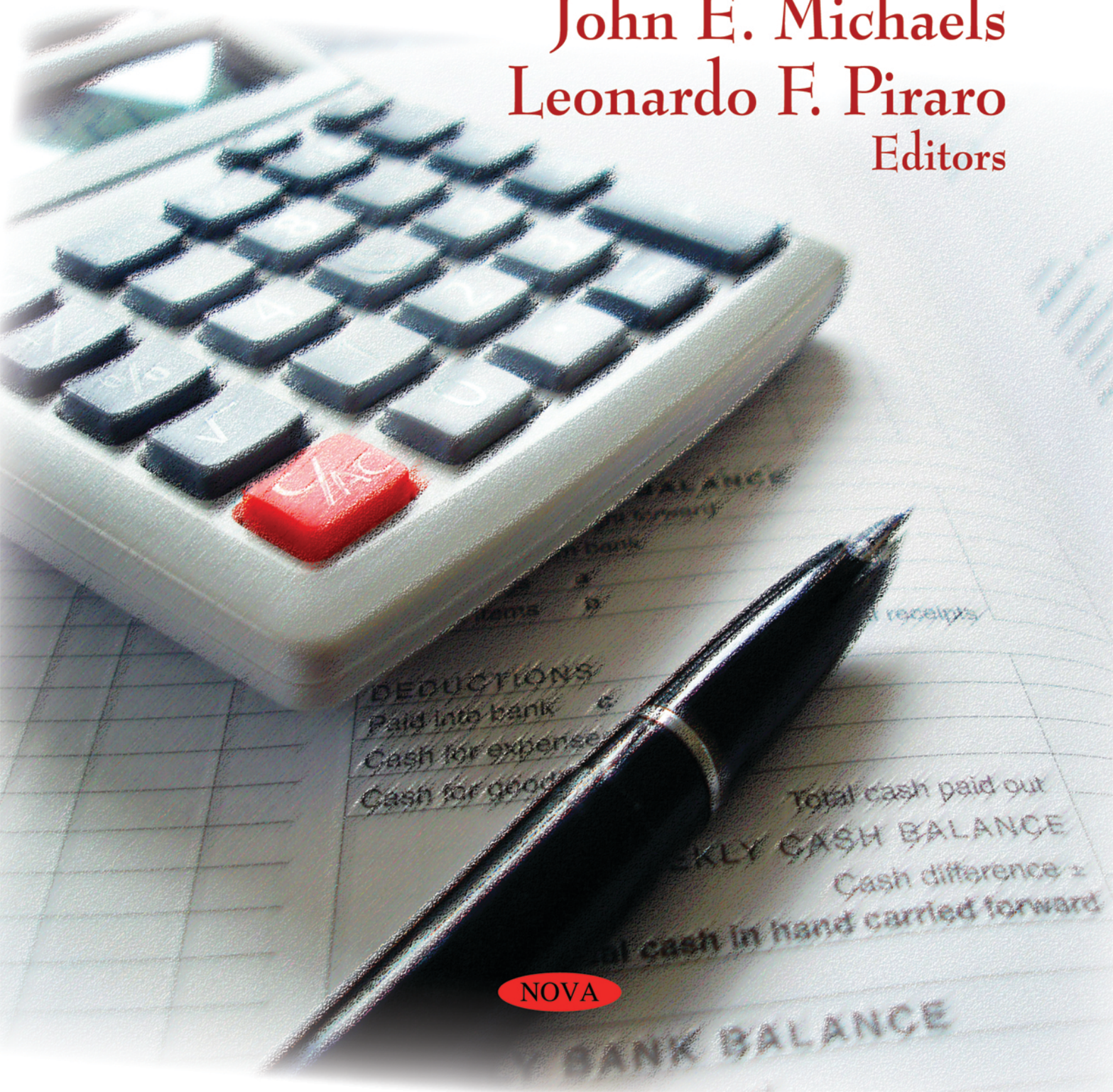
SMALL BUSINESS

Innovation, Problems and Strategy

John E. Michaels
Leonardo F. Piraro
Editors



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SMALL BUSINESS: INNOVATION, PROBLEMS AND STRATEGY

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CONTENTS

PREFACE

Innovation is a fundamental determinant of value creation in business companies and can also become a key to successful economic growth. The innovative process and innovative effort of companies are explored and evaluated in this book. Some of the alternative strategies available to the entrepreneur are also examined, most notably the proposition that a selective approach to growth opportunities can be an effective remedy to the familiar "limited sources of financing" constraint. This book suggests transforming a model of tax compliance to a model of compliance in organizations. The model considers the power of authorities and trust in authorities as the main moderators of compliance. Procedural fairness and responsive regulation are discussed as ways of increasing trust in organizations.

The start-up of small and medium enterprises (SMEs) is attracting considerable attention due to their potential contribution to innovation. Using firm-level, industry-level, and regional data, this book examines the determinants of R&D investment by start-up firms in the manufacturing sector. The common features of the development of SMEs are also discussed. Business development services (BDSs) have the potential to provide significant assistance to developing countries, but the market for BDS products is underdeveloped. Thus, this book explores the different strategies to build capacity not to only desseminate transferred knowhow, but also to localise knowhow development. Finally, this book reviews some historical, interspersed with current unpublished, examples of how the commercialization gap between science and business can be closed to the benefit of each. How the scientific/academic community can derive maximum benefits from collaborating with business is also discussed.

Expert Commentary - The growing anthology of contemporary business platitudes includes the caution against attempting to solve organizational problems by “throwing more money” at them. Indeed, it is not uncommon for lenders to raise this concern when they feel that a small business borrower has reached its level of prudent debt usage. This commentary examines some of the alternative strategies available to the entrepreneur, most notably the proposition that a selective approach to growth opportunities can be an effective remedy to the familiar “limited sources of financing” constraint. In this regard, the *Customer Profitability Analysis* (CPA) typology may provide the entrepreneur with some useful insights for managing growth.

Short Communication A - The present article suggests transforming a model of tax compliance to a model of compliance in organizations. The model considers the power of authorities and trust in authorities as the main moderators of compliance. Authorities can

either enforce compliance to organizational goals through surveillance and punishment or enhance voluntary compliance through communicating trust. A trusting environment can have positive effects (e.g., reducing transaction costs, extra-role behavior, increasing spontaneous sociability, appropriate forms of respect) on different organizational levels of interaction, whereas distrust in organizations can have several disadvantages (e.g., rigid communication, destructive behavior), especially for small business companies. Procedural fairness and responsive regulation are discussed as ways of increasing trust in organizations.

Short Communication B - It is a common sense that innovation is a fundamental determinant of value creation in business companies and can also become a key to successful economic growth. Drucker (1985) states that "innovation is the specific tool of entrepreneurs". This definition shows that incorporating innovation is a key challenge facing entrepreneurs and small to medium-sized enterprises (Tidd et al. 2001). Exploring the vast library of definitions of innovation we consider that it is necessary to answer to some questions for deeper understanding of innovation. Is innovation a process, is it a strategy, a cross - functional team or a new, to the world, process? Also, is innovation a management technique or a leader responsibility and finally what is the difference between innovation and invention? Answering these questions, managers could become able to recognize innovation when it is happening right in front of them.

In this paper we will also explore factors which assist or hamper the innovation process. Finally we will approach some measuring aspects of the total innovative effort of companies focusing in their financial reports and especially in their tangible and intangible investments.

Chapter 1 - The start-up of small and medium enterprises (SMEs) is attracting considerable attention due to their potential contribution to innovation. However, few econometric studies have been carried out on the determinants of R&D by start-up firms. Using firm-level, industry-level, and regional data, this chapter examines the determinants of R&D investment by Japanese start-up firms in the manufacturing sector. Specifically, this study employs a probit analysis on the probability of R&D investment and a Tobit analysis on the R&D intensity. Empirical results demonstrate that firm size and appropriability have significant positive impacts on both the probability of R&D investment and the R&D intensity, while technological opportunity and the regional agglomeration of research institutes and of human resources have significant positive effects on the R&D intensity. These findings underline the importance of the regional intellectual infrastructure in promoting R&D of start-up firms.

Chapter 2 - The chapter discusses the concept of leadership in entrepreneurial firms. A review of the literature on leadership theory and the importance of leadership in orgnaisations, particularly those that aim for growth through additional markets and innovation, is presented. This is followed by results from a qualitative study of seven firms that have achieved entrepreneurial growth as a result of a deliberate leadership strategy. These firms were all listed on the 2007 *Enterprise*250 ranking of small entrepreneurial firms by the Scottish business magazine *The Scottish Business Insider*, and had subsequently submitted for an award for Best Leadership Strategy to the *Scottish Business Insider/Scott Moncrieff* E250 awards event in November 2007. Results are measured by increases in turnover/profits, but the study of the implementation and operation of the strategy involves qualitative analysis of in-depth case studies of the seven firms. Results suggest that organisational growth has been achieved by charismatic transformational leadership, together with reward structures that

provide employees direct financial incentives and return, and monitor their activity closely. Thus, both transactional and transformational leadership strategies are observed in tandem.

Chapter 3 - Taiwan's speedy economic development and the abundant SMEs have long been attracting attention. This chapter shows an inner drive inherited within the SME sector that promises her later success. To begin with, our regression analysis shows an innovative SME sector built first upon labor efficiency and then capital efficiency.

Three common features of the development of SMEs are also discussed in this chapter. First, we notice the pro-cyclical nature of the importance of SMEs. Second, SMEs are predominant in the service sector, however, their contributions to the economy are not so impressive when compared with SMEs in the manufacturing sector. Third, it is the movements of SMEs within each industry instead of the industrial restructuring that make for the evolution pattern of the SME sector.

Finally, we will show how Taiwan’s innovative SME sector nurtures entrepreneurial resources. The factors constitute the right institutional backgrounds for the emergence of Taiwan's entrepreneurial culture is also identified in this chapter.

Chapter 4 - The attainment of socio-economic goals in developing countries depends on being able to improve the performance of the myriad micro, small and medium sized interprises (MSMEs) in which so many people are employed. Business development services (BDSs) have the potential to provide significant assistance, but the market for BDS products is also underdeveloped. Ideally, it would grow organically from service-provider and client interaction, but there is a lack of local BDS providers producing and delivering marketable products. The international donor community have found from experience that initiatives to increase the supply of services using knowhow-transfer from developed to developing countries can be counterproductive.

An alternative strategy is to build capacity not to only to disseminate transferred knowhow, but also to localise knowhow development, and this was the objective of a small team acting within the remit of a project in Tanzania using an action learning approach aspiring to be an example of organic market development. The team’s facilitators adopted strict criteria for marketable BDS products: they should be appropriate, affordable and relevant to actual clients’ development intentions, and to be fit for purpose they should be capable of adding measurable value to business performance. Applying these criteria to develop and commercialise BDS product ideas proved to be a significant challenge. Nevertheless, BDS products were produced and piloted with clients in different sectors of industry and useful lessons have been learned from the experience.

Chapter 5 - Using nationally representative data from surveys conducted in Botswana, Kenya, Malawi, and Zimbabwe, this chapter examines three themes in the microenterprise literature: microfinance, the legal environment, and income contributions. The data from these four countries were collected using the same survey methods, sampling techniques, and questionnaire formats, which allows for an accurate comparison of the microenterprise sector across countries. Furthermore, the large sample size, ranging from 1,200 to 11,000 enterprises in the four countries, and the in-depth questionnaire helps to examine microenterprise issues in greater detail. Regarding the first theme, microfinance, the data show that less than one-quarter of proprietors perceive the lack of operating or investment funds as one of their two major constraints. Furthermore, this lack of funds may not necessarily reflect a need for credit. Many proprietors report that they do not need credit and are unlikely to apply for credit. Similarly, very few proprietors see the legal environment as a constraint. Less than one

percent of proprietors in all four countries cite the legal environment as one of their two most important constraints. While a minority of enterprises may register following the relaxation of government regulations, most enterprises will continue to operate informally. Finally, despite very low earnings, microenterprises help to alleviate poverty given their large contributions to household income. Over 55 percent of all enterprises contribute half or more of household income. They also contribute to national income based on the large size of the sector.

Chapter 6 - Science can be basic (or pure) and curiosity driven, or applied, in which new products or processes are developed or creative solutions to problems are sought. On the other hand, business primarily focuses on profit generation and growth. However, business itself is represented by both the service and manufacturing sectors. The benefits of science to the latter would be through the development of new products and improvement of their processes, whereas the former could also benefit from logical scientific thinking and investigation. Because small business often focuses on survival and does not have the resources to conduct the investigations required for an early response to new developments and market forces, its competitiveness can suffer. On the other hand, scientists are engrossed in their new discoveries and are usually not as adept at promoting these where they can do the most good. This chapter is a review of some historical, interspersed with current unpublished, examples of how the commercialization gap between science and business can be closed to the benefit of each. Opportunities for small and larger enterprises are described, primarily in the manufacturing sector, but benefits of science to members of the service sector that rely upon natural resources, such as drycleaners and forensic laboratories, will also be discussed. The strategies proposed highlight the importance of networking and facilitation by a 'champion' for the communication of innovations in a competitive environment, and the importance of marketing skills in an age of technological transparency, revolutionary advance in science, environmental sensitivity and dwindling resources. Examples range from the utilization or production of high-tech innovations to the implementation of the simplest measures for cutting costs and using resources more efficiently in small business. How the scientific/academic community can derive maximum benefits from collaborating with business is also discussed.

Chapter 7 - Since the early 1960s, minority participation "goals" have been an integral part of federal policies to promote racial and gender equality in contracting on federally financed construction projects and in connection with other large federal contracts. Federal contract "set-asides" and minority subcontracting goals evolved from Small Business Administration (SBA) programs to foster participation by "socially and economically disadvantaged" entrepreneurs (SDBs) in the federal procurement process. Minority group members and women are presumed to be socially and economically disadvantaged under the Small Business Act, while non-minority contractors must present evidence to prove their eligibility. "Goals" or "set-asides" for minority groups, women, and other "disadvantaged" individuals have also been routinely included in federal funding measures for education, defense, transportation, and other activities over much of the last two decades.

The U.S. Supreme Court has narrowly approved of congressionally mandated racial preferences to allocate the benefits of contracts on federally sponsored public works projects, while generally condemning similar actions taken by state and local entities to promote public contracting opportunities for minority entrepreneurs. Disputes prior to *City of Richmond v. J.A. Croson* generated divergent views as to whether state affirmative action measures for the benefit of racial minorities were subject to the same "strict scrutiny" as applied to "invidious"

racial discrimination under the Equal Protection Clause, an "intermediate" standard resembling the test for gender-based classifications, or simple rationality. In *City of Richmond,* a 5 to 4 majority resolved that while "race-conscious" remedies could be legislated in response to proven past discrimination by the affected governmental entities, "racial balancing" untailored to "specific" and "identified" evidence of minority exclusion was impermissible.

Until *Adarand Constructors, Inc. v. Pena*, however, a different more lenient standard was thought to apply to use of racial preferences in federally conducted activities. The majority there applied "strict scrutiny" to a federal transportation program of financial incentives for prime contractors who subcontracted to firms owned by socially and economically disadvantaged group members. Although the Court refrained from deciding the constitutional merits of the particular program before it, and remanded for further proceedings below, it determined that all "racial classifications" by government at any level must be justified by a "compelling governmental interest" and "narrowly tailored" to that end. But the majority opinion, by Justice O'Connor, sought to "dispel the notion" that "strict scrutiny is 'strict in theory, but fatal in fact,'" by acknowledging a role for Congress as architect of remedies for discrimination nationwide. Bottom line, *Adarand* and its progeny suggest that racial preferences in federal law or policy are a remedy of last resort, which must be adequately justified and narrowly drawn to pass constitutional muster.

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Expert Commentary

CUSTOMER PROFITABILITY ANALYSIS: A SMALL BUSINESS PERSPECTIVE

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INTRODUCTION

The growing anthology of contemporary business platitudes includes the caution against attempting to solve organizational problems by "throwing more money" at them. Indeed, it is not uncommon for lenders to raise this concern when they feel that a small business borrower has reached its level of prudent debt usage. This commentary examines some of the alternative strategies available to the entrepreneur, most notably the proposition that a selective approach to growth opportunities can be an effective remedy to the familiar "limited sources of financing" constraint. In this regard, the *Customer Profitability Analysis* (CPA) typology may provide the entrepreneur with some useful insights for managing growth.

SMALL BUSINESS AND SUSTAINABLE GROWTH

It is a fundamental tenet of entrepreneurial finance that growth must be managed. Many students, be they young business administration undergraduates, with little practical experience, or middle managers in executive training programs, are initially surprised to learn that the achievement of increasingly higher sales levels can place the small firm in serious jeopardy. Too often, small businesses set aggressive revenue targets without taking into account the costs of acquiring and retaining those sales. In addition, the inextricable connection between sales activity and the company's base of invested capital is easily overlooked: it is not uncommon for business failures to be attributed to revenue increases that outpace additional investments of equity capital (Davidson and Phillips, 1990).

The hazards of this "growth trap" are well-documented, including lack of adequate working capital to support growth in accounts receivable and inventories, strained personnel

resources, compromised service standards and overtaxed information systems. Those who wish to maximize their growth opportunities must contend with the inescapable realities of their firm's *sustainable growth rate,* defined as the rate at which a firm can grow without issuing new debt or equity (Brealey et al., 2003). This maximum level of growth is governed by the interplay of several basic financial variables, including asset utilization, sources of debt financing, profitability and distribution of earnings (Higgins, 1977).

The dynamics of the 'steady profitability, yet low cash flow' syndrome is best demonstrated through an example. Consider a hypothetical small enterprise which, for its most recent fiscal year, has reported sales of $1,200,000 and net profits of $ 72,000, thus resulting in a six percent profit margin. The accompanying year-end *Balance Sheet* is presented in Table 1.

Table 1. Balance Sheet
(for the 12-month period ended, Dec. 31, xxxx)

Cash	$ 13,600	Accounts Payable	$ 42,000
Accounts Receivable	237,000	Accruals	21,000
Inventories	386,200		
Total Current Assets	636,800	Total Current Liabilities	63,000
Net Fixed Assets	203,200	Long Term Debt	400,000
		Capital Stock	248,000
		Retained Earnings	129,000
Totals	**$ 840,000**		**$ 840,000**

If the objective is to determine the firm's approximate need for external funding over the course of the next fiscal year, we would require some basic financial data and assumptions:

- Sales are expected to increase by 15 percent to $1,380,000
- The profit margin of six percent will remain unchanged
- The assets/sales relationship (70%) will continue to hold; the 15% sales increase will necessitate an expansion of the asset base to $966,000, which translates into an asset buildup of $126,000 during the year
- At the same time, the company will have the benefit of "spontaneous financing" through its suppliers and accrued expense accounts: if this item continues to represent 5.25 percent of sales ($63,000/$1,200,000), then there will be $9,450 in new short term financing support to help defray the above $126,000 investment in new assets.

In summary, this simplified example[1] relies on "percentage-of-sales forecasting" to yield a net financing requirement of $***33,750***, found by comparing the $82,800 of net earnings (.06

[1] To be sure, the result here can be only an approximation, given that the number will be lower if the operation enjoys excess capacity (thus eliminating the need to invest in certain fixed assets), or greater should there be

x $1,380,000) to the $116,550 needed to maintain the balance sheet ($126,000 - $9,450). Table 2 depicts the pro-forma statement incorporating these changes.

Table 2. Pro-forma Balance Sheet

Cash	$ 15,640	Accounts Payable	$ 48,300
Accounts Receivable	272,550	Accruals	24,150
Inventories	444,130		
Total Current Assets	732,320	Total Current Liabilities	72,450
Net Fixed Assets	233,680	Long Term Debt	400,000
		Capital Stock	248,000
		Retained Earnings	211,800
Totals	**$ 966,000**		**$ 932,250**
		Shortfall	**$ *33,750***

Without question, this planning technique is a relatively simplistic substitute for more detailed approaches, such as cash flow forecasting or sensitivity analysis; however, it does provide a useful platform for examining the inter-relationships between sales growth, income statement profitability, asset efficiency, and short-term funding sources.

Note that in the foregoing example, the $33,750 funding problem would be easily resolved if the business could readily access this amount of new debt financing and/or the owners were prepared to take on new investors. However, neither of these scenarios would be palatable for most entrepreneurs, whose behavior will typically be consistent with pecking order theory, which holds that all available internal sources of funding will be fully exploited before external sources are considered.

While a more efficient utilization of assets or improved profitability – through higher margins or lower overhead - would help ameliorate funding pressures, tangible results do not come easily or quickly.

Interestingly, the above delineation of key decision variables conforms to the various dimensions of "bootstrap financing" presented by Winborg and Lanstrom (2000):

- *Delaying Payments* (of taxes, accounts payable, etc.) encompasses the aforementioned spontaneous financing dynamic;
- *Minimizing Accounts Receivable* (faster invoicing, collecting advance customer payments), and *Minimizing Investment* (used equipment) both address the notion of asset utilization;
- *Sharing Resources with other businesses* (bartering, consignment-based purchases) and *Private Owner Financing* (personal credit line, operate from home) represent strategies for improving profitability

scheduled debt repayments or common share dividends, or should the net earnings figure overstate the company's free cash flow.

Clearly, addressing the problem of funding shortfalls within the small firm may require a multi-faceted solution. Accordingly, a key premise of this article is that once management has exhausted the various bootstrapping approaches, the alternative of focused growth ought to be given serious consideration as a decision variable. For instance, if the mythical company featured above were growing at a rate of only 10 percent, its need for external funding would evaporate! ($79,200 in available profits against $77,700 in net investment needs [.70 - .0525] x $120,000)

MANAGING GROWTH THROUGH CUSTOMER PROFITABILITY ANALYSIS

Whether it is the Bank of America's monthly profit calculation on each of its customer accounts to determine service levels for those accounts, or the efforts of FedEx to transform "expensive" customers into profitable ones by levying higher shipping prices, *Customer Profitability Analysis* (CPA) has enjoyed growing popularity as corporations strive to differentiate customers who add value from those who consume a disproportionate share of company resources (whether through product returns, after-sale servicing requests, or continual enquiries). This information can then be used as a basis for determining the level of service that these respective customers receive and what they are charged (Society of Management Accountants of Canada, 2000).

In essence, CPA typically relies on a detailed *activity-based costing* (ABC) analysis, which, through the gathering of costs by function (e.g. delivery, invoicing, inspection), allows one to trace all avoidable costs to their respective customers, products, distribution channels, or processes. The emphasis is on the activities required to provide each service and that service's consumption of the activities. It is not the intent of this article to provide a technical description of ABC, but it is important that the reader recognizes the value of this technique, both for improving product/service costing (through the elimination of arbitrary allocations of overhead), as well as identifying unprofitable customers. Indeed, if companies don't scrutinize the profitability of their customers "…at a granular level, and price (products and services) accordingly, they run the risk of spending too much time and effort on serving their least profitable clients." (Benzacar, 2006: 17).

An effective information system will record all applicable costs by product, order and account, encompassing, for instance, selling, transportation, and design expenses (Shapiro et al., 1987). In effect, a fully functioning ABC system would drill down into the array of servicing and overhead costs, so that they are not treated as period costs and simply averaged across products or customers. At the risk of over simplifying the ABC approach, it can be thought of in the same way as individual checks at a restaurant.

The resulting data allows management to determine the extent to which different customers are responsible for different costs. In fact, given "…the almost gravitational pull of resources to the largest customers" (Howell and Soucy, 1990), it seems imperative that management have a clear sense of the true costs of off-peak orders, customer training, technical support and the like. Once equipped with this type of information, it becomes possible to take into account not just revenue potential, but also *cost to serve,* when considering how to manage your relationship with particular customers.

This increased focus on customers and their true worth can be invaluable to small and medium-sized enterprise (SME's) that are faced with the aforementioned challenges of rapid growth. It should be clear that the folly of targeting high volume customers may well lead to the situation depicted in Table 2; however rather than reacting by engaging in ill-conceived price increases or product line/service cutbacks - that can impact on competitive positioning as well as employee morale - management requires objective information to inform its decisions both in terms of how to be more discriminating with new leads and how to transform unprofitable customers into profitable ones. With regards to the existing customer base, it is not a question of setting out to jettison the most demanding, unprofitable customers; instead the objective should be to identify the segment of "nearly profitable" customers who could be elevated to the profit zone through such changes as fewer custom orders or stricter credit terms, or any one of a number of internet-based alternatives, including online ordering, self-serve kiosks or web-based product support (van Raaij, 2005).

CUSTOMER PROFITABILITY ANALYSIS WITHIN THE SMALL BUSINESS CONTEXT

It is the author's experience that most small business managers will readily admit that their organizations dedicate too much time and energy to marginally profitable or even unprofitable accounts. As an example, one SME to which I provided consulting services found itself in this exact situation, with 80 percent of its sales being generated by only 10 percent of its customers. Consequently, with the assistance of the owner-manager of this $4 million business, a classification system was developed whereby each of the 289 customers was placed into one of five categories based on ratings of the following characteristics (It may be that in other situations, the number of orders per month or the extent of post-sale servicing would be more appropriate discriminators):

1. Complexity of a typical order's technical specifications;
2. Payment habits; and
3. Demands for price concessions and/or special delivery

Among the specific policies that emerged from this review were i) the stipulation that down payments accompany orders beyond a certain size from "Type 5" clients, and ii) the application of preferred pricing on orders from "Type 1" clients.

This sort of organic, subjective categorization of customers might be best suited to most SME's, given the reality that the costs of gathering and maintaining the necessary data for the CPA template would be both difficult to justify and beyond the capability of the organization's accounting and IT functions. The primary value for small business managers would stem primarily from the insights one obtains by engaging in the process of analyzing their customer base.

Another important dimension of any discussion of customer relationship management is the notion of "lifetime client value." If the analytical techniques inherent in CPA were to be rigidly applied by the small firm, there may be inadequate consideration of the ability of a given customer to add greater value over time, whether through increased purchasing activity,

referrals of new business or greater ease in servicing the account. Entrepreneurs tend to have a close personal relationship with the core group of customers that they have cultivated over time, and as a result, are well positioned to understand these subtleties, regardless of the contribution margin currently being generated by the account.

Hence, for the small firm, it may be a case of 'CPA, if necessary, but not necessarily CPA.' It is not so much the adoption of proper cost accounting protocols but rather the requisite analytical mindset that can move you towards determining which of your customers are subsidizing unprofitable accounts and which are actually destroying value. As illustrated in the above case, a company-specific approach to evaluating your customer base, which combines financial and non-financial measures, may provide a reliable platform for such decisions as the re-pricing of certain services or even the conceding of certain customers to the competition (based, for instance, on geography or frequent special orders); in turn, the probability of generating the 'wrong revenues' can effectively be minimized.

In conclusion, a controlled growth strategy, while anathema to the entrepreneurial spirit, can be pivotal to reducing the financial (and organizational) stresses brought on by rapid growth, while also helping the enterprise to build a more profitable customer base.

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Short Communication A

COMPLIANCE TO AUTHORITIES: IMPORTING IDEAS FROM TAX PSYCHOLOGY TO ORGANIZATIONAL PSYCHOLOGY

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ABSTRACT

The present article suggests transforming a model of tax compliance to a model of compliance in organizations. The model considers the power of authorities and trust in authorities as the main moderators of compliance. Authorities can either enforce compliance to organizational goals through surveillance and punishment or enhance voluntary compliance through communicating trust. A trusting environment can have positive effects (e.g., reducing transaction costs, extra-role behavior, increasing spontaneous sociability, appropriate forms of respect) on different organizational levels of interaction, whereas distrust in organizations can have several disadvantages (e.g., rigid communication, destructive behavior), especially for small business companies. Procedural fairness and responsive regulation are discussed as ways of increasing trust in organizations.

INTRODUCTION

A general challenge for authorities is to establish and to maintain compliance with rules. This challenge is pertinent from the micro to the macro level, and is faced for example by teachers, by police officers, by managers, and by tax officials. Given this commonality, in the present chapter we import a model of tax compliance, and transfer it to compliance with managers and supervisors in organizations. In section 1, the model is introduced, and its main

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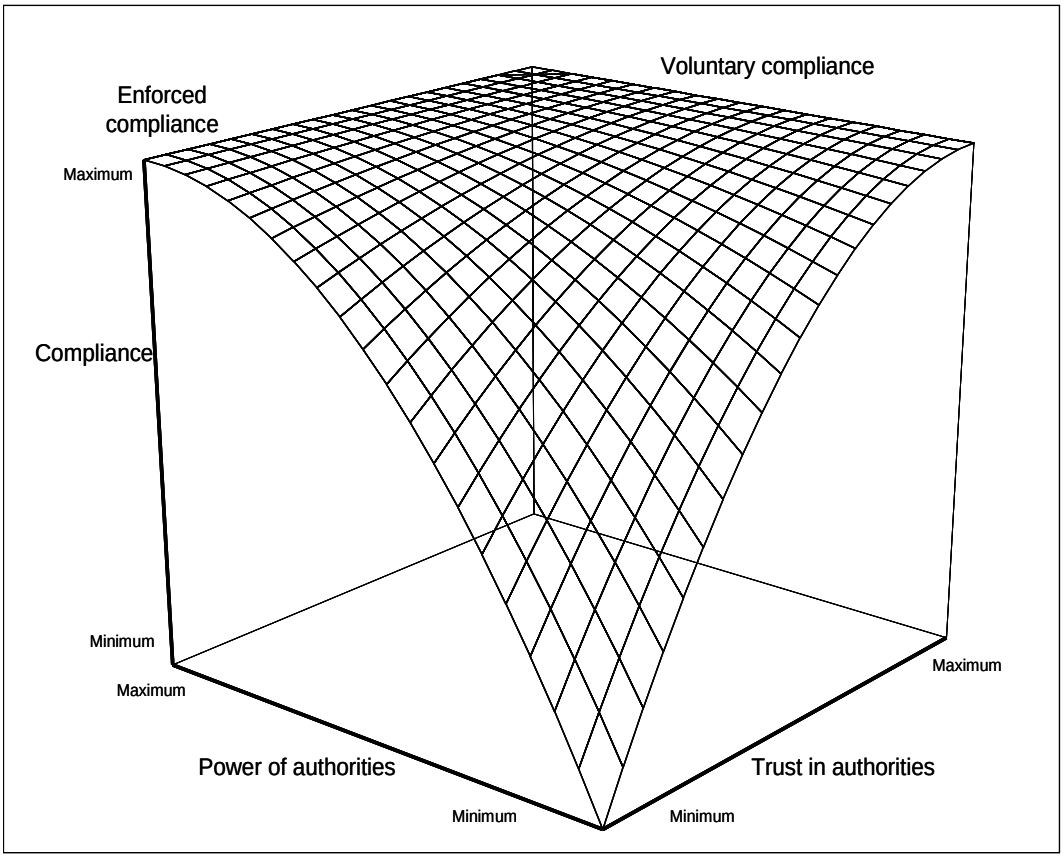
components, power and trust in authorities, are discussed in terms of compliance to organizational goals. Section 2 focuses on selected issues of trust in organizations. Section 3 discusses the importance of procedural fairness and the usefulness of responsive regulation for organizational behavior. Section 4 summarizes the core issues of this chapter.

1. IMPORTING A MODEL OF TAX COMPLIANCE INTO ORGANIZATIONS

The question of how to establish, increase, and maintain compliance with authorities is not only a matter on the level of two interacting partners or on the group and organizational level, but also a matter on the societal level, and discussed with regard to issues like crime, welfare fraud, or tax evasion. In the latter area, recently a model of tax compliance - the "slippery slope" model - was developed (Kirchler, 2007; Kirchler, Hoelzl, & Wahl, 2008), which considers differences in tax compliance when either trust in tax authorities or power of tax authorities is prevailing. The model will be presented briefly and discussed in terms of its relevance for organizations.

In research on tax compliance, two major streams can be distinguished. One stream, mainly pursued by economists, treats tax behavior as resulting from the calculation of benefits and costs, focusing mainly on issues like audit probabilities and fines. The other stream, mainly pursued by psychologists, treats tax behavior as resulting from knowledge about taxation, attitudes towards the government and tax authorities, social norms, and perceived fairness of the tax system. Within each stream, empirical findings on tax compliance are often contradicting. Our model suggests a way of integrating these two perspectives by differentiating between enforced and voluntary tax compliance, and by viewing power and trust as two independent regulating dimensions. The model is adopted here to compliance in organizations, and depicted in Figure 1.

The model suggests that in a climate of distrust the power of authorities to enforce compliance is effective. In such a climate, a calculation of costs and benefits of compliance will prevail. When authorities can monitor behavior and punish misconduct, compliance is transformed into a decision under uncertainty: Non-compliance brings higher benefits for the individual, but when detected and punished, it brings higher costs. The greater the power of authorities, the less attractive non-compliance becomes. In the tax context, high audit rates and high tax fines would make tax payers compliant for cost reasons. In the organizational context, constant supervision and severe punishment for misconduct would make employees compliant, because non-compliance is too costly. However, supervision and punishment are cost units for organizations. Big enterprises account these costs and can easily afford to apply monitoring systems on work places. Therefore big enterprises can force their employees to be compliant without losing profit. For small enterprises, monitoring facilities do not pay off for a few employees. Therefore small enterprises cannot force their employees to comply to organizational goals and they have to find other possibilities to encourage their employees to follow organizational requirements.



Note: Adopted from Kirchler (2007, p.205) with permission from Cambridge University Press.

Figure 1. A model of compliance (Kirchler, 2007).

The model, however, also suggests that power is not the only way to gain compliance. Compliance can also be increased by trust in authorities. The resulting compliance is voluntary compliance – individuals do not comply out of cost/benefit calculations, but out of a sense of commitment to a common cause, because it is "the right thing to do". When authorities are viewed as being part of a joint pursuit, as acting in the common interest, then the difference between individual and authorities, the "social distance" (Bogardus, 1928), decreases. In the tax context, trust in the tax authorities, a favorable view of the tax system as being fair, and high tax morale in the sense of taxpaying as a common duty, would result in high voluntary tax compliance. In the organizational context, trust in management and supervisors, a favorable view of procedures and outcomes as being fair, and high commitment in the sense of being part of a team would result in high voluntary compliance.

Putting together these two dimensions in the model depicted in Figure 1, the front corner of the model represents a condition in which trust in authorities and power of authorities are weak. In this condition individuals are likely to engage in rational decision making and try to maximize their outcomes, hence compliance will be low. Starting from there, compliance can be increased in two ways. First, when power of authorities to monitor and to punish is increasing under the condition of low trust, compliance will increase. Enforced compliance

results of high power of authorities. Second, when trust in authorities is increasing under the condition of low power, compliance will increase as well. Voluntary compliance results of high trust in authorities. According to the model, both high power of authorities and high trust in authorities have a positive impact on compliance.

Consulting the model from the view point of organizations suggests similar effects on employees' working efforts and compliance to the requests from supervisors and managers as on taxpayers' compliance. In working conditions of weak power of supervisors and low trust in supervisors employees will try to maximize their individual outcomes. Employees in this situation will not only show reduced commitment, low organizational citizenship and minimum working efforts, but will also sabotage the organization. This means that employees will keep their contributions just high enough not to be discharged, or even engage in activities like bespeaking of organizational secrets, or stealing office material. With increasing power of supervisors, but a low level of trust in supervisors, employees' working performance will increase. Due to supervisors' authority to cancel employees' working contracts, non-work related activities will decrease and employees will engage only in activities of their work. In such working situations distrust between supervisors and employees is prevailing and compliance to organizational goals is enforced through the power of supervisors. When monitoring and punishment are perceived as inadequately high, employees will also engage in hunting for a job and quit as soon as they have a new place of employment. In particular for small business companies, a high labor force turnover, which includes high efforts for searching new employees and for training new employees, could have a negative impact on profits.

With increasing trust in supervisors, but low power of supervisors, employees' working performance will increase as well. Due to supervisors' encouragement and assistance for employees, work related activities will increase and employees will show high voluntary engagement in their work. Especially small business companies depend on their employees' cooperation and commitment to company goals. Through perceived trust between supervisors and employees, employees will comply voluntarily to organizational goals. Thus, the model suggests that high working effort of employees will result either when supervisors show high power or when trust in supervisors is high. Tyler (2006) follows a similar line of argumentation when suggesting two different ways of how authorities could gain cooperation from the public. The first way claims that the threat of punishment could encourage compliance. Incentives for compliance and coercion for non-compliance are not always effective mechanisms for creating and maintaining compliant behavior. The second way claims that perceived competence in managing problems could activate citizens to aid the authorities. Considering authorities as having legitimacy leads to citizens feeling obliged to adhere to decisions, policies, and rules (Tyler, 2006).

Our model suggests that compliance can result from different motives – on the one hand, consideration of costs and benefits, on the other hand, obligation and sense of commitment. This distinction reminds of extrinsic and intrinsic motivation, and leads to the question whether the two are compatible or whether the danger of "crowding-out" exists. It seems plausible that constant monitoring undermines a climate of trust, and some work indeed reported that surveillance reduced trust in organizations (Cialdini, 1996; Tenbrunsel & Messick, 1999). However, our model views the power of authorities as the *potential* to carry out monitoring and punishment, not as the *conduct* of these acts. In such a sense, power and trust are not contradicting each other.

Finally, the model highlights the importance of the interaction style the authorities adopt. When authorities see employees or tax payers as mainly motivated by rational considerations, a "cops-and-robbers" style will prevail: Authorities are the police who try to catch miscreants, who in turn do their best to escape. An alternative approach would be a "service-and-clients" style, where authorities see employees or tax payers as clients who might need support and guidance to reach common goals. These considerations will be discussed in section 3. Summarizing, the model argues that trust is a central factor for compliance. In the following section, we will discuss selected topics of trust in organizations.

2. TRUST IN ORGANIZATIONS

There are manifold definitions of trust, but one common aspect is that trust is a phenomenon that occurs in uncertain and risky situations. Someone who can take matters for granted does not have to trust. Someone who is uncertain about how the opponent will react, however, has to hope that the opponent is friendly and does not intend to do harm. Essential for trust is that the trusting person can not be certain about how another individual will react. In addition to the aspect of uncertainty, another essential common aspect is the risk of being harmed. The trusting person abandons control and hands over the own destiny to the goodwill of the trusted person. Research basically contrasts two perspectives: trust as a rational calculus of a goal-oriented actor, and trust as an aspect of relationship quality or attitude (e.g., Lahno, 2002; Petermann, 1992):

(a) Trust as resulting from rational economic considerations is seen as an explicit rational decision (Neubauer & Rosemann, 2006). It is assumed that individuals interpret the information available from interactions and build hypotheses about favorable or unfavorable future behavior of opponents. Such an approach sees trust as the rational decision of an individual to take the risk of being harmed by an opponent. Conscious calculations of the trusting person regard risk, benefits, costs, utilities, and the assumption that the trusted person will not act egoistically (i.e., maximize own outcomes, without regarding the trusting person).

(b) Trust as an aspect of the quality of an interpersonal relationship refers to an emotional facet of the connection to another individual. This feeling forms expectations and action tendencies (Lahno, 2002). Eberl (2003) describes trust as a special quality of relations, i.e., interacting partners ascribe each other positive aspects and intrinsic motivation to maintain the relationship. The quality of the relationship is emotional and results from the interacting partners' experiences with each other. Interacting individuals develop knowledge, emotions, and intentions out of their experiences. Tyler (2003) uses the term "social trust" to distinguish this perspective from calculative trust. Such social trust can have different bases (Kramer, 1999): (i) Dispositional trust refers to trust as a consequence of specific characteristics of the trustor. (ii) History-based trust refers to trust that evolves over time, through interaction with the trustee. (iii) Third-party-mediated trust refers to trust that emerges through information from third parties, e.g., positive gossip about the trustee. (iv) Category-based trust refers to trust as a consequence of belonging to the same social category as the trustee. (v) Role-based trust refers to trust in other

people as a consequence of the role the trustee holds. (vi) Rule-based trust refers to trust as a consequence from certain rules and regulations that govern the behavior of the trustee.

Benefits of trust can be found on different organizational levels. Generally, it is assumed that interactions in which members trust each other (e.g., partners in a relationship, co-workers in an organization, or citizens in a society) are more productive than interactions based on distrust. Trust is an essential condition for cooperation, especially within organizations. Kramer (1999) distinguishes three different benefits of trust: (i) voluntary deference, i.e., compliance with authorities, (ii) reduction of transaction costs, and (iii) spontaneous sociability. These benefits apply to interaction within organizations on different levels. We will discuss two perspectives - interaction among employees, and interaction between employees and supervisors.

Effects of Trust on Interactions between Employees

As outlined above, trust is needed in situations under uncertainty, when people are dependent from each other. People have to be willing to rely on each other, to have enough courage to take the risk of being harmed. Trust among employees increases productiveness via several ways. First, trust serves as a social decision heuristic. Heuristics make individual decision-making processes easier and allow to cut short decisions (Tversky & Kahneman, 1974). If a colleague who is trusted suggests a solution, others are more willing to accept it and save on time and resources. This also becomes clear when consequences of distrust are considered: In such cases, people would double-check each step and suggestion out of fear of being harmed. These are instances of reduced transaction costs. Second, trust increases the flow of information and of mutual support. Trusting colleagues are more likely to supply each other with relevant information, to support each other, and to be more generous with resources. Spontaneous sociability and cooperation, and extra-role behavior are more likely with high trust. As a consequence, unanticipated problems can be resolved more easily (Kramer, 1999). Trust in organizations enhances effective communication, work motivation, satisfaction with work, effective problem solving, and cooperation between co-workers in change processes (Neubauer, 1997).

Effects of Trust on Interactions between Employees and Supervisors

In addition to the above benefits, trust between supervisors and employees can facilitate appropriate (i.e., adaptive) forms of respect to organizational authorities (Kramer, 1999). Productiveness is increased because such respect means that authorities do not have to justify their actions in every single step (Tyler & Degoey, 1996). Second, in case of conflict, resolutions suggested by the authorities are more likely to be accepted (Tyler, 1994). Studies reviewed by Kramer (1999) show that specific attributes of supervisors and subordinates (e.g., consistence, openness, competence) are related to perceived mutual trustworthiness.

