation in Canada. 2003*. Annual Report . Catalogue No. T1-10/2003E-PDF. Addendum Table A6-3, p.A68.

Table 4: Profile of US Rail, 1960 - 2000					
	1960	1970*	1980	1990	2000
Class I					
Operating revenues, total ($ millions)	9,514	11,992	28,258	28,370	34,102
Passenger	640	421	446	94	62
Freight	8,025	10,922	26,350	27,471	33,083
Other	849	649	1,462	805	957
Operating expenses ($ millions)	8,775	11,478	26,355	24,652	29,040
Number of companies	106	71	38	14	8
Number of employees	780,494	566,282	458,994	216,424	168,360
Revenue ton-miles of freight (millions)	572,309	764,809	918,958	1,033,969	1,465,960

Source: United States Bureau of Transportation Statistics (BTS); Accessed at: http://www.bts.gov/publications/national_transportation_statistics/

Table 5: Employment, Wages and Productivity in US Transportation Industries, 1960 -2000

Panel A: Employment in Selected Transportation-Related Industries

	1960	1965	1970	1975	1980	1985	1990	1995	2000
TOTAL US labor force	54,189	60,763	70,880	76,945	90,406	97,387	109,403	117,191	131,720
Transportation-related labor force, total	5,160	5,737	6,126	7,884	8,488	9,211	10,095	10,501	11,668
For-hire transportation industry, total	2,395	2,653	2,855	2,796	3,126	3,172	3,675	4,057	4,615
Employment - Selected Transportation Industries									
Air	191	229	352	363	453	522	968	1,068	1,280
Trucking and warehousing	856	964	1,083	1,108	1,280	1,361	1,395	1,587	1,847
Railroad	885	735	634	548	532	359	279	238	237
Water	N	228	212	194	211	185	177	175	194
Liquid pipeline	23	20	16	16	21	19	19	15	14

Panel B: Average Wage and Salary Accruals per Full-Time Equivalent Employee by Transportation Industry (Current $)

	1960	1965	1970	1975	1980	1985	1990	1995	2000
All industries	4,822	5,808	7,744	10,810	15,793	21,297	26,262	31,034	38,846
Transportation, total	5,856	6,989	9,396	13,590	20,843	25,245	29,000	32,268	38,458
Air	6,929	8,495	12,027	17,035	25,649	32,131	32,867	36,419	43,820
Trucking and warehousing	5,396	6,623	8,672	12,765	19,204	22,383	26,297	29,605	35,024
Railroad	6,241	7,460	10,110	14,987	25,049	36,608	43,602	50,465	62,673
Water	6,212	7,402	10,302	14,136	22,746	28,531	33,855	37,769	44,980
Pipelines, except natural gas	6,957	8,053	10,765	16,765	26,227	37,316	46,167	58,186	66,540

Panel C: Labor Productivity Indices for Selected Transportation Industries

	1960	1965	1970	1975	1980	1985	1990	1995	2000
Output per hour worked									
Air	N	N	N	N	N	N	93	109	111
Railroad	22	32	36	43	55	82	119	156	196
Trucking, except local	N	N	N	N	N	N	111	125	131
Petroleum pipelines	31	49	76	91	89	100	103	116	141
Output per employee									
Air	22	35	45	56	71	92	93	109	111
Railroad	25	36	42	46	55	79	120	162	195
Trucking, except local	48	56	60	64	76	94	111	125	131
Petroleum pipelines	30	48	75	89	89	98	102	121	141

Source: United States Bureau of Transportation Statistics (BTS); Accessed at: http://www.bts.gov/publications/national_transportation_statistics/

Table 6: Canada-US Trade and Rail Transportation Shares By US Region, 2003 (Billions US$)

Canada	U.S. Region	Total trade	Share as a %	Rail mode used (% total value)
Ontario	Central	168,758	31.8	22
Ontario	South	65,732	12.4	14
Ontario	North-East	49,673	9.4	0
Ontario	West	34,065	6.4	37
Quebec	North-East	27,356	5.2	10
Alberta	Central	24,893	4.7	11
B.C.	West	18,692	3.5	0
Quebec	South	17,953	3.4	0
Quebec	Central	15,411	2.9	21
Alberta	West	14,605	2.8	0
Man. & Sask.	Central	13,491	2.5	18
Atlantic Can.	North-East	11,882	2.2	0
Alberta	North-East	10,601	2	0
Alberta	South	10,122	1.9	0
Other		47,526	9	0

Source: Extracted from: Transport Canada. 2003. *Transportation in Canada. 2003*. Annual Report . Catalogue No. T1-10/2003E-PDF. AddendumTable A2-5, p.A9.

Table 7: CPR Operating Profile

	1995	1996	1997	1998	1999	2000	2001	2002	2003
Gross ton-miles (GTM) of freight (millions)	192259	184047	186464	182579	192206	211946	212928	209596	219961
GTMs per mile of road operated (1) (thousands)	10643	10578	12351	12630	13387	15183	15326	15107	15884
GTMs per average active employee (thousands)	8208	8470	9254	9196	10031	11798	12535	13005	13640
U.S. gallons of fuel per thousand GTMs	1.59	1.57	1.56	1.50	1.38	1.29	1.25	1.24	1.25
Number of active employees at year end	22398	20540	19514	19323	18150	17519	15840	15860	15645
Miles of road operated at year end (1)	18064	17399	15097	14456	14358	13959	13893	13874	13848
Personal injuries per 100 employee years (2)	8.34	7.16	5.77	4.48	4.44	3.90	3.90	3.60	3.10
Train accidents per million train miles	5.08	5.31	3.41	2.16	2.13	2.00	2.00	1.80	1.80
Freight Revenues	3408.6	3379.3	3428.7	3315.2	3323.6	3460.1	3496.7	3471.9	3479.3

Source : Data provided by CPR upon request.

Table 8: Labour Disputes in Selected Transportation Industries and All Transportation, 1997-2003

	Air	Rail	Water	Truck	Total
Panel A: Number of Stoppages					
1997	7	0	5	6	24
1998	3	1	4	4	20
1999	1	3	1	3	21
2000	3	2	6	10	30
2001	3	0	10	2	29
2002	1	1	6	2	14
2003	3	1	5	1	18
Panel B: Workers Involved					
1997	1,138	0	435	588	2,387
1998	2,693	25	459	250	4,535
1999	265	2,130	3,550	882	16,339
2000	165	1,654	984	1,218	4,545
2001	248	0	385	522	8,082
2002	2,200	34	267	103	3,599
2003	2,315	215	3,390	64	6,632
Panel C: Person-Days Lost					
1997	51,360	0	1,280	13,960	78,500
1998	33,840	180	10,510	15,530	91,770
1999	8,520	7,080	19,620	1,920	89,400
2000	4,480	7,390	26,460	19,950	69,590
2001	9,050	0	4,835	10,020	350,465
2002	5,010	1,020	23,920	630	31,590
2003	9,590	8,140	25,540	120	47,740

Source: Extracted from: Transport Canada. 2003. *Transportation in Canada. 2003*. Annual Report . Catalogue No. T1-10/2003E-PDF. AddendumTable A2-45, p.A26.

Table 9: Major Bargaining Units in Canada at the First-Class Rail Carriers in Canada By Employee Group, 2004

Employee Group	CP Rail	CN Rail
Running Trades	Teamsters Canada Rail Conference (4,280)	Teamsters Canada Rail Conference (1,800) United Transportation Union (2,500)
Shopcrafts (Mechanical Services)	Canadian Auto Workers (2,341)	Canadian Auto Workers (2,490)
Maintenance of Way	Teamsters Canada Rail Conference (3000)	United Steelworkers of America (3,510)
Traffic Controllers	Teamsters Canada Rail Conference (202)	Teamsters Canada Rail Conference (250)
Signals	International Brotherhood of Electrical Workers (379)	International Brotherhood of Electrical Workers (650)
Office & Clerical	United Steelworkers of America (1,133)	Canadian Auto Workers (2,590)
Police	Canadian Pacific Police Association (63)	Canadian National Railway Police Association (100)
(1) On-train (2) Off-train Employees	Canadian Auto Workers (n/a)	Canadian Auto Workers (n/a)

Note: a. Figures in parentheses are numbers of employees in the bargaining unit.
Source: Human Resources Skills Development Canada, Labour Program, 2005. Data provided upon request.

Table 10: Education, Training & Development Provisions in Collective Agreements Covering 200 or More Employees, Transportation and Warehousing in the Canadian Federal Jurisdiction

	Agreements		Employees	
	Number	Percent	Number	Percent
Education Leave - Specific to the Job				
Paid	44	51.8	54290	65.3
Partially paid	4	4.7	3640	4.4
Unpaid	1	1.2	900	1.1
Impossible to determine	2	2.4	530	0.6
No provision	34	40	23830	28.6
Education Leave - General				
Paid	11	12.9	14760	17.7
Partially paid	3	3.5	3430	4.1
Unpaid	5	5.9	2250	2.7
Impossible to determine	4	4.7	5700	6.9
No provision	62	72.9	57050	68.6
Education Leave - Relating to Technological Change				
Paid	14	16.5	21520	25.9
Partially paid	2	2.4	1150	1.4
Unpaid	0	0	0	0
Impossible to determine	3	3.5	3840	4.6
No provision	66	77.6	56680	68.1
Reimbursement for Tuition Fees and Books				
Provision exists	29	34.1	23510	28.3
No provision	56	65.9	59680	71.7
Multiskilling - Flexibility for the Employee - etc.				
Provision exists	4	4.7	2160	2.6
No provision	81	95.3	81030	97.4
Contribution to a Training Fund				
The employer contributes to a training	5	5.9	1060	1.3
No provision	80	94.1	82130	98.7
Apprenticeship Program				
Provision exists	31	36.5	21730	26.1
No provision	54	63.5	61460	73.9
Job security and termination (excl. tech. change) Education/Training w/ Pay				
Provision exists	14	16.5	13700	16.5
No provision	71	83.5	69490	83.5

Source: Human Resources and Skills Development Canada, Labour Program, 2005. Data provided upon request.