In contrast to these benefits of trust, distrust fosters severe disadvantages. For example, research found that both supervisors and employees reported using more influence tactics

when they distrusted the opponent (Wells & Kipnis, 2001). Furthermore, distrusting co-workers are not motivated as much to complete their tasks correctly as trusting co-workers are (Neubauer, 1997). Handing on information is difficult in distrusting organizations, because information is filtered and held back. Other negative effects of distrust are acts of sabotage and theft within organizations, resulting in economic harm. A breach of trust causes an increasingly hostile climate in organizations and therefore also economic damage. Losing open and honest communication between supervisors and employees complicates problem solving and realization of goals. The loss of trust includes that agreements formerly arranged loosely have to be formalized and monitored. Consequently, a breach of trust breeds high transaction costs, whereas encouraging and stabilizing trust between supervisors and employees pays.

3. INCREASING AND MAINTAINING TRUST IN ORGANIZATIONS

The expositions above make clear that high trust is a desirable goal. However, so far there seem to be no clear and easy ways to create such trust. In addition, the asymmetry between trust and distrust is a major challenge: Trust is much easier lost than gained (Kramer, 1999).

Procedural fairness seems to be a major component of building trust. Distributing resources or costs in a certain way may lead to dissatisfaction, but not necessarily to a breach of trust. Guaranteeing that the procedure of distribution is perceived as fair can stabilize or even increase trust in leaders (Robbins, 2001) and consequently stabilize or increase trust in organizations. Legitimizing an organization is only successful when procedural fairness is given and will result in different forms of cooperation (e.g., rule-following, extra-role behavior; Tyler, 2006). Especially the goodwill of leaders, neutrality, and respect are emphasized as important characteristics of fair procedures. Leventhal (1980) accentuates the importance of consistency and impartiality, accuracy and validity of information used in the procedure, possibility to correct potential errors, representativeness, and ethics. Perceived procedural fairness results in trust, acceptance, and cooperation, and consequently in voluntary compliance to organizational goals. Especially for small enterprises, which have to rely on few employees, trust seems to play an important role. To keep a trustful environment, small enterprises should pay particular attention to whether their employees perceive organizational procedures as fair or not. If procedures are primarily perceived as fair, small irregularities will not affect compliance to authorities and organizational goals. If procedures are primarily perceived as unfair, counseling organizations can be hired to restore the perception of fair procedures and trust in organizations.

Another suggestion that can be imported from tax psychology is that authorities reconsider their approach to regulation, and move away from command-and-control strategies. A model of “responsive regulation” (Ayres & Braithwaite, 1992; Braithwaite, 2003) could also be transformed into suggestions for managers and organizational authorities. In that model, individuals are characterized by different “motivational postures” towards authorities, and authorities are supposed to react to these postures with increasing levels of regulation. The lowest level of regulation recommends education and advice about tax regulations and record keeping, whereas the top level suggests prosecution and imprisonment in the case of non-compliance. In the motivational posture of “commitment” (Braithwaite,

2003), people are inherently willing to comply with authorities. The main issue of the model is that it is assumed that most people show such a posture, that taxpayers are trustworthy, and therefore treated with respect. Consequently, the regulatory strategy would be education and service. Transferred to an organizational context, the posture of "commitment" would assume that employees generally want to comply with their supervisors' requirements. In the case that these requirements are not met, the regulatory strategy of education would suggest to train employees so that they can easily meet their work requirements in the future. Informing employees of organizational goals would correspond to the regulatory strategy of service. However, with increasing social distance between the tax authorities and the taxpayers also the demands on the tax authorities increase. When taxpayers – rather than being convinced that everybody should pay his or her share – see no other choice than paying taxes, their motivational posture might shift from "commitment" to "capitulation". In this posture, taxpayers give in to the legal power of authorities. Without the presence of authorities, compliance would disappear, thus enforced self-regulation is required. On this level, the regulatory strategies are examinations of businesses and records, with the focus on education. Also in organizational contexts, the posture of "capitulation" would assume that employees will only comply if employees respect their supervisors' authority. A possible application of the regulatory strategy of examination could be that supervisors routinely inspect their employees' work. When required standards are not met, supervisors should engage in training, corresponding to the regulatory strategy of education. Increasing social distance leads to the motivational posture of "resistance". On this level taxpayers are non-cooperative or resistant. The responsive regulation model suggests audits without punishment or with discretionary punishment. Employees following the posture of "resistance" in organizations do not follow organizational requirements without monitoring. Supervisors should therefore permanently check the working outcomes of employees showing this posture. Non-compliance to working requirements should be compensated by wrongdoers; however, punishment over and above the compensation is not strictly necessary and can be decided in the individual case. Non-discretionary command regulations are suggested for the group on top of the pyramid-like model. Those taxpayers have a motivational posture called "disengagement". On this level, persuasion does not work because those taxpayers condemn the tax system. Tax authorities have to prosecute, imprison, and take away the license in order to increase their compliance (Braithwaite, 2003). Disengaged employees can not be persuaded to comply to organizational goals. Therefore only rigorous punishment and even threats of dismissal could motivate disengaged employees to meet work requirements.

Transformed to organizations, the main input of this model is the general view of employees as being willing to comply and as being trustworthy. However, the model does not propose being naive and trusting whatever the consequences, but to act differentially and also to punish those who do not comply. In light of procedural fairness as discussed above, such an approach could also contribute to trust in organizations by increasing retributive justice.

4. CONCLUSIONS

The economic success of an organization depends on the willingness of individuals to cooperate and to comply. We suggested a model derived from tax psychology that can be applied to the issue of compliance in organizations. Compliance can be distinguished into enforced and voluntary compliance, and these two forms can be reached through increased power of authorities or through increased trust in authorities. In line with research on trust in organizations, we argue that the latter way is more promising, both in costs and in sustainability, especially for small business companies. Procedural fairness seems currently the most promising route for increasing trust in organizations. "Responsive regulation", a model adopted from tax research, suggests a differential treatment of employees, starting from a perspective of general trustworthiness of employees, but also moving to monitoring and punishment in case of misconduct. Such an approach could also increase organizational trust by ensuring retributive justice. The empirical research on trust reported here shows clearly that trust is advantageous for organizations and contributes to compliance. We believe that our model can serve both as a conceptual tool to theorize about compliance, and as an operational tool for supervisors, managers, or entrepreneurs who face the challenge to increase or maintain compliance in organizations.

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Short Communication B

EXPLORING AND EVALUATING THE INNOVATION PROCESS AND INNOVATIVE EFFORT OF COMPANIES THROUGH THEIR FINANCIAL REPORTS

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ABSTRACT

It is a common sense that innovation is a fundamental determinant of value creation in business companies and can also become a key to successful economic growth. Drucker (1985) states that "innovation is the specific tool of entrepreneurs". This definition shows that incorporating innovation is a key challenge facing entrepreneurs and small to medium-sized enterprises (Tidd et al. 2001). Exploring the vast library of definitions of innovation we consider that it is necessary to answer to some questions for deeper understanding of innovation. Is innovation a process, is it a strategy, a cross - functional team or a new, to the world, process? Also, is innovation a management technique or a leader responsibility and finally what is the difference between innovation and invention? Answering these questions, managers could become able to recognize innovation when it is happening right in front of them.

In this paper we will also explore factors which assist or hamper the innovation process. Finally we will approach some measuring aspects of the total innovative effort of companies focusing in their financial reports and especially in their tangible and intangible investments.

Keywords: innovative process, financial reports, tangible and intangible assets

INTRODUCTION

It is now accepted that the development and diffusion of new technologies are central to the growth of output and productivity but understanding and measuring of the innovation process and its economic impact is still deficient. Although there are many definitions of innovation, the exploration of the factors which assist or hamper the innovation process is necessary for its better and deeper understanding. In this paper we will focus on the puzzles that compose innovation process. We also explain the difference between innovation and invention that makes easier the understanding of innovation as a procedure and not as random event. Finally we will approach attempts of measuring and evaluating business innovation process and performance based on firms' quantitative, qualitative and accounting data.

APPROACHES OF INNOVATION PROCESS

The classical economists of the eighteenth and nineteenth centuries used to believe that technological change and capital accumulation were the engines of economic growth. Marx first suggested that innovations could be associated with waves of economic growth (Trott 2005). Kondratieff (1935/51), Ambernathy and Utterback (1978) have argued the long wave theory of innovation.

Joseph Schumpeter, the founder of modern growth theory, realized in the 1930s that the development and the diffusion of new technologies by profit – seeking entrepreneurs formed the source of economic progress and emphasized the importance of new products as stimulus to economic growth (1934, 1939, 1942). Schumpeter's theory was advanced in the 1950s by Robert Solow who won the Nobel Prize for economic science. Paul Romer has developed Robert Solow's and Schumpeter's theories. He argued that sustained economic growth arises from competition among firms which try to increase their profit by devoting recourses to creating new products and developing new ways of making existing products (Parkin et al., 1997). According to Parkin et al. (1997), this is the economic theory that underpins most innovation management and new product development theories. Porter (1985) believes that companies achieve competitive advantage through acts of innovation. They approach innovation in its broadest sense, including both new technologies and new ways of doing things.

The following approaches for innovation definition show that innovation is a complicated procedure and not only an individual good idea or best practice that has been developed in a firm.

Drucker (1985) stated that innovation is the specific tool of entrepreneurs, the means by which they exploit change as an opportunity for a different business or service. It is capable of being presented as a discipline, capable of being learned, capable of being practiced. Drucker's definition shows that incorporating innovation is a key challenge facing entrepreneurs and small to medium sized enterprises (Tidd et al., 2001). Small to medium sized enterprises must respond by adopting more innovative organizational structures process technologies and culture to help sustain or establish competitive advantage in the new, innovative market place (Mosey et al., 2002).

Kuczmarski (1995), defined innovation as a mindset, a pervasive attitude or a way of thinking focused beyond the present into the future vision. He states in 2003 that innovation

is not only a process, a strategy, a benchmark or a new to the world process. He supports the idea that when innovation is done well, it is all of the above and more. A truly innovative organization has developed a mindset that permeates every aspect of its business.

As Backler (1997) suggests, innovation is an environment, a culture – almost spiritual force – that exists in a company and drives value creation. Although innovation cannot be touched, heard, tasted, or seen, it can be felt. It is probably best described as a pervasive altitude that allows business to see beyond the present and create the future (Ahmed, 1998).

Freeman (1982) states that industrial innovation includes the technical design, manufacturing, management and commercial activities involved in the marketing of a new (or improved) product or the first commercial use of a new (or improved) process or equipment. Innovation is the management of all the activities invaded in the process of idea, generation, technology development, manufacturing and marketing of a new (or improved) product or manufacturing process or equipment (Trott 2005).

Innovation is approached in two levels in the Oslo Manual (1997), the macro level and the micro level. At the macro level there is a substantial body of evidence that innovation is the dominant factor in national economic growth and international patterns of trade. At the micro level – within firms – Research & Development (R&D) is seen as enhancing a firm's capacity to absorb and make use of new knowledge of all kinds, not just technological knowledge.

INNOVATION VS INVENTION

There are many people who confuse innovation and invention. Invention is the conception of the idea, whereas innovation is the subsequent translation of the invention into the economy (US. Department of Commerce 1967). It is only the first step in a long process of bringing a good idea to widespread and effective use. Being a good inventor is no guarantee of commercial success and no matter how good the better mousetrap idea, the success will come if attention is also paid to project management, market development, financial management, organizational behavior (Tidd et al., 2001). It is true that innovation is the first cousin of innovation but they are not identical twins that can be interchanged (Trott 2005).

Innovation is not a single action but a total process of inter related sub process. It is not just the conception of a new idea, nor the invention of a new device, nor the development of a new market. The process is all these things acting is an integrated fashion (Myers and Marquis 1969).

Rogers and Shoemaker (1972) clarified the use of the term "new" in the context of innovation saying that it matters little as far as human behavior is concerned, whether or not an idea is "objectively" new as measured by the lapse of time since its first use or discovery. If the idea seems new and different to the individual, it is an innovation.

Trott (2005) presented the following equation helps to show the relationship between innovation and invention:

Innovation = theoretical conception + technical invention + commercial exploitation

For better understanding of this equation Trott explains that:

a. the conception of new ideas is the starting point for innovation. A new idea by itself is neither an invention nor an innovation, it is merely a concept or a thought or collection of thoughts.
b. Invention is the process of converting intellectual thoughts into a tangible new artefact (product or process). This is where science and technology usually play a significant role.
c. Exploitation is the procedure where the inventions need to be combined with hard work by many different people to convert them into products, promote them to the market that will improve company performance.

MEASUREMENT OF INNOVATION

After the Second World War Research and Development was strongly correlated with innovation. In that period the linear model of science and innovation was developed by the economists. In the 1980s the recognition that innovation occurs through interaction of the science, technological development, and the needs of the market caused the dispute of the linear model. The explanation of the interaction of science, technological development and needs of market forms the basis of models of innovation today.

The models of innovation from the 1950s till 2000s are: the technology push linear model (1950s-1960s), the market pull linear model (1970s), the simultaneous coupling model (1980s), the interactive model (1990s) and the network model (2000s). Although their different structure all are composed by the same basic factors: R&D, manufacturing and marketing.

Recent studies described innovation as management process (Kelly and Kranzberg, 1978). Trott (2005) developed a framework that helped to illustrate innovation as a management process. It emphasized to the importance of the interaction of organizations' internal and external functions.

Innovation is also faced as a management process in the Oslo Manual. It seems to have two major categories of skills.

- Strategic skills long – term view; ability to identify and even anticipate market trend; willingness and ability to collect, process, and assimilate technological and economic information;
- Organizational skills: taste for and mastery of risk. Internal cooperation between the various operational departments and external cooperation with public research consultancies, customers and suppliers; involvement of the whole of the firm in the process of change, and invest med in human resources.

Although innovation is nowadays a fundamental determinant of value creation in business companies and economic growth the measurement of innovation has become as significant concern both for businesses companies and government (Canibano et al., 2000).

According to Oslo Manual the measuring of innovation is based on the recoding of the expenditure for TPP innovation activities which should be broken down into current and capital expenditure. Current innovation expenditures are composed of labor cost and other

current costs (supplies services and equipment to support TPP innovation activities performed by the firm in a given year). Capital expenditures for innovation are the annual gross expediting on fixed assets used for the TPP innovation activities of the firm (land and buildings, instruments and equipments computer software).

Both current and capital expenditure are classified in the Oslo Manual as follows:

- R & D expenditure.
- Expenditure for the acquisition of disembodied technology and know how.
- Expenditure for the acquisition of embodied technology.
- Expenditure for tooling up, industrial engineering, industrial design and production start up including other expenditure for pilot plants and prototypes not already included in R&D.
- Expenditure for training linked to TPP innovation activities.
- Marketing expenditure for technological new improved products.

The General Secretariat for Research and Technology of the Ministry of Development in Greece carried out four surveys in the last 12 years for the measuring of innovation in Greek enterprises under the framework of the Community Innovation Survey (CIS). The methodology of the CIS and the factors of innovation, that have been examined, are included in the Oslo Manual (editions 1997, 2007) and are the same for all the European countries where CIS has taken place. CIS examines of Innovation Activity, turnover from product innovations, innovation expenditures, innovation cooperation arrangements, sources of information for innovation activities, effects of innovation, factors hampering innovation activities and non technological innovation of the enterprises. Although CIS examines many factors of innovation process and gives the ability to researchers to compare the level of innovation in the EU Countries the use of its results does not allow to the researchers and the financial analysts to classify and rank the enterprises depending on their individual level of innovation.

EU has also organized a research for the structure of the European Innovation scoreboard that has been measuring the innovative performance of European countries against each other and against non EU competitors. In this research EU has been monitoring a range of factors which together are held as being proxy measures for innovation. The factors are measured with indicators and are grouped under fair broad headings.

- human resources
- creation of knowledge
- transmission and application of new knowledge
- innovation finance, output and markets

This scoreboard should be used as a starting point; as a lead – into the asking of questions to probe different national policy environments and strategies (Fletcher 2003). However, it would be necessary the development an innovation score board for the European firms for the enhancement of innovation performance within member states.

Another EU research for the evaluation of innovation is the “innobarometer”. This is an opinion pall that carried out every year by the European Union under the Euro barometer

opinion poll system. Its main objective is to sound out the opinions of European manager on their companies needs in innovation, their investments in innovation and the output achieved. Innobarometer also looks at the driving forces for innovation, the impact of the market innovation as well as the development of new managerial approaches to innovation and aims as assessing how the single market can be further benefit to companies in the European Union. Innobarometer measures the innovative effort in a state level and is based on the personal opinion of managers.

A research for the evaluation of the innovative performance of firms that is based on the opinion of managers has been taken place from Q.E.D. market research, the Greek Institute of Communication and Panteion University (2005). This research evaluated Greek and foreign firms for their innovative performance developed a scoreboard for the examined firms and presented a model of the innovative company.

FINANCIAL REPORTING AND INNOVATION MEASUREMENT

According to Oslo Manual (1997) the measuring of innovation is also based on the recording of the expenditures for TPP innovative activities which should be broken down into current and capital expenditures. Current innovation expenditures are composed of labour cost and other costs (supplies, services and equipment to support TPP innovation activities performed by the firm in given year). Capital expenditures for innovation are the annual gross expenditures and fixed assets used for the TPP innovation activities of the firm (land and buildings, instruments and equipments computer software).

Both current and capital expenditures are classified in the Olso manual as follows.

- R&D expenditure for the acquisition of disembodied technology and know- how.
- Expenditures for the acquisition of embodied technology, expenditure for tooling up, industrial engineering, industrial design and production start up including other expenditure for pilot plants and prototypes not already included in R&D.
- Expenditure for training linked to TPP innovation activities.
- Marketing expenditure for technological new improved products.

An approach for the measurement of innovation focuses on the financial reports of business firms in an attempt to assess the total innovative effort by adding amount invested in intangibles by all companies in corporate in a certain territory (Cabinano et al., 2000). Assets are defined as probable sources of future economic benefits obtained or controlled by a particular entity as a result of past transactions or events (FASB 1985).

Cabinano et al. (2000) stated that the future financial position of business companies is not only the consequence of tangible investments as intangibles are strongly associated with the competitive position of the firm and its future earning. If most intangible investments are immediately expensed both, earning and the book value and shareholders' equity will show a negative bias that will be greater the greater the amount of innovative activities carried out by the firm. Cabinano et al. (2000) conclude that financial statements must provide more information on the intangible investments of business firms in order to be reliable source of data for the measurement of innovation.

Intangible investment covers all current expenditure for the firm's development which is expected to give a return over a longer period than the year in which it is incurred. There is no standard definition but it is generally taken to cover expenditure on non routine marketing, training, software and some other similar items, in addition to current expenditure on R & D. It covers current expenditure on Technological Product and process (TPP) innovation but also comprises elements which are not part of TPP current innovation expenditure (for example it includes all the firm's training and marketing expenditure in general, not simply training or marketing in connection with the introduction of technologically new products and process. It does not cover tangible investment such as capital TPP innovation expenditure, which includes capital expenditure on R & D acquisition of new machinery and equipment related to TPP innovation (Oslo Manual 1997).

Drucker (1954) supported that the business enterprise has two—and only these two—basic functions: marketing and innovation. Actually these two functions translate into firm spending on two major items; research and development (R&D) as part of its innovation activities, and advertising as part of its marketing mix (Yew Kee Ho et al. 2005).

Chauvin, Hirschey (1993) documented positive relationship between investment in R&D and Marketing and value of firms. According to Erickson and Jacobson (1992) R&D and advertising investments create value for firms because of the comparative advantage they give when used as a differentiation strategy, which creates new products or processes and brand equity for firms that are not easily imitated by competitors.

In the results of their study Yew Kee Ho et al. (2005) suggest that indeed R&D investment and advertising investment do create value for firms in the one-year and three-year horizons.

Surveys of corporate R&D departments by Mansfield et al. (1977) suggest that the average R&D project has a high probability of success, and is completed within a few years. Sougiannis, (1994), Lev and Sougiannis (1996) have found a positive relation between future profitability and investments in R & D.

Mueller and Supina (2002), exploring the goodwill capital, state that the returns to advertising and R&D become inseparable. The R&D is worthless if no one knows of the new product, and the impact of the advertising depends on the characteristics of the product being advertised. New products or software may never reach the market due to technological infeasibility or to the introduction of superior products by competitors.

Recent studies show that financial statements are loosing relevance for investment and credit and credit decision making because of their luck of information in intangibles. The problem is that the measures of earnings and book values provided according to current accounting standards are not meaningful within the context of the so-called knowledge based economy, in future earning are mainly driven by the intangibles such as the innovative capacity of the firm, the skill of its MET, its ability to hire and retain the best personnel or its customers' satisfaction (Ernst & Young 1997).

Palepu, Healy Bernard (2004) accepted that two of the most valued assets of the above categories companies are their research capabilities that permit them to generate new products and their sales force that enables them to sell these new product to the market. They support that investors view advertising and R&D outlays as assets rather than expenses. Neither of these assets is recorded on their balance sheets. The accountants' reluctance to value intangible assets does not diminish their importance.

Lev and Zarowin (1999) suggested that intangibles should be given the same accounting treatment tangible assets, that is, they should be capitalized and then amortized over the period along which they generate revenues. They also stated all intangible expenses should be capitalized as and subsequently long as they are sources of probable future revenues. The present accounting policy would end "the current absurdity that the bricks and mortar of chemical drugs electronics, software, biotechnology and telecommunication companies are consider assets while the intangible investments that generate most of their revenues are nowhere to be found in financial reports.

CONCLUSION

In this paper we explored the definition of innovation and the difference between innovation and invention. We also searched and presented methods for the evaluation of the innovation of firms and the factors that related with innovation. We focused more to the measurement of innovation through financial statements, because this measurement is based to data which don't express the personal opinion of managers or the image they would like to have their firm, but in data that are controlled annually and are available to all they are interested in.

The measurement of innovation using accounting data could be a new accounting practice that helps to the analysis of the added value which is not included in the financial statements and forecast future earnings of the innovative companies. However it is important for companies to include in their annual financial reports information about their expenses for innovation and the returns of these expenses. Further, future research could explore possible relationship between innovation and human resources and knowledge management expenses with the innovative level of firms.

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Chapter 1

DETERMINANTS OF R&D ACTIVITIES BY START-UP FIRMS: EVIDENCE FROM JAPAN

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ABSTRACT

The start-up of small and medium enterprises (SMEs) is attracting considerable attention due to their potential contribution to innovation. However, few econometric studies have been carried out on the determinants of R&D by start-up firms. Using firm-level, industry-level, and regional data, this chapter examines the determinants of R&D investment by Japanese start-up firms in the manufacturing sector. Specifically, this study employs a probit analysis on the probability of R&D investment and a Tobit analysis on the R&D intensity. Empirical results demonstrate that firm size and appropriability have significant positive impacts on both the probability of R&D investment and the R&D intensity, while technological opportunity and the regional agglomeration of research institutes and of human resources have significant positive effects on the R&D intensity. These findings underline the importance of the regional intellectual infrastructure in promoting R&D of start-up firms.

INTRODUCTION

The small and medium enterprises (SMEs) in Japan, which have been regarded as "weak" low-tech firms and thus as the targets of protective policies, is recently attracting considerable attention as promoters of innovation (Small and Medium Enterprise Agency (ed.), 2002). Particular attention is paid to start-up firms including new ventures, which enter into the markets with new products and services based on new technologies and ideas or exploit new markets. Though large, mature firms also play an important role in innovation, the contribution of start-up firms cannot be ignored.

Table 1. R&D Intensity in Japan by Firm Size Classes (2003)

Firm size classes (number of employees)	Ratio of the firms conducting R&D (%)	Ratio of research personnel to the total number of employees (%)[2)]	Ratio of R&D expenditure to total sales (%)[2)]
All sectors[1)]	4.6	7.2	2.98
1 - 299	4.0	6.4	2.52
300 - 999	48.0	4.5	1.84
1,000 - 2,999	34.7	7.1	2.15
3,000 - 9,999	80.0	8.1	2.91
10,000 and more	92.6	10.4	4.67
Manufacturing	13.0	8.4	3.71
1 - 299	11.5	5.6	2.01
300 - 999	70.4	4.8	2.22
1,000 - 2,999	92.0	8.5	2.73
3,000 - 9,999	96.4	11.0	4.21
10,000 and more	100.0	14.4	5.92

Notes:

1) without banking and insurance

2) limited to the firms conducting R&D

Source: Ministry of Internal Affaires and Communications, *Report on the Survey of Research and* Development 2004.

Table 1 summarizes R&D activities of Japanese firms by employee size classes, based on a recent official statistics. Remarkable differences in the ratio of firms conducting R&D can be observed between the firm size classes. This ratio is considerably higher at large firms (with more than 300 employees) than at SMEs (with less than 300 employees). However, if we focus on the firms that conducted R&D, differences between large firms and SMEs mostly disappear with regard to both the ratio of research personnel to total employees and the ratio of R&D expenditure to sales. On average of all sectors, large firms and SMEs have similar R&D/sales ratio[1].

However, little is known about the R&D activities of start-up firms, due to the lack of available data. Table 2 presents some information about R&D input of the firms that were established in the period 1994 – 1999 based on the data from "the Survey on Start-up Firms" by Japan Small Business Research Institute (JSBRI) in 2002 (Ito and Akashi, 2005)[2]. Approximately 60% of the firms in the entire sample (and 52% in the manufacturing sector) conducted R&D continuously or occasionally since establishment. The average R&D intensity (the ratio of R&D expenditure to sales) is 7% for the entire sample and 11% for the

[1] The SMEs often conduct informal R&D that is not shown as the expenditure and the number of personnel. Therefore, R&D activities of SMEs are likely to be underestimated in the statistics (Kleinknecht 1987, Santarelli and Sterlacchini 1990, Kleinknecht and Reijnen 1991).

[2] This questionnaire survey was carried out in 2002 for 10,000 start-up firms (random sampling) in the manufacturing, wholesale, retail, transportation, telecommunication, restaurant and service sectors that were established in the period 1994-1999. The answers were obtained from 11% of the firms.

manufacturers, if we focus on the firms that reported the values of R&D expenditure. Though this evidence is based on survey data with limited numbers of observations, and therefore a direct comparison with the data in Table 1 is difficult, we can at least assume that the R&D intensity of the start-up firms conducting R&D is higher than that of SMEs as a whole.

The data in Table 2 indicate large disparities in R&D activities among start-up firms. However, no in-depth studies have been carried out on the determinants of R&D by start-up firms. Previous studies concentrate on large, mature firms, though, considering increased expectation on start-up firms as the promoters of innovation, it is important to examine the factors that promote R&D by start-up firms.

From the viewpoint of social welfare, high level of R&D investment is not always desirable. For R&D investment can be more than the social optimum, and R&D is not necessarily conducted efficiently[3]. However, for SMEs and especially for start-up firms, the level of R&D investment tends to be less than the social optimum, because of high risk that accompanies R&D.

Thus, this chapter analyzes the determinants of R&D activities of start-up firms in Japan[4], using firm-level, industry-level, and regional data. Compared to previous studies, this chapter is characterized by its focus on start-up firms and regional factors.

Table 2. R&D Activities of Start-up Firms

	Manufacturing	Wholesale	Service	Total[4)]	No. of Obs.
Ratio of firms conducting R& since establishment (%)[1)]	51.8	77.1	71.7	59.8	994
Ratio of firms with positive values of R&D expenditure i 2001(%)[2)]	86.4	69.6	68.7	71.5	502
Ratio of R&D expenditure to t sales in 2001 (%)[3)]	11.0	3.0	7.3	6.9	N.N.

Notes:

1) the ratio of firms that conducted R&D continuously or occasionally since establishement

2) the ratio of firms that reported positive values of R&D expenditure (to those reporting the values of R&D ex in 2001)

3) the average ratio of R&D expenditure to total sales in 2001 of the firms that reported the values of R&D exp

4) The sample comprises manufacturing, wholesale, retail, transportation, telecommunication, services and res

Source: Ito and Akashi (2005)

[3] The argument that the R&D investment is likely to be lower than the socially optimal level is grounded on the problems of externalities (spillover effect) and high risk of R&D. On the contrary, if the R&D competiton between the firms is characterized by the "rank-order tournament", through which the first inventor can monopolize the returns from the innovation, the "rush to invent" is likely to occur. Such a situation leads to a socially excessive R&D competition to be the first inventor, and all the R&D investment of the losers might be a social loss (Barzel 1968).

[4] There is no consensus on the duration of the "start-up" period. A proper view would be to limit the period within some years from establishment, at most 10 years. In this chapter, however, we regard the start-up firms as those that have been established since less than 15 years, due to the availability of data. See Footnote 12 for more detail.

The remainder of this chapter is organized as follows. Section 2 provides a brief review of previous studies on the determinants of R&D. In Section 3, we explain method, hypotheses, and data for the empirical analysis. Section 4 presents estimation results and the discussion about them. Section 5 concludes this chapter.

DETERMINANTS OF R&D INVESTMENT: A REVIEW OF PREVIOUS STUDIES

Previous studies on the determinants of R&D from the economic approach can be classified into two types. The first one focuses on the effects of firm size and market structure as well as industry-specific characteristics of technology, based on the Schumpeterian Hypotheses. Another one focuses on firm-specific factors other than firm size, particularly on the financial constraint.

Previous empirical studies on the relationship between firm size and R&D do not provide sufficient support to the Schumpeterian Hypotheses (Cohen and Levin, 1989; Cohen, 1995). Recent studies argue that industry-specific factors such as the appropriability of innovative outcomes and the technological opportunity are more essential in determining R&D than firm size. Here, the appropriability is the extent to which the innovator can secure private returns from the innovation against spillover and imitation, and depends on legal and private measures of protection. Technological opportunity indicates the richness of the chances of innovation and the easiness of achieving the goals of innovation, and depends on the development of related sciences and the availability of useful external information. Another important industry-specific factor is demand factor (current level and growth of demand). For R&D is expected to be more intensive, the higher the expected demand from innovation and thus the profit.

Recent studies pay particular attention to firm-specific factors other than firm size, and especially to the financial factor[5]. If capital market is perfect and there is no information asymmetry between investors and recipients of capital, there are no differences of capital cost between internal and external funds. However, capital market is imperfect in reality, and the asymmetry of information raises the cost of external funding because of monitoring cost and risk premium. Thus, R&D investment, which is essentially accompanied by high risk, is constrained by the availability of internal funds. Therefore, firms with relatively abundant internal funds are expected to invest more in R&D.

In particular, SMEs have very limited possibility of direct finance from capital market, and their funds are restricted to self-finance and bank loans. However, financing by bank loans is not optimal as the source of R&D investment because of the risk-averse character of bank loans. Therefore, R&D investment by SMEs strongly depends on the availability of internal funds[6]. Moreover, such financial constraint is particularly crucial for start-up firms, as they are characterized by scarce information and high risk.

Few empirical studies on the determinants of R&D have been carried out in Japan. Doi (1993) finds over-proportional relationship between firm size and R&D expenditure for large

[5] Cf. Hall (2002) for a recent survey of the studies on the issues of R&D funding.

[6] Acs and Isberg (1991) and Himmelberg and Petersen (1994) demonstrate that the R&D investment of SMEs in research-intensive industries is significantly affected by the availability of cash flow.

firms. Goto et al. (2002) generate the variables of appropriability and technological opportunity from original survey data and demonstrate that these industry-specific characteristics as well as internal funds are important determinants of R&D investment of listed manufacturing companies. Using large-scale micro data from an official statistics, Kwon and Inui (2003) show that, in addition to the above-mentioned factors, capital relationship and information network promote R&D investment of both large and small firms. Using a dataset of 10,000 manufacturing SMEs, Okamuro (2004) finds that the CEO's educational background and the governance structure represented by the number of shareholders and the type of the largest creditor affects R&D activities[7].

Lynskey (2004) and Okamuro and Zhang (2006) are to date the only studies on the determinants of innovation by Japanese start-up firms. Using the number of patent applications and of new products as measures of innovation output, Lynskey (2004) demonstrates that some firm-specific factors (technological capability, the availability of internal funds, venture capital funding, and university-industry linkages) and managerial factors (CEO's educational background and capacity for networking) are important determinants of innovative output. Okamuro and Zhang (2006) focus on the R&D investment and find that the shareholding by venture capitalists and main banks has positive effect on R&D investment of start-up firms.

Previous studies both in western countries and Japan thus concentrate on firm- and industry-specific characteristics (and partly on managerial characteristics). Some recent studies, on the other hand, pay attention to the effects of regional factors such as urbanization and agglomeration. According to the urban hierarchy hypothesis, urban agglomeration is favorable for the firms conducting R&D because of easy recruitment of qualified labor force, high information intensity, and the proximity to the center of knowledge such as universities, public research institutes, and customers. Therefore, firms are expected to conduct R&D more actively in urban or high agglomeration regions than in rural or low agglomeration regions (Roper, 2001). An opposite argument is that inter-firm technology spillover is promoted in high agglomeration regions, which lowers the incentive for R&D because of the appropriability problem (Bagella and Becchetti, 2002). Several studies on the effects of regional factors have been carried out using data from European countries (Roper, 2001; Bagella and Becchetti, 2002; Smith et al., 2002; Beaudry and Breschi, 2003), but they found no evidence for the urban hierarchy hypothesis.

As discussed above, empirical studies on the determinants of R&D started from the examination of the Schumpeterian Hypotheses and the analysis of the effects of financial constraints, and were recently extended to the research of the impacts of the governance structure and regional factors. However, previous studies, especially those on the effects of firm- and industry-specific characteristics focus on mature, large firms and mostly neglected SMEs and start-up firms. Thus, this chapter focuses on Japanese start-up firms in the manufacturing sector and analyzes the determinants of R&D activities, considering not only firm- and industry-specific characteristics, but also regional factors.

[7] The other studies on the impact of the governance structure on the R&D investment (Hall and Weinstein 1996, Wahal and McConnel 2000, Hosono et al. 2004) target on large firms listed on the stock market.

MODELS, HYPOTHESES AND DATA

Models and Hypothesis

The basic model of the analysis in this chapter is presented as follows:

R&D Activity = f (Firm Characteristics, Industry Characteristics, Regional Characteristics)

This model indicates that R&D activities of start-up firms depend on firm, industry and regional characteristics. The dependent variables are R&D expenditure dummy (RDD) and the R&D intensity (RDRATIO). The former is a dummy variable that takes on the value one if the firm has positive R&D expenditure and zero otherwise and used in probit analyses. The latter is the ratio of R&D expenditure to sales and used in Tobit analyses.

Firm characteristics are represented by firm size (SIZE), firm age (AGE), educational background of CEO (UNIV), and the availability of internal funds (CF). Industry characteristics are appropriability (APPRO), technological opportunity (TECHO) and demand growth (GROW). The variables of regional factors are the agglomeration of research institutes (INST) and human resources (PROFF) in each prefecture. The definitions of these variables are summarized in Table 3 and discussed in detail in the following part.

Using these variables, the estimation models are specified as follows. As we can expect that the regional variables INST and PROFF are highly correlated, and in fact they are, we use them alternatively. Therefore, we estimate four models, two for each dependent variable. In these models, α_0 - δ_0 and ε_1 - ε_4 denote constant terms and error terms, respectively.

Model 1 (probit analysis):

$$RDD = \alpha_0 + \alpha_1 SIZE + \alpha_2 AGE + \alpha_3 UNIV + \alpha_4 CF + \alpha_5 APPRO + \alpha_6 TECHO + \alpha_7 GROW + \alpha_8 INST + \varepsilon_1$$

Model 2 (probit analysis):

$$RDD = \beta_0 + \beta_1 SIZE + \beta_2 AGE + \beta_3 UNIV + \beta_4 CF + \beta_5 APPRO + \beta_6 TECHO + \beta_7 GROW + \beta_8 PROFF + \varepsilon_2$$

Model 3 (Tobit analysis):

$$RDRATIO = \gamma_0 + \gamma_1 SIZE + \gamma_2 AGE + \gamma_3 UNIV + \gamma_4 CF + \gamma_5 APPRO + \gamma_6 TECHO + \gamma_7 GROW + \gamma_8 INST + \varepsilon_3$$

Model 4 (Tobit analysis):

$$RDRATIO = \delta_0 + \delta_1 SIZE + \delta_2 AGE + \delta_3 UNIV + \delta_4 CF + \delta_5 APPRO + \delta_6 TECHO + \delta_7 GROW + \delta_8 PROFF + \varepsilon_4$$

Firm size (SIZE) is measured by the natural logarithm of the number of employees. Based on the Schumpeterian Hypotheses and statistical evidence from Table 1, we expect that both the probability of R&D expenditure and the R&D intensity increase with firm size.[8]

[8] As mentioned earlier, previous empirical results on the Schumpeterian Hypotheses do not necessarily support our hypothesis. However, empirical evidence also shows that the R&D intensity tends to increase with firm size up

Considering the reverse causality that the firms that achieved successful innovation increase their size, we use the number of employees in the previous year to allow a lag of one year.

Firm age (AGE) indicates the number of years since incorporation. As there are numerous missing values for the year of establishment, years since incorporation instead of establishment are employed. This variable is used as a control variable.

The educational background of CEO (UNIV), a dummy variable taking on the value one if the CEO is a university graduate and zero otherwise, is used as a proxy for the orientation toward and the capability of innovation of top managers. Scherer and Huh (1992) demonstrate that the R&D intensity of firms depends on which field the CEO studied[9], but here we expect that the R&D activities of start-up firms depend on whether the CEO is a university graduate, because available data are restricted to the name of the universities CEOs graduated from. No information is available about the faculties or departments at which they studied. Moreover, if a CEO is not a university graduate, no further information is available. Therefore, our data source has many missing values on the educational background of the CEOs. Here, we regard the missing values as indicating that the CEO is not a university graduate and let UNIV take on the value zero.

Table 3. Definitions of the Variables

Variables	Level[1)]	Definitions	Year
RDD	firm	R&D dummy (1 if R&D expenditure is positive)	End of 2003
RDRATIO	firm	R&D intensity (R&D expenditure/sales)	End of 2003
SIZE	firm	Number of employees (logarithm)	End of 2002
AGE	firm	Years since incorporation	End of 2002
UNIV	firm	Dummy for CEO's educational background (1 if CEO is a university graduate)	the latest investigation
CF	firm	Cash flow ratio[2)]	End of 2002
APPRO	industry	Index of appropriability[3)]	1999-2001
TECHO	industry	Index of technological opportunity[3)]	1999-2001
GROW	industry	Growth rate of industry shipments	1999-2001
INST	region	Number of research institutes in each prefecture	2001
PROFF	region	Ratio of the labor force engaged in professional and technical occupations to the total labor force in each prefecture[3)]	2000

Notes:

1) The classification of industries are based on the Japanese Standard Industry Classification. The unit of regions is prefecture.

2) (net profit after tax + depreciation)/sales

3) See the main text for details.

to some limit. The data in Table 1 also support this tendency. Therefore, we assume that the SMEs conduct R&D the more actively, the larger the firm size.

[9] Romijn and Albaladejo (2002) use the academic degrees of the CEOs in the fields of management and natural sciences as their innovative capability.

As a proxy of the availability of internal funds, we use the ratio of cash flow (net profit after tax plus depreciation) to sales (CF). Based on the above discussion on financial constraints, we expect that the availability of internal funds has a positive impact on the R&D investment. Here again, we use the data of the previous year to cope with the possibility of the reverse causality. Moreover, as this variable has many outliers, we excluded from the analysis the observations that is either higher than 1 or lower than –1.

We use three variables for industry-specific factors: the appropriability of innovative outcomes (APPRO), the technological opportunity (TECHO), and the growth of industry demand (GROW). As discussed earlier, we expect that R&D tend to be conducted more actively, the higher the appropriability, the technological opportunity, and the demand growth. It is because innovation is more likely to be successful, the outcome of innovation is more likely to be appropriated by the innovator, and the expected demand growth from innovation is likely to be larger.

Among these industry-specific variables, APPRO and TECHO were calculated from the industry-level data of NISTEP (2004), as described later in more detail. Here, the appropriability represents the extent to which several measures such as patents and business secrets were useful to secure private returns from the innovation on the whole. Technological opportunity is measured as the extent to which the firms could obtain useful ideas for innovation from external organizations such as customers and universities.

Demand growth (GROW) measures the changes in the value of shipments at the industry level in the period 1999—2001. Goto et al. (2002) use the latest sales of the firm as the variable of expected demand. However, expected demand growth of start-up firms from innovation would be, different from that of large, mature firms, better represented by the market size than their current sales. Start-up firms can increase their sales several fold if their innovation achieves commercial success, but the increase in sales may depend on the current market demand.

Among regional factors, the number of research institutes in each prefecture (INST) is a measure of knowledge agglomeration in the region. Another variable is the availability of qualified human capital (PROFF), which is measured by the ratio of the workforce engaged in professional and technical occupations to total workforce[10]. According the urban hierarchy hypothesis, research institutes tend to be located in urban and high agglomeration regions, where local start-up firms can obtain stimulation and support to R&D through the intellectual network with these institutes. Moreover, the higher the ratio of the people engaged in professional and technical occupations in the region, the easier the recruitment of the human resource that supports the R&D by start-up firms. Therefore, we expect a positive relationship between these regional factors and the R&D activities of start-up firms.

Summing up the above discussion, we present the following hypotheses on the determinants of the R&D activities by start-up firms. We regard firm age (AGE) as a control variable, and thus no hypothesis is related to this variable. The variables in parentheses correspond to each hypothesis. According to these hypotheses, we expect that the coefficients of all the independent variables have positive signs.

[10] According to the latest Japan Standard Occupation Classification (as of 1997), professional and technical occupations comprise scientific researchers, various kinds of engineers, medical and health professionals such as doctors and nurses, professionals in social welfare, legal professionals such as lawyers, managerial professionals such as accountants, teachers, artists etc.