Table 11: Education, Training & Development Provisions in Collective Agreements Covering 200 or More Employees, Rail Transportation, Canadian Federal Jurisdiction

	Agreements		Employees	
	Number	Percent	Number	Percent
Education Leave - Specific to the Job				
Paid	9	60	16790	76.4
Partially paid				
Unpaid				
Impossible to determine	1	6.7	210	1
No provision	5	33.3	4990	22.7
Education Leave - General				
Paid	3	20	7240	32.9
Partially paid	1	6.7	2320	10.6
Unpaid				
Impossible to determine	1	6.7	2900	13.2
No provision	10	66.7	9530	43.3
Education Leave - Relating to Technological Change				
Paid	3	20	6660	30.3
Partially paid	1	6.7	400	1.8
Unpaid				
Impossible to determine				
No provision	11	73.3	14930	67.9
Reimbursement for Tuition Fees and Books				
Provision exists	5	33.3	6940	31.6
No provision	10	66.7	15050	68.4
Multiskilling - Flexibility for the Employee - etc.				
Provision exists	1	6.7	1210	5.5
No provision	14	93.3	20780	94.5
Apprenticeship Program				
Provision exists	7	46.7	7200	32.7
No provision	8	53.3	14790	67.3
Job security and termination (excl. technological change) Education/Training with Pay (Specific to Term. of Empl.)				
Provision exists	5	33.3	7500	34.1
No provision	10	66.7	14490	65.9

Source: Human Resources and Skills Development Program, Labour Program, 2005. Data provided upon request.

Table 12: CN Training Profile, 2002

Panel A: CN 2002 Distribution of Training Hours By Training Type and Division

	Eastern Division	Western Division	US Divisions	Marketing	Network Operations	Corporate	CN Totals
Technical	74.50%	72.7	81.4	74	68.8	50.3	0.3
Safety	17.3	22.5	9.9	3.7	15.4	11	10.6
Management	7.4	4.4	6.8	22	15.5	37.5	16.3
Computer	0.1	0.1	0.4	0.1	0.2	0.9	72.9

Source: CN upon request.

Panel B: CN 2002 Distribution of Trainees By Training Type and Division

	Eastern Division	Western Division	US Divisions	Marketing	Network Operations	Corporate	CN Totals
Technical	7683	11520	5819	346	2573	2435	353
Safety	2622	3379	1904	30	579	625	2844
Management	551	330	381	122	338	1122	9139
Computer	42	51	53	8	31	168	30376

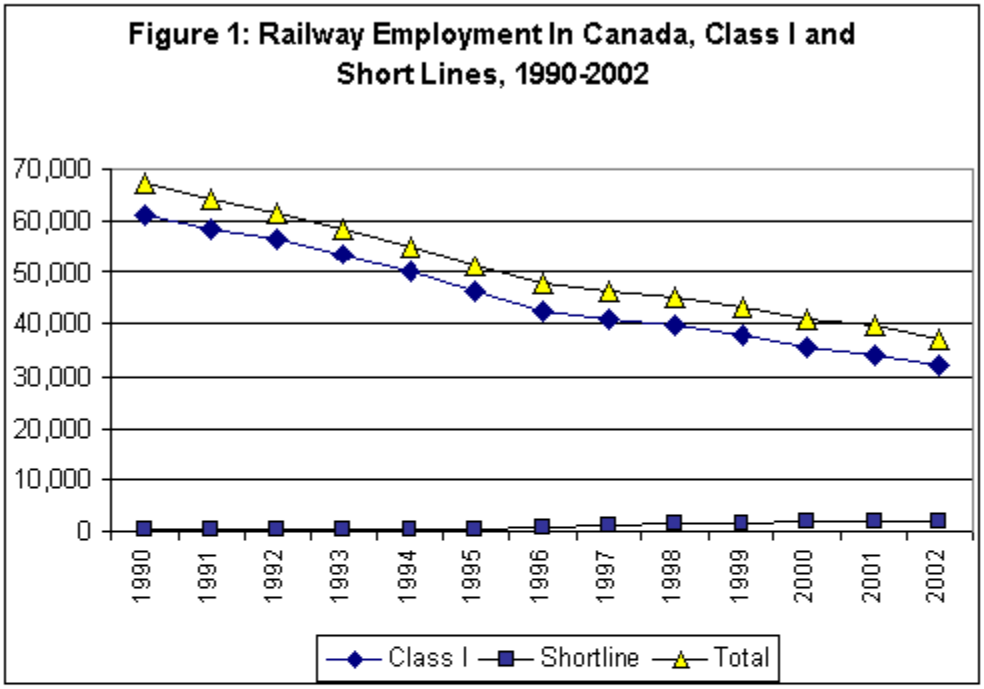
Source: Data provided by CN upon request.

Table 13: CN 2004 Training Profile, (Quarter 3)			
Organizational Unit	**Hours**	**# Trainees**	**Ave Hour / Trainee**
Eastern Canada Region	58,900	5,500	10.7
Western Canada Region	67,000	7,300	9.2
United States Region	82,200	12,500	6.6
Network Operations	11,000	1,800	6.1
Marketing	1,400	200	7
Corporate	18,600	1,900	9.8
Total	239,100	29,200	8.2
Source: Data provided by CN upon request.			