H1: Firm size has a positive impact on the R&D activities of start-up firms (SIZE +).
H2: CEO's higher education has a positive impact on the R&D activities of start-up firms (UNIV +).
H3: The availability of internal funds has a positive impact on the R&D activities of start-up firms (CF +).
H4: Start-up firms conduct R&D more actively, the higher the level of appropriability of innovative outcomes in the industry they belong to (APPRO +).
H5: Start-up firms conduct R&D more actively, the better the technological opportunity of the industry they belong to (TECHO +).
H6: Start-up firms conduct R&D more actively, the higher the growth rate of shipments in the industry they belong to (GROW +).
H7: The level of regional agglomeration of knowledge and of qualified human resources has a positive impact on the R&D activities of start-up firms (INST +, PROFF +).

Data and Sample

The analysis in this chapter uses firm-level, industry-level, and regional data. Firm-level data are obtained from the *JADE database* of Bureau van Dijk in Belgium as of December 2004. Among the industry-specific variables, APPRO and TECHO are generated from the survey data of *National Institute of Science and Technology Policy* (NISTEP, 2004). GROW is calculated from the *1999 and 2001 Census of Manufactures*. Regional data are obtained from *Regional Economy Database* of Toyo Keizai, Version April 2004, though the original data sources are the *2001 Establishment and Enterprise Census* for the number of research institutes in each prefecture (INST) and the *Population Census* for the ratio of the workforce engaged in professional and technical occupations to total workforce (PROFF).

We calculated the values of APPRO from the large-scale survey data of NISTEP about various measures of appropriating private returns from the most important product and process innovations of the Japanese firms (NISTEP, 2004, Table 44 and 45). This index indicates to what extent the appropriation of innovative outcomes is possible, regardless of the measures of appropriation. The values of TECHO are calculated from the NISTEP survey data about various sources of information for new innovation projects (NISTEP, 2004, Table 37). This index indicates how easily useful information for innovation is available, regardless of the sources of innovation[11].

The JADE database adopts the industry classification system of *Teikoku Data Bank*, a major Japanese credit research company that provides the original data of JADE, while APPRO and TECHO are based on the industry classification by NISTEP (2004). Thus, we adjusted these different classifications to the Japan Standard Industry Classification (JSIC) Version 11, at the 2-digit level. Industry demand growth (GROW) was calculated, however, according to JSIC Version 10, because we use the data before the revision.

[11] The same method of generating the variables of the appropriability and the technological opportunity based on the NISTEP survey data is employed also in Goto et al. (2002), Kwon and Inui (2003) and Okamuro (2004).

Table 4. Basic Statistics

Variables	Mean	Median	Std. Dev.	Min.	Max.	No. of Obs.
RDD	0.728	1	0.447	0	1	92
RDRATIO	0.016	0.002	0.035	0	0.173	92
SIZE	3.353	3.384	1.051	0	5.521	92
AGE	11.8	12	2.7	5	15	92
UNIV	0.598	1	0.493	0	1	92
CF	0.018	0.027	0.211	-0.750	0.601	92
APPRO	1.347	1.258	0.195	0.946	1.696	92
TECHO	0.879	0.861	0.077	0.731	1.057	92
GROW	-0.124	-0.099	0.102	-0.424	0.094	92
INST	343	190	309	25	821	92
PROFF	0.142	0.139	0.021	0.108	0.169	92

Our sample comprises start-up firms in the Japanese manufacturing sector for which financial data for the years 2002 and 2003 are available from the JADE database. We defined start-up firms as those that have been established for less than 15 years[12], restricted the sample to the SMEs (firms with less than 300 employees), and excluded missing data and outliers, especially with regard to the R&D intensity and cash flow. Thus, our final sample comprises 92 firms. The small size of our sample is mainly attributed to the characteristics of the JADE database in which start-up firms have minor position.

Almost 30% of the sample firms are concentrated in the electrical machinery industry. The firms in the electrical machinery and food industries together are the majority of the sample. Compared to the industry composition of the manufacturing establishments with less than 300 employees that were established between 1985 and 1999, which we calculated from the *1999 Establishment and Enterprise Census*, our sample firms are characterized by an over-proportional presence of the electrical machinery and food industries. With regard to the geographic distribution, our sample firms are located in 26 out of 47 prefectures, while a quarter of them are located in Tokyo, and the majority of them are located in four urban prefectures Tokyo, Osaka, Aichi and Kanagawa. Compared to the geographic composition of the manufacturing establishments with more than 4 employees from the 2001 *Census of Manufactures*, our sample firms show remarkably high concentration in the metropolitan regions, especially in Tokyo. Thus, our sample firms do not sufficiently represent the entire start-up firms, at least with regard to the industrial and geographic composition. Therefore,

[12] As discussed earlier, there exist no general consensus on the duration of the start-up period. Based on an analysis using micro data from the *Census of Manufactures*, Small and Medium Enterprise Agency (ed.) (2002) states that "finally, in 10 and some years since establishment, the differences (in average firm size and productivity) between the new and the existed establishments almost disappear: Newly founded SMEs attain the maturity" (p. 72) (supplements by the author in parentheses). As Sakakibara et al. (2004) target on the firms that have been established less than 10 years as the start-up firms, it may be generally accepted to limit the start-up period within 10 years since establishment. However, in this chapter, the firms that have been established less than 15 years are regarded as start-up firms in order to obtain the sufficient sample size for the empirical analysis. This is because the JADE database used in this chapter does not contain many firms younger than 10 years.

we should be aware of the potential influence of this sampling bias on the estimation results in interpreting them.

Table 4 presents the basic statistics of this sample. As mentioned earlier, we excluded missing values for all variables but the educational background of CEO (UNIV), for which we consider all missing values to take on the value zero (namely, the CEO is not a university graduate). If missing values include university graduates, the values of UNIV would be underestimated. Moreover, we excluded some outliers with regard to the variables RDRATIO and CF.

73% of the firms reported R&D expenditure in 2003, with positive values in most cases. The R&D intensity is 1.6% on average, which is remarkably higher than that of the entire manufacturing SMEs from the database (0.9%). On average, sample firms have 29 employees and survived 12 years. The average cash flow/sales ratio is 1.8%. 60% report the name of the university at which the CEO studied.

EMPIRICAL RESULTS AND DISCUSSION

The results of the empirical analysis are presented in Table 5. Model 1 and 2 show the results of the probit analyses on the probability of conducting R&D (RDD). Model 3 and Model 4 show the results of the Tobit analyses on the R&D intensity (RDRATIO). Model 1 and 3 include INST, while Model 2 and 4 include PROFF as the regional factor. These variables are used alternatively because of high correlation between them.

With regard to the probability of conducting R&D (RDD), only SIZE and APPRO have positive and significant coefficients as expected. The other variables have no significant effects. Namely, firm size and the appropriability of innovative outcomes have positive impacts on the probability of conducting R&D, but firm age, educational background of CEO, availability of internal funds, technological opportunity, demand growth of industry, and the regional factors do not have significant effects. These results support Hypotheses 1 and 4.

With regard to the R&D intensity (RDRATIO), SIZE, APPRO, TECHO, INST and PROFF have positive and significant coefficients as expected. However, the other variables, namely AGE, UNIV, CF and GROW, do not have significant effects. Namely, firm size, appropriability, technological opportunity as well as the regional agglomeration of knowledge and of qualified human resources have positive impacts on the R&D intensity, but firm age, educational background of CEO, availability of internal funds, and demand growth of industry, have no significant effects. These results support Hypotheses 1, 4, 5 and 7.

The estimation results suggest that the determinants of conducting R&D and of the R&D intensity are partly different. In particular, the technological opportunity of the industry and the regional agglomeration of knowledge and of human capital have significant effects on the R&D intensity of start-up firms, but not on whether they conduct R&D.

The findings that neither the educational background of CEO nor the availability of internal funds affects the R&D activities of start-up firms are surprising, because we expect that the activities of start-up firms depend on the ability of CEO and financial constraints more heavily than mature large firms.

Table 5. Estimation Results

	R&D dummy (RDD)		R&D intensity (RDRATIO)	
Variables	Model 1(Probit)	Model 2 (Probit)	Model 3 (Tobit)	Model 4 (Tobit)
Constant	-4.43 *	-5.94 **	-0.280 ***	-0.355 ***
	(-1.88)	(-2.32)	(-5.50)	(-6.66)
SIZE	0.366 **	0.368 **	0.0118 ***	0.0112 ***
	(2.40)	(2.40)	(3.13)	(3.00)
AGE	-0.0107	-0.00682	0.00136	0.00134
	(-0.181)	(-0.115)	(1.00)	(0.992)
UNIV	0.0991	0.127	0.00280	0.00337
	(0.310)	(0.396)	(0.366)	(0.444)
CF	0.358	0.278	-0.771E-03	-0.00139
	(0.485)	(0.370)	(-0.0397)	(-0.0719)
APPRO	1.74 **	1.63 *	0.0636 ***	0.0566 ***
	(2.07)	(1.91)	(3.18)	(2.79)
TECHO	1.52	1.58	0.145 ***	0.146 ***
	(0.686)	(0.704)	(3.14)	(3.18)
GROW	-0.451	-0.549	-0.0180	-0.0275
	(-0.301)	(-0.376)	(-0.448)	(-0.702)
INST	0.687E-03		0.461E-04 ***	
	(1.16)		(3.40)	
PROFF		12.4		0.698 ***
		(1.54)		(3.76)
Log Likelihood	-46.3	-45.8	120.0	120.6
Pseudo R-Squared	0.157	0.167		
No. of Obs.	92	92	92	92

Notes: t-values in parentheses. Level of significance: *** 1%, ** 5%, * 10%.

Our estimation results are partly consistent with those of previous studies. Particularly, with regard to the effects of firm size and the technological characteristics of industry, we obtained similar results with major previous studies. The results on the regional factors support the urban hierarchy hypothesis, but are not consistent with the results of previous studies that reject this hypothesis in general. This chapter does not use the same variables of the regional factors as in previous studies, and therefore it is difficult to compare the results directly. However, since most previous studies do not focus on start-up firms, our results suggest that the regional agglomeration of knowledge and of human resources is particularly important to increase the R&D intensity of start-up firms.

CONCLUSION

In this chapter, we analyzed the determinants of R&D activities by start-up firms in the manufacturing sector in Japan, using firm-level, industry-level and regional data. Innovation by start-up firms has recently attracted considerable attention, but previous studies on the determinants of R&D have concentrated on mature large firms. Very few econometric studies have been carried out on the determinants of R&D by SMEs, particularly by start-up firms. Moreover, compared to firm and industry characteristics, the effects of regional factors have not been sufficiently investigated. Therefore, major characteristics of this chapter are its focus on the SMEs at the start-up stage and on the regional factors as the determinants of R&D.

Based on the major arguments on the determinants of R&D, such as the Schumpeterian Hypotheses, industry-specific technological features, financial constraints due to information asymmetry and incomplete capital market, and the urban hierarchy hypothesis in the field of regional studies, we presented related variables and hypotheses.

The empirical results using data of 92 manufacturing start-up firms demonstrate that 1) firm size and the appropriability of innovative outcomes have positive effects on both the probability of conducting R&D and the R&D intensity, 2) technological opportunity and the regional agglomeration of knowledge and of human resources have positive effects only on the R&D intensity, and 3) unexpectedly, the educational background of CEO, the availability of internal funds, and industry growth rate have no significant impacts on R&D activities.

These results support several hypotheses of this chapter. Specifically, our important findings are that the technological features of industry, namely appropriability and technological opportunity, are essential factors to enhance the incentives of R&D not only for mature large firms, but also small start-up firms and that the R&D intensity of start-up firms are significantly influenced by the regional agglomeration of knowledge and of human resources. From these findings, we may derive a policy implication that, given the industry characteristics, it is essential to promote the formation of knowledge clusters and of qualified human resources in the region in order to support R&D activities of local start-up firms.

However, some caution is necessary in inducing general conclusions and implications from our findings. A first limitation of this study is the size and possible bias of the sample. As mentioned earlier, the database we used comprises relatively few numbers of start-up firms and many missing values, and therefore we cannot insist on obtaining sufficient sample size. Moreover, our sample firms show higher concentration in the electrical machinery industry and in Tokyo Metropolitan Prefecture compared to the distribution of the entire firms and establishments in the official statistics. Therefore, we should avoid any simple generalization of our results.

Another problem is informal R&D. SMEs are characterized by informal R&D that cannot be measured by the value of R&D investment or the number of research personnel (Kleinknecht, 1987; Santarelli and Sterlacchini, 1990; Kleinknecht and Reijnen, 1991). This chapter does not consider informal R&D due to the limitation of data, but we should be aware that we are not able to measure and analyze exactly the R&D activities of SMEs including start-up firms without considering informal R&D.

Finally, we should be cautious in the interpretation of the impact of the regional factors. This chapter finds a positive and significant relationship between the variables of regional agglomeration of knowledge and of human resources on one hand and the R&D intensity of

the local start-up firms on the other. However, it is not clear *how* they are related concretely. More specifically, our analysis does not provide direct answer to the question whether the regional environments stimulate start-up firms to enhance R&D intensity or attract research-intensive firms to locate there. Further investigation on this issue is desired.

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APPENDIX 1. INDUSTRIAL COMPOSITION OF THE SAMPLE FIRMS

Industries [1)]	Sample Firms		Entire Population	
	Number	Share	Number	Share
Food	19	0.207	16,197	0.081
Beverages, Tobacco, and Feed	1	0.011	2,250	0.011
Textile	2	0.022	5,402	0.027
Clothing	2	0.022	15,300	0.077
Lumber and Wood Products	0	0.000	4,901	0.025
Furniture and Fixtures	2	0.022	8,412	0.042
Pulp and Paper Products	2	0.022	3,857	0.019
Printing and Publishing	5	0.054	19,910	0.100
Chemical Products	0	0.000	2,835	0.014
Petroleum and Coal Products	0	0.000	393	0.002
Plastic Products	2	0.022	10,464	0.052
Rubber Products	0	0.000	2,656	0.013
Leather Products	0	0.000	2,511	0.013
Ceramic, Stone, and Clay Products	5	0.054	7,526	0.038
Iron and Steel	0	0.000	2,259	0.011
Nonferrous Metals	0	0.000	1,805	0.009
Metal Products	4	0.043	25,786	0.129
General Machinery	14	0.152	26,276	0.131
Electrical Machinery	26	0.283	17,301	0.087
Transportation Equipments	3	0.033	8,574	0.043
Precision Instruments	2	0.022	3,983	0.020
Miscellaneous Industries	3	0.033	11,302	0.057
Total	92	1.000	199,900	1.000

Notes:

1) according to the Standard Industry Classsification for Japan, Version 10.

2) Manufacturing establishments founded during 1985—99 with less than 300 employees (based on the "1999 Establishments and Enterprise Census").

APPENDIX 2. REGIONAL COMPOSITION OF THE SAMPLE FIRMS

Prefectures [1]	Sample Firms		Entire Population [2]	
	Number	Share	Number	Share
Tokyo	25	0.342	27,066	0.117
Kanagawa	10	0.137	12,600	0.054
Osaka	6	0.082	29,638	0.128
Aichi	6	0.082	25,994	0.112
Schizuoka	4	0.055	14,630	0.063
Hyogo	3	0.041	13,066	0.056
Saitama	2	0.027	17,483	0.076
Nagano	2	0.027	7,565	0.033
Others	34	0.466	168,225	0.727
Total	92	1.000	316,267	1.000

Notes:

1) Prefectures are ordered according to the number of the sample firms.

2) Number of manufacturing establishments with 4 and more employees (based on the "2001 Census of Manufactures").

APPENDIX 3. INDUSTRY CHARACTERISTICS (APPROPRIABILITY, TECHNOLOGICAL OPPORTUNITY, AND DEMAND GROWTH

Industries [1)]	Appropriability [2)]	Technological Opportunity [2)]	Demand Growth [3)]
Food	1.175	0.861	-0.041
Beverages, Tobacco, and Feed	1.175	0.861	-0.009
Textile	1.501	0.770	-0.234
Clothing	0.946	0.761	-0.320
Lumber and Wood Products	1.588	0.731	-0.201
Furniture and Fixtures	1.258	0.731	-0.197
Pulp and Paper Products	1.533	0.838	-0.090
Printing and Publishing	1.036	0.888	-0.424
Chemical Products	1.964	1.184	-0.014
Petroleum and Coal Products	1.458	1.055	0.188
Plastic Products	1.490	0.873	-0.060
Rubber Products	1.454	0.775	-0.073
Leather Products	1.813	0.562	-0.251
Ceramic, Stone, and Clay Products	1.511	0.830	-0.129
Iron and Steel	1.585	0.796	-0.028
Nonferrous Metals	1.374	1.163	-0.021
Metal Products	1.199	0.782	-0.099
General Machinery	1.234	0.960	-0.098
Computers	1.479	0.995	-0.161
Electrical Machinery	1.530	0.806	
Communication Equipments	1.611	0.944	
Motor Vehicles and Parts	1.265	0.848	0.094
Other Transportation Equipments	1.475	0.962	
Precision Instruments	1.696	1.057	-0.149
Miscellanerous Industries	1.607	0.781	-0.027
Average	1.438	0.873	-0.107

Notes:

1) according to the Standard Industy Classification for Japan, Version 11.

2) Growth rate of Industry Shipments 1999–2001 (with regard to the establishments with 4 and more employees) calculated from the Ministry of Economy, Trade and Industry "Census of Manufactures".
according to the Japan Industry Standard Classification Vers. 10.

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Chapter 2

LEADERSHIP AND GROWTH IN ENTREPRENEURIAL FIRMS

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ABSTRACT

The paper discusses the concept of leadership in entrepreneurial firms. A review of the literature on leadership theory and the importance of leadership in orgnaisations, particularly those that aim for growth through additional markets and innovation, is presented. This is followed by results from a qualitative study of seven firms that have achieved entrepreneurial growth as a result of a deliberate leadership strategy. These firms were all listed on the 2007 *Enterprise*250 ranking of small entrepreneurial firms by the Scottish business magazine *The Scottish Business Insider*, and had subsequently submitted for an award for Best Leadership Strategy to the *Scottish Business Insider/Scott Moncrieff* E250 awards event in November 2007. Results are measured by increases in turnover/profits, but the study of the implementation and operation of the strategy involves qualitative analysis of in-depth case studies of the seven firms. Results suggest that organisational growth has been achieved by charismatic transformational leadership, together with reward structures that provide employees direct financial incentives and return, and monitor their activity closely. Thus, both transactional and transformational leadership strategies are observed in tandem.

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INTRODUCTION

Leadership can be broadly described as "a process of giving purpose (meaningful direction) to collective effort, and causing willing effort to be expended to achieve that purpose" (Jacobs and Jaques, 1990, cited in Yukl, 1994, p.3). Contemporary management and organisational behaviour literatures regard leadership as the single most important factor influencing organisational performance via its impact on employee motivation and organisational climate (Chen and Silverthorne, 2005). The consistent view from academic and business sources is that leadership is central in determining the direction, strategy and future vision of an organisation; if leadership is absent an organisation would become unfocused and directionless (Alvesson and Sveningsson, 2003).

The current paper aims to provide some insight into leadership styles and their effects in medium-sized firms that have experienced entrepreneurial success as measured primarily by growth in turnover. The study focuses on companies that are included in the Scottish Business Insider Magazine / Scott-Moncrieff *Enterprise250* (E250) list. This list comprises the 250 best performing companies in Scotland with a turnover of between £5 and £15 million. An awards event takes place annually, in which included firms can nominate themselves. Amongst the seven categories for awards is the category Leadership. Using nominations for this award from E250 firms, a qualitative methodology was employed in order to investigate the type and impact of leadership style on business success.

EARLY LEADERSHIP THEORY

Much of the leadership literature makes a sharp distinction between leadership and management (Barker, 1997; Dubrin, 2001; Fagiano, 1997; Kotter, 1990; Mintzberg, 1998). For instance, management is commonly associated with stability and bureaucracy; on the contrary, leadership usually implies innovation, vision, inspiration, passion, teambuilding and creativity.

Trait Theory posits that leaders are endowed with special characteristics or abilities, such as intelligence, energy and resourcefulness, which differentiate them from others (e.g. Barnard, 1938; Ghiselli, 1971; Stogdill, 1948). However, although there are traits associated with leadership, researchers have been unable to determine a clear relationship between them and business success (Antonakis, 2006). Indeed Handy (1993) states that in excess of one hundred studies had investigated the validity of Trait Theory by 1950 and only five percent of these had identified similar or common traits.

Alternatively, behavioural theories identify different styles of leadership, such as authoritarian versus democratic, or people-centered versus task-centered (e.g., Katz, et al., 1951; Stogdill and Coons, 1957). These two-factor models propose that the leader's behaviour and style rather than his or her inherent personal traits determine success. Despite substantial development of some of these theories, for example, Blake and Mouton's (1964) Managerial Grid extension of the dichotomy model, behavioral approaches to leadership have provided inconsistent research results; although they do show that situational factors do impact on the relationship between leader behavior and outcomes (Antonakis, et al., 2004).

RECENT LEADERSHIP THEORY

As a result of structural economic changes, the business world is now characterized by global competition and markets, and is commonly said to be more appropriate to a smaller, more flexible organization structure at firm level (Drucker, 1994). Focus for individuals is careers in industries or professions rather than within organizations (Yu and Miller, 2005), and focus for firms is recruiting and maintaining a workforce that expresses itself creatively and efficiently in the face of increasingly innovation-centred and competitive market environments (e.g., Roberston and Collins, 2003). Leadership of these newer types of competitive firms is assumed to have changed, and accordingly, alternative theories of leadership have emerged.

The Situational or Contingency Theory of leadership proposes that effective leaders act in a flexible manner and adopt an appropriate leadership style according to the requirements of a given situation (Fiedler 1967; House, 1971). Hunt (1999) states that the contingency approach has generated an enormous number of studies that have all attempted to identify a set of universal leadership principles to explain the most appropriate leadership behaviours and styles under various situational conditions. Studies investigating contingency theories persist (see Fiedler, 1993; House, 1996), but the level of activity has fallen (Lowe and Gardner, 2000; Schriesheim and Neider, 1996), primarily because the predictive ability of contingency theories has been modest due to methodological difficulties and subsequent equivocal research results (Antonakis, 2006).

Burns (1978) pioneered the notions of Transactional and Transformational leadership styles: the transactional leader gratifies the immediate needs and self-interests of followers via rewards and incentives; the transformational leader focuses on building and developing follower motivation and morale (Zaleznik, 1977; Kotter, 1990).

Transactional Leadership Theory describes the possible exchange relationships between the leader and the follower. According to Bass (1998) the exchange relationship can take three forms. First, the transactional leader provides clear guidelines for how followers will be rewarded for their efforts, i.e. *contingent reward behaviour* (Bass, 1985). Second, the leader scrutinises follower performance and will take corrective action if they fail to meet the expected standard, i.e. *management by exception behaviour*. Finally, there is the leader who as a rule avoids taking any actions towards his or her followers, i.e. laissez-faire behaviour. Laissez-faire leadership describes the absence of leadership, and this usually engenders conflict over responsibilities and sometimes efforts by followers to assume leadership (Coad and Berry, 1998). In summary, transactional leadership is based on bureaucratic control and authority, centres on task completion, and depends on rewarding and punishing followers to extract effort (Tracey and Hinkin, 1998).

In contrast, Transformational Leadership Theory describes a leader as looking beyond his or her followers immediate self-interests, and involving them in a shared vision of the future for the group or organisation's advantage. It is assumed that under transformational leaders this shared vision will be energetically and passionately communicated (Bass and Riggio, 2006; Awamleh and Gardner, 1999). Indeed the ability to "sell" a vision relies on effective language usage that relates to the need and values of the followers; typically transformational leaders use emotionally appealing and expressive language to inspire their followers (Den Hartog and Verburg, 1997; Westley and Mintzberg, 1989; Yukl and Van Fleet, 1992). As

Strange and Mumford (2002) state the leader's vision should seek to stimulate followers into action and encourage them to aspire towards an idealised state. A vision inspires faith in a happier, more successful future, produces personal commitment, and the ideas of the leader are tangibly linked to those of their followers (Bass, 1990; Shamir et al., 1993). Furthermore followers will have a strong personal identification with the leader (Lee and Cassidy, 2007). The personal identification that followers feel for their leader results from his or her charisma. Charisma is understood to be a vital element of transformational leadership: charismatic leaders have been portrayed as 'having profound and extraordinary effects on followers' (House and Baetz, 1979, p.399). Transformational leaders have also been described as enhancing awareness and group wellbeing, improving follower confidence, and progressively moving the interests of followers away from their own self-interests towards wider concerns for the group or organisation (Yammarino and Dubinsky, 1994).

The literature states that transformational leaders employ one or more of the following attributes to achieve superior results.

1) Transformational leaders are identified as having an *idealised influence* on their followers. Transformational leaders are seen as charismatic individuals who establish an idealised image of themselves amongst their followers; they become role models for their followers (Avolio and Bass, 2002; Bass, 1998; Bass and Avolio, 1994; Shamir et al., 1993). They are admired, respected and trusted, and as result this encourages strong personal identification with the leader; so strong in fact that followers wish to emulate his or her actions (Avolio et al., 1991; Bass, 1990; Jung and Avolio, 2000). Such leaders are seen by their followers as having superior capabilities and other important personal characteristics such as integrity in the form of ethical and moral conduct (Tracey and Hinkin, 1998). The creation of a shared vision is a key element of the idealised, transformational leader's role (Jung and Avolio, 2000).
2) Transformational leaders demonstrate *inspirational motivation*. Transformational leaders conduct themselves in ways that motivate and inspire those around them by "providing meaning and challenge to their followers' work" (Avolio and Bass, 2002, p. 2). Team spirit is also "aroused" in conjunction with "enthusiasm and optimism" (Bass, 1998, p. 5). Such leaders communicate clear and challenging goals that followers want to meet. Within the leadership literature *idealised influence* and *inspirational motivation* are often joined together to form charismatic-inspirational leadership (Bass, 1998).
3) Transformational leaders exhibit *intellectual stimulation* by assisting their followers "to be innovative and creative by questioning assumptions, reframing problems, and approaching old situations in new ways" (Avolio and Bass, 2002, p. 2). The intellectually stimulating leader also encourages followers to develop their own structures for solving problems (Bass, 1990). The transformational leader's key message for his or her followers is that creativity is welcome and mistakes will not be criticised.
4) The final characteristic exhibited by transformational leaders is the *individual consideration* of followers. Such leaders pay personal attention to followers based on their needs for achievement and growth (Avolio and Bass, 2002). These leaders recognise personal differences and will act as a mentor or coach to allow individual

followers to develop within a supportive atmosphere (Bass, 1998). An important element of fostering individual consideration is effective listening on the part of the transformational leader as this will stimulate two-way communication (Avolio and Bass, 2002; Bass, 1998). Behling and McFillen (1996) state that follower empowerment will result from the collective impact of individualised consideration and other transformational leadership behaviours.

The notion of transformational leadership and its affects on followers is now deep-rooted within the leadership literature (Avolio, 1999; Judge and Bono, 2000); some scholars argue too heavily relied on (Pearce, 2007). Notably studies investigating the relationship between transformational leadership and organisational outcomes such as task and financial performance have been confirmed in both laboratory (e.g. Howell and Frost, 1989; Kirkpatrick and Locke, 1996) and field studies (e.g. Barling et al., 1996; Howell and Avolio, 1993;).

Despite the distinction between transactional and transformational leadership (Burns, 1978) the two sets of behaviors are not unconnected, and have also been viewed as poles in a continuum (e.g. Bass, 1985, 1998; Howell and Avolio, 1993; Waldman et al., 2001). Avolio (1999) refers to this as the 'full range of leadership' perspective. Although the full-range perspective has disclosed some interesting insights, the studies undertaken so far have used samples composed of students and/or lower-level leaders (Antonakis and House, 2002; Yukl, 1999). Further empirical study is therefore justified (Elenkov, at al., 2005). The current study aims to investigate effective leadership in entrepreneurial (growth oriented) medium sized firms within the Transactional and Tranformational paradigms in order to identify primarily whether one is employed in the absence of the other, or if there is an interaction between them.

METHODOLOGY

All 250 firms in the Scottish Business Insider / Scott-Moncrieff list of successful firms in the turnover value bracket of £5million to £15million were invited to submit details for a prestigious national award for entrepreneurial success. This process asked firms to categorise themselves in terms of the greatest influence on their success. Seven firms claimed that entrepreneurial leadership was the most influential factor. These seven firms were from a diverse range of industries and were varied also in terms of age of firm (see Table 1). Some were relatively new firms that had achieved strong growth since start-up, while others had grown as a result of new owner-management, either by acquisition of an entrepreneurial owner, or by succession (as in Case F) of a new, ambitions generation. What they all had in common was that were owner-managed (or similar, as in legal firm Case D, in which owner-management is moot) and their owner-managers (chairman, Case D) attributed their success to 'entrepreneurial leadership'. Following the rationale outlined in Yin (2003), a case study methodology was employed in order to investigate each of these firms. The seven firms were issued a questionnaire asking them to provide details of the style of leadership employed in the firm and the effect of that leadership style and/or structure for personnel, customers and other stakeholders. The firms were encouraged to be as detailed as possible in their responses, affording a good source of qualitative data about each case. Upon receipt of completed

questionnaires, each firm was visited to verify the submission for an award and to conduct an in-depth interview with the leader (owner-manager). These site visits were conducted by teams of two: one academic researcher and one member of staff from the auditing firm Scott-Moncrieff, who were in a position to verify turnover and increases in turnover reported. Further triangulation of data was conducted by collation of recent press coverage in the business and popular media in Scotland and the UK, and internet sources of information about the firms, including the firm's own website.

Table 1. The seven E250 cases

Case	Industry	Age (years)
A	Construction	9
B	Drinks	40
C	Recruitment	10
D	Legal	20
E	Carpet manufacture	35
F	Funeral	120
G	Hotel	10

To investigate notions of Transactional and Transformational leadership, several items were included in order to focus the research. The laissez-faire style of Transactional Leadership was not investigated as logic determines that non-leadership would not be identified as successful leadership by firms self-selected as having their success attributable to leadership. Items were embedded within the written questionnaire and the informal semi-structured interview, and were also foci of investigation of secondary sources of information about the firm. Specific issues investigated include:

1) Transactional leadership

a. *Contingent rewards*: clear and explicit performance-related rewards available
b. *Management by exception*: close monitoring and intervention if required

2) Transformational leadership

a. *Idealised influence*: promotion of a shared vision; leader is a role model
b. *Inspirational motivation*: for example, leader identifies and assigns tasks and responsibilities appropriate and challenging to individuals)
c. *Intellectual stimulation*: no-blame culture; staff encouraged to be creative and autonomous
d. *Individual consideration*: investment and interest in staff as individuals, and a commitment to personal and professional development

Some items were investigated discretely, while others were investigated via analysis of response in terms of dichotomy of leadership paradigm. Examples of how these items were presented in the questionnaire are given in Table 2:

Table 2. Investigation of items (questionnaire)

Question	Research item
How are staff rewarded in your company?	1.a.
How is staff progress monitored in your company?	1.b. v. 2.c.
How are staff encouraged to develop in your company, including any CPD opportunities?	2.d.

Interviews employed a similar strategy: respondents were asked to expand on questionnaire answers in order to corroborate questionnaire responses; in order to afford richer explanation of leadership style; and in order to clarify responses to items not answered in the questionnaire sufficiently to determine leadership style. All interviews were tape recorded and transcribed by a third party. Initial analysis was conducted by the academic interviewer in consultation with the lay-researcher from Scott-Moncrieff. Subsequent analysis of interview data was conducted by the other two academic researchers, and consensus was reached on comparative meta-analysis of each analysis. Thus, four individuals were involved in the analysis of each interview, three academics and one auditor, and each case was meta-analysed by a researcher not present at the interview, and verified by the academic interviewer who had been present.

RESULTS

Results can be split broadly into three themes:

1) The Leader

Results include issues associated with the personality of the leader himself (all male). In accordance with the entrepreneurship literature and the transformational leadership literature, all seven of these men were charismatic, visionary and inspirational characters, exhibiting high levels of confidence and enthusiasm for their industry and their firm. Hand in hand with this, all seven respondents also demonstrated a clarity of vision for the firm ie., were able to define precisely how they wanted the firm to develop strategically, though specific objectives in terms of opportunities may not yet have been identified.

2) Communications Structures and Processes

Linked to the previous theme, all leaders were able to communicate their vision of the firm and its potential to staff. Most firms had made considerable effort to create and develop effective communications structures, and all leaders communicated regularly with staff of all levels. Communications were encouraged to be two-way, and in many cases staff of all levels were involved in strategic decisions and consulted on business objectives and operational concerns. In most cases both formal and informal communications structures could be observed, the latter of which often served the additional purpose of creating an inclusive culture that was observably advantageous in terms of staff loyalty and engagement with objectives.

3) Staff Engagement

Following on from this, people in the firms were well supported. All respondents cited extensive training and support for careers, and all firms operated a two-way appraisal system. Over and above this, all firms catered for not only the professional development of staff, but also offered more pastoral support for staff. All firms advocated a team-culture, with team leadership, autonomy and reward systems all highly evidenced.

TRANSACTIONAL OR TRANSFORMATIONAL?

There is evidence that a combination of methods is at play in the seven firms studied. Certainly, there is substantial evidence of transformational leadership. In detail:

2.a. idealised influence

In all cases, leaders presented themselves as role models, and were accessible in terms of their proximity to staff and their attitude and roles in tasks and projects: none of them occupied a remote office separate from the staff, and most of them took an active part on the core functional operation of the firm. From this position the leader presented himself as a team member and thus solidified the notion that there did indeed exist a team. He was also able to communicate his vision, enthusiasm and attitude to the job and the organization from this vantage point.

2.b. inspirational motivation

There was much reportage of providing opportunities to perform a variety of roles, and the rationale for this most often was to provide challenge and diversity and through this to continue to stimulate staff within the organization. Succession was also a feature in all cases: all of the firms in the sample divided operations into 'projects' or otherwise discrete tasks (such as the pursuit, operation and conclusion of a contracted piece of work). The team leader in each case rotated – there was no firm that had only senior members of staff take on senior roles all the time, though they often were the first point of consultation in terms of specialism (e.g., sales). Through this, staff at all levels (post qualification/accreditation) were given the opportunity to 'lead' projects.

2.c. intellectual stimulation

In all cases, staff were encouraged to be proactive in the organization and to take responsibility for activities, including devising ways of expanding the current portfolio of the firm's offerings, and problem solving. Interviews revealed that leaders were of the impression that staff perceived a no-blame culture, and certainly, where successful expansion had occurred as a result of the initiative or ingenuity of a member of staff, leaders were quick to identify and praise it.

2.d. individual consideration

In every case, diverse as they are in terms of industry and profession, there was tangible evidence and much reportage of support for career development amongst staff. This involved in all cases, appraisal systems for staff development, communication and feed-back. In most cases, where appropriate, it also involved support in the form of both time and finance to pursue industrial or professional training externally. Internal training and support was provided by all firms, and in some cases, internal and external training also extended to

auxiliary or support staff (for example, in the case of the legal firm, one of the current partners is a marketing specialist who had started at the firm as an administrator many years previously – a very uncommon practice in legal firms where partners are almost always lawyers). In addition to professional development, respondents also mentioned commitment to personal development. Often this took the form of team reinforcement activity such as family days, 'fun' activities, but in some cases included also provision of 'extra' care, depending on need, such as support for health, family, etc.

Despite the myriad evidence of transformational leadership, there is also, at the same time, much evidence of transactional leadership. Specifically:

1.a. Contingent rewards

As noted above for 2.c., good performance and success was acknowledged in all cases in the current sample. Goals were clearly incentivized, however, rewards tended to be tangible and financial. Taking 1.a. as in opposition to Transactional Leadership item 2.c. *intellectual stimulation*, autonomy was not given as a reward per se; conversely, autonomy (or at least perceived autonomy) was provided to facilitate and afford creativity, challenge, and organizational development. Related to this, it was not possible in this study to ascertain the extent to which a no-blame culture exists, as the research focused on the leadership style as explained by the leader himself. No respondent offered any information about penalties for non-performance or lack of successful outcome. Further research involving employees also might provide further insight.

1.b. Management by exception

In all cases, there was consistent demonstration of the fact that communication was facilitated very well and that one of the main reasons for this was so that the leader was in a position to monitor activity and development throughout projects and tasks. All respondents knew what was going on in their organization, and all could be observed to be continually monitoring. Intervention itself was played down by respondents, but statements such as "we carry out detailed and rigorous project reviews" (Case A); "we monitor progress" (Case B); "we measure progress" (Case C) were common. These tended to be statements made to illustrate the communications process in terms of affording inclusiveness and buy-in from staff, however, the other outcome of this high level of interest in the activities of employees is that the organization can identify when intervention might be required.

CONCLUSIONS

The current research has identified that the seven successful medium-sized firms in the sample all have within them leaders with vision and entrepreneurial ambitions for innovation and growth. This being the case, there is much evidence of transformational leadership, whereupon the leader has created an environment in which individuals feel valued, part of a team, invested personally in the organization, challenged and developed. The research also suggests that to an extent this is illusional. There appears to be a combination of transformational and transactional leadership in all cases studied. The focus is very much on making the transformational dimension as explicit as possible, however, all cases could be observed to also exhibit transactional leadership, whereupon a paternalistic hierarchy is still at play. As expected using the current self-selecting methodology, all respondents were keen to put a positive spin on the various means and mechanisms in place in their firms to encourage

performance, commitment and quality amongst staff, and in all cases much time and resources had been committed to creating a value system amongst staff and for staff. The leaders themselves were all highly motivated and personally invested in their firms, and it was easy to see how their enthusiasm, supported by solid organizational policy, would be infectious. However, their focus was in every case, the organization and its success, and in all cases the leader was well-informed and in absolute control. This paternalistic leadership has served their firms well – they are all amongst the most successful in their industries. The current research has been unable to identify the extent to which this paternalism is benign though. Further research should involve those who work in these environments. It would be interesting to discover if the transparency in processes, so acclaimed by the leaders, extends to an understanding amongst employees that despite the explicit messages about their value and development being central to the organisation's success, their autonomy, independence and, in fact, responsibility, are far less real than they are presented.

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Chapter 3

THE INNOVATIVE SME SECTOR: THE TAIWAN EXPERIENCE

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ABSTRACT

Taiwan's speedy economic development and the abundant SMEs have long been attracting attention. This chapter shows an inner drive inherited within the SME sector that promises her later success. To begin with, our regression analysis shows an innovative SME sector built first upon labor efficiency and then capital efficiency.

Three common features of the development of SMEs are also discussed in this chapter. First, we notice the pro-cyclical nature of the importance of SMEs. Second, SMEs are predominant in the service sector, however, their contributions to the economy are not so impressive when compared with SMEs in the manufacturing sector. Third, it is the movements of SMEs within each industry instead of the industrial restructuring that make for the evolution pattern of the SME sector.

Finally, we will show how Taiwan's innovative SME sector nurtures entrepreneurial resources. The factors constitute the right institutional backgrounds for the emergence of Taiwan's entrepreneurial culture is also identified in this chapter.

INTRODUCTION

In 2006, Taiwan's per-capita GNP is US$16,098, the amount has grown more than 100 times since 1961. Although many consider modern Taiwan's economic progress a 'miracle' because of its speedy development, it took more than fifty years to reach its current status. It is well recognized that the small and medium -sized enterprises (SMEs) in Taiwan's economy

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have played important and variable roles during the process of Taiwan's economic development. The evolution of SMEs in recent Taiwan depicts a vivid story about how the miracle has happened. The tale of Taiwan's SME experience unveils some indispensable ingredients for an economy to growth in the global economy. One of the main purposes of this chapter is to examine the evolution of SMEs in Taiwan. Further, as one of the most dynamic economies in the world, Taiwan is often considered to have the most successful entrepreneurial culture. This chapter will also discuss the entrepreneurial background of the innovative SME sector.

One major lesson drawn from tracing the evolution process of Taiwan's SMEs is that there are major transformations separate SMEs today from their rural beginnings. SMEs in current Taiwan are not the same ones some fifty years ago. The SME sector is an innovative sector of Taiwan. It is worthwhile to trace all these transformations. Table 1 reports the time trends of per capita GNP, SME shares in number of firms, employment, value of production (a measure of output)[1], entrepreneur rate, and information about the average size of firms in Taiwan. Throughout this study, unless mentioned otherwise, SMEs are defined as firms with less than 100 employees.

Before the 1960s, Taiwan economy was full of SMEs. SMEs then were not much different from what usually considered the informal sector of less-developed economies (LDEs). It was often said to be a symbol of backwardness. In 1954, 99.4 percent of Taiwan's manufacturers were factories with less than one hundred employees. Back in the late 1940s and early 1950s, these factories, or so-called SMEs, consisted of most cottage industries in Taiwan, and helped to absorb surplus labors in the rural areas of Taiwan (Hu, 2000). With the emergence of SMEs in the private sector, under the keen competitive market environment, we saw the gradual elimination of cottage industries, and the sprout of efficient small businesses.

Table 1. Entrepreneurial Activity and Economic Development in Taiwan, 1954-2001

Year	SMEs (1-99 persons) share (%)			Entrepreneurs/ Work force (%)	Employment per Firm (persons)	Per Capita GNP (US$)
	No. of Firms	Value of				
		Employment	Production			
1954	99.40	--	--	--	--	--
1961	99.57	64.28	--	14.33	5.98	154[a]
1966	99.28	57.30	--	12.44	7.04	237
1971	98.96	52.52	37.09	10.29	8.72	443
1976	98.90	53.00	32.27	10.22	8.79	1,132
1986	99.00	57.89	36.46	10.54	8.49	3,993
1991	99.24	63.82	41.23	11.19	7.94	8,982
1996	99.37	66.92	42.03	11.52	7.68	13,260
2001	99.38	63.40	37.49	12.15	7.12	12,876

[a] Figure in 1960.

Source: The author compiled from *Industrial and Commercial Census of the Republic of China*, Directorate-General of Budget, Accounting and Statistics, Executive Yuan, R.O.C., and T*aiwan Statistical Data Book*, Council for Economic Planning and Development, R.O.C., various issues.

[1] 'Production value' or 'total value of production' is the term formally used by Taiwan's census bureau, which adds up mainly the total revenue and changes in inventories.

In early 1950s, Taiwan government promulgated a serial of measures to attract foreign investment. In mid-1960s, there was a large amount foreign direct investment (FDI) inflow (Schive, 1990). Since these newly found multinationals were large businesses, the relative position of small firms was deteriorating (Hu, 2000). Table 1 shows the employment share of SMEs was 64.28 percent in 1961, 57.3 percent in 1966, and 52.52 percent in 1971. The imported technology that came with FDI was later spread speedily over the private sector, including SMEs. This helped to further upgrading the SMEs sector of Taiwan (Schive and Hu, 2001).

These developments laid the firm foundation for the Taiwan economy's subsequent prosperity. They also helped to explain why the share of SMEs was decreasing when Taiwan's industrialization process entering the phase of export expansion in 1960s. Small firms thus reinvented themselves, became the vital players in the booming economy. As the economy gradual took off and continued to grow fast in 1970s, the accelerated rising trend of per capita GNP echoed with the reversing trend of SMEs.

The period between the late 1970s and the early 1980s was generally considered to be the first golden age of Taiwan's SME sector. Back then, export- oriented SMEs supplying labor-intensive products, thrived in the island's export market. Both output and employment share of SMEs started a rising trends since 1970s. In 1971, SME took 37.09 percent of output value (Table 1). The figure first decreased to 32.27 percent in 1976, and then had an increasing trend that bounced it back to 36.46 percent in 1986, and 41.23 percent in 1991. The employment share of SMEs was 52.52 percent in 1971, and 57.89 percent in 1986. In fact, the reversing trend of SMEs during 1970s is well documented in most countries, and is later a worldwide phenomenon (Storey, 1982; Acs, 1992; Carlsson, 1996).

In the mid-1980s, Taiwan embarked on the path of economic liberalization, industrial environment in Taiwan also experienced vast transition. Among them, many affect the international competitiveness of Taiwan: sharp appreciation of the New Taiwan dollar in 1986, labor shortage and the resulting increase in wage rates, and increasing competition in the export market from other developing countries. These new circumstances deflected upon export-oriented SMEs more prominent, and changed the relative position of Taiwan's SMEs in the export market.

Taiwan's SMEs with vest resilience, confront restlessly with the new challenges. Many export-oriented SMEs thus changed their domain, becoming focus on domestic market. And some chose to conduct outward FDI, using the abundant labor resources in Southeast Asia first, and then Mainland China. While those remained in Taiwan, pursuing technical upgrades, by increasing their capital-labor ratio. Others got more active in international markets and, with the injection of venture capital, moving up into high-tech industries (Schive, 1999).

As a result, even though SMEs' roles have changed, they continued to increase their preponderance in Taiwan's industrial structure (Schive and Hu, 2001). Table 1 shows that from 1986 to 1996, the employment share of SMEs rose to a new peak of 66.92 percent, an increase of more than 9 percent over the ten-year period. Meanwhile, SMEs produced 41.23 percent of total output in 1991. The figure followed by a further increase to 42.03 percent in 1996.

After Taiwan's SMEs reached its new peak in late 1990s, the upward trend that lasts for two decades has changed. The recent decrease in SMEs' relative position in the economy coincided with the only obvious economic downturn in the turn of the century. During 1996

and 2001, Taiwan's per capital GNP decreased from US$13,260 to US$12,876 (Table 1). The output share of SMEs dropped from 42.03 to 37.49 percent. Meanwhile, the corresponding employment share of SME also dropped from 66.92 percent in 1996 to 63.4 percent in 2001. This result is not so different from what Davidsson et al. (1999: 306) have found with recent Swedish data, that during economic stagnation or decline, we might not find an increased importance of SMEs. Although the employment share of SMEs was experiencing a decreasing trend in recent Taiwan, it still accounted for more than 60% of total employment.

Table 1 also shows the average firm size in Taiwan expanded from 5.98 persons in 1961 to a peak of 8.79 in 1976, after that falling back to 7.12 in 2001. The figures were not so different from most other economies. For example, in Greece, with average number of employees per firm is just three; in Portugal, the number rose from four in 1988 to five in 1990; in Ireland, the number has ranged from about six to eight (Liargovas, 1998).

Finally, Table 1 displays the rate of entrepreneur (or self-employment rate, measured as the ratio of the number of firms to work force). The self-employment rate decreased from 14.33 percent in 1961 to 10.22 percent in 1976. Then the rate rose to 12.15 percent in 2001.

Figure 1 shows the rising trend of Taiwan's per capita GNP in last four decades. The Figure also highlights the U shaped, reversing trend of the rates of self-employment. It is also interested to note that the turning point of the trend of the self-employment rates was witnessed in 1976, the same time when the output share of SMEs rocked bottom.

So far, we have been looking at SME sector as a whole, however, not all families of SMEs are performing alike; there is alienation within the SME sector. For example, there are micro-enterprises as well as larger SMEs. We can find SMEs in traditional sectors as well as high-tech industries. Some SMEs confine their operations domestically, while others engage in global activities. Some SMEs are known for their entrepreneurial talent. These are all typical SMEs that can be found in modern Taiwan.

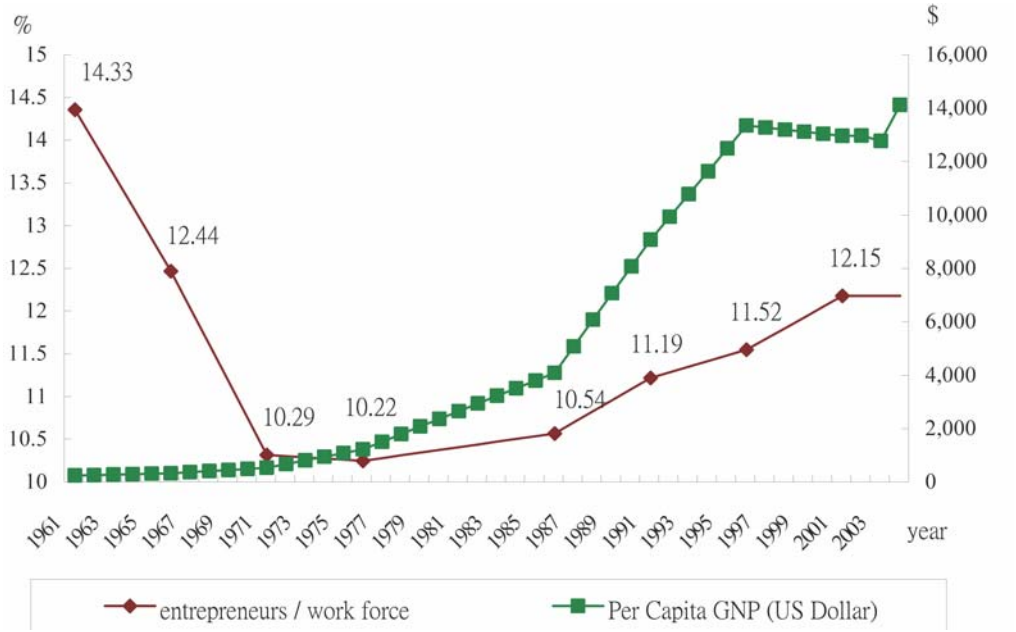

Figure 1. Rate of Entrepreneur and Per Capita GNP in Taiwan: 1961-2004.

In the following sections, we will take a further look at the difference in SME. Section 2 will first display an inter-industry exhibition of SME in Taiwan, then perform an industrial decomposition of the change in SME share. In section 3, we will use regression analysis with inter-industry data to find empirically the determinants of the changing importance of SMEs. Section 4 focuses on the entry activities of the economy. Section 5 discusses institutional factors that constitute Taiwan's successful entrepreneurial culture. The concluding remarks are then made in the final section. It is hoping that through our exposition, we can provide an exploratory demonstration of the linkage between the good economic performance of Taiwan and its innovative SME sector.

INDUSTRIAL COMPOSITION OF SMES

The trends of SME shares of employment and total production value in both the industrial and service sectors are displayed in Table 2 and 3. It is obvious that SME shares are higher in the service sector than in the industrial sector throughout the sample periods. However, since the manufacturing industry is still the single most important sector among other industries, the common trend of SMEs reflecting that of the manufacturing sector. Therefore, just as Howard (1990) put it in when observing small businesses in the US, that 'small business is most important where it is least predominant.'

The rising trend of SMEs' employment from 1971 to 1996, which we noticed previously, is evident in the mining & quarrying, manufacturing, and construction industries (Table 2). Because of the dominance of state-owned enterprises in the electricity, gas and water industries, SMEs show a less impressive share in those sectors. In the industry sector, the recent obvious decreased in employment share of SME were found in the manufacture sector.

Table 2. Employment Share of Taiwan's SMEs, by Industry, 1961-2001 Unit: %

	SMEs (1-99 persons) Share							
Industry	1961	1966	1971	1976	1986	1991	1996	2001
Mining & Quarrying	27.42	14.79	11.96	23.78	42.18	68.57	77.69	77.36
Manufacturing	57.58	42.72	35.62	38.55	47.86	56.48	57.95	52.17
Electricity, Gas & Water	30.95[a]	10.34	13.33	1.66	3.71	3.81	4.74	6.18
Construction	54.94[a]	38.00	53.25	40.17	47.96	58.21	72.82	77.66
Industry Subtotal	53.27	38.51	36.39	37.84	47.26	56.04	59.85	55.58
Commerce	99.35[a]	97.37	96.31	92.99	91.71	88.69	86.94	85.12
Transport, Storage & Communication	35.58	——	——	42.36	52.68	55.88	58.80	55.57
Financing, Insurance, Real Estate & Business	85.25[a]	——	——	71.56	55.03	54.81	48.26	39.81
Other	——	69.19	62.31	——	——	——	65.62	58.45
Service Subtotal	82.89	82.00	77.37	78.06	74.95	73.05	73.28	69.53
Total	64.28	57.30	52.52	53.00	57.89	63.82	66.92	63.40

[a] establishment unit.

Source: *ibid*.

In the service industry, SME shares of employment in the commercial, financial, insurance, real estate and business sectors have been decreasing since the 1970s. In fact, these industries normally possess large-scale economies that prohibit SMEs acquiring efficiencies (Schive and Hu, 2001). From 1996 to 2001, the employment share of SME in the commercial, financial, insurance, real estate and business sector showed a close to 10 percent drop of their employment share.

The census data also show that the SME share of total production value in the commercial sector remained above 76 percent after 1976 (Table 3). Although general beliefs that there are economies of scale in the transport, storage and communication industries, SMEs have surprisingly managed to maintain a share of around 50 percent of total production value in those industries since 1976. The performance of SMEs in the construction and mining & quarrying industries has also been quite impressive.

Next, let us further examine the changes in the SME share with a decomposition method. Letting ss_{it} and ts_{it} be the amount of employment or output in period t by SME and total firms in industry i, respectively. Then defining $sme_{it} \equiv ss_{it}/ts_{it}$ the SME share within sector i in period t, SME_t be the SME share among all sectors in period t, w_{it} the share of sector i (it represents the 'weight' or importance of industry i), also in time t. Providing there are k industries in the economy, then

$$SME_t = \Sigma_{i=1\sim k}\, sme_{it} \times w_{it}, \text{ and} \qquad \text{i}$$

$$\Delta SME \equiv SME_t - SME_{t-1} = \Sigma_{i=1\sim k}\,(sme_{it-1} \times \Delta w_i + \Delta sme_i \times w_{it}). \qquad \text{ii}$$

Table 3. Value of Production Share of Taiwan's SMEs, by Industry 1971-2001 Unit: %

Industry	1971	1976	1986	1991	1996	2001
Mining & Quarrying	5.88	20.95	32.83	55.37	69.98	68.25
Manufacturing	26.72	27.32	33.83	37.67	35.44	30.15
Electricity, Gas & Water	3.16	0.83	1.17	1.24	1.70	4.21
Construction	51.19	38.51	46.56	53.80	67.26	67.40
Industry Subtotal	26.96	27.02	33.17	37.86	37.78	32.60
Commerce	49.10	88.48	84.94	83.57	80.95	76.98
Transport, Storage & Communication	——	26.42	27.67	29.29	29.35	25.27
Financing, Insurance, Real Estate & Business	——	39.31	28.64	33.78	26.97	22.15
Other	45.60	——	——	——	56.04	54.31
Service Subtotal	48.34	52.82	47.39	48.88	49.41	43.91
Total	37.09	32.27	36.46	41.23	42.03	37.49

Source: The author compiled from *Industrial and Commercial Census* of the Republic of China, various issues, Directorate-General of Budget, Accounting and Statistics, Executive Yuan, R.O.C.

The total change in the share of SME is therefore set to be originated from two sources. For one, holding SME share in each industry constant, there is change due to adjustment in industrial structure (or shifts in industry composition), which is calculated from: $\Sigma_{i=1\sim k}(sme_{it-1} \times \Delta w_i)$. The second component is considered when each industry's share remained unchanged; there is change due to shifts in the share of SMEs within sectors (or industries), that is, the term: $\Sigma_{i=1\sim k}(\Delta sme_i \times w_{it})$.

Two different measures of the share are considered: employment and output. In Taiwan, output as well as employment shares of SME are growing after 1971, as shown in Table 1. Based on same data sources, Table 4 displays the calculating results of equation ii.

During 1961 and 1976, Taiwan saw a decrease in the SME share of employment. It decreased 11.3 percent. We find that the decrease of SME share within each industry was the major factor that constituting the decrease. On the other hand, the structure adjustment during the period is beneficial to SME's relative position. If we compare our experience with that of the US, we also find that the employment share of her SME (with less than 500 persons) decreased 6 percent from 1958 to 1977, and it was also due mainly to the shifts in the SME share within industries (Acs, Carlsson, and Karlsson, 1999: 7).

Then there came the golden age, the output and employment share of SME were both rising from 1976 to 1996. Throughout the period, the changes in the total SME shares were mainly due to the shifts in the SME share within industries. We notice that the structure change effect is less important in inducing change in the total SME share, excepting the change in output share between 1991 and 1996. However, there is a growing importance in its proportion. During 1976 and 1991, the percentage of change in the total SME share attributed to structure adjustment increased from 6 percent to 34 percent when measured in the employment share, and from 17 percent to 22 percent when measured in the share of output. During 1991 and 1996, the percentage of change in the total output share of SME that attributed to structure adjustment rose even higher to 82 percent.

The situation changed in the last sample period. From 1996 to 2001, when Taiwan economy was in the adjustment period after the Asian financial crisis, the employment and output shares of SME dropped 3.5 and 4.5 percent respectively. This was mainly originating from the decrease of the SME share within industries. The restructuring effect was still slightly in favor of the SME sector.

Table 4. Changes in the SME Share of Employment and Output[a] in Taiwan Unit: %

Time period	SME Share of Employment					SME Share of Output			
	1961-76	1976-86	1986-91	1991-96	1996-01	1976-86	1986-91	1991-96	1996-01
Total Change	-11.3	+4.9	+5.9	+3.1	-3.5	+4.2	+4.8	+0.8	-4.5
Change due to shifts in Structure of Industry	+2.3	+0.6	+1.7	+1.2	+0.5	+0.5	+1.2	+0.7	+0.8
Change due to shifts in SME share within industries	-13.6	+4.3	+4.2	+1.9	-4.0	+3.7	+3.6	+0.1	-5.3

[a] The output was measured in total value of production.

Source: *ibid*.

THE DETERMINANTS OF THE CHANGING IMPORTANCE OF SMES

The period between 1966 and 1986 was the time when Taiwan economy first took off, and it was also the period right before and during the golden years of SMEs. Therefore, we will now focus on the time between 1966 and 1986, and inspect the change of the output share of manufacturing SME with regression analysis. The changes in SMEs' output shares (ΔSME) were hypothesized to be determined mainly by four factors. First, the change in SMEs' relative labor productivity (ΔAPL), measured in the change of SMEs' average labor productivity to that of total industry's. Second, the change in SMEs' relative capital productivity (ΔAPK) was measured in a similar way. These two variables capture the improving of efficiency in the SMEs' sector. The third explanatory variable considered here, was the change in the capital labor ratio of the entire industry (ΔK/L). Capital intensity is generally used as a proxy of the entry barrier, a measure of significant economies of scale, which deter the growth of SMEs. Fourth, the change in SMEs' average wage to that of large firms' (ΔW). Generally, SMEs pay a lower wage rate than their larger counterparts. This phenomenon is sometimes considered SMEs' advantage over large firms (Miller, 1986). Therefore, as the gap of the wage rate between SMEs and large firms becomes closer, SMEs will be frustrated. Table 5 reports the OLS regression results corresponding to each period, with models denoting A, B, and C, respectively.

Table 5. Regression results for changes in SME[a] Share: 1966-86

	Constant	ΔAPL	ΔAPK	ΔK/L	ΔW	F	R^2	$\bar{R}^2$
Period: 1966-1971								
A-1	-0.1311	0.3732**		0.0016*		12.7257**	0.8092	0.7456
		(5.0168)		(2.2770)				
A-2	-0.0161		0.1505*			6.8639*	0.4951	0.4230
			(2.6199)					
Period: 1971-1976								
B-1	0.0500	0.4319**				53.8416**	0.8850	0.8685
		(7.3377)						
B-2	0.0649				-1.3162**	24.9224**	0.7807	0.7494
					(-4.9922)			
B-3	0.1646		0.2159**	-0.0002*		14.6163**	0.8297	0.7729
			(5.0309)	(-2.4044)				
Period: 1976-1986								
C-1	0.0737		0.1507**			38.0608**	0.8447	0.8225
			(6.1693)					
C-2	0.0815	0.0063	0.1535**	-0.0002		19.1420**	0.9199	0.8719
		(0.8387)	(7.3730)	(-1.3166)				
C-3	0.0890	0.1377*		-0.0003	-0.0828*	3.2294	0.6596	0.4553
		(2.8878)		(-0.9767)	(-2.9945)			

[a] SME is measured in firm with fewer than 100 employees.
t values in parentheses, sample size = 9.
* statistically significant at the 90% level of confidence.
** statistically significant at the 95% level of confidence.

The golden period in concerned was separated into three consecutive periods: the time before the golden years, where SMEs' output share was decreasing (1966-1971), the time when SMEs start to rise (1971-1976), and the period of SME's further blossoming (1976-1986).

During late 1960s, SMEs experienced a decreasing trend. According to model A, this was caused mainly by the decrease in SMEs' relative labor productivity (ΔAPL). SMEs also attributed their trends to ΔAPK. Surprisingly, contrary to the hypotheses, the ΔK/L displayed a positive effect on ΔSME. It seemed that when an economy was still in her early stage of development, the cumulated capital was important for firms of all scales. Taiwan's growth was no longer constrained by capital shortage. The increased capital labor ratio was the driving force for cottage SMEs also large firms to change into modern production sectors.

After SME share had dropped to the bottom, in 1971, they began a reversing trend. During 1971 and 1976, ΔAPL was still the most important independent variable that affected ΔSME (Model B). The ΔAPK was the second most important variable that explained ΔSME. As predicted, ΔW showed a strong and negative effect on ΔSME. That is, as the wage rate of an SME closes to that of large firm's, SME's advantage drew from paying lower labor cost vanished, SME share decreased. Model B also reports a weak and negative correlation between ΔK/L and ΔSME. In the golden age, SMEs have now grown into a modern sector during 1970s, and that capital intensity might represent an entry barrier to SMEs.

From mid-1970s on, Taiwan's manufacturing SMEs showed a stable and increasing trend, which spanned into the next decade. In this much modern phase of development, ΔAPK had replaced ΔAPL, became the major driving force of SMEs' growth (model C). The ΔAPL now showed only weak and positive effect on ΔSME. The negative effect of ΔW on ΔSME was weaker now than in the earlier period.

It is worth noting that ΔAPL and ΔAPK were highly correlated during the late 1960s (the correlation coefficient was about 0.92). That means when SMEs improved their labor efficiency, they also improved their capital productivity. After 1976, the picture changed. The correlation coefficient between ΔAPL and ΔAPK was very low (-0.07). Therefore, only those industries whose SMEs put emphasis on capital efficiency induced better performance of SMEs in the given industries. These results signify that, back in the 1980s, the improving of the capital efficiency was the key to SMEs' future performance. Other empirical evidence shows that change in relative labor productivity also contributed to the small-firm growth in the U.S. Further, the higher the capital-labor ratio, the lower the small-firm growth (Acs and Audretsch, 1990).

Finally, as exhibited in the previous section, we know that in Taiwan, the structure change among sectors with different shares of SMEs had little effects on the general trends of SMEs. The increasing trend of SMEs since the 1970s was caused mainly by the increasing trend of SMEs in all sectors. What was true for manufacturing SMEs, holds for all SMEs. We thus conclude that the deterioration in SMEs' labor productivity before 1970s was one major cause of the shrinking of SMEs in Taiwan. The improvement in labor efficiency decided SMEs' prosperities during 1971 and 1976. After then, the growth in capital productivity became the most important determinant of SMEs' growth.

There are further evidences show that during 1976 and 1991, the market share of Taiwan's SMEs were determined mainly by the relative efficiency of SME and the enterprising behavior of the population, as well as institutional factors such as low entry barriers, suitable technology, and the adoption of a subcontract system (Hu and Schive, 1996;

Hu, 1999). Similar experiences were found in the US, Germany and other industrialized countries, as well as LDCs such as Venezuela (Mulhern and Stewart, 2003).

THE ENTRY ACTIVITIES IN TAIWAN MANUFACTURING INDUSTRY

Since most SMEs are new firms, SME sector can be seen as vehicle for entrepreneurship. The latter is an engine of economic growth (Begley and Tan, 2001). Thurik and Wennekers (2004) note that entrepreneurship and small businesses are in fact overlapped concepts. They also acknowledge that small businesses were both vehicles for entrepreneurship and sources of employment and income in the early part of the last century. We now focus on the entry activities that constitute the important part of Taiwan's innovative SME sector.

Taiwan economy endows with a vast amount of entrepreneurship resource. According to census data, in 2001, there were totally 935,316 enterprises in Taiwan. In an island with twenty-three million populations, every four out of one hundred residents are business owners. From 1996 to 2001, total number of firms increased by 7.93 percent. More than 15 percent of them (140,613 firms) were from manufacturing sector. Next, we will put focus on Taiwan's manufacturing sector. Table 6 shows there were approximately 50 thousands new firms entering into manufacturing sector in each five-year periods starting from 1982 to 1996. Then, as the economy was experiencing down turn from 1996 to 2001, only 26,402 new manufacturing firms were set up.

Table 6. Net Entry Rates of Manufacturing Enterprises in Taiwan, by Size, 1981-2001

Employment Size (persons)	1-9	10-49	50-99	**1-99**	100-499	500 and More	**Total**
Net Entry (or size change) by Number of Enterprises /%							
1981-1986	35368 /66.9	14725 /27.8	1848 /3.5	**51941 /98.2**	916 /1.7	37 /0.1	**52894 /100**
1986-1991	41506 /70.1	15998 /27.0	1277 /2.2	**58781 /99.3**	415 /0.7	28 /0.1	**59224 /100**
1991-1996	35101 /76.8	9853 /21.6	576 /1.3	**45530 /99.6**	184 /0.4	10 /0.02	**45724 /100**
1996-2001	21624 /81.9	3881 /14.7	486 /1.8	**25991 /98.4**	361 /1.4	50 /0.2	**26402 /100**
Net Entry Rate (%)							
1981-1986	55.19	74.72	49.18	**59.33**	28.30	5.03	**57.79**
1986-1991	57.43	50.79	23.87	**53.87**	10.32	5.70	**52.12**
1991-1996	37.80	25.08	11.48	**33.19**	6.16	2.41	**32.53**
1996-2001	20.08	9.84	10.58	**17.3**	13.97	12.41	**17.07**

Source: Compiled by this study from data provided by *Industrial and Commercial census*, Executive Yuan, Taiwan, ROC, 1981-2001.

It is common knowledge that SMEs sector has higher entry and exit rate than large firms do. Large firms' shares in number of newly established enterprises were highly outdistanced by smaller firms. The shares of all the newly established firms that belong to SMEs (enterprises with less than 100 employees) were 98.2 percent in 1986, 99.3 percent in 1991, 99.6 percent in 1996, and 98.4 percent in 2001.

In 1986, there were a total of 113,639 firms in the manufacturing sector. We then divide the number of incumbents by the number of new firms to calculate net entry rate. Table 6 also shows that, from 1981 to 1986, the net entry rate was 57.79 percent. In 1991, of the total 140,572 enterprises, the corresponding net entry rate (from 1986 to 1991) slid a little to 52.12 percent. Back in 1986, new firms preferred to enter into the size class of 10-49 employees, next to the smallest size group.

The situation changed in 1991, the firm category with less than ten persons appeared to be the most popular size group. Of all the 154,675 enterprises that survived in the year 1996, the average net entry rate was only 32.53 percent. New firms also concentrated in the smallest size group (firm with less than ten persons), with a net entry rate of 37.8 percent.

Then in 2001, the average net entry rate dropped further down to 17.07 percent. New firms also concentrated in the smallest size group (firm with less than ten persons), with a net entry rate of 20.08 percent. The entry rate of SME sector as a whole was 59.33 percent in 1986, which entailed a decreasing trend, dropped to 17.3 percent in 2001. In comparison with the SME sector, larger firms had smaller net entry rate.

Table 7 summarizes the patterns of market entry in twenty-one 2-digit Taiwan manufacturing industries, over two periods 1993-95 and 1995-97.

Table 7. Entry Rates in Taiwanese Manufacturing Sector

Industrial Sectors	1993-95 (%)	1995-97 (%)
Food Manufacturing	20.7	20.0
Textile mill products	31.4	30.3
Wearing apparel & accessories	47.0	39.3
Leather, fur products	32.9	31.5
Wood & bamboo products	15.7	19.1
Furniture & fixtures	37.5	27.2
Pulp, paper & paper products	30.9	28.8
Printing processing	48.2	47.6
Chemical materials	32.6	26.5
Chemical products	25.7	21.0
Petroleum & coal products	43.8	21.0
Rubber products	26.9	28.7
Plastic products	32.8	29.5
Non-metallic mineral products	24.4	24.1
Basic metal	34.6	30.1
Fabricated metal products	47.8	48.8
Machinery & equipments	41.4	36.3
Electrical & electronic machinery	**56.4**	**53.0**
Transport equipments	38.6	32.3
Precision instruments	37.1	29.0
Miscellaneous industry	33.3	27.8
Total number of new firms	25,822	24,277
Average Entry Rates (%)	37.4	35.1

Source: Adapted from Liu, Chen, and Hu (2004), Table 2.

Table 7 shows that the entry rates across industries in Taiwan manufacturing sector ranged from 15.7 percent and 19.1 percent (wood and bamboo products) to 56.4 percent and 53 percent (electrical and electronic machinery).

If we take a closer look at the industrial distribution of these start-ups, the linkage between innovation and entrepreneurship is more obvious. The average entry rates for 1993-95 and 1995-97 were 37.4 percent and 35.1 percent, respectively.

The electrical and electronic machinery industry is considered an important sector for innovation. In Taiwan, electrical firms are often said to be the high-tech sector (Tsai and Wang, 2004). We notice that the average annual entry rate for electrical and electronic machinery industry in Taiwan is 18.2 percent. The figure demonstrates the abundance of high quality entrepreneurship resources in Taiwan.

THE EMERGENCE OF ENTREPRENEURIAL RESOURCES

It is observed in the previous section that Taiwan economy is inherited with prolific entry activities, of which we used as an indicator of entrepreneurship resources. In what followed, we will highlight the relevant institutional factors that help shape a high-quality entrepreneurial culture, which is the true engine behind the transformation process of Taiwan's innovative SMEs. We next take a look at the factors constitute the entrepreneurial background, they are market orientation, institutional support, cultural heritage and social background.

Market Oriented Economy

First of all, Taiwan's economic success is well praised, and is often put as a case study the textbook of economic development.[2] Therefore, the policy issues of Taiwan's industrialization experience are well concerned and documented in the literature (Kuo et al., 1981; Ranis et al., 1999; Smith, 2000; Hsueh et al., 2001). People might wonder whether there is policy in particular, relating to SMEs as well as entrepreneurs' success.

Although the first material policy aiming at the promotion of SMEs was promulgated in 1967 under the auxiliary clause of the usage of US aid at that time, it is generally believed that the impact was either small or unclear (Hu and Schive, 1998). In fact, most countries set up similar policy, and yet not many of them share the same achievement as Taiwan. Therefore, it is safe to conclude that if there is certain policy that makes the difference, it's not the SME promotion policy.

On the other hand, industrial policies that do not discriminate against SMEs, might just be the right medicine for a well-performed SME sector. In other words, government should focus on how to minimize intervention in the market, and make room for small firms (Hu, 2003). For example, it is well received that the distorted policy design in the postwar era, which restricted the development of SME sector, hindered the foundation of Korean economy toward later prosperity (Chon, 1996).

[2] For example, Todaro (2000) uses Taiwan's experience as a demonstration of the connection of trade theory and economic development.

For what is worth, a self-restrained industrial policy builds the right investment atmosphere is what is needed for nurturing a good SME sector. What is more important is policy that creates a free competition environment allowing the market works itself out. It was in such process, SME gets to improve itself. Indeed, after conducting an in-depth analysis of the Asian experience on small business, Ronnas et al. (1998) also acknowledge that Taiwan as a classical success story, in which *the government has played anything but a passive role*.

In addressing the question 'can small business help countries compete,' Howard (1990) concludes that '*SMEs can help countries compete only if countries create the conditions that make for a dynamic small business sector*'. From the experience drawn from Taiwan, we will say the right conditions for SMEs are whatever constituting of a stable macroeconomic environment that is conducive for doing business (Hu and Schive, 1998). Smith (2000) reviews the role of government during Taiwan's industrialization process and finds a strong conviction of the government to direct the island's economy toward a market-oriented one. The description of one chief architect behind Taiwan's postwar policy formation indicates such consensus: *a healthy pragmatism that has guided policymakers in Taiwan and has supported a social consensus for growth and economic liberalization* (Li, 1988: 143). Put it differently, Taiwan has a ruling government that committed to economic prosperity (Little, 1979). It was under such circumstances, Taiwan's SMEs get to blossom and become spectacular phenomenon in the world. This is the medicine what Assane and Grammy (2003) acknowledge, that economic freedom reinforces the institutional support.

Institutional Support

Next, we will take a look at the interrelated human resource and social mechanisms as institutional backgrounds for the maturity of Taiwan's SME sector as well as the entrepreneurial culture. Assane and Grammy (2003) once emphasized that economic development requires not only physical and human capital formation, but also institutional support. Eliasson and Henrekson (2004) review W. J. Baumol's research contribution, they conclude that '*institutional environment that encourages productive entrepreneurship and human experimentation becomes the ultimate determinant of economic growth*.'

There are many facets about the human capital needed for the healthy development of entrepreneurial resources. To start up, who are the brains behind all those above -mentioned righteous policies that make up a good business environment for entrepreneurs? It is interesting that although Shibusawa et al. (1992) emphasize that in Taiwan, a key role in the developmental policy has been played by political personalities and modernizing elite, but they only tell half the story.

What is more important is the fact that, back in the 1950s and 1960s, those well renowned economists who helped design policy that pushed Taiwan economy toward the right track of industrialization are home coming Chinese scholars. To name a few, Drs. Ta-Chung Liu, Shuo-chieh Chiang, Mu-huan Hsing, John C.H. Fei, and Gregory C. Chow, all of whom received their ph.Ds overseas. The leadership or management style brought in by these scholars can be categorized as the 'specialist' type that trained by the Western rationalism (Jou and Sung, 1990). However, apart from their knowledge about economics, when they introduced developmental policy that originated from experience of industrialized countries,

they combined it with the thinking of Chinese tradition that drawn from their upbringing, and wisely redesign the policy to blend in the culture consideration. These are not just any ordinary foreign advisers can provide. This is exactly the 'secrets of success.' In the same token, even today, many policy measures that inherited from foreign countries are implemented in Taiwan with a culture twist.

Cultural Heritage and Social Background

Next, let us try to answer the question, who are the brains behind Taiwan's businessmen? Since the SME sector is the most volatile sector in the economy, entrepreneurs come and go easily. There must be many contenders each equipped with certain potential for success, to maintain the amount and quality of the pool of entrepreneurship needed to build up a sound SME sector, such as the one found in Taiwan (Hu, 2003). One may attribute the abundance of the island's entrepreneurs to an ideology best described by an old Chinese saying: better the head of a chicken than the tail of an ox. There are people who just want to be their own boss. It is the culture and social heritage of Taiwan that creates business owners to form such a successive stream of entrepreneurship resources for Taiwan.

On the other hand, even though Taiwan shares the Confucian heritage with other Asian economies[3], under the American influence in the post WWII era, Taiwan society gradually embraced a new merged culture. As a result, Taiwanese culture may not be less individualistic than that of the US. Therefore, Taiwan society is never in short of what Thomas and Mueller (2000) single out the American entrepreneurial archetype, that emphasize strong internal locus of control as an important indication of entrepreneurial traits. The same combination of eastern and western culture is also evident in the Taiwanese managerial pattern. As noted by Jou and Sung (1990), the management style of Taiwanese companies was seen as a hybrid of the traditional Chinese value, Western logic of rationalism and the Japanese managerial pattern. Jou and Sung (1990: 625) further postulated a mixture of Western rationalism and Chinese Confucian humanism as a transition type of management in future Taiwan.

Such combined culture heritage coupled with the new found worldwide recognition of Taiwanese entrepreneurs is now further transforming into a sentimental feeling: people are proud to be identified as a Taiwanese small business owner. There is evidence for such sentimental. It is reflected in the atmosphere or morale of another important consensus nowadays found in democratic Taiwan.

It takes a long time to build up the consensus. To begin with, the Rule for Promotion of SME was first promulgated in 1967. After twenty-four years, the Rule was turned into law in 1991. Then, in 1997, under the growing consensus about the achievement made by SME sector, Taiwan Congress agreed to put the Amendment of SME Protection Clause in the Nation's Constitution with an over 96 percent of majority votes. What happened then marked both a triumph of the SME sector and a victory of Taiwan's democracy over decades of

[3] Take Silverthorne (2004) for example, when discussed organizational culture of three Taiwanese firms. Although the emphasis was not on any specific Taiwanese culture, the author did acknowledge that in Asian societies, people are guided by Confucianism in the literature review (Silverthorne, 2004: 593).

endeavor. This is also a vital asset promising the small businesses and entrepreneurship resources further prosperity in the island.

Begley and Tan (2001) conduct an empirical study base on data from ten economies, including Taiwan, to identify socio-cultural determinants of entrepreneurial potential. The results show that social status of entrepreneurship, and shame from business failure both predict interests in entrepreneurship better in East Asian than in Anglo countries. The policy implication drawn from their study indicates policy measures that increase the status of entrepreneurship in the public eye may only be useful in society with culture background that emphasize public coherence as ethnic Chinese do.

We do witness government official in Taiwan ingeniously set up an annual prize for best-performed SME owners as well as entrepreneurs to further induce the new sentimental. It is well demonstrated and tested in Taiwan, that for business owners, it is glamorous to be grand as role models to their peers. This provides just the right motivation that triggers entrepreneurial spirits thriving in the island.

Given a large amount of entrepreneurial contenders in society, what then further guarantees a successful evolution process that transforms these human resources into a consecutive generation of prosperous businesses owners? Education, it is an important part of Taiwan culture. In the traditional Chinese culture, under the influence of Confucianism, scholars have been put in the highest position in the scale. Parents are obligate to provide tuition for their offspring for pursuing higher education. People are encouraged to study for higher academic degree.

Apart from the emphasis on the education rooted in such Chinese tradition, as well as the improvement of the education system of the island by the government, there are other factors that contributed to the high quality human resources found in Taiwan.[4] The inheritance includes hard working, kinship, strong family ties, competition, and similar attributes that form the basis for strong family businesses (Hu, 2003). Ronnas *et al.* (1998) also identify hard work, discipline and thrift as main teachings of Confucian ethics that constitute cultural background of Taiwan's successful SME sector.

Under such tradition, entrepreneurs in Taiwan get to overcome obstacles, become stronger each day. Take family ties for example. When a member of a family first decides to set up a new business, it is customary for him or her to get financial support from other family members. These and other mechanisms originated from tradition make up the informal financial market acting as an auxiliary support for start-ups. The Chinese cultural bequests equip both a persistent drain of entrepreneurial resources and a pool of high quality employees. The aggregate outcome is a highly flexible and successful entrepreneurial culture.

CONCLUSION

The speedy economic development and the abundant SMEs of Taiwan have long been attracting attention. This chapter first reviews the evolution of Taiwan's economic development and the changing importance of SMEs from both macro and micro-industrial

[4] For the creation of the high-tech industrial cluster, Feldman (2004) also note, among other things, higher education levels are important endowments for the formation of an entrepreneurial culture.

perspectives. The exhibitions show how the SME sector is involved with Taiwan's economic development. SMEs in current Taiwan are not the same ones some fifty years ago.

It is noticed from our empirical analyses that Taiwan shares at least three common experiences with other economies. First, we see the pro-cyclical nature of the importance of SMEs. Second, SMEs are predominant in the service sector, however, their contributions to the economy are not so impressive when compared with SMEs in the manufacturing sector. Third, in both Taiwan and the US, the industrial restructuring casts little impact upon the importance of SMEs. It is the movements of SMEs within each industry that make for the evolution pattern of the SME sector.

Further, under the glamour appearance of SMEs in Taiwan today, their rural beginnings are not unlike small businesses in the early phase of development of any other economy. We use regression analysis to determine the key factors that contribute to the prosperity and transformation of Taiwan's SME sector. Our findings show back in the 1960s and early 1970s, the increase in labor productivity of then labor-intensive SME was the key to the success of Taiwan's SMEs in the beginning. Then, it was mainly the improvement of capital-productivity that decided SMEs' later prosperity.

Through our exhibition, it is evident that there is an inner drive inherited within the SME sector that promises a healthy transformation. Since Taiwan economy has now entering the new phase of development, the main function of SMEs is no longer job-generation, but entrepreneurship. It is noticed that entry rates were higher in SME sector than in large firms. Further, high-tech industries, such as electronics industries, have highest entry rate in Taiwan.

Since it is generally accepted that institutional factors make many differences regarding the transferability of successful experience, we further discuss the institutional backgrounds that help shape Taiwan's successful entrepreneurial culture. We realize that both social and culture factors make differences. Most important, Taiwan distinctively embraces both Chinese cultural heritage and Western rationalism, and blends in with her own innovation. Thus, when the east meets the west, there are sparkles. Looking ahead, it is most likely that after Taiwan’s innovative SME sector shakes out the unfit, stimulates the spirit of entrepreneurship, it will retain vitality, and be prosperous with the macroeconomy.

There are controversies about whether experience in one economy can be effectively transferred to other countries.[5] Here we will make a final effort to discuss the issue. Apart from above-mentioned culture and social backgrounds, traditional Chinese culture also embraces the virtue of modesty. This leads to a sense of perseverance and open-minded, which breed the willingness to learn and make change easily. However, there are certain prerequisites. This is demonstrated in a story about the special role played by Taiwanese entrepreneurs that land in China.

It is told that when China opened up to trade and foreign direct investment in the late 1970s, at first, there were mostly foreign investors from the Western hemisphere engaged in the new market. There was only little impact cast upon local residents. It was not until Taiwan uplifted Martial Law in 1987, then let go Taiwan investors crossing the Taiwan Straight, an obvious change of attitude was found in China society. It further accelerates the later growth

[5] For other market-oriented economies that share the similar culture heritages, such as Singapore and Hong Kong, the achievements of their SME sectors are also well documented. While Japanese vast amount of small firms have been considered today, as being of minor economic importance (Lynskey, 2004).

of the economy. Why? Part of the reason is that the traditional modest Chinese do not think much of themselves. What Westerners have achieved, Chinese might not. However, since Taiwanese rooted from the same Chinese heritage, what an average small business owner from Taiwan can do, so does any ordinary person in China. As a result, the enterprising spirit was brought up in China, not just by the open door policy, but also by the stimulation of the fellow Chinese from Taiwan. It is believed, with the right ingredient of social and culture mixed, other economies can also copy the successful Taiwan's SME experience.

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Chapter 4

LOCALISING BDS PRODUCT DEVELOPMENT IN A DEVELOPING COUNTRY

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ABSTRACT

The attainment of socio-economic goals in developing countries depends on being able to improve the performance of the myriad micro, small and medium sized enterprises (MSMEs) in which so many people are employed. Business development services (BDSs) have the potential to provide significant assistance, but the market for BDS products is also underdeveloped. Ideally, it would grow organically from service-provider and client interaction, but there is a lack of local BDS providers producing and delivering marketable products. The international donor community have found from experience that initiatives to increase the supply of services using knowhow-transfer from developed to developing countries can be counterproductive.

An alternative strategy is to build capacity not to only to disseminate transferred knowhow, but also to localise knowhow development, and this was the objective of a small team acting within the remit of a project in Tanzania using an action learning approach aspiring to be an example of organic market development. The team's facilitators adopted strict criteria for marketable BDS products: they should be appropriate, affordable and relevant to actual clients' development intentions, and to be fit for purpose they should be capable of adding measurable value to business performance. Applying these criteria to develop and commercialise BDS product ideas proved to be a significant challenge. Nevertheless, BDS products were produced and piloted with clients in different sectors of industry and useful lessons have been learned from the experience.

INTRODUCTION

Business development services (BDSs) have long been a subject of aid donated to facilitate the development of small and medium sized enterprises (SMEs) in developing countries. The primary aim of donors has been job creation and poverty alleviation, so a lot of aid has been given to business start-up programmes. The emergence of upwardly mobile businesses capable of creating wealth that would contribute to the attainment of broader economic, social and political goals is also important. Business development implies sustainable change, which, in this context, could be enhanced capacity, an increase in the production of goods or services, employment growth, improved profit and wealth generating performance, or integration into the state economy, which entails compliance with approved standards of operation.

This paper therefore explores the challenge of building local capacity in a developing country (Tanzania and Zanzibar), where most enterprises are small-scale and informal and operate wholly or partially outside the system of government regulation. The exploratory vehicle is a small action-learning project engaging a local team in a process of designing and producing client-orientated BDS products.