Table 14: Training Areas at CPR by Service Area, 2004

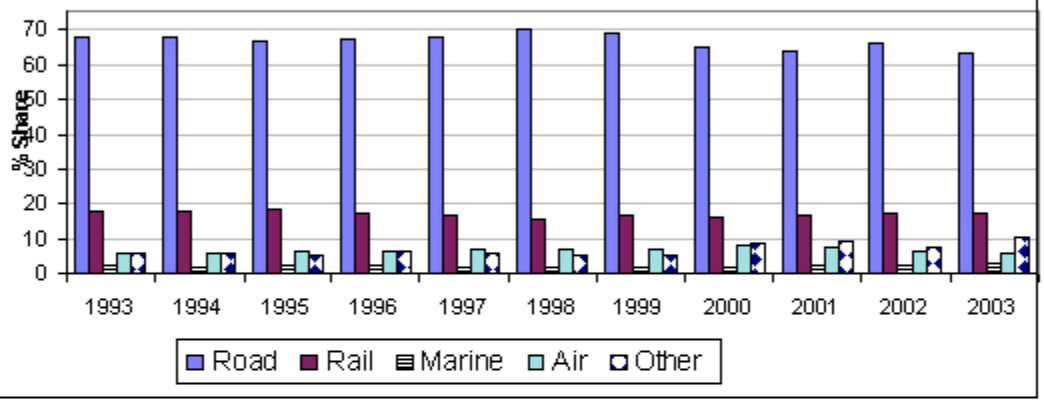
Service Area	Skill Module Examples	Total Number of Skill Areas	Actual Training Events in 2004
Regulatory	▪ Engine Attendant – Initial (10) ▪ Propane Fuelling (0.2)	14	1037
Safety	▪ Health and Safety Committee Level 1 (5) ▪ WHIMIS (0.2) ▪ Safe Handling of Tools (0.5)	23	676
Freight Car	▪ New Hire Orientation (2) ▪ Apprentice/Trainee Year 1 (20) ▪ Car Inspection – initial (5) ▪ Single Car Air Test (1)	29	616
Locomotive	▪ New Hire Orientation (0.5) ▪ Electrician Apprentice Year 1 (20) ▪ Loco Safety Inspection (1) ▪ Diesel Engines I (5)	36	183
Welding	▪ Welding Certification – initial (40) ▪ Safe Handing of Oxy/Acetylene (0.5)	6	7
Cranes	▪ Remote Control Cranes (1) ▪ Crane Level I – Wrecking (10)	9	39
Vehicle/Lifts	▪ Mule Operation (1) ▪ Mobile Lift (0.50)	9	20
Area Specific	▪ Auto Haul (1)	5	1
IR Training	▪ Intro to Unionized Workplace (1)	4	0
HR Training	▪ Employment Equity/Diversity ((0.5)	4	246
Occupational Health and Safety	▪ Disability Management (90.5)	1	0
Peer Training	▪ Confined Space Awareness (0.2) ▪ Personal Protective Equipment ((0.1)	11	4

Source: Data provided by CPR upon request.

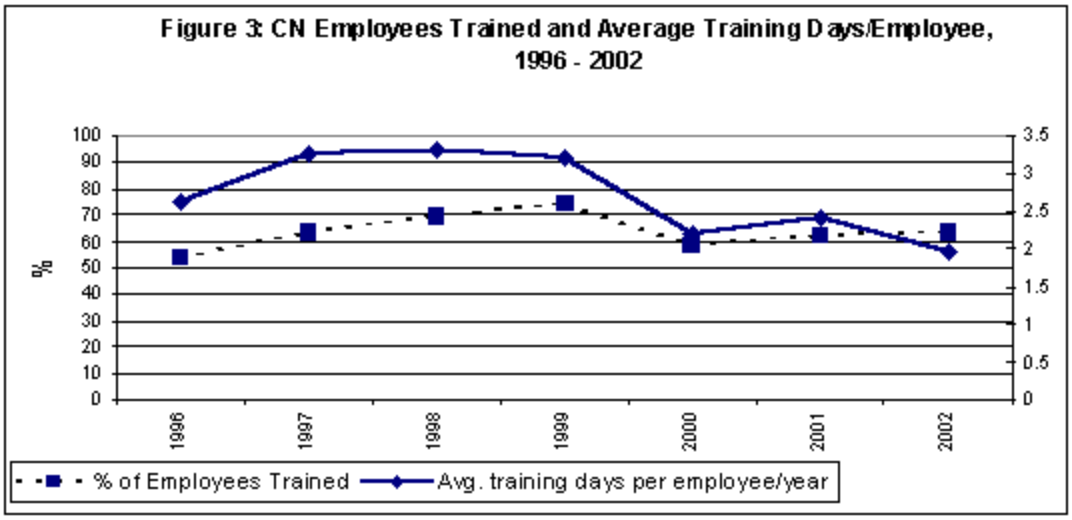


Source: Extracted from: Transport Canada. 2003. *Transportation in Canada. 2003*. Annual Report . Catalogue No. T1-10/2003E-PDF. AddendumTable A6-4, p.A68.