Some obstacles to development are embedded in the business environment. Disposable incomes are small, which limits market development, and governments have limited funds for infrastructure development. Road and landline communications, where they exist, are poorly constructed and badly maintained. Mobile phones are replacing landline telephone systems, but the road transport problem remains and restricts access to markets, particularly for rural businesses. Modern materials and equipment for business are not readily available and are expensive when they are. Legal systems and regulations in ex-colonial countries are often based on those of former colonial powers and small-scale enterprises find it difficult to comply with them; regulatory policing is crude, petty corruption amongst officials is common and small informal enterprises are easy targets for them. The cost of compliance with regulations tends to be disproportionately high, as are the costs of doing business in general. Government agencies, banks and business associations tend to exclude informal businesses from their support services.

Most SMEs are small-scale (micro and small) and many seek to evade obligations to comply with regulations; as a result, those businesses operate outside of the state economy and are invisible to regulatory authorities. Even in established and legally compliant businesses, standards of management are relatively low, resulting in poor performance, poor treatment of employees or customers, low quality of goods and services, or a lack of consideration for the environment and business ethics. These depressive conditions combine to resist improvement and change agents are needed to help operators overcome them. Change *agencies* do operate at international and national levels and at ground level in developing countries, but their influence generally is restricted to the scope of budget-bound projects and their record for encouraging a market ground swell is not remarkable, partly because of the limited supply of change *agents* acting as BDS providers, and partly because many BDS product designs rely on training inputs with no assurance of development outputs.

Market failures have also been attributed to the distorting, inflationary effects that subsidised BDS products have had on the operation of market pricing mechanisms. Many donor projects have been designed to facilitate knowhow transfer from developed to less

developed countries and staffed by persons whose orientation is corporate and hardly appropriate to the needs of the mass of small-scale enterprises in developed countries.[1]

Indigenous government bodies and international donor agencies try to address these obstacles but the pace of change in the poorest countries, especially in Sub-Saharan Africa, is slow. Donated aid may temporarily ameliorate conditions but they do not necessarily make people develop [Cooper, 2006]; eventually people have to develop themselves. Some do and there are sufficient examples of good homegrown businesses to indicate that neither economic nor cultural barriers are necessarily absolute. Some informal enterprises do grow into medium sized ones and do contribute to the formal economy, and some local operators do become successful serial entrepreneurs [Nelson 2005] but there are too few BDS providers engaged in garnering and disseminating this knowhow to the majority that are struggling to improve themselves.

A relational distance can be observed between even local BDS providers and small-scale business operators, noticeable when products create interest but not demand. This can occur when local BDS providers have passed through education systems designed to prepare people for employment in the public or corporate sectors rather than SME sectors [College of Engineering and Technology, 2006], which does not prepare them with the appropriate cultural, technical or client-orientations for the task of BDS development. Arguably, the distance that separates them will not be narrowed until product development is completely localised and in the hands of BDS providers who are members of the same communities of practice as their customers and can truly empathise rather than merely sympathise with their struggle for business development.

BUSINESS DEVELOPMENT SERVICES

Before choosing which BDS product to take to the market, service providers need to consider the impact of their choice on the relational distance between them and potential clients. BDSs are part of a wider group of business support services, including financial services and advocacy services. The World Bank treats financial services as a separate genre, which includes lending, current accounts, money transfers, credit guarantees, insurance and investment services. Consultants or associations provide advocacy services on behalf of business operators, usually to influence third parties such as government and banks that dominate the institutional environment. What remains as BDSs is still a wide array of services that provide various forms of support for business development, such as improved access to resources (work premises and supplies of materials, technology, labour, finance and information), and to business management and entrepreneurship know how and skills training and to more direct technical assistance for business development.[2]

[1] There is a tendency in developed countries to teach business as the principles and practice of a collection of specialised management functions as observed in classical corporate business structuring rather than (as is apposite to small-scale enterprises) one person's action learning process in pursuit of the next incremental business improvement objective.

[2] ILO SEEP www.seepnetwork.org/bdsguide.html, Small Enterprise, Education and Promotion Network, (McVay and Miehlbradt, 2001

BDS Orientation

BDSs are either input or output orientated. Input orientated services generally originate from some source external to client enterprises – for example, a survey, a government or donor policy, a study subject, or a generally perceived 'good practice'. These services are generic, providing information or knowhow conventionally deemed to be needed for business improvement and development. Providers assume (implicitly) that client operators will be capable of acting on the knowledge provided, but would not necessarily know. Sponsors of input orientated products tend to aim for a scattergun effect involving delivery to the highest possible numbers of persons in the hope that some will benefit and produce the desired benefits. In the circumstances, a provider would probably not accept responsibility if there were no practical output. Educational and conventional training workshops normally fall into this category. In contrast, output orientated BDSs provide opportunities for providers and clients to discuss the potential value of a service. In this case, they may share responsibility for outcomes and jointly manage the input process to ensure that the desired results are obtained. BDSs aimed at performance improvement can be classified either as seeking improvement within the constraints of existing resources by utilising them more efficiently or effectively, or by growth. Growth generally means a step function to a new level of investment in capacity for production and sales.

The distinction between input and output orientation is important because, to clients, products that seem to have no clear impact must also seem to have no clear value. So it is not surprising that donor agencies have been urged to support the development of service products that offer a valuable business output, such as increased sales [Anderson, 2000].[3] Products that are input oriented incorporate no process in their delivery and therefore no means of assuring impact.

Modes of Delivery and Intended Impact

BDSs are distinguished by their modes of delivery and intended impact. Modes of delivery include information services, training, coaching, mentoring, business counselling, and consultancy, and these indicate the types of professional skills a provider may require. BDSs are not easy to sell when they are based on advice and information already in the public domain [European Commission, 2002], which is one explanation why training workshops based on general principles that are by definition already in the public domain, are difficult to sell at true cost recovery prices.

Impact should be observable or measurable as different types of change: (1) form (legal status, and compliance with regulations and normative standards, including business ethics and evolved 'best practices'), (2) internal process (procedures, systems, tools and instruments), (3) capacity (technology, physical and financial resources, and management), (4) organisation (structure, culture and personal competencies), (5) external linkages and interaction (with stakeholders, customers, suppliers and regulators) and (6) business performance (start-up, or improvement as indicated by output of goods or services,

[3] However, a distinction should be drawn between service products that rely on outsourcing the sales function and those that introduce internal change and sustainable development.

productivity, income and profit, or by related indicators.) Unless an intended impact is specified and an appropriate product delivery method selected, the probability that none will be achieved is likely to be high. The potential impact of a product is an important selling point.

Process-based Delivery Methods

Process-based products give their providers some control over impact and so deserve a separate mention. Their effectiveness is greatest when they mimic the natural development process of a client business, which is normally an experiential learning process. The theoretical underpinning for this relationship is established in behavioural psychology about effect of needs, satisfaction and dissatisfaction on focus human endeavour generally [Maslow 1943], the tendency of business people to be driven by the need to achieve [McClelland 1961], and experiential learning as the enabling process [Kolb 1974]. In the context of BDS, we can say that if providers are able to offer the prospect of achieving measurably improved business performance to operators who are dissatisfied with their current performance, and activate and manage the appropriate process for change, there is a good chance that business development will result. Virtually only one condition prevails and that is that provider and client should cooperate to manage the process and achieve the agreed result.

Process-based products take the form mainly of process consultation or process training. Process consultation includes business counselling (often a tool of mentors and coaches), in which a client is assisted to analyse a present situation, consider issues, identify and evaluate courses of action, and choose one. The immediate output is a decision and the impact is relief from what at first appeared to be a barrier to progress. Process consultation continues to provide technical support for the implementation of the decision. Process-based training provides training in stages before and after intervals of clients' activity, so that they are given incremental support for decisions they take and put into action, reflecting at each stage on what they have learned and progressing towards the business improvement they seek. Process-based products are intrinsically more costly than others and need to be tailored to remove unnecessary content.

Dependency Status

A BDS may also be categorised according to its dependency status, as being independently sustainable, subsidised, or bundled. An independently sustainable service is one that is income generating on the BDS market. However, it has long been customary for governments and donor agencies to subsidise services where markets are underdeveloped and under-supplied. 'Bundled' services are combined with another, for example, when a credit provider provides business advice as part of a credit service, or when a manufacturer or wholesaler of goods combines product sales training with the sale of goods for resale. In bundled services, the price of the BDS is generally included in the price of the goods sold. In a modern example, the sale of IT equipment is often combined with after-sales technical assistance for the set-up and operation of hardware and with software.

To summarise, BDSs can be defined and categorised according to key characteristics:

- *Primary orientation*: (1) input or (2) output orientation
- *Mode of delivery*: (1) advice, (2) information, (3) training, (4) business counselling, or (5) consultancy (or some related method)
- *Impact on*: (1) form (legal status, and compliance with regulations or with business standards), (2) personal competencies (entrepreneurial and management knowhow and skills), (3) process (functions, procedures, systems and instruments), (4) capacity (technological, physical and financial resources), (5) external relationships and interactions, and (6) performance
- *Dependency status*: (1) independently sustainable, (2) subsidised, or (3) bundled

BDS MARKET DEVELOPMENT

Research has found that demand is often low for services offered in conjunction with credit, for two possible reasons: services offered in this way are generic and not aligned with the needs of individual clients, and the reach of these services is limited to the market for credit [Goldmark et al, 1997]. Standalone services are more popular.

There are two distinct markets for BDS products. The main one comprises small-scale business operators who struggle to improve their business performance, a market that includes almost half of the world's population. A large number of persons in this population are poor and few of them have any business education, but many do have the basic requirements in literacy and numeracy to be able to benefit from appropriate business development services. As individuals their wealth and disposable incomes are low, but as a market their collective wealth is considerable [Schneider 2002]. They are, of necessity, value-conscious. They are not inclined to spend meagre profits on BDS products that go beyond their actual needs and into broader areas of business education (which inflate price without adding commensurate value to their business activities). In this respect they mirror the tendencies of small-scale business operators in developed countries who, incidentally, also have a reputation for reluctance to purchase BDS products. Unavoidably, one begins to interpret their behaviour as an adverse comment on the relevance and prices of the offers made to them.

The other market for BDS products is the sponsors' market, which includes governments and international aid agencies that commission and purchase, or subsidise, BDS products on behalf of small-scale business operators, such as the World Bank and its regional development banks, government departments for international development (such as USAID, DFID in the UK, and Europa in the European Union), the United Nations Industrial Development Organisation (UNIDO), United Nations Development Programme (UNDP), the International Labour Organisation (ILO), non-government organisations and charities. Nowadays, the Committee of Donor Agencies for Small Enterprise Development, with secretariat support from the World Bank, sets international policy.

Market development by sponsors is a top-down process, policy-driven and budget-constrained, with a special focus on poverty alleviation and certain other considerations such as gender equality and environmental ethics. As purchasers of BDS products, sponsors are far from being representative of typical small-scale beneficiaries and the high priced products

they customarily purchase cannot be converted into sustainable products in local markets. Especially difficult is the task donor projects face in trying to cultivate markets for training and technical assistance "*Given project experience in the field, it seems unlikely to expect that training, technical assistance, or information services for micro enterprises will ever achieve total cost-recovery through up-front user fees*" [Goldmark, 1999, p7], based on case studies of BDS institutions in Central and South America. In 1999 a leading university in East Africa obtained donor assistance offered to cultivate the SME-BDS market with business start-up and growth training programmes. Project managers soon became aware that university costs and prices were too high for the SME market and there was little prospect of these BDS products being sustainable. They had more success establishing postgraduate education for BDS providers, but successful graduates are more likely to seek public sector employment than become BDS providers in the small-scale private sector.[4]

The Committee of Donor Agencies for Small Enterprise Development has recognised the failure of BDS markets in developing countries [Committee of Donor Agencies, 2001]. Sponsored projects effectively assign business operators to the role of passive beneficiaries, distort the pricing mechanisms that should drive locally sustainable product designs and prices, and restrict market development to the reach of sponsors' budgets. In the absence of an effective pricing mechanism, there is no adequate alternative way for assuring that BDS products are designed appropriately for business clients or offer value for money under local conditions. The Committee has advocated a change of policy that emphasises building local capacity for market development by indigenous BDS providers. The International Labour Organisation's reader on BDSs asserts that "*The goal for market development interventions is for a large proportion of small enterprises to buy the BDS of their choice from a wide selection of products offered (primarily) by unsubsidised, private sector suppliers in a competitive and evolving market*" [McVay & Miehlbradt, 2001, p4]. For this goal to be attained BDS products would need to be marketable in the sense of being appropriate, affordable and available. If providers can develop the capacity and desire to meet these conditions there is nothing in principle to prevent the spread of BDSs reaching all corners of a country where they were needed. The main restriction on market development then would be what the market could afford. Whilst individuals in the market may not be rich, they are numerous, and in the market as a whole there is a considerable amount of disposable income. The challenge for donors' capacity builders is to help those providers who are interested to develop an economically viable approach to the market.

LOCALISING BDS PRODUCT DEVELOPMENT

Propositions extrapolated from the body of commentary on donor and local experiences in developing and other economies describe a rationale for an approach to small-scale enterprise development via the localisation of BDS development:

- A BDS market is needed for widespread development of the small-scale business sector
- BDS market development depends on marketable BDS products

[4] Unpublished observations by the author

- To be marketable, BDS products need to be output orientated and fit for purpose, client-orientated and appropriate for small-scale enterprises, affordable and available when they are needed
- These qualities should be embraced determinedly in a process of product design and testing
- Output-orientation means that business development outputs are specified and assured in product designs
- The capacity of *organisations* to respond to these market needs and demands is constrained by their missions, objectives, strategies, rules, internal structures and cultures and overhead costs; in some respects, the influence of organisations on BDS market institutions[5] in the small-scale sector may be perverse.
- Capacity building for localisation should be focused on *individuals* dedicated to acquiring the capacity to develop and deliver marketable BDS products in market segments and niches of their choice

Tanzania is typical of the Sub-Sahara African countries where the realisation of aims for BDS development is elusive. It has benefited from aid projects aimed at poverty alleviation and the development of higher education programmes, neither of which have led to widespread market development. Services that are available are mainly conventional training services. There is some demand for business plans to meet conditions for obtaining loans and grants, but not necessarily for subsequent business development.

The NUFFIC[6] project set out in 2005 to define and test a method of building local capacity to produce marketable BDS products. The counterpart university assembled a product team composed of a disparate group of 22 academic and non-academic participants to kick off the programme. They were all mature persons; most were university lecturers or graduates with some experience of training or consultancy; two were government employees. European project facilitators inducted them into an action-learning programme aspiring to be an example of local grassroots and organic BDS market development. The incentive offered for their commitment to the programme was that, if they completed it successfully, they would have marketable and potentially income-generating BDS products, and they would acquire the experience to develop other products. It was planned that the learning experience of this programme should later be used as the basis for a more conventional workshop designed to disseminate local knowhow to a wider Tanzanian audience.

BDS Product Specifications

Project facilitators stipulated a BDS concept designed to be consistent with the principle of market development:

- A BDS product should have the appeal of adding a specified value to client enterprises

[5] Markets are institutions in the Northian sense, comprising sets of constraints acting on the behaviour and interactions of actors in markets and on key factors such as demand and supply (North, 1990).

[6] Netherlands Organisation for International Cooperation in Higher Education

- Added value should be expressed in terms of a business performance indicator, such as asset value, production volume, productivity, sales, income or profit and should be the result of an enhancement of the core competences and capacities of the client operator and/or business
- A product should be demonstrably fit for the purpose for which it is offered
- A development focus is most easily achieved by addressing business performance or development barriers currently experienced by client operators

An operator's decision to outsource certain functions represents a change of strategy that might be achieved with the assistance of a business development service, but that does not turn external supply services into business development services. External supply services such as employee recruitment services or commission sales services do not eliminate internal problems or weaknesses. They may enable a business to function better temporarily, but they do not result in the development of core competences or capacities. In this sense they do not fit the concept of a business development service for this project.

'Appropriateness' in a BDS product is achieved by close reference to a client's situation and needs. For example, when designing or tailoring a product for marketability, imagine the content and cost of a BDS product needed to help the owner of a roadside soft drinks kiosk deal with the problem of lower cash receipts when he is not present (effectively to improve control of cash and profit performance), for which there could be more than one explanation, and compare this with the content and cost of a BDS product needed to help deal with a similar problem in a busy city-centre bar. The latter employs more people, carries more stock, handles more cash and requires a more complex problem-solving product. Although each client may suffer from a common problem and require a similar solution, what they need, what they can afford and what they can manage are variables that would significantly affect the specifications of BDS solutions designed for the segments of the BDS market they each represent. As matters of principle, therefore, BDS products should offer appropriate solutions to client-specific problem situations, a BDS product should be affordable to business operators to whom it is offered, and affordability is a variable for which a product can be tailored. Appropriate designs and content may alter considerably in accordance with the size of the business organisation, the amount of physical resource to be managed, the amount of stocks to be made secure, the sophistication of the technology used, the volume of produce that has to be sold, and the geographical spread of a client's market.

Product Development Process

The BDS market is a plethora of business sectors (extraction, wholesaling, retailing, manufacturing, farming, transport services, personal services, to name a few), each with distinct operational processes, management functions and development needs. The scope for generalisation is limited to defined market niches and segments and providers are advised to first base ideas for BDS products on their personal experience and knowledge of what they can do that could add value to a developing enterprise, and then seek to validate its relevance to others.

The product development process adopted for the project was expressed as an action model, *idea-research-design-produce-test.* in which members of the product team were required to engage with the real market under prevailing conditions. None of them could be considered fully competent for the role and it was anticipated they would undergo an action learning experience, discovering and applying knowledge and skills such as problem analysis, tailoring appropriate solutions to client needs, and delivering them with appropriate combinations of counselling, consulting and training support. Facilitators engaged in the process as participant observers, moving with the programme from induction training, to advising and coaching and to evaluation of the process and its outputs, guided by a framework of assumptions about how personal capacity is acquired from experience and how organic market development should function from information transmitted from clients to providers. The main assumptions behind the process were:

- *Idea:* the validation and development of an idea requires a personal investment of time and effort by a provider, which would only be given in prospect of some benefit in return. The most successful ideas would be those for which providers already have some relevant knowledge, experience, skills, and market contacts.
- *Research:* the relevance of the idea to client needs and the relevance of a provider's knowledge and skills can only be validated realistically in case studies of potential clients' opportunities and problems and preferences for types of BDS assistance and prices.
- *Design:* a professional approach to product development should begin with a design brief, assessing the marketability of the proposed product, and specifying objectives, delivery methods, materials & tools, and promotional and administrative arrangements.
- *Produce the product:* the product should consist of a method and supporting documentation for using a system, procedure, or technology for improving business performance. It should be user-friendly for clients to which it is offered. Bearing in mind cost, its delivery should demand no more provider resource or client commitment than necessary. A provider's product package should include promotional methods, materials, a delivery programme and a delivery budget constrained to fall within clients' price limitations.
- *Test the product:* all BDS products should be subject to continuous review and revision in the light of the last client's experience and the next client's needs. Clients should be required to give detailed evaluations.

After the initial induction workshop, the programme consisted of intervals for local fieldwork punctuated by progress review and facilitation workshops. The facilitators accompanied local team members on consultations with clients and were present at BDS workshops delivered by team members. Otherwise they were available by email during the intervening periods. Initially it was agreed that facilitators' visits should be bi-monthly, although there was scope for flexibility.

This approach is a marked departure from basing the content of training workshops on the contents page of the lastest book on the subject in hand but it is intended to be used flexibly and in a manner appropriate to each BDS product idea.

Project Scope and Outputs

A team of eight participants stayed the course of induction and product development. Their initial ideas for a BDS product stemmed either from their interest in a business function, or a problem with which they were familiar, or in a business subject. Their ideas fell into a pattern approximating to a business development progression: business start-up, sustainability, performance improvement and growth. They produced 13 short case studies, which validated product ideas for five business sectors, from which they produced four training workshops and six consultancy products. In addition, a BDS providers' training workshop was produced to disseminate the BDS product production knowhow gleaned from the experience of the project. Their case study experience, as well as validating product ideas, provided opportunities for team members to become familiar with business operators' thinking and behaviour and with the problems with which they struggled. Case studies were a way of establishing provider-client relationships that enabled team members to continue to consult their clients as they developed their BDS products. The scope of project activity and outputs is shown in Table 1.

The majority of the 13 businesses featured in the case studies were problem cases, showing signs of poor performance, even fatal decline in two cases. Regardless of their differences in age and size and of belonging to different business sub-sectors, their operators' approaches to business management was ad hoc, lacking in system and established procedures, and operators failed to provide themselves with adequate information even for day-to-day management tasks. Because of this, members of the BDS product team found themselves spending inordinate amounts of time on performance assessment tasks before proceeding to problem identification and needs assessment. They found it necessary to include record keeping for performance monitoring as an element in each BDS product they produced. Members of the team explored the issue of affordable prices - one of the most crucial factors in market development. The poorest groups of clients in the project, young stone masons and tour guides, each paid the equivalent of almost five US dollars for attending two short workshops, one at the beginning and one at the end of an interval of experiential learning in their respective fields of enterprise. Afterwards they said others might pay more. BDS providers used to sponsors' rates of remuneration may feel they cannot work at this lower end of the market, but there are capable people who, if they are trained, are prepared to do so. When put into perspective in an environment where large numbers of people live on less than two dollars a day, these rates are respectable, but to design marketable products local providers have to avoid loading them with content and costs that are not specifically necessary to the needs of clients in hand.

COMMENTARY

Coping with the Idea of Development and Output Orientation

Coping with the facilitators' strictures that marketable products should be development and output-orientated proved to be difficult for some providers, with the result that some did not pursue their initial BDS ideas, and some who started later dropped out of the project.

One idea was to offer a recruitment service to employers willing to employ university graduates, a useful complement to university careers services, but rather like other services asking employers to outsource their management functions. In this case it is not clear who is the service provider's real customer, the graduate or the client business, or who should pay for the service, and it is not clear what the business development outcome would be. Another idea was for a course on international business, a subject the proposer had recently studied but in which he had no practical experience, so the content of the BDS product would have been limited to normative information inputs ("this is how it should be done, in principle, according to the book") with no client orientation and no progression to engagement in a change process, and therefore no assured development output.

In another example, participants adopted a supply-orientated approach for a business start-up training course for retirees from a government organisation. The intention was to seek the employing organisation's endorsement of the course. At the first stage of researching potential customers' needs they were unable to obtain access to the organisation's executives or its potential retirees, and their interviews with two government retirees to whom they did have access were not encouraging. The idea may have had the potential to become a BDS but the approach was abandoned. The first of these ideas requires client businesses to externalise a management or business function. The decision to make use of such services may be a development decision reached and implemented rationally to compensate for the lack of internal expertise, and the supplier of the external service may perform the function better than the business operator could but, rather than adding to the internal experience and development, the external service detracts from it. This might be expedient but it is not inherently developmental. One of the main characteristics of this and other input-orientated BDSs is that the essential learning experience has already occurred outside of the client business and is the intellectual capital of the supplier or some other party; the provider does not intend the learning experience e to be internalised by the client, rather, the intention is to create dependency.

Some persons who attended the induction workshop had not received the pre-workshop material and so had not appreciated the emphasis being placed on client and output orientated BDS products. When it was explained, they understood the difference between closely defined BDS products and conventional training, but stated in their feedback that they preferred the latter. They were not attracted to the BDS market, they found it difficult to work to a client and output related remit, they did not have time to engage in marketing and selling BDS products, or they found conventional training easier to deliver. Incidentally, they agreed that market development would be a superior way to reach into all areas of the country with BDSs.

For those project participants who did engage in and complete the whole product development process, it proved to be an effective method for maintaining their focus on client interests and product marketability, resulting in the outputs shown in Table 1. The less qualified ones demonstrated that general academic qualifications and subject knowledge were less important factors than personal commitment and specific experience and knowhow concerning the application of practical BDS tools and user expertise, and the ability to empathise with small-scale business operators.

Table 1. BDS product development: scope and outputs

Business sector	**Project output**			**Subject categories**	**Business development progression**	**Performance indicators (PIs)**
	Case studies	Consultancy products	Workshops			
Tourism-related self-employment: conservation workers & tour guides	2	1	-	Basic entrepreneurship Commercialising vocational skills	Business start-up	Customer jobs Income Profit performance
Egg and poultry producers	3	2	1	Performance assessment Maintaining production & financial records Managing cash	Assuring profitability & sustainability	Production Sales Profit performance
Private health services	4	1	1	Assessing capacity for development Planning business performance improvement	Establishing a development base	Client numbers Income Profit performance
Textile goods producers	2	1	1	Production management Improving control of materials & work in progress	Improving productivity & unit costs	Productivity Unit cost
Private education services	2	1	1	Formalisation Consolidation Development and business planning	Achieving growth	Compliance with regulations Growth of physical asset Income growth

Process Consultation as a Key BDS Method

Participants who persisted in the process of BDS development found their case study discussions with individual operators tending to evolve towards process consultation: identifying operators' problems and needs, considering possible solutions, supporting preferred courses of action, and evaluating results. For example, participants meeting with a group of young stone masons and conservation workers to discuss the commercialisation of their vocational skills found themselves facilitating a live field experience sandwiched between a needs assessment workshop followed by a debriefing, evaluation, 'what's next?' workshop. This process of exploratory discussion evolving into process consultation was also observed in participants' interactions with operators in other business sectors.

Once started, discussions with different clients moved quite quickly to practical output issues; for example, how to find potential customers for building repair services, how to decide whether to sell eggs or hens, how to attract more clients to a private health dispensary

when normal advertising is prohibited, before dwelling on needs for BD assistance. They needed only a small amount of help to identify possible answers to this type of question and choose a course of action with which they felt comfortable. But they had more difficulty discussing finer points of business performance. They were well aware when they did not have enough cash to pay bills, but did not know how to determine how much cash they should have in hand and whether the business they were doing was profitable. If they kept records they were erratic and not sufficient to enable BDS providers to assess their cash management or profit performance.

There were also more complex issues: how to prevent textile goods workers stealing materials, production time or finished goods from their employer, or how to manage the transition from private nursery and informal school to formal school status. In the first of these, the solution agreed was a system of procedures and documentation to track the movement of materials, work-in-progress and finished goods between stores and workstations, with possible linkages to orders received and invoices and to workers' payment systems, all of which rests on accurately recording and monitoring relevant information. The transition from nursery to formal primary school status and compliance with regulations was agreed to require investment in the physical resource and in business growth in order to absorb the subsequently higher expenses; the BDS support for this requires a firm platform for business growth, and a development plan supported by a business management plan. The business management plan, especially, would benefit from some historical data on operational expenses and income and a reliable financial monitoring procedure.

In each of these cases the existing operational systems were limited or very weak and the information needed to provide BDS support was not readily available. Normally, operational information about business performance would provide the stimuli that prompt operators to investigate and seek solutions to business development problems themselves or seek advice; a general lack of it in the small-scale business sector would be one explanation for poor business development trends.

Acquiring BDS Orientation

The tendency for BDS product development to gravitate towards process consultation involved team members in an early reorientation from the normative mindset, familiar to those nurtured on conventional training services, to a distinctively inquiring one more suited to assessing client strengths and weaknesses, diagnosing business problems and proposing BDS solutions.

The knowledge and materials for training courses are largely codified in manuals referenced to general theories of behaviour, principles and tools for management that can be taught and demonstrated in classroom situations. In training, emphasis is given to participative discussion methods and practical exercises rather than lecturing and information giving. Input quality is assured by employing specialised trainers to deal with different topics in a programme. The coverage given to topics is generally more extensive than required by any single participant and is superficial to the needs of any participant requiring customised assistance in their unique situation. In contrast, a BDS product is more focused, often on a given problem or output that can only be addressed when an operator engages in some practical action to improve the performance of his or her business, and it is desirable, in order

to have a good working relationship, that the BDS product is delivered by just one experienced provider. The essential differences between training and BDS products are set out in Table 2.

Table 2. Conventional business training distinguished from BDS

Product development process	**Conventional training products**	**BDS products**
1. Usual starting points	• Trainer's familiarity with a business management subject • Conventional wisdom about owner-manager interests, sometimes based on survey data	• Provider's personal experience and expert knowhow concerning a business development problem • Provider's familiarity with the application of a business development tool or procedure • Provider's knowledge of actual client case analysis
2. Purpose	• Understanding good practices in the performance of business functions (sometimes relevant skill development)	• Actual identification and removal of a barrier to performance improvement or growth
3. Product design	• Designed for transfer of (mainly) conceptual knowledge from trainer to trainee	• Designed to support an actual process of business change and development
4. Character of the product	• Input orientated with trainer as the key actor, even when adopting participative styles • Trainees left alone with task of applying theoretical knowledge and good practices	• Output orientated with shared responsibility for change and development
5. Practical impact	• Rarely known	• Measured against specified business performance and development indicators

Common Tools for BDS Providers

The process of researching and producing BDS products brought into sharp focus the importance of three BDS tools team members needed to use, (1) performance appraisal, (2) business health check, and (3) financial spreadsheet. *Performance appraisal* is a comparative appraisal of trends in key performance indicators, such as sales, income, cost, and production (or equivalent factors such as patient and pupil numbers in private dispensaries and schools), and derived indicators such as profit and profit as a percentage of sales, unit cost of production or productivity per worker. An initial appraisal of performance is essential for assessing prospects for sustainability of a business. A *Business health check* is an assessment of the capacity and competences of a business to maintain or improve performance before launching into a change process.

The transition from delivery of training inputs to achieving BDS outputs also demands a greater emphasis on practical experience of problem analysis, selling personal expertise, tailoring solutions and managing their application. Differences in the essential knowledge and skills required are set out in Table 3.

Table 3. Essential skills and knowledge required for training and BDS products

	Conventional training product	**BDS product**
	Required knowledge and skills	
Product development	• Subject knowledge • Interactive/participative group training skills • Organising group events professionally	• Eliciting details of a client's business situation • Diagnosing business problems and suggesting relevant solutions • Tailoring product to client's special needs • Relationship management • Applying counselling skills to decision making and management of change processes • Using counselling & consultancy skills with individuals & small groups
Selling approach	• Effective channels of communicating with clients • Producing promotional messages and materials • Organising promotional activities • Recruitment of participants	• Contact details of potential clients • Contacts with database holders (e.g. business associations) • Ability to gain face-to-face access to clients • Ability to sell personal expertise • Ability to negotiate terms for BDS delivery

Even in small-scale enterprises, finances may quickly reach a point when *financial spreadsheets* are essential management and planning tools. These may be used to support business improvement and development plans whether or not they require further investment in the business. They are used for tests of the feasibility of plans under different conditions, and of their sensitivity to factors such as new competition and price changes for goods purchased or sold, or increased interest rates on loans. Each of these tools may be adapted for use at different levels of business complexity and they are invaluable in the process of providing technical assistance to operators. However, they are only available for use when operators can produce appropriate operational data.

Pricing Products

The market is an economic institution and its players, both providers and clients, are motivated and constrained by financial factors, particularly price. Some of those who first expressed interest as participants in the project and later dropped out were the most highly qualified and they remarked, amongst other things, that the small-scale sector was not a financially attractive market. Those experienced participants who remained in the project found that they would have to adopt a different pricing policy. For less qualified and less experienced participants pricing was not such a difficult issue. Contrary to some expectations, even the poorest of clients, the young stone masons, tour guides and egg producers on the island of Zanzibar, for example, were prepared to pay a small price. The stonemasons initially were asked to pay 5,000 Tanzanian shillings each for a one-day workshop (about $US 2.5 at that time) and agreed that the provider should in future charge more, up to Tsh 10,000. For a group of 10 this would provide a significant fee by island standards. Higher prices can be negotiated on the mainland, but there is no established market price and none should be expected for some time.

Behaviour in the market manifests a number of the symptoms of retarded market development. For the time being, there is a tendency amongst service providers to try, opportunistically, to extract the highest price they can from each customer, an approach that lacks consistency and is unlikely to reassure potential clients. The reference points for experienced providers are the rates paid by government and international organisations for contract work such as policy research and consultancy, rates that are not realistic for BDS work. There is no established market culture nor any contracting customs to assure payment when prices have been agreed, a situation that some clients exploit. The market needs providers to evolve common, realistic conventions for negotiating prices for different types of work and clients, and for obtaining payment. Market problems such as these should diminish with an increase in the numbers of actively competing BDS providers and the numbers of product and price offers clients receive and are able to compare, and as providers seek for ways of assuring payment for their services.

CONCLUSION

Overall this project has demonstrated how BDS products can be produced in a developing country and brought to market in the classical fashion, by local individuals pursuing ideas for meeting client needs and generating income. Although the business operators who participated in the project are not a formal sample of small-scale private sector operators, they are sufficiently differentiated examples to provide an adequate test of the process in which they were engaged (*idea-research-design-produce-test)* and to conclude that the process is widely appropriate for bringing more BDS providers and products to the market. The form of development assistance on which each product is based is in some respects generic and, with appropriate modification, should be transferable from the business sector in which it was tested to others. That the process tended to evolve into one of process consultation for clients invited to act as case studies might be regarded as evidence of some readiness in the market to welcome products that have a closer focus on individual clients. The case studies and the consultation products provided members of the project team with

material for workshop products. This can be seen as a natural BDS learning progression: from client needs assessment, to process consultation with individual clients, to generalisation of the learning experience as a basis for training and development programmes. These processes are vehicles for action and experiential learning, which is the natural way of market development.

BDS Providers

It is clear that some people are more interested and more suited than others to be BDS providers, but it would not be helpful to try to characterise a single model provider; there are different models that serve different purposes. It is possible, however, to make some observations that would assist aid donors seeking to build local capacity and to assist those who might be interested to self-select for the role. Within the small-scale sector there are many different business segments and, within those, different levels of operation. Some are technically or organisationally more complex than others, some are more profitable and wealthy than others. There is scope for BDS providers to specialise in many different types of BDS products for the wide range of individuals with needs. It would be presumptuous to try to reduce the range of needs to just a few product-categories and it would not be possible for one type of provider to cover the whole field. Those providers with a corporate education or career backgrouns are likely to exclude themselves (by their prices and the nature of the products that interest them) from working in the field of smaller and poorer businesses,[7] whilst those whose experience and ambitions that do allow them to work in the small-scale sector are unlikely to have credibility at the high end of the market.

Consulting and training organisations that attempt to become BDS providers under market conditions, without the benefit of subsidies, will be constrained by their overheads and will struggle to be sustainable[8] unless they position themselves at higher remunerative levels in the market where clients demand the most technically and organisationally complex products. A move down-market would take them out of their normal communities of practice and into strange company with which it is more difficult to empathise. It follows that capacity building for BDSs to operate in the mass market should be localised with providers who are familiar with it and can operate there comfortably. It does not matter that they are not the most highly qualified academically, they don't need to be, the provision of BDSs at that level is not so academically demanding; it is more important to have the appropriate practical knowledge, the ability to empathise and the desire to assist other small-scale clients. Individuals and small partnerships with no organisational overheads are more likely to succeed in this mass market, at the present time at any rate.

[7] Prior experience of BDS provider capacity building in transitional economies in Eastern Europe, Russia and Asia also shows that well qualified providers tend to move up market in the SME sector.

[8] There are many examples of subsidised organisations providing financial services and BDSs that struggle to cover administrative overheads, and some that fail.

Capacity Building Programme Content

The project discovered the need for a core curriculum for building the capacity of BDS providers to operate in the small-scale sector. In process-consultation with small scale-scale operators, providers are likely to need tools for one or more of three tasks – assessing current performance and trends, conducting a general business health check, and formulating business development plans. Task complexity varies with the complexity of client businesses and the tools may be manual or computer-aided; assessment of financial performance is appropriate for the smallest of business activities. In every case, however, the task relies on basic income and expenses data being available but, in the experience of this project, operators across the small-scale spectrum are not reliable record keepers and they don't know what to do with recorded data. Lack of data prevents providers and clients from objectively identifying performance and development issues, diagnosing problems and considering options for improvement. Whilst the facilitators in the project studiously avoided generalised assumptions about market needs for BDS assistance and favoured a focus on individual client needs and wants, it is nevertheless apparent that there is a general need for business operators to acquire the discipline of recording operational data, production as well as financial data, and all BDS providers should be capable of introducing clients to the discipline of record keeping and of using the three BDS tools mentioned above, either in manual or computer-aided form.

Record keeping and performance assessment are so fundamental to business management and development (these data can provide the stimulus to seek business improvement, the means of measuring it, and the selling point for BDSs) that it is tempting to predict that there is unlikely to be any significant sectoral developments or BDS market development in Tanzania unless the majority of operators do routinely record basic information. The popularisation of standard record keeping sheets in different business sectors (such as retailing, manufacturing and rural production) should provide some encouragement, and all BDS providers should be able to dispense free advice about appropriate record keeping needs and procedures, and should be able to provide technical assistance to those who want it.

The donor policy that BDS development should be market orientated requires in effect that BDS providers should be one half of a business-to-business relationship in which BDS providers behave as businesses normally do in competitive market situations, responding to imperatives such as customer satisfaction, income generation and profit. The project has shown that adopting 'marketability' as an over-arching constraint on product design, particularly the strictures that products should be appropriate, affordable and output-orientated, has the effect of producing slim product designs with necessary content only. The process of business change and development then appears much less disturbing to clients and more manageable. Slim designs offer the prospect of lowering costs and prices and extending service offers to a wider range of clients, with the added prospect of encouraging clientele growth as an alternative strategy to price maximisation, which is counterproductive to the donor aims for market development in relatively poor market segments. BDS is not the only developing-country market in which providers experience problems in servicing low-income customers with modern products. Part of the problem is the difficulty of obtaining accurate information about the conditions that determine demand; the solution is cooperation with local communities and organisations for product innovation, and repackaging and re-pricing with lower transaction costs [Beshouri 2006].

Providers urgently need to adopt consistent and attractive pricing and payment recovery policies for their services. As a matter of principle, clients should know how prices are calculated so they can judge for themselves whether they represent value for money. Any product that is delivered in stages can be priced in stages, which has the effect of spreading and delaying a client's commitment and providing opt-out points for them without unreasonable loss to providers. For example, a consultancy product may have as its outputs (1) a business appraisal and diagnostic report, (2) a business improvement and development plan, and (3) implementation and change, enabling price to be based on a transparent rate-per-hour of a consultant's time to be charged for each output. A similar method of payment can be used for process-based training when the design involves more than one workshop.

What Next?

Overall, the aim of BDS capacity building programmes should be to reduce and eliminate the relational distance between small-scale business operators of all kinds and BDS business service providers and their products. The measure of success should be an increase in the supply and demand for appropriate products and in the engagement of clients with providers.

This project has rehearsed a capacity-building process for BDS products for different sectors of small-scale business, and concluded that it can be and targeted geographically to localise BDS market development. A framework for replication would start with the objective to promote and facilitate the personal development of existing and new BDS providers to produce innovative, marketable BDS products. The method would be to induct providers into an action-learning programme based on the product development process of *idea-research-design-produce-test*; outputs to include consultancy and output-orientated training products. The facilitators' knowhow and coaching inputs would include: BDS as an entrepreneurial business-to-business service; the concept of 'marketability' and its implications for BDS product development for the small-scale business sector; managing the process of BDS product development; case study as a method for client research and needs analysis; common small business development tools and how to use them; process consultation for small-scale business development; using client research and process consultation as sources of content and materials for training and development workshops.

How should potential or existing BDS providers be selected for participation in a capacity building programme? There should be no exclusive requirement for high-level qualifications; in fact, in some respects, to be over-qualified is counter-productive. Relevant experience of business development and of using appropriate business management procedures and tools, together with empathy for potential clients and a desire to provide useful assistance and see results are especially important. Participants should be asked to self-select in the knowledge that they will benefit by developing a product and product knowledge for self-employment as BDS provider. It will require some personal commitment and investment of their time, in return for which they should be able to fulfil a desire to start or improve their own business-to-business service.

Scope for Research

This paper has reported on one action-learning project indicating the feasibility of localising BDS product design and delivery in circumstances where localisation can be described as an organic, grass-roots process starting with the engagement of local BDS providers with potential clients. The principle barrier to the spread of this process is the number of BDS providers able to identify market niches where they can find clients for their personal knowhow and skill in the use of tools for business development. BDS is a business sector in its own right composed of informal and formal services based on products of variable design and quality offered by persons with varying competences who have business development needs of their own.

The literature offers relatively little information on independent, non-sponsored BDS market development or on the means of stimulating and spreading grassroots learning and innovation by local providers. More knowledge is required about these phenomena and the processes that drive them in order to design effective donor and government BDS capacity-building initiatives.

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Chapter 5

SMALL ENTERPRISES IN AFRICA: MICROFINANCE, THE LEGAL ENVIRONMENT, AND CONTRIBUTIONS TO INCOME

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ABSTRACT

Using nationally representative data from surveys conducted in Botswana, Kenya, Malawi, and Zimbabwe, this chapter examines three themes in the microenterprise literature: microfinance, the legal environment, and income contributions. The data from these four countries were collected using the same survey methods, sampling techniques, and questionnaire formats, which allows for an accurate comparison of the microenterprise sector across countries. Furthermore, the large sample size, ranging from 1,200 to 11,000 enterprises in the four countries, and the in-depth questionnaire helps to examine microenterprise issues in greater detail. Regarding the first theme, microfinance, the data show that less than one-quarter of proprietors perceive the lack of operating or investment funds as one of their two major constraints. Furthermore, this lack of funds may not necessarily reflect a need for credit. Many proprietors report that they do not need credit and are unlikely to apply for credit. Similarly, very few proprietors see the legal environment as a constraint. Less than one percent of proprietors in all four countries cite the legal environment as one of their two most important constraints. While a minority of enterprises may register following the relaxation of government regulations, most enterprises will continue to operate informally. Finally, despite very low earnings, microenterprises help to alleviate poverty given their large contributions to household income. Over 55 percent of all enterprises contribute half or more of household income. They also contribute to national income based on the large size of the sector.