Figure 2: Transport Modal Shares of Total Canada-US Trade, 1993-2003



Source: Extracted from: Transport Canada. 2003. *Transportation in Canada. 2003*. Annual Report . Catalogue No. T1-10/2003E-PDF. AddendumTable A2-1, p.A6.



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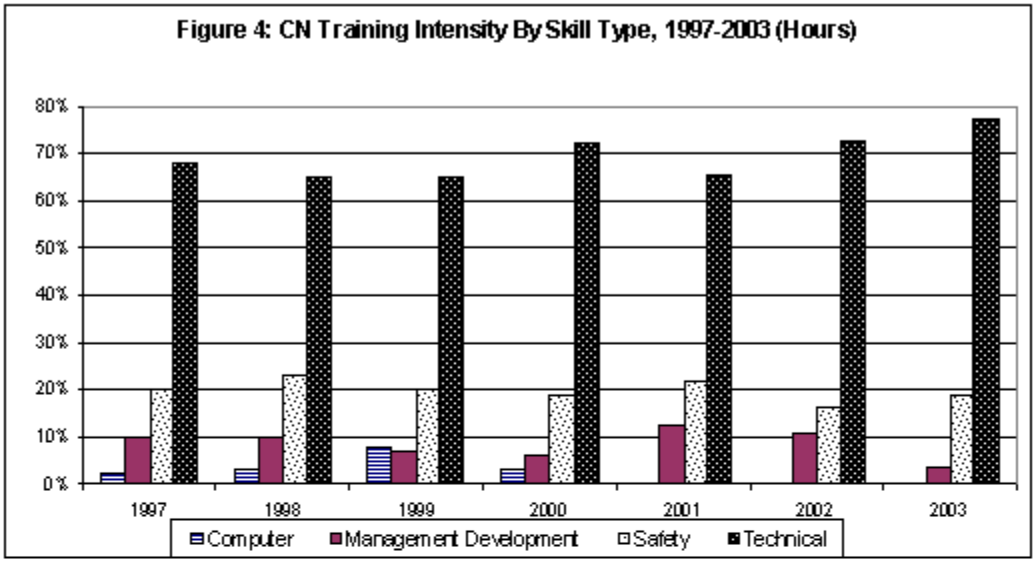

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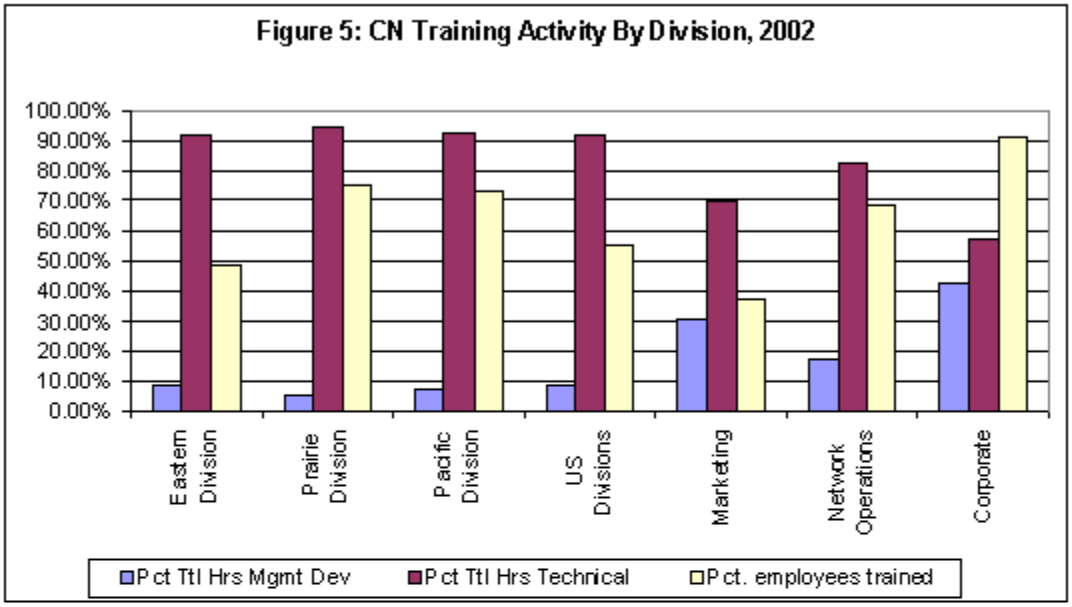
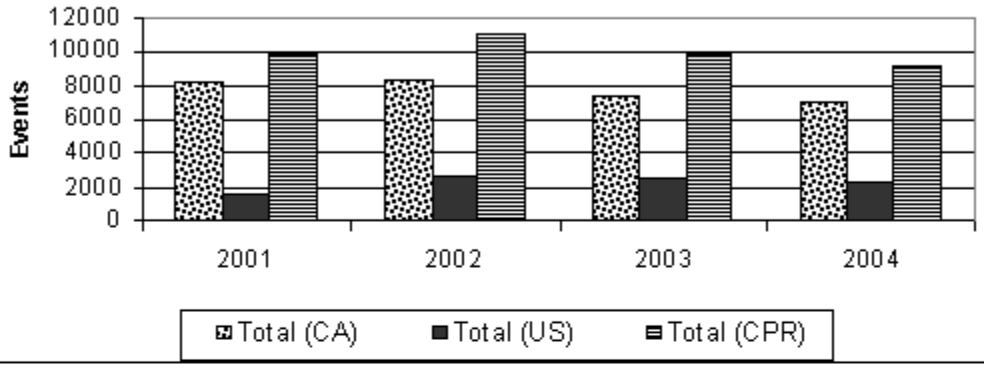


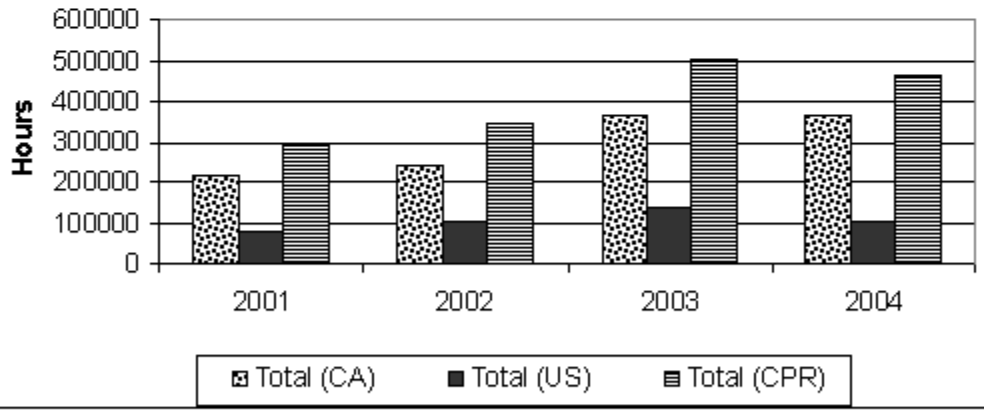
Source: Data provided by CN upon request.

Figure 6: Training Events at CPR in Canada and the US, 2001-2004



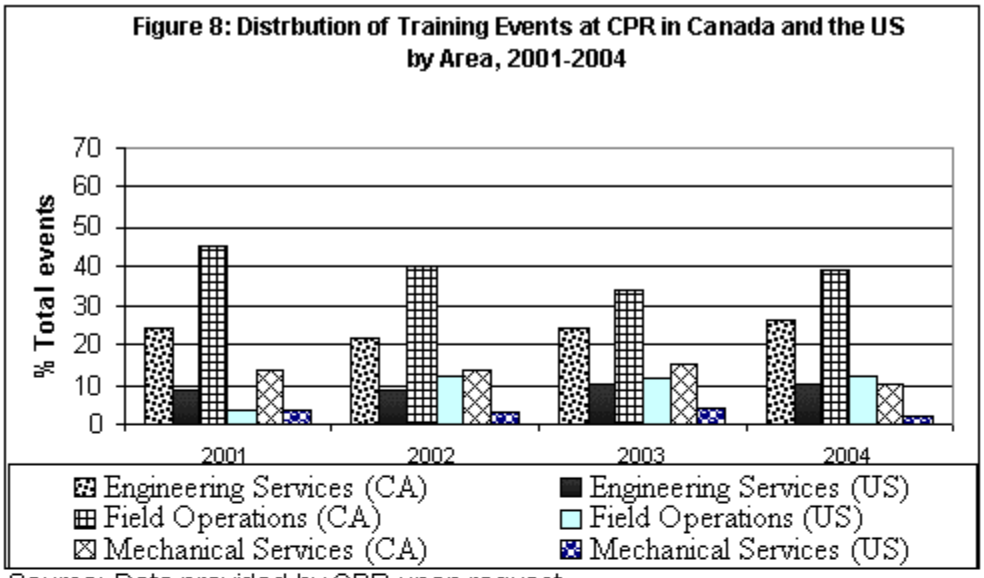
Source: Data provided by CPR upon request.