INTRODUCTION

Micro and small enterprises (MSEs) are widespread in all developing countries. Within Africa, studies show that MSE sector employs 22 percent of the adult population on average compared to only 15 percent in the formal sector [Daniels 1994; Daniels and Fisseha, 1992; Daniels and Ngwira, 1992; Fisseha, 1991; Fisseha and McPherson, 1991].[1] Because of the size of the sector and its potential to alleviate poverty and contribute to national income, there is a large body of literature related to the MSE sector. [2] Although the literature is diverse, some common themes emerge. In particular, issues related to microfinance, the legal environment, and the contribution of microenterprises to household and national income are common topics of research.

In terms of the first theme, microfinance, credit is seen as a major constraint to the growth and development of the microenterprise sector. Based on this need, a whole industry has developed to offer microfinance to struggling entrepreneurs. The number of microfinance institutions operating today is estimated to be anywhere between 300 and 25,000 depending on the definition. The estimated number of borrowers ranges from 30 to 500 million [Kota, 2007]. In Kenya alone, one study estimated that there were 105 formal institutions offering support to MSEs and about half of those focus on credit [Oketch *et al*., 1995].

The second theme from the literature, the legal environment, is also seen as a major constraint to the microenterprise sector. De Soto [1989], in his often-cited study of Peru, suggests that firms are forced into the informal sector due to over-regulation of the formal sector and excessive requirements for registration.[3] He suggests that deregulation along with private property rights and less government intervention are necessary for the informal sector to develop. Similarly, Loayza *et al.* [2005], suggest that product and labor market regulations leads to a larger informal sector based on an analysis of data from both developing and industrial countries.

Finally, there is a debate in the literature regarding the contribution of the microenterprise sector to economic growth. Some authors argue that the microenteprise sector is a vital part of the economy that contributes significantly to growth [Pyke and Sengenberger, 1992]. Others, however, see the sector as a last resort or a means of survival which contributes little to the national economy. For example, Biggs, Grindle, and Snodgrass [1988] report that "as agents of economic development, very small enterprises are, to put it bluntly, of little interest." Similarly, in Gërxhani's [2004] summary of theories about the informal sector, he states "… survival plays an important role in the decision to participate in the informal sector in less developed countries. As a consequence, this sector gives little opportunity to economic growth and accumulation" [p. 283].

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[1] For the purpose of theses studies, An MSE is defined as a business activity that employs 50 or fewer workers and markets at least 50 percent of its output. The adult population is defined as 15 years or older. The five countries include Zimbabwe, Botswana, Malawi, Lesotho, and Swaziland. The formal sector is defined as income-earning activities that are registered with the government and counted in national statistics.

[2] For a review of the literature on the informal sector in developed and developing countries, see Gërxhani, 2004 and Schneider and Enste, 2000.

[3] The informal sector and the microenterprise sector are used interchangeably in this chapter. Although there is no universal definition for the informal sector, Gërxhani (2000) identifies four criteria that have been used to characterize the informal sector in the literature – "undeclared labor, tax evaision, unregulated or unlicensed enterprises, illegality or criminality (p. 293)."

Using data from four national surveys in Africa, this study examines these three themes from the literature. In particular, data from Botswana, Kenya, Malawi, and Zimbabwe are used to assess the need for credit, the impact of the legal environment, and the contribution of MSEs to household and national income. These four countries provide an overview of the sector based on nationwide surveys that followed the same survey methods, including the sampling techniques and questionnaire formats. This consistency in technique allows for an accurate comparison of the MSE sector across countries.

The paper begins with a description of the survey methods used followed by an overview of the basic characteristics of the microenterprise sector in the four countries examined in this chapter. Sections on microfinance, the legal environment, and contribution of the MSE sector are then provided followed by conclusions.

SURVEY METHODS

Since the late 1970s, an approach to examine the size and characteristics of the microenterprise sector has been developed. This approach, which later became known as the GEMINI method, has been implemented in 16 countries.[4] Although the method has evolved over time and it has been adapted to fit the needs of each country, the key elements of sampling, questionnaire format, and extrapolation of results have remained the same. This chapter uses the data from Botswana, Kenya, Malawi, and Zimbabwe where the GEMINI method was implemented over the period from 1992 to 1995. The sampling technique, field methods, and sample size are described below.

The four countries were first geographically stratified into areas with similar population densities. Stratification by population density is based on the premise that areas with similar population densities will have the same basic structure of enterprise activities. Rural areas with lower population densities, for example, are likely to have a much smaller range of activities than enterprises in urban areas. Following stratification, enumeration areas identified by the national census in each country were randomly selected from each stratum. Within each selected enumeration area, every household, place of business, and mobile enterprise was visited. If an enterprise was currently in operation, the proprietor was interviewed using an existing enterprise questionnaire. If an enterprise had folded, the proprietor was interviewed using a closed enterprise questionnaire.[5] The results in all four countries were then extrapolated to represent national level-statistics.[6]

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[4] GEMINI stands for "Growth and Equity through Microenterprise Investments and Institutions." This was a project funded by the United States Agency for International Development from 1989 to 1995. The countries where the GEMINI method was implemented to study the MSE sector include Bangladesh, Botswana, Egypt, Honduras, Jamaica, Kenya, Laos, Lesotho, Malawi, Niger, Sierra Leone, South Africa, Swaziland, Thailand, Zambia, and Zimbabwe.

[5] The surveys in Botswana and Malawi included enterprises that had been closed for at least one year and had been operated at any time in the past. In Kenya and Zimbabwe, only enterprises that had folded within the last three years were included. This was done to avoid overlap with the surveys that had been done three years earlier in both countries.

[6] Detailed information about the sampling techniques, questionnaires, and extrapolation of results can be found in the original reports: Daniels, 1994; Daniels and Fisseha, 1992; Daniels, Mead, and Musinga, 1995; and Daniels and Ngwira, 1993.

As shown in table 1, the number of existing enterprises enumerated ranged from over 1,200 to roughly 11,000 enterprises. The number of sites visited to determine if an enterprise currently existed or had folded in the past ranged from roughly 10,000 to 42,000. Finally, the number of closed enterprises enumerated ranged from 150 to 2,800. Extrapolating these numbers shows that six to 24 percent of the population aged 15 to 64 is employed in the MSE sector.

Table 1. Sample sizes of the four surveys and extrapolated results

	Botswana	Kenya	Malawi	Zimbabwe
Existing enterprises enumerated	1,243	2,259	10,792	5,356
Closed enterprises enumerated	153	511	2,809	706
Household and business sites visited	10,586	11,012	42,334	11,762
Extrapolated number of MSEs	47,531	708,432	573,210	936,899
% of population 15-64 years old engaged in MSE sector	14%	6%	21%	24%

OVERVIEW OF MICROENTEPRISE SECTOR

As illustrated in table 2, the characteristics of the microenterprises in the four countries examined in this study are relatively similar. First, the MSE sector is predominantly rural with over two-thirds of all MSEs located in rural areas. These same statistics are true for Swaziland and Lesotho where GEMINI studies were also conducted. The majority of MSEs are also located in the home rather than in a shop or other place of business.

The size structure of the MSE sector in the four countries is almost identical. As illustrated in table 2, 81 to 90 percent of MSEs have one to two workers, including the proprietor. Enterprise age patterns are also similar with 31 to 46 percent of MSEs only one to two years old.

The last similarity among the four countries is the percentage of MSEs that have increased the number of workers since they started. Less than one-quarter of MSEs in all four countries has grown larger.

There are, however, some important differences in the MSE sector of the four countries. Zimbabwe has a much larger proportion of manufacturing enterprises compared to the other three countries where a larger proportion of enterprises are engaged in trade. The gender of the owner also differs. Female owners represent close to three-quarters of all proprietors in Botswana and Zimbabwe whereas less than half of the proprietors in Kenya and Malawi are female. Finally, proprietors in Zimbabwe appear to have higher education levels than the other three countries.

In summary, the MSE sector in these four countries is predominantly located in rural areas with business operated from the home. Most MSEs have just one to two workers and are typically less than five years old. Finally, there is very little growth among these enterprises.

Table 2. Characteristics of enterprises in four countries (all figures in percentages)

	Botswana	Kenya	Malawi	Zimbabwe
Location				
Urban	31	25	10	27
Rural	69	75	90	73
Location				
Home	70	56	58	81
Other	30	44	42	19
Industrial Structure				
Manufacturing	28	32	43	65
Trade	66	55	52	28
Services	6	13	5	7
Other				
Size	81	88	85	90
1-2 workers	13	11	13	7
3-5 workers	5	1	1	1
6-10 workers	2	< 1	1	2
>10				
Average age of MSE	46	48	45	31
1-2 years	20	18	20	25
3-5 years	34	34	35	44
> 5 years				
Gender	19	42	52	26
Male	75	43	46	71
Female	6	15	2	3
Multiple owners mixed				
Proprietor education	29	20	26	7
No education	23	26	6	31
Completed more than primary				
Growth	19	18	23	6
% that increased workers	81	82	77	94
% that did not grow				

MICROFINANCE AS A MAJOR CONSTRAINT?

As mentioned above, credit is considered a major constraint faced by the microenterprise sector according to the literature. Thousands of organizations now exist to provide credit to microenteprises and millions of proprietors have benefited around the world. Although microfinance clearly benefits participating households, can it actually drive the microenterprise sector? Will it lead to an expansion in employment and income?

Using data from the four countries, this chapter examines some of these questions related to microfinance. In particular, do proprietors perceive credit or finances as a major constraint? How many proprietors have actually applied for credit and how many have received it? For those proprietors who have not applied, why not? Finally, have enterprises folded due to a lack of finances?

In all four countries examined in this chapter, proprietors were asked to identify their two primary constraints in running an MSE. Table 3 shows the three problems reported most

frequently in each country and the percentage of proprietors that reported each problem. Lack of operating funds and not enough customers were among the three most commonly cited problems in all four countries. Lack of investment funds was among the top three problems only in Kenya.

Table 3. Greatest problem at the time of the survey as perceived by the proprietor (percent reporting each problem)

	Botswana	Kenya	Malawi	Zimbabwe
Lack of operating funds	11	12	16	11
Customers not repaying credit	14	7	4	10
Not enough customers	14	12	13	21
Lack of investment funds	1	10	3	1
Cost of raw materials	0	3	16	11

Examining only the two constraints related to finance, operating funds and investment funds, tables 4, 5, and 6 show the percentage of proprietors reporting constraints by gender, size of the enterprise, and sector. The only significant difference when considering gender is the perceived lack of investment funds among female proprietors compared to male proprietors in Kenya. When considering the size of the firm, enterprises with ten or more workers identify lack of operating funds much more frequently than smaller firms in all countries except for Malawi. Within the different sectors, there didn't appear to be any clear patterns.

Table 4. Percent of proprietors reporting financial problems at the time of the survey by gender

	Botswana	Kenya	Malawi	Zimbabwe
Lack of operating funds				
Female	19	12	14	11
Male	20	13	18	10
Lack of investment funds				
Female	3	15	2	1
Male	0	4	3	2

Table 5. Percent of proprietors reporting financial problems at the time of the survey by size of enterprise

	Botswana	Kenya	Malawi	Zimbabwe
Lack of operating funds				
1-2 workers	22	12	15	11
3-5 workers	7	7	22	12
6-10 workers	14	7	20	7
> 10 workers	43	16	12	24
Lack of investment funds				
1-2 workers	2	11	3	1
3-5 workers	4	10	2	1
6-10 workers	0	1	6	11
> 10 workers	0	13	0	1

Table 6. Percent of proprietors reporting financial problems at the time of the survey by sector

	Botswana	Kenya	Malawi	Zimbabwe
Lack of operating funds				
Manufacturing	11	11	14	11
Trade	23	12	18	11
Service	18	23	19	14
Lack of investment funds				
Manufacturing	1	6	2	1
Trade	3	13	3	1
Service	0	13	3	0

Combining the two types of financial problems, only 12 to 22 percent of proprietors in the four countries identified investment and operating funds as a major constraint. Furthermore, these are only perceived problems as interpreted by the proprietor. Lack of operating funds may reflect other problems such as poor management, corruption, under pricing, high costs of raw materials, etc. Similarly, not enough customers may reflect other problems such as poor quality or service, market saturation, poor location, etc.

Proprietors were also asked if they had every received credit and the type of credit received. As seen in table 7, over 80 percent of proprietors in all four countries have never received any type of credit. Informal credit has been received by 18 percent or less of the proprietors in all four countries and formal credit has been received by three percent or less of all proprietors.

Table 7. Percentage of proprietors reporting about types of credit received

	Botswana	Kenya	Malawi	Zimbabwe
Never received credit	88	89	81	89
Informal credit received	9	8	18	10
Formal credit received	3	3	1	1

It is interesting to note how very few proprietors have received any type of credit – formal or informal. This suggests that credit may be a major constraint. But, the limited credit received by a minority of enterprises does not imply that all other enterprises were denied credit. To examine this issue more closely, proprietors in Botswana and Zimbabwe were asked if they had ever applied for credit. Twenty-three percent of proprietors in Botswana had applied and only one percent in Zimbabwe. Of the 23 percent of proprietors who had applied for credit in Bostwana, about one quarter of them were denied. In Zimbabwe, proprietors were asked why they never applied. Table 8 shows the results. As illustrated, 28 percent reported that they don't need credit while another 31 percent did not know where to apply. With only one percent of proprietors applying for credit in Zimbabwe and 89 percent of the reasons for not applying related to education about credit programs (don't know where to go, afraid that it couldn't be paid back, sure they would not receive it, lack of collateral, and complicated forms), it appears that an awareness campaign could address some of the issues related to the lack of applications.

In addition to the existing enterprises, enterprises that had folded were also included in the survey in each country. Table 9 shows the reasons why enterprises closed. The results are remarkably similar across countries. Financial reasons are cited by 22 to 30 percent of enterprises that folded. Although financial reasons include lack of operating and investment funds, they may also reflect low profits, poor quality, poor management, etc., as noted above. Personal and marketing problems are also cited as one of the three top reasons for closing. Personal reasons include health, retirement, childcare, and household responsibilities. Finally, it is notable how few enterprises close because they have found a job in the formal sector or because they started a new business.

Table 8. Reasons why proprietors have not applied for credit in Zimbabwe

Reasons why proprietors have not applied for credit	Percentage
Don't know where to go	31
Afraid that it couldn't be paid back	31
Don't need credit	28
Sure that they would not receive credit	15
High interest rates	7
Lack of collateral	6
Bank forms too complicated	6

These numbers do not add up to 100 percent since proprietors were asked to select as many reasons as appropriate.

Table 9. Reasons why enterprises closed

	Botswana	Kenya	Malawi	Zimbabwe
Personal reasons	31	16	21	21
Financial reasons	22	22	26	30
Market problems	14	23	19	20
Legal problems	5	4	3	3
Started new MSE	3	5	6	1
New job	1	1	2	1
Other	24	29	23	24

These results appear to confirm the view of Morduch [1999], a strong proponent of microfinance…

> Even in the best of circumstances, credit from microfinance programs helps fund self-employment activities that most often supplement income for borrowers rather than drive fundamental shifts in employment patterns. It rarely generates new jobs for others… The best evidence to date suggests that making a real dent in poverty rates will require increasing overall levels of economic growth and employment generation. Microfinance may be able to help some households take advantage of those processes, but nothing so far suggests that it will ever drive them [p. 1610].

In summary, less than one-quarter of proprietors perceive the lack of operating or investment funds as one of their two major constraints. Furthermore, this lack of funds may not necessarily reflect a need for credit. In Zimbabwe, close to one third of proprietors report

that they do not need credit when asked why they have not applied. Overall, Morduch's suggestion that only some households will be able to take advantage of microfinance is validated given that less than three percent of all microenterprises have received any type of formal credit.

LEGAL ENVIRONMENT AS A MAJOR CONSTRAINT?

Government regulations or the legal environment are often seen as a hindrance to MSE growth. As pointed out earlier, de Soto [1989] suggests that firms remain in the informal sector due to a prohibitive legal environment. Using the data from the four countries, this chapter examines the validity of this argument. In particular, do proprietors find that the legal environment is one of their primary constraints? Are they inhibited by zoning, licensing, registration, labor, and tax laws?

As mentioned earlier, proprietors were asked to identify their major problems in running their business in the four countries covered by this chapter. The results indicate that government-related problems were not perceived by proprietors to be one of the two most pressing current problems nor one of the two major constraints when they started their businesses. Less than one percent of the proprietors reported problems related to business taxes, business licenses, government harassment, registration, zoning, or foreign exchange constraints.

In addition to the open-ended questions related to perceived problems, proprietors were asked specifically about government-related problems in Botswana, Malawi, and Zimbabwe. In Botswana, eight percent of proprietors reported licensing as a problem, four percent cited zoning, and one percent reported tax regulations. Less than one percent reported registration and government harassment. When asked more specifically about problems related to licensing, eight percent reported that they spent too much time waiting in line, three percent reported the cost and time to travel for a license was a problem and three percent said the process was unclear.

In Malawi, 81 percent of proprietors indicated that they did not face any of the government-related problems when asked about them specifically. Among the problems addressed, ten percent reported taxes, seven percent reported licensing as constraints and less than two percent reported registration or zoning as problems.

In Zimbabwe, many more questions were asked about the legal and regulatory environment because a structural adjustment program had been initiated two years prior to the survey. The first set of questions was related to zoning regulations, which are one of the most frequently cited impediments to MSE activity in Zimbabwe. Based on the three government acts, each town develops its own planning schemes that define operational areas for businesses and other types of activities. In Harare, for example, there are five major zones proposed by a master plan: commercial, residential, public buildings, industrial, and agricultural zones and 31 sub-classifications of "use zones." New businesses are required to go the Town Planning Office to determine if they are in the right zone before opening. If they are in the correct zone, they must write a letter requesting permission to operate. If the business is not in the correct zone, they must submit an application, advertise, advise neighbors, and acquire special consent. Under the structural adjustment program there were plans to relax rules for street vending and small businesses, however, no official legislation

was passed. Rather than changing legislation, rules are typically not enforced thereby allowing street vendors and other businesses to operate without harassment. Although the lack of enforcement eliminates harassment, fears of policy reversal presumably inhibit investment to some degree.

Table 10. Effects of Zoning Laws on MSEs in Zimbabwe

Are SMEs affected by Zoning Regulations	Percent of Proprietors		
	Urban	Rural	Total
Reasons why SME is not affected:			
Not aware that there were zoning laws	52.5%	66.0%	62.2%
Operating in a legal zone	23.1%	24.6%	24.2%
Operating in an illegal zone but no harassment	6.6%	1.3%	2.8%
Total	82.2%	91.9%	89.2%
Reasons why SME is affected:			
Can't sell goods in desired location	15.0%	7.5%	9.6%
Can't advertise because of illegal location	1.1%	*	0.3%
Pay high rents in legal zone	0.5%	0.3%	0.3%
Can't register	0.3	*	0.1%
Total	16.9%	7.8%	10.3%

0.5% gave other miscellaneous responses.
* less than one percent.

Results from the survey indicate that the majority of MSEs believed that they were not affected by zoning laws, despite the fact that 85 percent of all businesses were located at the home or roadside, possibly making them subject to zoning laws. Furthermore, two-thirds of proprietors did not even know that zoning laws existed. Table 10 shows the response from proprietors regarding zoning laws.

Licensing is also cited as a constraint for MSEs in Zimbabwe. Results from the survey indicate that 87 percent of all MSEs do not have any type of licence. When asked why they didn't have a license, 58 percent said that they were not required to have a license. Eighteen percent of firms without licenses said they don't know where to go or how to get one, and 21 percent said that they can't afford a license.

Registration was also addressed by the Zimbabwe survey. Two studies on the cost of business compliance in the small-scale metal working and garment and textile sectors found varying reactions to registration within the business community. Harbin [1993] found that most formal sector firms thought that the costs and time to register were reasonable. Hess [1993], on the other hand, found the perception that registration was "too difficult, too costly and time consuming," taking from two to eight months and ranging from Z$200 to Z$1,700.

Results from the Zimbabwe survey indicate that only 6.7 percent of firms in the MSE sector are registered. This is not surprising given the size and location of MSEs in Zimbabwe. Ninety-five percent all MSEs have four or fewer workers and 91 percent operate from the home, roadside, or they are mobile. Furthermore, the Companies Act does not specify which types of businesses are required to register. According to an official from the Deeds and Companies Registry Office, it is "intuitive."

When asking proprietors why they have not registered their enterprises, close to two-thirds reported that they are not required to register their businesses. Proprietors also reported

they didn't know how to register (34%), there were no benefits to registration (9%), it was too expensive to register (4%), there is no enforcement of registration (2%), taxes are too high (1%) and bookkeeping would be required (1%).

Labor market regulations are also cited as impediments to micro and small enterprises in many countries. Prior to 1990 in Zimbabwe, employers were required to seek permission from the Minister of Labour for approval to dismiss employees. Additionally, wages were determined by direct government intervention. Following several Statutory Instruments in 1995, direct intervention in wage setting was replaced by collective bargaining. Additionally, companies could also fire employees for economic reasons, but they had to inform the Ministry of Public Service, Labor and Social Welfare for record-keeping purposes only. Although the level of employment did increase somewhat following these laws, 97 percent of proprietors indicated that they are not affected by labor laws because they do not want to hire more workers. Of the two percent of proprietors that indicated that they are affected by labor laws, 96 percent reported minimum wages laws as a barrier to hiring more employees, 25 percent reported difficult employee dismissal procedures, and 15 percent are inhibited by worker compensation requirements. Surprisingly, over three-quarters of the firms affected by labor laws were micro enterprises with one to four workers. Considering registered versus unregistered MSEs, 19 percent of registered firms indicated that they are inhibited by labor laws compared to only one percent of unregistered firms.

Taxes are also cited as a constraint in the MSE literature. Gërxhani [2004], in his summary of tax evasion by different types of enterprises, writes that proprietors who work only in the informal sector "are seen as stealers from the welfare state" by tax authorities. [p. 290]. In Zimbabwe, 95 percent of proprietors report that they do not pay taxes. Forty-one percent report that they are not subject to taxes. Profit estimates from the survey show that close to three quarters of microenterprises earned less than Z$4,801 a year, which was the minimum individual taxable income during the year of the survey. Only two percent of MSEs reported that they do pay taxes and only 0.6 percent reported that they have not registered because of high taxes.

In summary, less than one percent of proprietors in all four countries cite the legal environment as one of their two most important constraints either now or when they started their enterprises. When asked more specifically about the various types of government regulation, again, very few proprietors identify regulations as a constraint. In particular, less than ten percent of proprietors report licensing, zoning, taxes, registration, or labor laws as constraints in the countries where these issues were addressed. Most striking is the fact that 97 percent of proprietors in Zimbabwe say that they have no intention of hiring more workers.

DO MSES MAKE A SIGNIFICANT CONTRIBUTION TO HOUSEHOLD AND NATIONAL INCOME?

As described in the introduction, microenterprises are often seen as a means of survival or a last resort for the poor. Some go so far as to say that they are of little interest in terms of development. It is hard to deny their contribution to income and poverty alleviation when examining the size of the sector alone. In the four countries reviewed in this chapter, 17 to 30 percent of the population aged 15 to 64 is employed in the microenterprise sector.

Using data from the four countries, this chapter examines how much microenterprises contribute to household and national income. In addition, are microenterprises simply a means of survival or can they raise households above the poverty line or above earnings in the formal sector? From a national perspective, how much do they contribute to the economy?

Contribution to Household Income

Table 11 shows the proportion of household income that is provided by the microenterprise. As illustrated, 28 to 42 percent of enterprises provide 100 percent of the household income. Over 55 percent of enterprises in all four countries provide half or more of household income. Although this is a significant contribution, are the earnings enough to support a household?

Table 11. Percent of household income contributed by microenterprise

	Botswana	Kenya	Malawi	Zimbabwe
100 percent	28	24	42	35
50 to 100 percent	15	17	17	12
50 percent	13	20	8	18
Less than 50 percent	44	39	30	33

In Kenya, where data were also collected on net profits of enterprises, microenterprise earnings can be compared to the absolute poverty line developed by the World Bank [1995].[7] In urban areas, 18 percent of MSEs that provide all of the household income generate earnings above the poverty line. Within this group 42 percent make at least two times the poverty line and 23% make at least three times the poverty line. On average, MSEs in this category make 6.8 times the amount of the poverty line. Although the earnings are high in this group, a full 72 percent of urban MSEs that provide 100 percent of household income generate earnings below the poverty line.

In rural areas, none of the MSEs that provide all of the household income generate earnings above the poverty line. Combined, these results indicate that a large majority of MSEs that provide all of the household income do not generate sufficient earnings to meet the absolute poverty line.

It is also possible to compare earnings within the MSE sector with minimum wages in the formal sector and average earnings in the formal sector in Kenya. Roughly 30 percent of MSEs make above the monthly minimum wage based on their actual hours worked. Among those that make above the minimum wage, 62 percent make two times the minimum wage while 38 percent make three times the minimum wage. Among the top ten percent of wage-earning MSEs, on average MSEs make 18 times the minimum wage based on their actual hours worked.

[7] For a complete explanation of how profits were measured, see Daniels, 1999. The absolute poverty line is defined as "the minimum level of expenditure deemed necessary to satisfy a person's food requirement plus the consumption of a few non-food necessities (World Bank, 1995, P. 8). Taking the 1992 poverty line figures provided in the study and adjusting for inflation and household size in urban and rural areas, the absolute poverty line in 1995 for urban and rural households was K Sh 6,415 and K Sh 4,531 respectively.

Comparing earnings based on actually hours worked to the average earnings in the formal sector, ten percent of MSEs make above the average earnings. Among the MSEs that make above average earnings, 61 percent make two times the average earnings while 35 percent make at least three times the average earnings. Among the top ten percent of wage-earning MSEs, on aveage MSEs make 4.6 times the average wage in the formal sector.

Clearly with one third of MSEs earning above the minimum wage and ten percent earning above average earnings in the formal sector, not all enterprises are survival mechanisms. Table 12 shows proprietors' responses when asked why they started their businesses. About one quarter said they had no other option whereas slightly over one third thought that the business provided better income or they preferred to work for themselves. Another one-third reported that they are supplementing other income.

Table 12. Reasons why proprietors started their enterprise in Kenya (%)

To supplement household income	31
No other options available	26
Offers higher income than alternatives	23
Prefer to work for myself	14
Other	6
Total	100

Contribution to National Income

Among the four studies used for this chapter, the contribution to national income was estimated only in Kenya. According to that study, MSEs contribute 12 to 14 percent to Gross Domestic Product (GDP).[8]

Table 13 shows the MSE contribution to employment and GDP by size of the enterprise among enterprises with one to ten workers. Close to 90 percent of all MSEs have only one to two workers (including the proprietor). Given the large number of MSEs in this category, the largest contribution to both employment and GDP comes from these enterprises. Roughly three-quarters of all workers in the MSE sector are employed in MSEs with one to two workers and they represent about three-quarters of the MSE contribution to GDP. Although only 12 percent of all MSEs have three to ten workers, combined they represent about one-quarter of the total MSE contribution to GDP.

The net profit earned by enterprises can also be used to examine contributions by new enterprises versus enterprises that expanded in terms of employment. According to the survey results, the average income earned among new enterprises in 1994 and 1995 was K Sh 18, 980. Among enterprises that had expanded during that same time period, the average earnings were K Sh 45,479 [Daniels, Mead, and Musinga, 1995]. This suggests that enterprises that expand contribute much more to household and national income.

[8] The range of contribution is given because it is not clear how many microenterprises are included in official statistics. If all MSE activities were included in official statistics, then the MSE sector contributed 13.7 percent towards GDP at the time of the study. If no MSE activities are included in the official statistics, then the MSE sector contributed 12 percent.

Table 13. MSE contribution to employment and national income by size of the MSE, Kenya

Size of MSEs (Number of workers)	Percent of all MSEs	Percent of all MSE workers employed	Percent contributed to GDP of Total MSE Contribution	Avg. Contribution to GDP per enterprise (Kenyan Pounds)[9]
1 worker	57	35	43	2,319
2 workers	31	38	33	3,207
3-5 workers	11	23	18	5,015
6-10 workers	1	4	6	18,335
Total	100	100	100	3,068

In summary, the majority of microenterprises appear to be survival mechanisms. Over half of all enterprises in Kenya earn below the minimum wage and 26 percent started their business due to no better options. Despite the low earnings, they clearly are an important source of poverty alleviation, particularly since over 55 percent contribute half or more of household income. For a minority of enterprises, earnings are well above minimum and average earnings in the formal sector. Finally, at the national level, MSEs contribute a substantial portion to national income. This is particularly true for the smallest MSEs with only one to two workers given their sheer numbers.

CONCLUSION

Using data from Botswana, Kenya, Malawi, and Zimbabwe, this chapter examined three themes that emerge in the literature related to microfinance, the legal environment, and the contribution of microenterprises to household and national income. Regarding microfinance, very few proprietors perceive credit as a major constraint. While a small minority of enterprises may be able to expand with the help of credit, the majority of enterprises are unlikely to apply for credit.

In terms of the legal environment, again, very few proprietors see this as a serious constraint. While a minority of enterprises may register or become part of the formal sector with the relaxation of government regulations, the majority of enterprises would continue to operate in the informal sector.

Regarding the contribution to household and national income, the majority of microenterprises appear to be survival mechanisms. Despite very low earnings, microenterprises clearly help to alleviate poverty given their large contributions to household income. They also contribute to national income based on the large size of the sector.

Overall, these results suggest that the microenterprise sector is heterogeneous. While credit and relaxation of government regulations may be the appropriate assistance policies for some microenterprises, they will not address the needs of the entire sector. Furthermore, the majority of microenterprises cannot be expected to enter the formal sector with these types of

[9] The exchange rate in 1995 at the time of the survey was KSh 51.43 to one U.S. dollar.

support. Assistance policies must be based on groups within the MSE sector. While it is important to help those enterprises with the ability to expand, it is also important to assist those enterprises that are providing the minimal level of support for a household to survive. Again, these two groups will require different types of assistance. Recent trends in assistance programs that examine value chains for specific subsectors within the microenterprise sector are an important step in the right direction.

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Chapter 6

BENEFITS OF THE SCIENTIFIC METHOD TO BUSINESS AND HOW BUSINESS AND SCIENCE CAN LEARN FROM EACH OTHER

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ABSTRACT

Science can be basic (or pure) and curiosity driven, or applied, in which new products or processes are developed or creative solutions to problems are sought. On the other hand, business primarily focuses on profit generation and growth. However, business itself is represented by both the service and manufacturing sectors. The benefits of science to the latter would be through the development of new products and improvement of their processes, whereas the former could also benefit from logical scientific thinking and investigation. Because small business often focuses on survival and does not have the resources to conduct the investigations required for an early response to new developments and market forces, its competitiveness can suffer. On the other hand, scientists are engrossed in their new discoveries and are usually not as adept at promoting these where they can do the most good. This chapter is a review of some historical, interspersed with current unpublished, examples of how the commercialization gap between science and business can be closed to the benefit of each. Opportunities for small and larger enterprises are described, primarily in the manufacturing sector, but benefits of science to members of the service sector that rely upon natural resources, such as drycleaners and forensic laboratories, will also be discussed. The strategies proposed highlight the importance of networking and facilitation by a 'champion' for the communication of innovations in a competitive environment, and the importance of marketing skills in an age of technological transparency, revolutionary advance in science, environmental sensitivity and dwindling resources. Examples range from the utilization or production of high-tech innovations to the implementation of the simplest

measures for cutting costs and using resources more efficiently in small business. How the scientific/academic community can derive maximum benefits from collaborating with business is also discussed.

INTRODUCTION

How many business CEOs would be convinced they are using scientific methods in most of the business decisions they make? We contend however, that it's probably more often than they think. As we develop an understanding of the definitions of both business and science in this chapter, we'll draw out the links and applications of science and its ways of thinking in the world of business. Sadly, this chapter will also draw attention to how both scientists and business people can make costly decisions clouded either by emotion or incomplete application of the scientific method.

The extent of the overlap between 'business' and 'science' is often underestimated until examples are cited in which products are identified that were developed through applied scientific processes after basic scientific research. Science is defined in the Oxford Dictionary of English [1] as "the intellectual and practical activity encompassing the systematic study encompassing the systematic study of the structure of the physical and natural world through observation and experiment". Business is defined in the same dictionary (p 234) as "commercial activity". These activities have historically been treated as independent entities, with science being considered by too many as curiosity-driven with business growth motivated and driven by considerations of profit. This perception gap is slowly being closed, partly due to pressure being imposed upon academic institutions from government to direct their intellectual pursuits towards commercialisation. Many scientists have, as a result, redirected their efforts from esoteric or basic research to partnerships with industry for the development of new products.

Despite this emerging paradigm shift towards more applied research, there still remains considerable scope for the knowledge of scientists to be directed towards investigating new ideas which have the potential to become commercially viable. Using examples, we seek to identify opportunities in science – business interactions; to highlight how science knowledge can be capitalised and the important role of champions, facilitators or mediators to optimize innovations; to explain how business can benefit by employing both scientific thinking and investigation and the value of innovation and networking to business. Finally, we list the benefits to all stakeholders in the proposed interactions as well as identifying potential obstacles to realisation of these opportunities and ways to overcome these barriers.

THE NATURE OF SCIENCE AND SCIENTIFIC THINKING

To understand how science can be applied to improve or generate business, it is essential to understand how science works in terms of scientific method and critical thinking. It is also important to understand how science has developed over time. If we consider that science involves the accumulation of knowledge of the natural world by observation and experiment, science has a long history. Men, and even animals, have always used observation and

experimentation to underpin their decision-making, such as a predator using a proven tactic based upon its observation of repeated prey behavior.

A study of the history of science indicates that scientific errors were often made – errors that impeded the development of knowledge and progress for many centuries. In earlier times, logical argument was considered equal to experimentation – a practice often leading to factual errors. For example, from the time of Anaximander (611-547 B.C.) it was believed that life originated spontaneously from non-living things. This theory was widely accepted and referred to as the theory of spontaneous generation. After all, careful observation indicated that when a piece of meat was left in the sun for some time, maggots would spontaneously appear in the meat. Based on observation, it was even suggested by a noted Belgian scientist, Johannes Baptiste van Helmont (1577-1644) that mice were created from the odors emanating from sweaty underwear that was sprinkled with grains of wheat and left in a dark corner for 21 days [2]. It was not until 1859 that careful experiments conducted by Louis Pasteur proved the theory of spontaneous generation to be incorrect, even for microorganisms [3]. In a similar way, unsubstantiated or untested human opinions have often resulted in costly mistakes to business such as when customer needs are misjudged, resulting in failure. A very recent example is the battle for supremacy between the two emerging high-definition DVD formats, Blu-Ray and HD-DVD. In February 2008 Toshiba conceded defeat and will axe its HD DVD format leaving Sony's Blu-Ray format the winner [4]. Whilst a variety of factors led to Blu-Ray's eventual dominance, including speed and compactness of file sizes, it was a canny market positioning decision by Sony which turned the tide in their favor. The incorporation of Blu-Ray into the PlayStation 3 gaming platform and consequent monopolization of market share amongst the gaming community built a market dominance Toshiba couldn't overcome. By better judging its target market, Sony has brought the major DVD content providers onside with Warner Bros, Disney, MGM, Sony Pictures and Fox all releasing their High Definition content on Blu-Ray exclusively. Toshiba's large investment in technology and product development (i.e. the hypothesis that it works) has been wasted due to the market uptake of their rival's format.

The methodology of the science of earlier times was faulty in two respects: observations were not tested by controlled experiments, and opinion was often accepted as fact. Following the Renaissance of the fifteenth and sixteenth centuries, science became formalized with Francis Bacon (1561-1662) and Galileo (1564-1642) emphasizing the collection of data through observation and experimentation [5]. Untested knowledge, based on argument or opinion, was no longer accepted as fact. Subsequent work has generated related concepts such as 'theory', 'hypothesis' and 'laws'.

Some science textbooks begin by introducing the reader to scientific method before proceeding with the specialist area they are addressing. Figure 1 is modified from one on scientific method in a microbiology textbook by Willey *et al.* [6], reflecting the rigor required before conclusions and ultimately informed decisions can be made. Obviously, this can be a time consuming process and, in business, the time required to pursue all or some of it must be weighed against the cost of going by instinct alone (although it should be noted that instincts are often informed by experience and scientific method has then been applied to a limited extent). The scientific method begins with the recognition and statement of a problem (or question). Observations relevant to the problem are collected, and on the basis of these observations, an hypothesis is formulated. Experiments are constructed (sometimes

quantitative ones) that can test the hypothesis. Experimentation can never prove an hypothesis, but if experiments show that the hypothesis is invalid, the hypothesis is abandoned and a new hypothesis is devised.

Repeated success at supporting an hypothesis using increasingly vigorous tests and investigating other variables allow a theory to emerge, which is more universally applicable than the original corroborated hypothesis. A scientific theory would probably be more prescriptive than an hypothesis in claiming, for example, that gases consist of particles in constant random motion. It would also have been more rigorously tested than earlier hypotheses such as the spontaneous generation theory discussed above. A law is a theory that has been universally proven under all conditions, such as the law of conservation of energy which states that, in any given system the amount of energy is constant; energy is neither created nor destroyed, but only transformed from one form to another [7]. Seldom in science and business is a hypothesis taken all the way through to become a law because there are usually too many variables to test, especially where living subjects are involved. For this reason, this chapter will be limited to application of the scientific method as far as hypothesis and/or theory development and testing, with specific applications to business being cited.

Every branch of business has its own set of procedures, rules and jargon. The scientific method is the 'tool' that scientists use to find the answers to questions; however, it should not be considered "a recipe for making original discoveries or inventions" [8]. Inventors, or technologists, have a related, but distinctly different, approach to solving problems [9]. The commonality between technology and science lies in the idea of setting a hypothesis which is able to be tested. Technology is more focused towards addressing a need, whereas science is more knowledge focused.

The elements of science are: empiricism (evidence of which can be observed or measured and is usually quantitative, such as length or profit); skepticism (the questioning of traditional explanations, a necessary precursor to testing them); and rationalism (the scientific explanations that emerge from reasoning and logic) [10]. Recording of observations is essential for science to work because it allows the details that resulted in failure of experiments, and could have been forgotten, to be pinpointed for modification of experiments to take place until success is achieved.

Being aware of scientific method and the systematic thinking involved will certainly equip people to make better informed business decisions and the more an hypothesis is reinforced, the more confident one can become of the outcome. It is also important to note that neglecting variables, such as the culture of target markets, or the effect of temperature on a product can significantly affect the outcome and should therefore be incorporated into any investigation.

Modern scientists still apply the scientific method illustrated in Figure 1; however, there are some important changes in their approach. The science of the Renaissance period was a process of accumulating knowledge for the sake of knowledge. Some modern scientists (often referred to as pure scientists) have continued in this tradition, but many others have recognized that curiosity, observation and experimentation can provide solutions to problems that are capable of meeting human needs (and, in some cases, meeting the needs of the environment). These scientists are applied scientists, and use scientific knowledge, along with other skills and techniques, to find solutions for problems by applying the scientific method. In this chapter, the term scientist will be used to refer to applied scientists, as defined here.

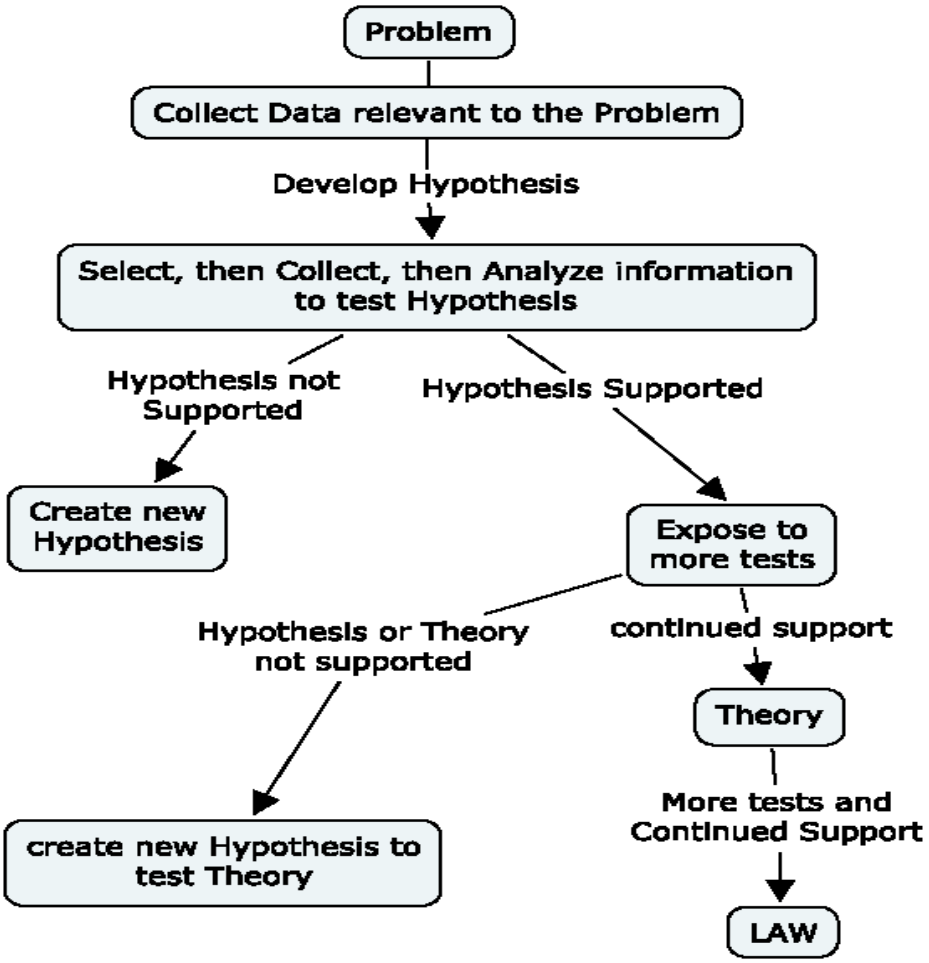

Figure 1. The scientific method.
Modified from Willey *et al*, 2008, Prescott, Harley and Klein's Microbiology 7th Edition, pg. 10.