Figure 7: Training Hours at CPR in Canada and the US, 2001-2004



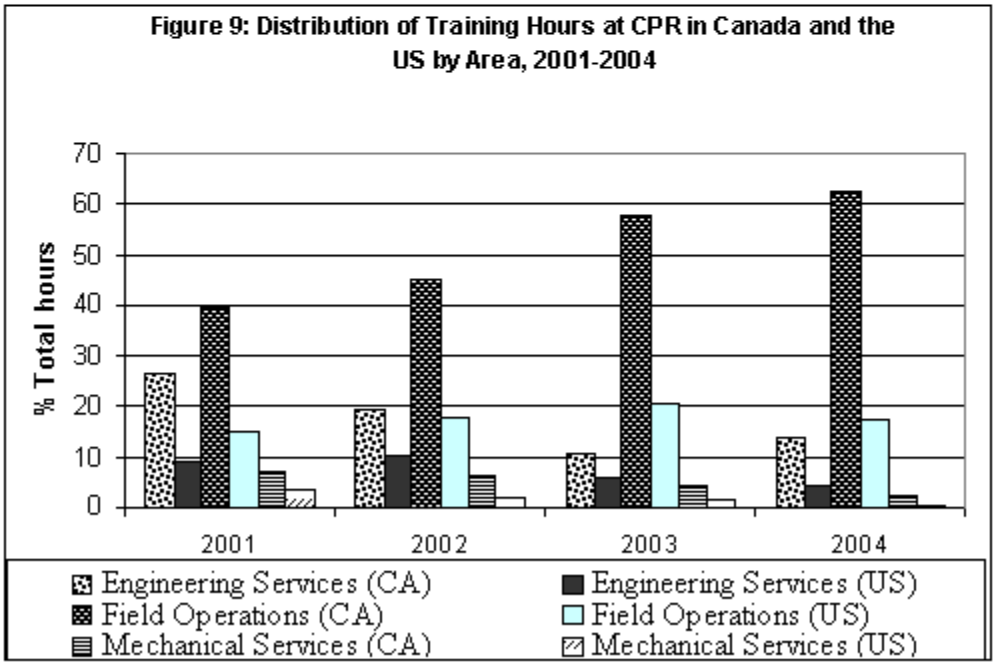
Source: Data provided by CPR upon request.

Figure 8: Distrbution of Training Events at CPR in Canada and the US by Area, 2001-2004



Source: Data provided by CPR upon request.

Figure 9: Distribution of Training Hours at CPR in Canada and the US by Area, 2001-2004



Source: Data provided by CPR upon request.

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Appendix 1: Examples of Interview Protocol

A. Training and Development Interview Type I

- How would you characterize the purpose and scope of people development at your company?

- Are there specific people development programs that you are undertaking? Please describe the characteristics and scope of people development programs.

- What are the key skill sets associated with the various programs? As examples, are employees trained in interpersonal skills, communication, teams, or skills in the areas of management or technical competencies.

- What are the major functional aspects or objectives of people development (e.g., increase specific skills; adapt to new technology; support changes in business strategy)?

- How is people development implemented across different groups of employees and in different locations (e.g., operations versus management; Canada versus the US)?

- Do priorities vary across different groups of employees and in different locations (e.g., operations versus management; Canada versus the US)?

- What new people development initiatives are being undertaken at your company? (e.g., e-learning)?

- Are there any unique characteristics of your human resource development practices that I should know about? (e.g., how training and development is approached or undertaken at your company?)

B. Training and Development Interview Type II

- What are the major purposes of training and what are the major types of training undertaken? (e.g., increase skills; adapt to new technology; support changes in job design; health and safety)

- Please describe the characteristics and scope of training in the areas of: (i) computer; (ii) management; (iii) safety; and (iv) technical skills, respectively.

- To what extent is training in the areas of equipment operations and technical skills driven by: (i) job redesign (i.e., of existing jobs); (ii) new operating technologies.

- Are employees trained in interpersonal skills? (e.g., communication; teams)

- How has the extent of training arising from government regulations (e.g., health and safety) evolved and what is the scope of this training?

- Do training priorities vary across different groups of employees and in different locations (e.g., operations versus management; Canada versus the US)?

- How is training delivered across different groups of employees and in different locations (e.g., operations versus management; Canada versus the US)?

- What new training initiatives are being undertaken at your company? (e.g., e-learning)?

- Are there any unique characteristics of your training practices that I should know about? (e.g., how training and development is approached or undertaken at your company?)

C. Information Technology Interview

- How would you describe the IT strategy of the company?

- How is IT utilized to support people development at the company?

- How is IT relating to people development utilized across different groups of employees and in different locations (e.g., operations versus management; Canada versus the US)?

  Does the use of IT vary across different groups of employees and in different locations (e.g., operations versus management; Canada versus the US)?

- What are the major purposes of IT training and what are the major types of IT training undertaken?

- Please describe the characteristics and scope of the use of IT in support of employee training in the areas of: (i) computer; (ii) management; (iii) safety; and (iv) technical skills, respectively.

- What level of training in the use of IT is provided to employees?

- What new IT initiatives are being undertaken, relating to people development, at your company? (e.g., e-learning)?

- Are there any unique characteristics of your IT practices that I should know about? (e.g., how IT and people development is approached or undertaken at your company?)

D. Human Resources Interview

Competitiveness:

- How would you describe your company's overall competitive strategy?
- What are the main factors affecting your ability to successfully compete in the industry? (i.e., in the business environment; technology adoption; regulatory environment; workforce).
- Is human resources development and training (informally or formally) a part of your competitive strategy? How would you describe its contribution?
- What, if any, are the important Canada-US dimensions of competitiveness?

Human Resources Development:

- How do you view the objectives of human resources development of (i) management and (ii) hourly workers as part of the company's competitive strategy?
- Amongst management staff, what is the (i) strategic and (ii) functional approach taken to people development?
- How is people development being implemented at the various levels of the organization?
- What approaches are being used, if any, to measure the outcomes of the company's people development strategy?
- What, if any, are the important Canada-US dimensions of human resources development?
- Are there any unique characteristics of your people development strategy that I should know about? (e.g., how training and development is approached or undertaken at your company?)