In following Figure 1, from the perspective of a modern applied scientist, a problem arises, such as to find a cure for Parkinson's disease. An opinion (hypothesis) e.g. "a cure for Parkinson's disease is…" is then generated, usually based upon relevant knowledge previously derived through basic research. This is not enough to galvanize action such as immediate distribution of a proposed cure. Healthy skepticism of an opinion or hypothesis must be used to generate appropriate theoretical and experimental information that may either support or refute it. The hypothesis must be tested by collecting empirical data that can either confirm or refute the hypothesis. Variables and constants in the investigation must be diligently recorded so they may be adjusted during later testing. Rationalism will then be used to explain why the hypothesis was, or was not, supported and motivate for the adjustment of parameters to test subsequent hypotheses such as the conditions under which the cure may apply. As will be shown later, this hypothesis is not adequate to support a business decision. Further hypotheses must be developed (and tested) on possible side effects of the drug

proposed, whether this is the best and most cost effective alternative, ethical considerations, and market readiness for the product.

A key aspect of the application of the scientific method is that science is self- correcting. This is illustrated by the application of scientific method to refute the suggestion, made by Dr. Wakefield in 1993, that autism is caused by the measles virus, including the one used in the MMR (measles, mumps, rubella) vaccine [11]. Wakefield and his colleagues published a paper raising the possibility of a link between MMR vaccine and autism in the prestigious journal "the Lancet" in 1998. Understandably this created considerable concern among parents considering having their children vaccinated. Several subsequent studies discredited these claims and identified flaws in the research method of Dr. Wakefield and colleagues, such as the selection of cases in the report and the lack of a control group. In this case, a coincidentally higher rate of measles virus in the bowel of a small sample of autistic children (12) with bowel symptoms than in children without autism led to the hypothesis that measles virus (whether from disease or a vaccination) causes autism. This hypothesis was broken down into several secondary hypotheses by subsequent researchers. One of these was that this was purely coincidence and a larger sample must be tested to support or refute this hypothesis. According to MacIntyre *et al.* [11] a large number of independent researchers from around the world have now concluded that there is no evidence of a link between MMR vaccine and autism. Ten of the 12 original authors making this claim have now published a statement retracting the paper's interpretation on the basis that the data were insufficient to establish a causal link between MMR vaccine and autism [12]. This scare would have been costly to manufacturers of the MMR vaccine, and highlights the importance of establishing a clear hypothesis and then testing it rigorously before publicizing the results. Business must weigh up the consequences of 'crying wolf' though, considering that, in this case, even if a very small minority of children get autism from the MMR vaccine, withholding the vaccine may result in more deaths due to measles, mumps or rubella.

SCIENCE/BUSINESS INTERACTIONS

Given the disparate definitions of science and business stated earlier, it might seem incongruous that science and business would have any interaction. But, it is the view of the authors that this interaction is vital to the success of both disciplines.

Historically, an excellent example of science/business interaction involves the career of Thomas Alva Edison (1847-1931). Edison was a prolific inventor with many interests, but after viewing an electric arc-lighting system in a factory in 1878, Edison had a vision of an electrical distribution system that would power low intensity incandescent light globes in homes, and at a cost that would be affordable for even the factory worker [13]. Edison was not a scientist; but he knew how to operate a business and to manage staff. To fulfill his vision, he expanded his workshop at Menlo Park, New Jersey, to include not just lathe operators, metal workers and glass blowers, but a team of 14 scientists, each with specific skills and knowledge applicable to this momentous endeavor [14]. None of the components of Edison's lighting system was original, but Edison was the first to produce a complete incandescent lighting system, even down to the electric meter to measure the amount of electricity used by the consumer. Later in 1878, he formed the Edison Electric Light Company to secure sufficient funds, the following year he lodged a patent for a carbon-

filament lamp, and on 4 September, 1882, his chief electrician threw the switch of the Pearl Street generating system in New York city to service 85 customers and over 400 incandescent lamps [15].

CAPITALIZATION OF SCIENTIFIC KNOWLEDGE

Capitalization of scientific knowledge has never really been an issue for business since our current lifestyle is full of examples demonstrating our ability to convert this knowledge into commercial products. For example, the steam engine is recognized as one of the major drivers of the Industrial Revolution in Britain in the 18th century [16]. Early steam engines were used to pump water from coal mines so that the coal could be extracted. These engines had an efficiency of less than 2% and were useful only where coal was available as a fuel [17]. James Watt (1736-1819) was a Scottish instrument maker and was introduced to the steam engine when he was asked by Professor James Black of the university to repair a model steam engine that had been previously built for the university, but had never worked. Not content with simply repairing it, Watt experimented with the engine and quickly recognized than the design of the engine was at fault. In each cycle of the engine, energy was lost in cooling the cylinder, only to be required to reheat it again on the next stroke.

Watt had from childhood possessed an innate curiosity about how things worked, and on discussing the scientific principles of steam with Professor Black, he realized that the answer was to introduce a separate condenser to the engine that could be kept permanently cool while the main cylinder was kept permanently hot [16]. When Watt built the separate condenser, the model worked magnificently, with an efficiency three times that of the original model [17].

Watt recognized the value of his invention, but had neither the money nor the know-how to commercialize his steam engine. After some initial failures, Watt was introduced to Matthew Boulton, the owner of a large factory in Birmingham. After demonstrating his engine to Boulton, Boulton formed a partnership with Watt, and by the time Watt's patent for his steam engine expired in 1800, the combination of Watt's science and Boulton's business proficiency had resulted in nearly 30% of the approximately 2500 steam engine built in the 18th century [18]. Although partnerships, such as that of Watt and Boulton, were rare before the Industrial Revolution, they quickly became the norm in producing technical achievement which accelerated the rate at which scientific knowledge was converted into viable business products.

SCIENTIFIC THINKING FOR BUSINESS

Science, as described in the above section, is based upon observation, experimentation, and a reasonable degree of logic; and as such, is universal in its application. However, one may be surprised at how seldom it is truly applied. Consider the failure rate of ideas in going all the way through the proof of concept stage to successful commercialization. Gassman *et al.* [19] cites a Reuters report indicating the failure rate among biotech firms as being 90%, reflecting a high failure rate in commercializing scientific discoveries. Even applied scientists often fail to sufficiently apply scientific method by developing a new product that does what it is supposed to do (supporting only one hypothesis, that it works) without considering that

other secondary hypotheses are equally important, such as "that product A is the best alternative", or "that there is a demand for product A". Khilji *et al.* [20] are among several authors who clearly identified this problem of 'technology-push' being a phenomenon that 'fixates' scientists in the biotechnology industry. To overcome this problem, other hypotheses "that it will sell well in the marketplace" and that "it is a great improvement on the product it replaces" are seldom investigated by the developing scientists or engineers, resulting in wasted development time that could have been avoided if marketing hypotheses had been tested first. This highlights that there are several hypotheses that can be tested during R&D, and businesses should ensure that all these are tested in the correct order to increase the chances of success in new product development.

An example of the application of scientific thinking in business comes from the concept of 'natural capitalism' and the Rocky Mountain Institute think-tank established in the 1990s to assist business in incorporating ideas and processes in which both the environment and people are properly valued [21]. Natural capitalism emphasises the importance on looking to nature for ideas to improve business profit. This involves such things as the application of biomimicry, closed-loop production that eliminates waste, and the establishment of a set of economic changes designed to reward efficiency in the use of materials and energy. One example is the concept of a 'superwindow' that combines thin coatings on the window's surface that transmit light but absorb heat, and double glazing to reduce heat conduction and noise. While the cost of such windows is estimated to be 10-15% greater than traditional windows, they have an insulating capacity 5 times better than traditional window glass, and they preserve comfort in office buildings with much reduced demand for heating or air conditioning [21]. This example of "natural capitalism' at work illustrates how applying scientific thinking by brainstorming a wide range of hypotheses can produce an efficient product that takes comfort and environmental sustainability into account.

INNOVATION AS THE LINK BETWEEN BUSINESS AND SCIENCE

Unless it is operating in a monopolistic environment, business is dependent upon innovation to remain competitive. Various innovation models have been proposed and Tidd [22] described these in some detail, especially how they have evolved to fifth generation ones in which systems are integrated, networking is extensive (with a flexible and customized response) and innovation is continuous due to early learning from mistakes and adopting a "learning-by-doing" approach. This minimizes disruption resulting from discontinuities, such as a change in the market. Such innovation models are a great improvement on the 'technology push' and 'market pull' innovation models of the 1950s and 1960s, in which each of these became the sole focus of the models proposed. Khilji *et al.* [20] identified the subsequent emergence of the organizational approach revealing that innovation is a continuous process of events emphasizing the importance of functionality within the business environment. These authors continue to describe what could be considered as a fourth generation model by Tidd [22], the early integrated innovation models proposing internal integration with the only external integration being with customers. Rothwell [23] proposed a complex network of interacting and interdependent linkages within the organization, and

between it and broader scientific and technological community and the marketplace. Such a model would be considered as a fifth generation one by Tidd [22] and has recently been adopted by Proctor & Gamble because of difficulty in sustaining its target growth rate using the old internalized 'invention model' [24]. Technology outside the firm was advancing far quicker than could be achieved internally and the strategy thus shifted to acquiring highly profitable innovations from external connections, whether they be small or midsize entrepreneurial companies or university or government laboratories.

Khilji *et al.* [20], in discussing innovation in biotechnology, raised six paradoxes faced by small biotechnology firms in implementing fifth generation or integrated innovation models. Although these will not be discussed in detail here, each of these raises its own hypothesis, such as 'the innovation proposed is worth what the market is willing to pay for it'. To test this hypothesis, business acumen and marketplace knowledge is required. The latter can be acquired by applying the scientific method using a sample of potential customers and recognizing that customer requirements change with circumstances, such as the more recent demand for 'greener' products.

Innovation has so far covered advances in the development of new technologies and products for which internal linkages (and thus R&D infrastructure and marketing expertise) and/or external linkages are required to maximize innovation. However, many businesses, such as in the service sector are not focused on technology and product development. To be innovative they rely upon previously developed innovations to improve their services or internal processes. Any innovation would thus be seen as incremental as described by Corso and Pellegrini [25], rather than radical. Such innovation is still important and can be as simple as the implementation of cost saving through cleaner production, of which there are numerous case studies such as the use of high bay lighting by Coca Cola in factories. The hypothesis in this case would be that the capital installation cost would be more than offset by the cost saved by using lights only when and where they are required. An economist would be well equipped to test this hypothesis. However, the results of such an investigation may not be universally applicable as high-bay lighting may not be feasible for small factories that only operate in the daytime with adequate natural light. In addition, the knowledge dissemination throughout an industry for universal applications of such innovations is the real challenge.

THE REQUIREMENT FOR NETWORKING

A barrier to dissemination of innovation knowledge is a perception within business that trade secrets may be revealed to competitors [20]. Such a barrier would result in duplication of effort, as businesses would have to apply scientific method on an individual basis to test hypotheses already supported or rejected elsewhere, in addition to addressing hypotheses unique to each business. However, Proctor & Gamble and Archer Daniels Midland Co. are examples of companies that have adopted the 'open innovation' approach to innovation with the winning team knowing how and where to look for knowledge [26]. This approach goes beyond the traditional boundaries of internally developed ideas, technology and processes, which is required to stay ahead in a fast moving global economy.

Given that innovation has been the essence of modern science [27], it may be of value for business to look more carefully at how scientific progress is accomplished. The concepts of openness and knowledge sharing have been demonstrated to be effective in accelerating the

growth of scientific knowledge and innovation. Strong incentives are provided to scientists to discuss their ideas and discoveries at international conferences, and to publish them in scientific journals that are available for the scrutiny of other scientists, as well as members of the general public who choose to read them. Much progress was lost in many areas of science during the period of the 'cold war', when attendance at international conferences was restricted and when the publications of Soviet scientists were unavailable to Western scientists, and vice versa. In later years, it became evident that some significant discoveries were made independently by scientists on opposite sides of the 'iron curtain'. This resulted, not only in a loss of time, but also in considerable waste of monetary resources and a depression of progress and development through the lack of opportunities for incremental advances that come from 'seeding' ideas into the minds of others. All this could have been saved if effective and open communication of scientists had been possible.

Modern scientific research is stimulated by opportunities for networking with other scientists, many of which have been made possible through the use of the internet. Productive scientific research centers have replaced the lone scientist slaving in the laboratory. Such centers use 'research groups' that bring together scientists with different skills and backgrounds and promote not only the sharing of the work load, but also the opportunities to efficiently test hypotheses by presenting them to other members of the group. The application of networking in science is also evident from the number of scientific papers that are currently published by multiple authors.

THE ROLE OF 'CHAMPIONS' AND INTERMEDIARIES

Cooperation between businesses to identify and investigate innovations, whether they are incremental or radical, enhances economies of scale. Corso and Pellegrini [25] highlighted the conviction that organizations can be good at either exploration or exploitation, but traditionally fail to maintain an effective balance between them. Interaction between complementary organizations is difficult to achieve, especially if they consider themselves to be competitors. Such antagonism can, not only result in a net loss to both businesses, but can also hamper regional or national development. This is where an impartial facilitator or champion can play a role in overcoming mistrust and driving research beneficial to all in the industry.

Although there is a wealth of literature on how scientific knowledge feeds into successful innovations, most has focused on the commercialization of new technology, especially in the fast moving technologies such as biotechnology, information technology and new materials [28, 29]. These outcomes have often been as a result of university and firm R&D cooperation, such as in Belgium, as discussed by Veugelers and Cassiman [30]. However, these authors determined that large firms, especially in the chemical and pharmaceutical industries, were more likely to be actively involved in industry science links – but only if risk was not an important obstacle to innovation and when costs could be shared. However, the organizations concerned also performed their own innovation activities, including individual R&D.

Howells [31] goes into more depth on the networking process by listing several types of, and studies on, intermediaries and intermediation processes in innovation. Effectively, these intermediaries would have to be thoroughly familiar with the scientific process as they would advocate the outcomes across an industry sector. This is where an hypothesis, as applied to

one of the businesses, can be taken further to support a theory due its wider applicability, such as a universally applicable water or chemical savings measures in the dry cleaning industry. Their impartiality would engender greater trust and they would have a tendency to be less biased in their investigations. As outsiders, they would also be able to investigate innovation options thoroughly without being encumbered with the day to day running of the business, a problem revealed by Duarte *et al*. [32].

THE NEED FOR DIVERSITY TO DRIVE INNOVATION IN MULTIDISCIPLINARY TEAMS

Alves *et al.* [33] investigated the relationship between creativity, innovation and new product development in multidisciplinary and multisectoral settings. They determined that, when firms and science and technology related institutions cooperate as multidisciplinary groups, members' competitiveness is enhanced as long as they exhibit diversity, coherence and complementarity. Their research revealed that there was a marked increase in the quantity, quality and diversity of ideas in the early generation phase. This coincides with the theme of this chapter in that multidisciplinary teams would be best equipped to ensure that no crucial hypothesis that needs testing is overlooked. After the initial idea generation (or problem identification), specialist marketers would identify marketing hypotheses, while the economists, scientists and engineers would complement these hypotheses with others within their fields of expertise requiring investigation. Alves *et al.* [33] also identified that such networking is important for new products that cross traditional sectors' boundaries. For example, the discovery of *Taq* Polymerase has opened up wide reaching opportunities across several industry sectors, such as plant breeding, pharmaceutical, forensic analyses and medical diagnostics. Datta and LiCata [34] reported that it is particularly important because of its widespread use in the polymerase chain reaction, allowing DNA to be replicated to easily detectable levels. A multidisciplinary approach as described above would be able to identify the market readiness of such technology, while a multisector network as proposed by Alves *et al.* [33] would better identify and test the different applications listed above. More basic research such as by Datta and LiCata [34] on the effect of temperature on the process and the associated hypotheses could further hone the technique for better practical application. Networking with routine users of the technology, laboratories that do the research, economists and reagent suppliers should accelerate the market readiness of any development.

Networking and innovation are not solely restricted to the product manufacturing sector. The service sector can also derive great benefit from knowledge sharing. An example is the application of cleaner production in the dry cleaning industry as implemented by Altham [35]. While representing the Centre of Excellence in Cleaner Production (CECP) at Curtin University of Technology in Australia, he implemented a benchmarking program for the minimization of waste and reduction in the use of resources, such as energy and tetrachloroethylene. Interaction between CECP and 17 businesses significantly improved cleaner production performance of these businesses and cut their costs as a result. Howgrave-Graham and van Berkel [36] confirmed the findings of others that there was considerable room for improvement across Australian SME's. In our study on the food processing, metal product fabrication, printing and print finishing and drycleaning sectors it became apparent

that only 18% of the 140 respondents were taking up cleaner production measures. This reflects the important role that intermediaries such as the CECP can play in bringing businesses together to cut costs by reducing environmental impacts. Alternative cost saving measures would be investigated following the scientific method since ideas would be tested on, for example whether it would be economically viable to install new, more energy efficient ovens, or better computer software packages, and by which businesses.

Although networking, as described above, is not always necessary to bring new products, processes or practices to commercialization, the benefits of doing so would be more far-reaching and the commercial benefits are likely to be realized much sooner. An additional benefit is the involvement of a multidisciplinary team which will have identified and rigorously tested a wider range of hypotheses, allowing non-viable initiatives to be discarded at an early stage of the innovation process. The pooling of resources by small business to support such teams would allow much greater economies of scale.

FIELD LINERS – AN ON-GOING CASE STUDY

A relatively new product, the field liner [37], will be used as a hypothetical case study to demonstrate the points made above. Field liners are plastic sleeves encasing the base of wooden poles preventing pole-soil contact. They have been investigated as physical barriers to protect wooden utility poles from premature failure and decay, with the results of the first trials being published by Baecker in 1993. Early investigations tested the hypothesis that separating wooden poles from the soil with impermeable barriers would prevent fungal rot by: isolating the wood from decay fungi in the soil; preventing fungal access to nutrients such as nitrogen and phosphorus while in contact with the carbon source that the wood supplies; and preventing leaching of the wood preservative from treated poles into the surrounding soil. The hypothesis that decay is prevented by the use of the barriers (as sleeves) was not initially verified for all samples tested because a few test poles had water pool between the plastic and the wooden pole, allowing a little growth of, and subsequent decay by anaerobic bacteria. Two scientific hypotheses are listed in this paragraph. The first one is that field liners will prevent fungal decay and the second one is that all decay is prevented (potential termite damage aside as this is the topic of another investigation). Potential clients want to preserve their poles against all types of decay and would thus be most interested in the test results of the second hypothesis.

Baecker, a scientist, then tested field liners with a small hole at the base that would allow drainage of any water that could have accumulated between the wood and the field liners. After further trials, the hypothesis that field liners with a hole at the base would be effective protection of wooden poles against all microbial decay was shown to be valid. Several subsequent trials using different soils and preservatives further validated his findings, leading to the hurdle theory. This theory explains why separating wood from soil with an impermeable barrier prevents the soil microorganisms from obtaining their carbon from the wood, while preventing any microorganisms found between the barrier and the wood from obtaining other nutrients from the soil – thus preventing their growth and consequent timber decay [38].

Despite successes in the scientific testing of field liners (for protection against termites as well as microorganisms), sales worldwide are still poor. This leads to further business-related

hypotheses. Here is a new product which solves a problem that still has to enter the marketplace. Potential customers are either not aware of it (like the early days of mobile phones or electric lighting, no one knew that they needed it until it became available), they are comfortable with the current state of inertia, they do not perceive a need for field liners or they are skeptical of their claimed benefits.

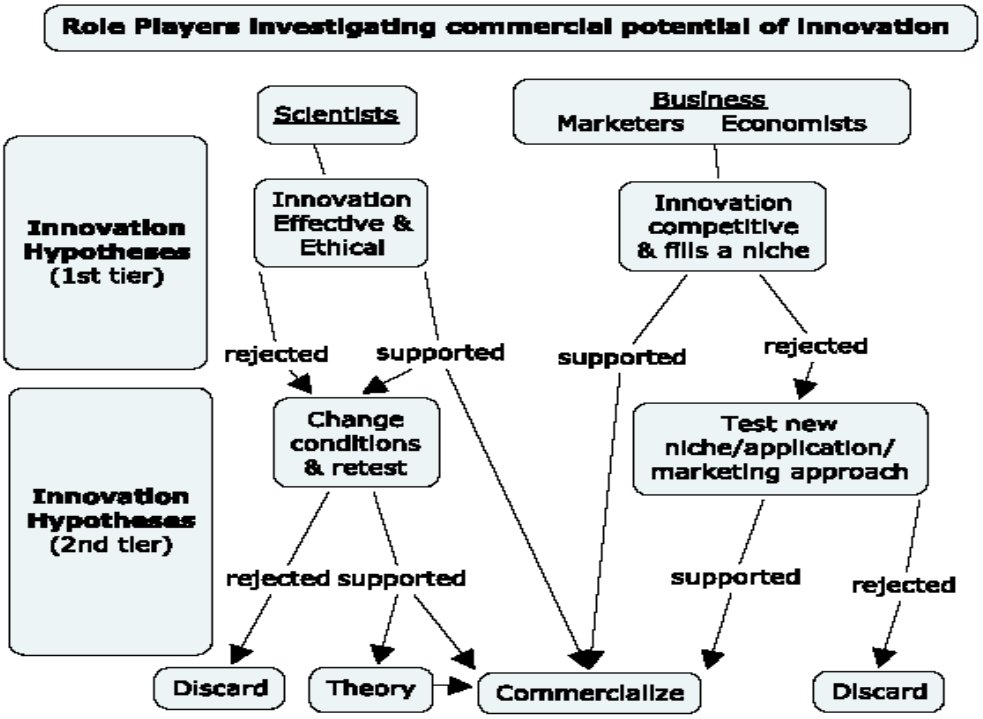

Figure 2. The Scientific Method Modified for Application by Business.

Most of the hypotheses alluded to in the previous paragraph are ones best addressed by marketers and economists because the managers' claims must be verified or refuted and an angle found which would convince potential customers to use field liners. A new hypothesis being trialed in Australia is that field liners would work under Australian conditions, using Australian timbers. This trial has the financial support of two interested power companies faced with dwindling timber supplies. The cooperation of multidisciplinary networks could only enhance the market roll-out of field liners.

Figure 2 represents a modified version of the scientific method as reflected in Figure 1, as it should be applied to explore business opportunities such as those investigated during field liner experiences. Each hypothesis requiring investigation represents a hurdle that must be overcome for commercialization to take place. Open-ended discussions with potential field liner customers raised new marketing and economic hypotheses. The interviewees were managers in large power companies and responses ranged from those questioning the published research results on the basis of the inventor's vested interest, the need for field liners in Australia considering "the abundance of suitable timber", to the willingness of these managers to pass the cost of failing poles and/or expensive steel or concrete replacements on to their consumers. Additional concern expressed by one manager was that the payback

period required to recoup the cost of a field liner was too long. These were all cases of 'opinion' being expressed as 'fact' and would require further verification. Field liners' greatest success story has been their application by Seattle City Light [37] to support their 'green' image by preventing toxic wood preservatives from leaching into the soil. This creates another set of hypotheses designed to verify under what conditions and with which preservatives this would be applicable, and whether this would be a selling point elsewhere.

Field liners can also be used to demonstrate the importance of multisectoral innovation and networking, as proposed by Alves *et al.* [33]. The hurdle theory is a universal one that applies to any wooden product in soil contact; thus field liners may also be suitable for application to vineyard and fence posts, although the economic feasibility of such an application would have to be carefully investigated. Another scientific hypothesis could test whether these products would be suitable for preventing wood borer and other decay of marine piles used to support jetties.

BENEFITS TO COLLABORATORS

Here is where logic plays a role. Observation and experimentation more easily supersedes 'opinion as fact' when organizations and people cooperate on a project. Both objectivity and intellectual input are enhanced by the multidisciplinary pooling of empiricism, skepticism and rationalism as discussed above. The participants tend to derive different benefits from the resultant successes, according to the organizations they represent. The positive outcomes for the businesses would be new opportunities, profit and growth derived from implementing thoroughly tested innovations such as cost cutting measures. Benefits for universities that have acted as intermediaries and their scientists could be publications, post-graduate completions, research funding and kudos. Government and NGO's would benefit by the enhancement of growth and development in their constituencies in terms of employment generation and new infrastructure.

Rigorous application of the scientific method enhances the chances of success by allowing early discarding of non-viable products or processes, resulting in significant cost savings while investigating innovations, while fine-tuning those with commercial potential. Small, as well as large, businesses would benefit by pooling their resources to investigate innovations (such as in cleaner production) that would benefit the entire industry with positive spin-offs for the environment.

CONCLUSIONS

It can be seen from the practical examples on the application of the scientific method to business, cited in this chapter, that both scientists and business people, such as marketers and economists, should interact to bring innovations to market. These innovations can be in the form of new products or better processes to enhance productivity in both the manufacturing and service sectors, such as drycleaners or forensic laboratories. Historically, scientists have made observations, and more recently conducted research, to generate the knowledge underpinning most inventions. Application of the scientific method by scientists, i.e. the development and testing of relevant hypotheses, would investigate the effectiveness of

products while business people would apply this method to determine market readiness, competitiveness and economic viability of the innovations. Cooperation between these role players would supply a 'reality check' on what is and what is not feasible. In addition, hypotheses would be identified to direct other feasibility investigations. DuBrowa [39] stated that "establishing your client's work as innovative within the realm of hard science brings instant credibility". Although this usually is the case, such as in many of the examples described in this chapter, there are other instances, such as field liners, where hard science is not enough. This is why marketing and other investigations must be carried out to fully identify product niches. For this a combination of skills is required. Networking would allow cross-fertilization of these skills between members of the scientific and business communities. Intermediaries/champions are equally necessary in facilitating the economies of scale important for SMEs, and the necessary brainstorming that will allow wider dissemination of technical knowledge to the benefit of stakeholders.

Business practices are currently too often reliant upon 'gut feeling'. Economic considerations mean that businesses don't always have the luxury of time to fully apply the scientific method to its incontestable conclusion. Scientists, on the other hand, may be frustrated that business cannot even take the scientific method to the level of 'theory' or 'law'. However, both sides can compromise to achieve the best possible commercial result. The model proposed in this chapter could be a valuable tool to apply in making good, logically derived, business decisions.

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Chapter 7

MINORITY CONTRACTING AND AFFIRMATIVE ACTION FOR DISADVANTAGED SMALL BUSINESSES: LEGAL ISSUES[1]*

Jody Feder

ABSTRACT

Since the early 1960s, minority participation "goals" have been an integral part of federal policies to promote racial and gender equality in contracting on federally financed construction projects and in connection with other large federal contracts. Federal contract "set-asides" and minority subcontracting goals evolved from Small Business Administration (SBA) programs to foster participation by "socially and economically disadvantaged" entrepreneurs (SDBs) in the federal procurement process. Minority group members and women are presumed to be socially and economically disadvantaged under the Small Business Act, while non-minority contractors must present evidence to prove their eligibility. "Goals" or "set-asides" for minority groups, women, and other "disadvantaged" individuals have also been routinely included in federal funding measures for education, defense, transportation, and other activities over much of the last two decades.

The U.S. Supreme Court has narrowly approved of congressionally mandated racial preferences to allocate the benefits of contracts on federally sponsored public works projects, while generally condemning similar actions taken by state and local entities to promote public contracting opportunities for minority entrepreneurs. Disputes prior to *City of Richmond v. J.A. Croson* generated divergent views as to whether state affirmative action measures for the benefit of racial minorities were subject to the same "strict scrutiny" as applied to "invidious" racial discrimination under the Equal Protection Clause, an "intermediate" standard resembling the test for gender-based classifications, or simple rationality. In *City of Richmond,* a 5 to 4 majority resolved that while "race-conscious" remedies could be legislated in response to proven past discrimination by the

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affected governmental entities, "racial balancing" untailored to "specific" and "identified" evidence of minority exclusion was impermissible.

Until *Adarand Constructors, Inc. v. Pena*, however, a different more lenient standard was thought to apply to use of racial preferences in federally conducted activities. The majority there applied "strict scrutiny" to a federal transportation program of financial incentives for prime contractors who subcontracted to firms owned by socially and economically disadvantaged group members. Although the Court refrained from deciding the constitutional merits of the particular program before it, and remanded for further proceedings below, it determined that all "racial classifications" by government at any level must be justified by a "compelling governmental interest" and "narrowly tailored" to that end. But the majority opinion, by Justice O'Connor, sought to "dispel the notion" that "strict scrutiny is 'strict in theory, but fatal in fact,'" by acknowledging a role for Congress as architect of remedies for discrimination nationwide. Bottom line, *Adarand* and its progeny suggest that racial preferences in federal law or policy are a remedy of last resort, which must be adequately justified and narrowly drawn to pass constitutional muster.

It has long been the policy of the federal government to assist minority and other "socially and economically disadvantaged" small businesses become fully competitive and viable business concerns. The objective has largely been pursued through the federal procurement process by allocating federal assistance and contracts to foster disadvantaged business development. Federal assistance has taken a variety of forms, including targeting procurement contracts and subcontracts for disadvantaged or minority firms, management and technical assistance grants, educational and training support, and surety bonding assistance.

Present day set-aside programs authorizing preferential treatment in the award of government contracts to "socially and economically disadvantaged" small businesses (DBEs) originated in § 8(a) of the Small Business Act of 1958.[2] Initially, the Small Business Administration (SBA) utilized its § 8(a) authority to obtain contracts from federal agencies and subcontract them on a noncompetitive basis to firms agreeing to locate in or near disadvantaged areas and provide jobs for the unemployed and underemployed. The § 8(a) contracts awarded under this program were not restricted to minority-owned firms and were offered to all small firms willing to hire and train the unemployed and underemployed in five metropolitan areas, as long as the firms met the program's other criteria.[3] As the result of a series of executive orders by President Nixon, the focus of the § 8 (a) program shifted from job-creation in low-income areas to minority small business development through increased federal contracting with firms owned and controlled by socially and economically disadvantaged persons.[4] With these executive orders, the executive branch was directed to promote minority business enterprise and many agencies looked to SBA's § 8(a) authority to accomplish this purpose.

The administrative decision to convert § 8(a) into a minority business development program acquired a statutory basis in 1978 with the passage of P.L. 95-507, which broadened the range of assistance that the government — SBA, in particular — could provide to minority businesses. Section 8 (a), or the "Minority Small Business and Capital Ownership Development" program, authorizes SBA to enter into all kinds of construction, supply, and service contracts with other federal departments and agencies. The SBA acts as a prime contractor and then "subcontracts" the performance of these contracts to small business

concerns owned and controlled by "socially and economically disadvantaged" individuals, Indian Tribes or Hawaiian Native Organizations.[5]

Applicants for § 8(a) certification must demonstrate "socially disadvantaged" status or that they "have been subjected to racial or ethnic prejudice or cultural bias because of their identities as members of groups without regard to their individual qualities."[6] The Small Business Administration "presumes," absent contrary evidence, that small businesses owned and operated by members of certain groups — including Blacks, Hispanics, Native Americans, and Asian Pacific Americans —are socially disadvantaged.[7] Any individual not a member of one of these groups must "establish individual social disadvantage by a preponderance of the evidence" in order to qualify for § 8(a) certification.[8] The § 8(a) applicant must, in addition, show that "economic disadvantage" has diminished its capital and credit opportunities, thereby limiting its ability to compete with other firms in the open market.[9] Accordingly, while disadvantaged status under the SBA includes a racial component, in terms of presumptive eligibility, it is not restricted to racial minorities, but also includes persons subjected to "ethnic prejudice or cultural bias" who are able to satisfy specified regulatory criteria.[10] It also excludes businesses owned or controlled by persons who, regardless of race, are "not truly socially and/or economically disadvantaged."[11]

The "Minority Small Business Subcontracting Program" authorized by § 8(d) of the Small Business Act codified the presumption of disadvantaged status for minority group members that applied by SBA regulation under the § 8(a) program.[12] Prime contractors on major federal contracts are obliged by § 8(d) to maximize minority participation and to negotiate a "subcontracting plan" with the procuring agency which includes "percentage goals" for utilization of small socially and economically disadvantaged firms. To implement this policy, a clause required for inclusion in each such prime contract states that "[t]he contractors shall presume that socially and economically disadvantaged individuals include Black Americans, Hispanic Americans, Native Americans, Asian Pacific Americans, and other minorities, or any other individual found to be disadvantaged by the Administration pursuant to § 8(a). . ." All federal agencies with procurement powers were required by P.L. 95-507 to establish annual percentage goals for the award of procurement contracts and subcontracts to small disadvantaged businesses.

A decade later, Congress enacted the Business Opportunity Development Reform Act of 1988,[13] directing the President to set annual, government-wide procurement goals of at least 20% for small businesses and 5% for disadvantaged businesses, as defined by the SBA. Simultaneously, federal agencies were required to continue to adopt their own goals, compatible with the government-wide goals, in an effort to create "maximum practicable opportunity" for small disadvantaged businesses to sell their goods and services to the government. The goals may be waived where not practicable due to unavailability of DBEs in the relevant area and other factors.[14] Federal Acquisition Act amendments adopted in 1994 amended the 5% minority procurement goal, and the minority subcontracting requirements in § 8(d), to specifically include "small business concerns owned and controlled by women" in addition to "socially and economically disadvantaged individuals."[15]

Additionally, statutory "set-asides" and other forms of preference for "socially and economically disadvantaged" firms and individuals, following the Small Business Act or other minority group definition, have frequently been added to specific grant or contract authorization programs. "Goals" or "set-asides" for minority groups, women, and other "disadvantaged" individuals have routinely been part of federal funding measures for

education, defense, transportation and other activities over much of the last two decades.[16] Early on, Congress established goals for participation of small disadvantaged businesses in procurement for the Department of Defense, NASA, and the Coast Guard. It also enacted the Surface Transportation Assistance Act of 1982 (STAA),[17] the Surface Transportation and Uniform Relocation Assistance Act of 1987 (STURAA),[18] the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA),[19] and the Transportation Equity Act for the 21st Century (TEA-21),[20] each of which contained a 10% minority or disadvantaged business participation goal on federally funded projects. TEA-21 lapsed on May 31, 2005, but was extended through FY2009 by P.L. 109-59, signed into law during the 109th Congress.[21]

THE ADARAND DECISION AND ITS PROGENY

Background and History of *Adarand*

Litigation surrounding racial preferences in federal contracting has followed a convoluted course since 1995, when the Supreme Court settled the constitutional parameters of the issue but avoided a decision of the merits in *Adarand Constructors Inc. v. Pena (Adarand I)*.[22] By the time it returned to the High Court six years later, as *Adarand Constructors Inc. v. Mineta*, the legal and factual framework of the case was considerably altered by multiple lower court decisions and appeals, and by changes in the plaintiff's legal standing, the details of the challenged federal program, and regulatory reforms to "amend, not end" federal affirmative action by the former Clinton Administration. To the chagrin of many legal observers, the Court in 2001 once again sidestepped the constitutional issues posed by the *Adarand* case and, after agreeing to reconsider the controversy, dismissed the appeal as "improvidently granted." The object of the Court's latest action — or inaction — was the Tenth Circuit's two-part ruling in *Adarand Constructors v. Slater (Adarand III).[23]* The federal appeals court there invalidated a federal highway program of financial incentives to promote minority and "disadvantaged" small business utilization in force at the time of *Adarand I*. But as revised and amended in 1997, the program was found to be narrowly tailored to a compelling governmental interest and passed constitutional muster.

Prior to *Adarand*, the U.S. Supreme Court had narrowly approved of congressionally mandated racial preferences to allocate the benefits of contracts on federally sponsored public works projects in *Fullilove v. Klutznick*,[24] while generally condemning similar actions taken by state and local entities to promote public contracting opportunities for minority entrepreneurs in *City of Richmond v. J.A. Croson Co.[25]* These disputes generated divergent views as to whether state affirmative action measures for the benefit of racial minorities were subject to the same "strict scrutiny" as applied to "invidious" racial discrimination under the Equal Protection Clause, an "intermediate" standard resembling the test for gender-based classifications, or simple rationality. In *City of Richmond,* a 5 to 4 majority resolved that while "race-conscious" remedies could be legislated in response to proven past discrimination by the affected governmental entities, "racial balancing" untailored to "specific" and "identified" evidence of minority exclusion was impermissible.

Until *Adarand Constructors, Inc. v. Pena*, however, a different, more lenient standard was thought to apply to use of racial preferences in federally conducted activities. The majority there applied "strict scrutiny" to a federal transportation program of financial

incentives for prime contractors who subcontracted to firms owned by socially and economically disadvantaged group members. Although the Court refrained from deciding the constitutional merits of the particular program before it, and remanded for further proceedings below, it determined that all "racial classifications" by government at any level must be justified by a "compelling governmental interest" and "narrowly tailored" to that end.

There have been three distinct phases to the *Adarand* litigation. The case originated with a now-discontinued "race-conscious subcontracting compensation clause (SCC)" program conducted by the Federal Highway Lands Program of the Federal Highway Administration. The SCC did not allocate or set-aside a specific percentage of subcontract awards for DBEs or require a commitment on the part of prime contractors to subcontract with minority firms. Rather, "incentive payments" varying from 1.5% to 2% of the contract amount were paid to prime contractors whose subcontracts with one or more qualified DBEs exceeded 10% of total contract value. The program incorporated the racial presumption from the Small Business Act and regulations, in effect relieving minority group subcontractors of the burden of demonstrating disadvantaged status imposed upon non-minorities.

Suit was brought by Adarand Constructors, Inc., a white-owned construction firm whose low bid on a subcontract for highway guard rails was rejected in favor of a higher bidding DBE. Both the federal trial court and the Tenth Circuit initially upheld the program by applying "lenient" judicial review — "resembling intermediate scrutiny" — rather than strict scrutiny, requiring far less remedial justification by the government. Because the program was not limited to racial minorities, and non-disadvantaged minority group members were ineligible to participate, the appeals court concluded, the program was "narrowly tailored." In *Adarand I*, the Supreme Court reversed this first round of decisions.

The majority in *Adarand I* rejected the equal protection approach that applied "intermediate scrutiny" or some other relaxed standard of review to racial line-drawing by the Congress. "Because the "race-based rebuttable presumption" in the DOT program was an "explicit" racial classification, the Court determined, "it must be analyzed by a reviewing court under strict scrutiny," and to survive, must be "narrowly tailored" to serve a "compelling governmental interest." *Adarand I* undermined prior judicial holdings, which had afforded substantially greater latitude to Congress than to the states or localities when crafting affirmative action measures for racial or ethnic minorities. To "dispel the notion," however, that "strict scrutiny is 'strict in theory, but fatal in fact,'" the Court appeared to reserve a role for the national legislature as architect of remedies for past societal discrimination. "The unhappy persistence of both the practice and lingering effects of racial discrimination against minorities in this country is an unfortunate reality, and the government is not disqualified from acting in response to it."[26] Thus, a majority of the Court appeared to accept some forms of racial preference by Congress in at least some circumstances.[27] No further guidance was provided, however, as to the scope of remedial authority remaining in congressional hands or the conditions for its exercise. Indeed, the Court refrained even from deciding the merits of the constitutional claim before it in *Adarand I*, instead remanding the case to the lower courts to determine the outcome.

On remand, the district court in *Adarand II* decided that the "congruence" required by the Court did not mean that federal affirmative action must be supported by the same "particularized" showing of past discrimination as state and local programs.[28] Rather, as national legislature, Congress was empowered to enact broad discrimination remedies based on nationwide findings derived from congressional hearings and statements of individual

federal lawmakers. "Congress," in other words, "may recognize a nationwide evil and act accordingly, provided the chosen remedy is narrowly tailored so as to preclude the application of a race-conscious measure where it is not warranted." The DOT incentive program failed the "narrow tailoring" test, however, because it linked a race-based presumption to the award of financial "bonus[es]" to prime contractors whose choice of a subcontractor was based "only on race." The racial presumption was found to be both "overinclusive" — in that its benefits were available to all named minority group members — and "underinclusive" — because it excluded members of other minority groups or caucasians who may share similar disadvantages. Although "more flexible" than a "rigid racial quota" or mandatory set-aside, the SCC program was tainted by the government-wide 5% goals and transportation set-asides which it implemented.[29]

The Tenth Circuit in 2000 issued its decision on the merits of the controversy.[30] The appellate panel in *Adarand III* reversed the district court injunction against future implementation of DOT's disadvantaged business enterprise (DBE) program in Colorado. In so doing, the court of appeals considered the constitutionality of the program, both as structured at the time of the district court decision and of later revisions to DBE regulations adopted in 1997. First, it generally agreed with the district court that the SCC system of financial incentives, in effect at time of *Adarand I*, had not been narrowly enough tailored to satisfy the constitutional requirements of strict scrutiny. But after lengthy congressional hearings, the financial incentives were eliminated, and other reforms were adopted to DBE requirements imposed by DOT regulation on state and local highway aid recipients. As a result, the appeals court ultimately concluded that the DOT disadvantaged business enterprise program as currently structured — though not the former, discarded program of financial incentives — passed constitutional muster.

Initially, the appellate tribunal aligned itself with the district court's finding that the federal government had a "compelling interest" in preventing and remedying the effects of past discrimination in government contracting. And the scope of Congress's authority to act was not limited geographically or to specific instances of discrimination — as in the case of the states and localities under *Croson* — but extended "'society-wide' and therefore nationwide." The range of admissible evidence to support racial line-drawing by Congress was both direct and circumstantial, including post-enactment evidence and legislative history, demonstrating public and private discrimination in the construction industry. The court was largely dismissive of individual statements by members or from committee reports as "insufficient in themselves to support a finding of compelling interest."

Congressional hearings over nearly a two-decade period, however, depicted the social and economic obstacles — e.g., "old boy networks," racism in construction trade unions, and denial of access to bonding, credit, and capital — faced by small and disadvantaged entrepreneurs, mainly minorities, in business formation and in competition for government contracts. Moreover, "disparity studies" conducted after *Croson* in most of the nation's major cities compared minority-owned business utilization with availability and "raise[d] an inference that the various discriminatory factors the government cites have created that disparity." This record satisfied the Tenth Circuit panel that Congress had a "strong basis in evidence" for concluding that passive federal complicity with private discrimination in the construction industry contributed to discriminatory barriers in federal contracting, a situation the government had a "compelling" interest in remedying.