E. Labour Relations Interview

Competitiveness:

- How would you describe your company's overall competitive strategy?
- What are the main factors affecting your ability to successfully compete?
- Is labor relations a part of your competitive strategy? How would you describe its contribution?

Human Resources Development:

- For hourly workers, what is the (i) strategic and (ii) functional approach taken to human resources development?
- Has the labour relations environment at the company affected training and development activity in some way? If so, how?
- What, if any, are the important Canada-US dimensions of human resources development?

Labour Relations:

- What are management's (the union's) main priorities with respect to training (for workers covered by collective agreements)?
- To what extent has training and development activity been influenced by (i) the overall labour relations context and (ii) specific collective agreements?
- Does management (i) consult and/or (ii) formally cooperate with unions regarding training and development activities?
  (e.g., the amount of training activity; the way training is conducted)
- What, if any, are the important Canada-US dimensions of labor relations?
- Are there any other characteristics of the labour relations environment, or the conduct of labour relations, in either Canada or the US, that influence your training strategies, or practices, that I should know about?

Appendix 2: Contract Provision for Training Related to Job Security

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ARTICLE *5* - TRAINING
*5.1 A*n employee who has Employment Security under the provisions of Article 7 of this Agreement, who has his position abolished and is unable to hold work due to a lack of qualifications, will be trained for another position within his seniority group and, failing that, will be trained (if necessary) in order to fill a position in keeping with the provisions of Article 7. Training (if necessary) will be provided for a position for which he has the suitability and adaptability to perform the duties of that position. Such employee will receive the 40 hour straight time pay associated with his last Railway classification during his period of training, (hourly rated employees, 40 times the basic hourly rate; seasonal employees, 100% of the average weekly earnings over the eight weeks preceding lay off).

5.2 An employee who does not have Employment Security under the provisions of Article 7 and has two or more years of Cumulative Compensated Service and:

a) has been laid off or who has been advised that he may be laid off and who is, or will be, unable to hold other work on the Railway because of lack of qualifications, or,
b) will be adversely affected by a notice served pursuant to Article 8 of this Agreement requiring an employee to relocate or suffer a substantia1 reduction in his rate of pay, will be considered for training for another position within or without his seniority group, providing he has the suitability and adaptability to perform the duties of that position and provided he has indicated a willingness to work in the job for which he may be trained whenever vacancies exist.

5.3 At the option of the Company such training may be:
a) at training classes conducted by qualified Railway personnel;
b) at classes conducted by an approved training agency.
The type of training for which an employee may apply must:
i) qualify the employee for a recognized Railway position;
ii) offer a likelihood of employment on the Railway on completion of the training period in a position for which the employee has been qualified; or
iii) in the case of employees with 20 or more years of Cumulative Compensated Service, include the possibility of qualifying the employee for employment within or without the Railway industry.

5.4 An employee covered by the provisions of Article 5.2 will receive 80 per cent of the 40 hour straight time: pay associated with his last Railway job classification during his period of training (hourly rated employees, 40 x the basic hourly rate; seasonal employees 80 per cent of average weekly earnings over the eight weeks preceding layoff). In addition, he will be provided for the training period with books, equipment, tools and allowed other necessary supplementary expenses associated with the training program.

5.5 Should an employee covered by the provisions of Article 5.2 be recalled from layoff before the scheduled completion of training, the employee will be allowed to complete the program without forfeiture of pay or seniority rights,

5.6 Notwithstanding any agreement to the contrary, the Railway may require an employee who has completed a training program to take a position for which he has been trained.

5.7 In addition the Company, where necessary and after discussion with the Union signatory to this Agreement, will provide classes (after work or as arranged) to prepare presently employed Railway employees for upgrading, adaptation to technological change and anticipated new types of employment on the Railways. The cost of such retraining will be borne by the Company.

5.8 Upon request, the subject of training of an employee or groups of employees under any of the above provisions shall be discussed by the General Chairman or equivalent and the appropriate officer of the 'Railway either prior to or at the time of layoff or at the time of the serving of the notice pursuant to Article 8 or as retraining under Article 5.7 is considered. Any unresolved differences between the parties concerning the usefulness of training for future Railway service, the necessity for retraining or the suitability and adaptability of an employee for training, may be progressed to arbitration in the manner provided in Article 2.10 or Article 2.11, as the case may be.

Source: Job Security Agreement* contained in: "Rates of Pay and Rules Wage Agreement No. 41 Superseding Wage Agreement No. 41 signed January 14, 1999 Agreement between Canadian Pacific Railway in respect of employees employed on: Canadian Pacific Railway in Canada and the Brotherhood of Maintenance of Way Employees Rewritten and updated to include changes contained within Memorandum of Settlement and Wage Equity Agreement dated November 30, 2000."

* Job Security Agreement: "Effective June I, 1995 between Canadian Pacific Limited and the Brotherhood of Maintenance of Way Employees Signatory Hereto re: Supplemental Unemployment Benefits; Severance Payments; Training; Relocation Expenses; Technological, Operational, Organizational Changes."