The appellate tribunal adopted a two-stage review of the "narrowly tailored" requirement, focusing on the DBE program both as in effect prior to1997 and later as revised to comply with *Adarand I.* Basically, it determined that many of the constitutional flaws that defeated the program in the district court's opinion — an outcome with which the appellate panel largely agreed — had been eliminated by the government's regulatory reforms. In effect, the latest decision lays the old program to rest while reversing the district court's order insofar as it would bar implementation of the revised version. The appeals court also clarified the scope of the DBE program under review. It disagreed with, and specifically reversed, elements of the district court judgment raising issues beyond the specific DBE program as applied by Colorado officials to federally funded highway procurements within that state. Because the 5% and 10% goals in the SBA and underlying transportation authorization measures "are merely aspirational and not mandatory," they were not the reason that "Adarand lost or will lose" contracts, and any challenge to those provisions were outside the scope of the remand in *Adarand I*. Thus, any broader potential implications of the district court ruling for § 8 (a) set-asides or government-wide goals for DBE participation under the Small Business Act were largely blunted by the appellate panel.[31]

The constitutional virtues of the revised program over the pre-1996 SCC program at issue in *Adarand I* were several. First, race-neutral measures dating back to the 1958 enactment of the SBA had preceded Congressional adoption of "aspirational goals" and other affirmative action measures for minority groups in government-wide contracting. DOT had not considered such alternatives before adopting race-conscious subsidies for prime contractors who select minority subcontractors. However, this defect was cured by the revised regulations, which specifically directed recipients to exhaust race-neutral alternatives — bonding, financing, and technical assistance, etc — before taking race into account.[32] Secondly, the revised regulations incorporated the time limits and graduation requirements for participation of disadvantaged businesses in the §§ 8(a) and 8(d) programs, thereby ensuring the later program's limited duration.[33] The court of appeals also found that the revised DOT program was more flexible than the mandatory set-asides in *Fullilove* and *Croson* because they were voluntary on the part of the prime contractors and because the post-1996 revisions adopted an express waiver.[34] Any use of "aspirational goals" by recipients of federal highway funds had to make "reference to the relative availability of DBEs in the market" and was restrained in other ways by the new regulations so that "there is little danger of arbitrariness in the setting of such goals . . . ."[35] The burden of the revised program on third parties was mitigated by placing monetary caps on subsidies to prime contractors — limiting the incentive to hire further DBEs — and by adopting "preponderance of the evidence" for proof of "social disadvantage" by members of "non-presumed" groups in lieu of the former "clear and convincing" standard. Finally, the revised program avoided the constitutional vice of over- and under-inclusiveness by "disaggregating the race-based presumption that encompassed both "social" and "economic" disadvantage" in the former regulation. Thus, an individualized showing of economic disadvantage is now required of all applicants to the program, minority and non-minority alike. This change, the appeal court believed, effectively satisfied the *Croson* requirement of an "inquiry into whether or not the particular MBE seeking a racial preference has suffered from the effects of past discrimination."[36]

The Supreme Court Declines to Decide the Case

The U.S. Supreme Court granted *certiorari* in an appeal from the Tenth Circuit's final decision, marking the third High Court appearance by the *Adarand* case. During oral arguments, the Justices appeared more concerned with procedural irregularities in the case, as outlined by the Justice Department, than with the substance of the constitutional claims. In essence, the government argued that Adarand's legal challenge was limited to the DOT program and regulations applicable to direct procurement of highway construction on federal lands, like the contract denied, not to the separate regulatory scheme governing federal highway assistance to states. Petitioner Adarand Constructors, Inc., made a parallel argument — but for a different reason — that the court of appeals misconceived the scope of the appeal. In particular, petitioner's brief contended, the Tenth Circuit's analysis considered revisions to DOT regulations applicable to federally assisted state and local highway projects, which are irrelevant to the separate set of rules governing direct federal procurement, thereby undermining the court's conclusion that the SDB program was narrowly tailored. Because the race conscious aspects of the original financial incentive program had been suspended in Colorado and several other states as the result of administration reforms to affirmative action rules after *Adarand I*, counsel for the company had difficulty arguing that its client "is still unable to compete on an equal footing" or had "lost a single contract under the provisions they are now challenging." Further complicating Adarand's position, the Tenth Circuit had rejected its earlier attack upon the entire statutory framework for federal small disadvantaged business programs, a ruling not appealed to the Supreme Court. The government, therefore, contended that Adarand's lawsuit had "outlived the program that provoked it," and in oral arguments to the Justices, the Solicitor General urged the Court to dismiss the petition for certiorari as improvidently granted.

It came as no great surprise, therefore, that the Justices complied with the government's request and dismissed the case.[37] In a per curiam opinion, the Court emphasized technical flaws with the present appeal, as framed during oral arguments. First, Adarand was challenging a by now defunct aspect of the program that the Tenth Circuit had not ruled upon, asking "whether the various race-based programs applicable to direct federal contracting could satisfy strict scrutiny." Nor had the company sought review of those aspects of the DOT statute and regulations respecting the state and local procurement program on whose constitutionality the appeals court had spoken. Consequently, the Supreme Court declined to reach the merits of a controversy regarding which neither the parties nor the courts below appeared to be reading from the same page.

Left unanswered, therefore, were two major questions presented by the petition for review. First was "whether the court of appeals misapplied the strict scrutiny standard in determining if Congress had a compelling interest to enact legislation designed to remedy the effects of past discrimination." The Tenth Circuit found that Congress had a "solid basis in evidence" for concluding race-conscious action necessary based on its dissection of hearing testimony, legislative reports, and state and local disparity studies. Generally, its approach conformed to earlier rulings, which have stressed deference to congressional fact-finding under section 5 of the Fourteenth Amendment. As the national legislature, Congress may not be constrained by the same requirements of specificity in regard to regional scope and classes of individuals benefitted by race conscious programs.

But recent Court rulings parsing the scope of congressional § 5 power to override state sovereign immunity under a variety of federal civil rights laws have emphasized the need for "congruence and proportionality" of the remedy to any problem perceived by the Congress.[38] The ramifications of this principle for § 5 race discrimination legislation is undetermined, and questions remain. Conversely, some would argue, the affirmative grant of congressional authority to legislate remedies for equal protection violations by states conferred by § 5 is even broader than its power to place similar conditions on direct spending for federal procurements, which is limited by 5th Amendment due process.

The second aspect of strict scrutiny analysis would have required the Court to determine whether the means chosen by DOT to promote minority group participation in the federal procurement process is "narrowly tailored." In this regard, the Tenth Circuit found that after eliminating financial bonus or subsidy, the adoption of "aspirational goals" for utilization of disadvantaged firms based on "good faith efforts," as required by current regulations, was a more flexible and narrowly tailored alternative. That conclusion, however, has been questioned by other courts, which have found that governmentally required goal-setting, coupled with enforcement sanctions — in Adarand's case, liquidated damages under § 8 (d) — is inherently coercive and encourages racial quotas. The Ninth Circuit, for example, has invalidated a California affirmative action statute that required bidders on state contracts to subcontract a percentage of their work to female- and minority-owned firms or document a "good faith" effort to do so.[39] Similarly, in *Lutheran Church-Missouri Synod v. FCC*,[40] the D.C. Circuit blurred the distinction between so-called "inclusive" and exclusive "affirmative" action. FCC regulations required broadcast license holders (1) to engage in "critical self-analysis" of minority and female underrepresentation, and (2) to undertake affirmative outreach by using minority and female-specific recruiting sources. Strict scrutiny was held to be appropriate and the regulations were unlawful since beyond simple outreach, their effect was to influence ultimate hiring decisions; that is, the threat of government enforcement "coerced" stations to maintain a workforce that mirrors racial breakdown of the labor area.

The Court's disposition of the latest *Adarand* appeal means that a definitive review of federally-mandated affirmative action must be postponed to another day. That day, however, may not be too far distant. Percolating in the lower federal courts are cases that pose similar questions regarding the power of Congress to enact racial preferences in federal contracting as were bypassed by the Court's inconclusive determination in *Adarand*.

POST-ADARAND REGULATORY DEVELOPMENTS

Federal regulatory reforms put forward by the former Clinton Administration sought to "narrowly tailor" federal minority and disadvantaged small business programs in line with *Adarand*. The Justice Department in 1996 proposed a structure for reform of affirmative action in federal procurement, setting stricter certification and eligibility requirements for minority contractors claiming "socially and economically disadvantaged" status under § 8(a) and § 8(d) of the Small Business Act.[41] The plan suspended for two years set-aside programs in which only minority firms could bid on contracts. Statistical "benchmarks" developed by the Commerce Department and adjusted every five years were made the basis for estimating expected disadvantaged business participation as federal contractors, in the

absence of discrimination, for nearly 80 different industries. Where minority participation in an industry falls below the benchmark, bid and evaluation credits or incentives are authorized for economically disadvantaged firms and prime contractors who commit to subcontract with such firms. Conversely, when such participation exceeds an industry benchmark, the credit would be lowered or suspended in that industry for the following year. The system is monitored by the Commerce Department, using data collected to evaluate the percentage of federal contracting dollars awarded to minority-owned businesses, and relies more heavily on "outreach and technical assistance" to avoid potential constitutional pitfalls.

The Justice Department's response to comments on its proposal, together with proposed amendments to the Federal Acquisition Regulation (FAR) to implement it, were published in 1997.[42] Several procurement mechanisms interact with benchmark limits pursuant to the FAR regulation jointly proposed for the Departments of Defense, General Services Administration, and National Aeronautics and Space Administration. An "evaluation" credit applies to bids by non-minority prime contractors participating in joint ventures, teaming arrangements, or subcontracts with such firms, and contracting officers may employ "monetary incentives" to increase subcontracting opportunities for disadvantaged firms in negotiated procurements. "Benchmarking" by the Commerce Department is the key feature of the program, designed to narrowly tailor the government's use of race-conscious subcontracting in line with *Adarand*. The Commerce recommendation relies "primarily on census data to determine the capacity and availability of minority-owned firms." As explained by DOJ:

> [A] statistical calculation representing the effect discrimination has had on suppressing minority business development and capacity would be made, and that calculation would be factored into benchmarks . . . The purpose of comparing utilization of minority-owned firms to the benchmark is to ascertain when the effects of discrimination have been overcome and minority-owned firms can compete equally without the use of race-conscious programs. Full utilization of minority-owned firms in [an] SIC code may well depend on continued use of race-conscious programs like price or evaluation credits. Where utilization exceeds the benchmark, the Office of Federal Procurement Policy may authorize the reduction or elimination of the level of price or evaluation credits, but only after analysis has projected the effect of such action.[43]

Final regulations implementing Justice Department recommendations with respect to the § 8(a) business development and small disadvantaged business program were issued by the SBA in 1998.[44] The reforms include a new process for certifying firms as small disadvantaged businesses and, in place of set-asides, a price evaluation adjustment program administratively tied to the Commerce benchmarks. In the past, the government relied on self-certification for purposes of "disadvantaged" eligibility, which allowed firms to identify themselves as meeting certification requirements. Under the new procedure, SBA, or where SBA deems appropriate, SBA-approved state agencies, or private certifiers make a threshold determination as to whether a firm is actually owned or controlled by specified individuals claiming to be disadvantaged. After ownership or control is established, the application is reviewed by SBA for purposes of a determination of disadvantaged status.

The definition of social and economic disadvantage remains largely intact under the SBA regulation. Members of designated minority groups participating in disadvantaged small business programs continue to enjoy a statutory presumption of social disadvantage. They are

required, however, to state their group identification and meet certification criteria for economic disadvantage and are subject to third-party challenge under current administrative mechanisms. Individuals who are not within the statutory presumption may qualify by proving that they are socially and economically disadvantaged under SBA standards. Under prior SBA § 8(a) certification standards, however, persons not members of presumed disadvantaged groups had to prove their status by "clear and convincing evidence. The revised SBA regulations ease this burden on non-minority applicants by adopting a "preponderance of evidence" rule.

U.S. Department of Transportation Revised Regulations

Similarly, USDOT responded to *Adarand Constructors* and its progeny by issuing revised regulations to implement minority set-aside provisions in current federal transportation authorization measures. The Transportation Equity Act for the 21st Century (TEA-21), as enacted by Congress in 1998, provided that

> [e]xcept to the extent that the Secretary [of Transportation] determines otherwise, not less than 10 percent of the amounts made available for any program under titles I, III, and V of this Act shall be expended with small business concerns owned and controlled by socially and economically disadvantaged individuals.[45]

One in a succession of laws dating back more than two decades, TEA-21 lapsed on May 31, 2005, but was extended by P.L. 109-59, signed into law during the 109th Congress.[46] The new law continues through FY2009 longstanding USDA policy of setting aside 10% of federal highway and surface transportation funds for small disadvantaged firms "[e]xcept to the extent the Secretary of Transportation determines" otherwise.

The revised DOT regulations track the Small Business Act in defining disadvantaged business enterprises (DBE's), including the presumption regarding designated minority groups and women, except that any small business owner with more than $750,000 in assets — or who is otherwise shown not to be socially or economically disadvantaged — is disqualified. Members of non-designated groups (i.e., a white male) may qualify for DBE status if the individual demonstrates social and economic disadvantage in fact.[47]

Describing the 10% goal as merely "aspirational," the regulations de-centralize administration of the DBE program by delegating implementation to state agencies receiving federal transportation funds. A two-step process is established for states to determine "the level of DBE participation [that] would [be] expect[ed] absent the effects of discrimination."[48] First, the relative availability locally of "ready, willing, and able" DBE's must be calculated. This baseline figure is then adjusted upward or downward to reflect other capability factors and evidence of discrimination against DBE's drawn from statistical "disparity" studies. The final adjusted figure represents the portion of federal transportation funding that a state must allocate to DBE for that year.

A state must meet the maximum feasible portion of this goal through race- (and sex-) neutral means. Race-conscious contract goals must be applied to achieve any portion of the utilization requirement not attainable by other means.[49] Even when race-conscious measures are necessary, however, the regulations do not require that DBE goals be included

in every contract — or that they be set at the same level in every contract where used — as long as the overall effect is to obtain the required DBE participation level. Prime contractors to whom a state awards federally funded transportation contracts must undertake good faith efforts to satisfy any included goal by allocating the designated percentage of funds to DBE firms.[50] States are prohibited from instituting rigid quotas that do not account for a prime contractor's good faith efforts to subcontract works to DBEs.[51]

POST-ADARAND JUDICIAL DECISIONS

Federal Affirmative Action Programs

Since *Adarand*, several lower federal courts have addressed the issue of congressional authority to fashion affirmative action remedies. Courts in these cases have generally concluded from the record of committee hearings and other documentary evidence before Congress that the government had a compelling interest for the program in question. However, in applying the constitutional demand for a "narrowly tailored" remedy, there is a divergence of judicial opinion as to whether states or localities must independently justify the use of racial preferences to implement federal mandates within their individual jurisdictions.

The Supreme Court in 2004 refused to revisit issues left unsettled by *Adarand* when it denied review of the Eighth Circuit's consolidated ruling in *Sherbrooke Turf, Inc. v. Minnesota Department of Transportation* and *Gross Seed Company v. Nebraska Department of Roads*.[52] The *Sherbrooke* court joined the Tenth Circuit in upholding the DBE program under current DOT regulations and, beyond that, approved specific state plans to implement that program. Pursuant to TEA-21 and the DOT revised regulations, state highway departments in Minnesota and Nebraska established specific goals for the award of federally-funded contracts to DBEs. In both states, white-owned contractors had submitted the low bid on DOT funded subcontracts, but were passed over in favor of a presumptively disadvantaged minority competitor. Petitioners challenged DBE contract awards, alleging unconstitutional race discrimination and that continued enforcement of the programs would deny them the right to compete on an equal basis for future contracts. Federal district courts in both states upheld the program.

The government conceded that the federal highway DBE program, on its face and as applied, is subject to strict scrutiny because it uses a race-based rebuttable presumption to define its beneficiaries and employs race conscious remedial measures. Such governmental consideration of race is constitutional only if narrowly-tailored to further a compelling governmental interest. Neither Sherbrooke nor Gross Seed disputed that the federal government has "a compelling interest in not perpetuating the effects of racial discrimination in its own distribution of federal funds and in remediating the effects of past discrimination in the government contracting markets created by its disbursements." Rather, petitioners argued that Congress and DOT have no "hard evidence" of widespread intentional discrimination in the contracting industry; they relied instead on a Justice Department summary of over 50 documents and 30 congressional hearings on minority-owned businesses prepared in response to the *Adarand* decision.[53] The Eighth Circuit nonetheless agreed with the Tenth Circuit conclusion in *Adarand* that "Congress has spent decades compiling evidence of race

discrimination in federal highway contracting," and petitioners failed to meet the burden of showing that no remedial action was necessary.

Nor were the Minnesota DOT and Nebraska road department required to independently satisfy the compelling government interest aspect of strict scrutiny review. To be narrowly tailored, however, a national program must be limited to those parts of the country where its race-based measures are demonstrably needed. "To the extent the federal government delegates this tailoring function, a State's implementation becomes critically relevant to a reviewing court's strict scrutiny." Under the current DOT program, the opinion notes, race-conscious methods cannot be used unless race-neutral means are projected to fall short of achieving the overall goal, and racial preferences or set-asides are limited to those instances "when no other method could be reasonably expected to redress egregious instances of discrimination." In addition, because the goals for DBE participation are tied to the relevant labor markets, have built in durational limits, and are subject to "good faith" waiver and exemptions, the programs were deemed narrowly tailored on their face. Finally, the court reviewed Minnesota's and Nebraska's implementation, including each state's reliance on findings by independent consultants in setting goals for minority-owned business participation, and concluded that the DBE program was narrowly tailored as applied at the state level.

Similarly, the issue presented in *Western States Paving Co., Inc. v. Washington State Department of Transportation[54]* is whether TEA-21 — which allocates 10% of certain federal transportation funds for small disadvantaged and minority contractors — is unconstitutional on its face, or as applied by the State of Washington. As discussed above, DOT regulations "presume" disadvantaged status for minority groups and women, provided the small business owner has a net worth of less than $750,000, but members of other groups are eligible if they can demonstrate, in fact, that they are "socially and economically disadvantaged." A three-judge panel of the Ninth Circuit agreed with the Eighth and Tenth Circuits that race and sex preferences for highway contractors under TEA-21 are facially valid. The compelling interest was in ensuring that federal funding is not distributed in a manner that reinforces the effects of either public or private discrimination within the transportation construction industry. The evidence relied on by Congress and reviewed by the court demonstrated a continuing pattern of race and sex discrimination in the industry.

The court further determined that the TEA-21 racial preferences were narrowly tailored to furthering compelling federal governmental interests. In this regard, the court pointed to several factors. First, the revised DOT regulations "explicitly prohibit the use of quotas" and require a state to "meet the maximum feasible portion of [its] overall goal by using race-neutral means."[55] Where racial goals are not met, the state may yet comply with federal standards by showing "good faith efforts" to achieve its goals. Moreover, "durational limitations" imposed by the legislative reauthorization process "ensure that Congress regularly evaluates" whether continuing need exists for the minority preference program. The regulation also makes clear that the statute's 10% DBE goal is "aspirational" only, with individual state goals determined by "the realities of [each state's] own labor market" and the availability locally of qualified minority contractors.

But these findings did not shield the Washington State program from Fourteenth Amendment challenge. Because the record was "devoid of any evidence suggesting that minorities currently suffer — or have ever suffered — discrimination" in the award of transportation infrastructure contracts within Washington State, Judges O'Scannlain and Bea

found that the state's implementation program "is not narrowly tailored to further Congress' remedial objectives." A narrowly tailored remedy "depends on the absence or presence of discrimination," these judges urged, and it was not enough "simply [that] the state complied with the federal program's requirements." Thus, each of the six principal minority groups identified in Washington's DBE program must be shown to have suffered contract award discrimination.

The ruling of another post-*Adarand* appellate tribunal appears to impose a heavier burden on the federal government for demonstrating a "strong basis in evidence" to support minority contracting preferences. In *Rothe Development Corporation v. U.S. Department of Defense*,[56] the trial judge appeared to defer uncritically to congressional evidence and findings to uphold § 1207 of the National Defense Authorization Act of 1987. That statute incorporates the SBA definition of small disadvantaged business, including the racial presumption, and establishes a 5% participation goal for such entities in Department of Defense contracts.[57] The § 1207 program authorizes DOD to apply a price evaluation adjustment of 10% in order to attain the 5% goal. In effect, this means that DOD may raise the bids of non-DBEs by 10% in order to give disadvantaged entrepreneurs a preference. The statutory goal-setting provision in §1207 was reauthorized in 1989, and again in 1992 and 2003, because DOD efforts in the initial years fell short of meeting the 5% goal. A non-minority bidder in *Rothe* sued DOD and the Department of the Air Force for violating its equal protection rights in awarding a contract to a higher bidder, International Computer and Telecommunications, Inc., because of the race of its owner, who was of Korean descent.

The U.S. Court of Appeals for the Federal Circuit rejected what it viewed as the "deferential standard of review" applied by the district court and vacated the judgment. In so doing, it advanced a different conception of both the constitutional basis for Congress's enactment of §1207 and the degree of scrutiny demanded. As national legislature, it said, Congress could enact race-based programs as a condition to the exercise of its Article I spending powers or pursuant to § 5 of the Fourteenth Amendment as a remedy for lingering discrimination by state and local governments. Whatever deference may be owed to congressional remedies for state equal protection violations under § 5, when legislating racial preferences in federal spending programs, Congress is restricted by the Fifth Amendment, which incorporates its own equal protection component. "Strict scrutiny is a single standard and [it] must be followed here," said the appeals court. The proper judicial inquiry was whether a "strong basis in evidence" supported Congress's conclusion that discrimination existed and remedial action was warranted. A "mere listing" of evidence before Congress when it enacted the original statute in 1987 was insufficient, the Federal Circuit warned. Rather, detailed statistical information regarding the existence of discrimination in 1992 was necessary to find the reauthorized § 1207 constitutional. Moreover, the government must produce evidence of pre-enactment discrimination; reports generated after the statute was enacted showing discrimination against specific groups cannot be used to prove the constitutionality of the program when enacted. The "strong basis in evidence" must have existed at the time the law was enacted if it is to survive strict scrutiny. In remanding for further proceedings, the appeals court confirmed that when it comes to race-based federal programs, there is only "one kind of strict scrutiny."[58]

On remand, the district court bifurcated Rothe's claim into a challenge to § 2323 "as applied" in 1998, when the case was filed, and a broader challenge to the statute on its face.[59] This required it to analyze both the circumstances known to Congress when the

statute was reauthorized in 1992 and later when the statute was reauthorized in 2003. The evidence purporting to justify the earlier claim was viewed to be "anecdotal" and did "not demonstrate a strong basis for Congress to believe that a race based remedial program was necessary because of the lack of statistical evidence of discrimination." Despite congressional testimony and findings of racial bias in the private and public sectors affecting the award of defense contracts, this evidence lacked statistical focus on discrimination against Asian Americans, the racial classification of the company awarded the contract instead of Rothe, and the particular industry involved. The court, therefore, found that "the program, as reauthorized in 1992 and applied in 1998, was unconstitutional."

As to Rothe's claim that §2323 was facially unconstitutional, the district court determined that Congress had met its burden of demonstrating statistical evidence documenting pervasive discrimination when it reauthorized the program in 2003. Specifically, it found that "59 statistical studies from across the nation succinctly demonstrate that Congress was reacting with a strong basis in evidence." The court focused on evidence regarding all minority groups — rather than simply Asian American as in the prior "as-applied" portion of its opinion — because proof that a program can be constitutionally applied in any one set of circumstances will sustain the statute from a facial challenge. It, therefore, held that § 2323, as re-authorized in 2003, was constitutional and denied Rothe any prospective relief.

Likewise, courts have considered challenges to SBA's § 8(a) program for socially and economically disadvantaged businesses. While upholding the constitutionality of the § 8 (a) program on its face, the district court in *Cortez III Service Corporation v. NASA* required federal officials "to decide whether there has been a history of discrimination in the particular industry at issue" before applying a race-based set-aside.[60] Other courts, however, have denied firms or individuals standing to challenge the racial presumption in the SBA statute and regulations on the rationale that they were disqualified from contract consideration because of inability to demonstrate "social and economic disadvantage," and not race.[61]

Minority Contracting by State and Local Government

With increasing frequency, state and local affirmative action programs have met with constitutional objection from courts applying strict judicial scrutiny. Several federal circuit courts have addressed the legality of racial preferences in employment and public contracting programs since the Supreme Court's ruling in *City of Richmond v. J.A. Croson*.[62] *Croson* emphasized the obligation of state and local governments to anchor their affirmative action efforts by identifying with specificity the effects of past discrimination. This meant that the governmental entity has to have a "strong basis in evidence" — just short, perhaps, of that required to establish a "prima facie" case in a court of law — for its conclusion that minorities have been discriminatorily excluded from public contracts in the past.

In *Croson*, a 30% set-aside for minority subcontractors adopted by the City of Richmond failed this constitutional test. First, the program was premised on a comparison of minority contractor participation in city contracts with general minority population statistics rather than the percentage of qualified minority business enterprises in the relevant geographic market. There was, moreover, no evidence of discrimination in any aspect of city contracting as to certain groups —i.e., Orientals, Indians, Eskimos, and Aleuts — who nonetheless were

granted a preference under the plan. With respect to "narrow tailoring," the 30% "quota" was deemed "too inflexible"and had been implemented by the city without any prior consideration of "race-neutral" alternatives. Finally, the "waiver" built into the Richmond plan was too "rigid" because it focused solely on minority contractor "availability" with "no inquiry into whether or not the particular MBE seeking a racial preference has suffered from the effects of past discrimination by the city or prime contractors."

The heightened standards of proof articulated by *Croson* and further developed by *Adarand* led many states, counties and municipalities to reevaluate existing minority business enterprise programs. Judicial challenges followed, and while several race-conscious programs survived,[63] many others were less successful, either because they lacked a compelling remedial justification or were not sufficiently "narrowly tailored" to withstand strict judicial scrutiny. As to the former, local jurisdictions primarily sought to establish a "strong basis in evidence" with "disparity" studies depicting the extent of minority exclusion from public contracting activity within the jurisdiction, coupled with any available "anecdotal" evidence. After the Court's 1995 *Adarand* decision, such studies were generally poorly received in the courts. Almost universally cited as the basis for judicial rejection of such statistical proof was over-reliance by the governmental unit on general or undifferentiated population data that failed to adequately reflect minority contractor availability or to account for contractor size and other factors relevant to contractor qualifications.[64] Other major faults have been failure to "narrowly tailor" the remedy — whether a minority participation goal, preference, set-aside, or other "sheltered" bidding arrangement — to any disparities revealed by statistics and anecdotal proof of discrimination;[65] the failure to properly limit the program in scope and duration;[66] the absence of a "waiver" provision;[67] or neglecting first to consider race-neutral alternatives, such as bonding and credit assistance programs, to ameliorate minority underutilization.[68]

The courts, however, have yet to resolve several important issues. As noted, the first relates to whether different fact-finding standards pertain to independent state or local minority contracting initiatives than to state plans explicitly adopted in aid of enforcing federal law. Notwithstanding *Croson,* decisions by three different circuit courts suggest that no independent findings may be required to established a "compelling" governmental interest where the state agency acts not on its own authority, but pursuant to federal mandate requiring remedial state or local action to counteract the effects of past or present discrimination on federally funded projects.

> Compelling government interest looks at a statute or government program on its face. When the program is federal, the inquiry is (at least usually) national in scope. If Congress or the federal agency acted for a proper purpose and with a strong basis in the evidence, the program has the requisite compelling government interest nationwide, even if the evidence did not come from or apply to every state or locale in the Nation.[69]

The principle here seems to be that the evidentiary record compiled by Congress to find a compelling interest for the federal program provides the factual leverage necessary to sustain supporting action at the state and local level.

Likewise, in *Western State Paving Co. v. Washington DOT*, the Ninth Circuit reviewed "as applied" challenges to state programs mandated by federal law.[70] As discussed earlier, the court followed the Eighth Circuit in finding the 10% DBE set-aside of federal

transportation funds under TEA-21 facially constitutional.[71] But even if Washington demonstrates compliance with TEA-21 and its implementing regulations, it must separately meet strict scrutiny to survive an as-applied challenge. Thus, the majority found that while the state does not have to re-establish a compelling state interest, it still has to show that is program is narrowly tailored. That, in turn, "depends upon the presence or absence or discrimination in the state's transportation contracting industry."

Washington admitted that no statistical studies were done to establish the existence of discrimination in the highway contracting industry. What arguments the state did make regarding discrimination — based on estimates of minority contractor participation in state transportation contracting — were rejected. The court concluded that those percentages proved little because they failed to account for factors affecting the capacity of minority contractors to undertake contracting work; for example, DBEs could be smaller, less experienced or concentrated in a particular part of the state. Moreover, the court observed that historical minority participation on contracts with affirmative action components "does not provide any evidence of discrimination against DBEs" in a race-neutral market. Washington also lacked anecdotal evidence of discrimination, which could not be inferred from statistics alone. Finally, "even when discrimination is present within a State, a remedial program is narrowly tailored if its application is limited to those minority groups that have actually suffered discrimination."[72]

In a more recent ruling, *Northern Contracting Inc. v. State of Illinois*,[73] the Seventh Circuit reached a result similar to the Ninth Circuit's ruling in *Western States Paving*. In affirming the district court, the Seventh Circuit "considered the question of whether the federal government's interest in remedying discrimination in highway contracting provided sufficient justification for the state to engage in a federally mandated DBE program, and ... concluded that it did." As a result, the only question that remained was whether the state highway contracting program was narrowly tailored to achieve this compelling interest. After reviewing the statistical evidence and evaluating the state's compliance with federal regulations, the court determined that the state's program was narrowly tailored and therefore passed constitutional muster.

By contrast, a more restrictive evidentiary approach is represented by a different Seventh Circuit ruling in *Builders Association of Greater Chicago v. County of Cook*,[74] a case that involved a locally adopted minority contracting program rather than a federal program. The court there held that Cook County had failed to establish a compelling interest supporting its contract set-aside program. In defense of its program, the County presented anecdotal evidence that prime contractors failed to solicit minority- and women-owned subcontractors at the same rate as similarly situated firms owned by white males. In addition, the County put forward statistical data demonstrating that a number of firms rarely or never solicit minority- or women-owned firms for subcontract work. This evidence, however, failed to persuade the court of a systematic refusal to solicit such firms for subcontract work because it was based on the practice of a mere thirteen general contractors. In affirming the decision, the appeals court also noted that the program failed to link its set-aside levels (30% minorities, 10% women) to evidence of their availability on the relevant market.

Western States Paving and related cases may have important implications for future challenges against both state and federal affirmative action programs. Under the Ninth Circuit's rationale, while federal programs may be insulated by appropriate congressional fact-finding, state affirmative action in furtherance thereof must be supported by proof of

discrimination on a state-by-state basis. Moreover, even federal programs could fall under question as the statistical foundation for their enactment becomes strained by the passage of time, perhaps necessitating renewed evidentiary justification. Meanwhile, USDOT has issued guidance concerning the effects of the *Western States Paving* decision on recipients in the Ninth Circuit.[75]

Another issue that has divided the federal circuit courts since *Croson* is whether post-enactment evidence of discrimination is sufficient to justify minority set-asides and preferences.[76] In 1996, the Supreme Court in *Shaw v. Hunt* ruled that, in the context of racial gerrymandering, a legislature must have sufficient evidence to support a racial distinction "before it embarks on an affirmative action program."[77] *Shaw* demanded a "strong basis in evidence" for race-based governmental action, which has been interpreted by the Federal Circuit to mean that "the quantum of evidence that is ultimately necessary to uphold racial classifications must have actually been before the legislature at the time of enactment."[78] In this view, proof that the legislature had a constitutionally permissible intent requires strong pre-enactment evidence. But the Tenth Circuit decision in *Adarand III* allowed consideration of post-enactment evidence in addition to congressional findings because the defendants had gathered it in response to the Supreme Court's application of strict scrutiny to the statutes in question.[79] The Supreme Court recently chose not to address this and other issues when it declined an appeal from the Tenth Circuit ruling in *Concrete Works of Colorado, Inc. v. City and County of Denver.[80]*

In *Concrete Works*, the federal circuit court examined a city ordinance establishing goals for participation in the construction industry by minority- and female-owned businesses. In 1990, the Denver City Council passed Ordinance 513 to promote participation by minority-owned business enterprises (MBEs) and women-owned business enterprises (WBEs) in public work projects "to an extent approximating [their] availability and capacity." The city determined availability and capacity by conducting periodic studies of minority participation in each contract area. The Ordinance also directed the Office of Contract Compliance (OCC) to establish MBE and WBE participation goals on each individual city contract. The statutory goals for total annual expenditures were 16% for MBEs and 12% for WBEs. According to the ordinance, if the OCC established an individual project goal, all bidders had to either meet the goals or demonstrate their good faith efforts to do so. The city revised the program in 1996 and 1998, reducing the annual goals for MBEs and WBEs in construction contracts to 10% and prohibiting M/WBEs from counting self-performed work towards the goals.

Concrete Works of Colorado, a construction firm owned by a white male, sued the city in 1992, alleging that it had been denied three contracts for failure to meet the goals or to make good faith efforts, and sought injunctive relief and money damages. The city relied on three categories of evidence to demonstrate a compelling remedial purpose for the ordinance. First, major studies — in 1990, 1995, and 1997 — revealed large disparities between M/WBE availability and utilization on city projects without goals. Census data revealed like patterns of minority and female underutilization as contractors and subcontractors in state-wide construction, public and private. At trial, M/WBEs also testified to discrimination they confronted in qualifying and bidding on private sector jobs, in obtaining capital and credit, in dealing with suppliers, and of harassment suffered at work sites, including physical assaults.

The principal issue presented by *Concrete Works* was whether the government's statistics and other evidence established a remedial justification for racial and gender preferences in public contracting. The circuit court adopted an expansive approach, finding that "irrefutable

or definitive" proof of the city's own "guilty" actions was unnecessary where the city's "passive" participation in marketplace discrimination by its spending practices was shown.

> Denver's only burden was to introduce evidence which raised the inference of discriminatory exclusion in the local construction industry and link its spending to that discrimination. . . . Denver was under no burden to identify any specific practice or policy that resulted in discrimination. Neither was Denver required to demonstrate that the purpose of any such practice or policy was to disadvantage women or minorities. To impose such a burden on a municipality would be tantamount to requiring proof of discrimination and would eviscerate any reliance the municipality could place on statistical studies and anecdotal evidence.[81]

Croson's admonition against relying on "mere societal discrimination" did not apply, the opinion states, where evidence of discrimination in the industry targeted by the program is shown — whether motivated by an attitude "shared by society" or "unique to the industry" is constitutionally irrelevant. The trial court was wrong to require Denver to "show the existence of specific discriminatory policies and that those policies were more than a reflection of societal discrimination."

The trial court also faulted the city's disparity studies, in part, for failure to control for firm size, area of specialization, and whether the firm had actually bid on city contracts. Such factors were thought important because, due to their generally smaller size, M/WBE's might lack the requisite experience and qualifications, diminishing their availability and capacity to perform on city construction projects. The Tenth Circuit accepted the studies, nonetheless, reasoning that small firms can expand and contract to meet their bidding opportunities, and because size and experience are not race or gender-neutral variables. "M/WBE construction firms are generally smaller and less experienced because of discrimination." The disparities, moreover, were not shown to disappear when such variables were controlled for, or held constant, and taking the number of city bidders into account might distort the picture by including unqualified firms. Likewise, "lending discrimination" and "business formation" studies were properly relied on by the city for the "strong link" they demonstrated between disbursement of public funds and the "channeling" of those funds due to private discrimination. Private barriers precluded entry of M/WBE's into the market "at the outset" and made impossible "fair competition" for public contracts by minority firms that did submit bids.

An appeal from the Tenth Circuit ruling, filed by petitioner Concrete Works of Colorado, Inc., was denied by the Supreme Court.[82] In an unusual move, Justice Scalia was joined by Chief Justice Rehnquist in filing a written dissent from the Court's refusal to grant certiorari. The dissenters argued that Denver's policy violated the standards of proof required by the Court's 1989 decision in Croson and "invites speculation that case has effectively been overruled." According to their view, there must be some evidence that discrimination was so pervasive that any minority business would have suffered. "Absent such evidence of pervasive discrimination, Denver's seeming limitation of the set-asides to victims of racial discrimination is a sham, and the only function of the preferences is to channel a fixed percentage of city contracting dollars to firms identified by race." In declining review, Justice Scalia opined that his fellow Justices had "abandoned" their former insistence on a "strong basis in evidence," relying instead on the "good faith" of local governments to act responsibly when using racial preferences.

REFERENCES

[1] This report was originally written by Charles V. Dale, Legislative Attorney.
[2] 15 U.S.C. §637(a).
[3] Minority Contracting: Joint Hearing Before the Senate Comm. on Small Business and the House Subcomm. on Minority Enterprise and General Oversight of the Comm. on Small Business, 95th Cong., 2d Sess. 37 (1978).
[4] E.O. 11652, 3 C.F.R. § 616 (1971), *reprinted in* 15 U.S.C. § 631 authorized the Office of Minority Business Enterprise created by preceding order, E.O. 11458, to provide financial assistance to public or private organizations that provided management or technical assistance to MBEs. It also empowered the Secretary of Commerce to coordinate and review all federal activities to assist in minority business development.
[5] 15 U.S.C. § 637(a).
[6] Id. at § 637(a)(5).
[7] 13 C.F.R. § 124.105(b).
[8] Id. at 124.103(c).
[9] The statute, 15 U.S.C. § 637(a)(6)(A), defines economic disadvantage to mean "socially disadvantaged individuals whose ability to compete in the free enterprise system has been impaired due to diminished capital and credit opportunities as compared to others who are not socially disadvantaged, and such diminished opportunities have precluded or are likely to preclude such individuals from successfully competing in the open market."
[10] 15 U.S.C. §§ 637(a)(5), (d). Criteria set forth in the regulations requires non-minority individuals to prove by "a preponderance of the evidence," that they have personally experienced "substantial and chronic social disadvantage in American society" as the result of "[a]t least one objective distinguishing feature," including "long term residence in an environment isolated from the mainstream of American society," with a "negative impact "on his or her "entry into the business world." "In every case . . . SBA will consider education, employment, and business history, where applicable, to see if the totality of circumstances shows disadvantage in entering into or advancing in the business world." 13 C.F.R. § 124.105(c).
[11] See 49 C.F.R. Pt. 23, Subpt. D, App. C.
[12] 15 U.S.C. § 637(d). See also 13 C.F.R. § 124.106.
[13] P.L. 100-656, § 502, 102 Stat. 3887, codified at 15 U.S.C. § 644(g)(1).
[14] See, e.g., 49 C.F.R. §§ 23.64(e), 23.65 (setting forth waiver criteria for the Department of Transportation).
[15] P.L. 103-355, 108 Stat. 3243, 3374, § 7106 (1994).
[16] See CRS Report RL32565, Survey of Federal Laws and Regulations Mandating Affirmative Action Goals, Set-Asides, or Other Preferences Based on Race, Gender, or Ethnicity, by Charles V. Dale and Cassandra Foley.
[17] P.L. 97-424, § 105(f), 96 Stat. 2097 (1982)
[18] P.L. 100-17, § 106(c), 101 Stat. 132 (1987).
[19] P.L. 102-240, § 1003, 105 Stat. 1914 (1992).
[20] P.L. 105-178, § 1101, 112 Stat. 107 (1998).

[21] See § 1101(b) of P.L. 109-59, the "Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users" (SAFETEA-LU), 119 Stat. 1144 (8-10-2005).
[22] 515 U.S. 200 (1995).
[23] 228 F.3d 1147 (10th Cir. 2000).
[24] 448 U.S. 448 (1980).
[25] 488 U.S. 469 (1989).
[26] 515 U.S. at 217.
[27] In their separate concurrences, Justices Scalia and Thomas, espoused a far more restrictive view that would foreclose all governmental classifications by race or ethnicity. Justice Scalia declared that "government can never have a 'compelling interest' in discriminating on the basis of race in order to 'make up' for past racial discrimination in the opposite direction." Justice Thomas was of the view that the "racial paternalism" of affirmative action was more injurious than beneficial to minorities. "In my mind, government-sponsored racial discrimination based on benign prejudice is just as noxious as discrimination inspired by malicious prejudice. In each instance, it is racial discrimination, plain and simple."
[28] Adarand Constructors Inc. v. Pena, 965 F. Supp. 1556 (D.Colo. 1997).
[29] Two aspects of the district court's analysis of the "narrow tailoring" requirement were especially unsettling for federal small disadvantaged business programs. First, the "optional" or voluntary nature of the SCC program was not enough to save it, notwithstanding the fact that prime contractors were free to accept bid proposals from any subcontractor, regardless of race or ethnicity. The government's failure to prevail on this issue cast a long shadow over other federal minority contracting efforts — e.g., the § 8(a) set-aside, bid or evaluation preferences, and the like — which, under the district court's reasoning, may be viewed as imposing a "choice based only on race" at least as "mandatory" and "absolute" as the incentive payment to prime contractors in *Adarand*, if not more so. Similarly, the fact that the SCC program did not expressly incorporate any "goals, quotas, or set-asides" was not sufficient to divorce it, in the district court's view, from the percentage goal requirements imposed by statutes the program was designed to implement. Those statutory provisions —the 5% minimum disadvantaged small business goal in § 8(d) of the SBA and the parallel 10% requirement in STURAA and ISTEA — were deemed invalid for lack of narrow tailoring. In effect, the district court ruling questioned much of the federal government's statutory infrastructure for advancing minority small business participation in the procurement process by race-conscious means.
[30] Adarand Constructors Inc. v. Slater (Adarand III), 228 F.3d 1147 (10th Cir. 2000). This court of appeals decision was preceded by an intervening appellate ruling and Supreme Court review confined to procedural questions of standing and mootness occasioned by the plaintiff's change in circumstances. After the district decision in *Adarand II*, the State of Colorado did away with the racial presumption and certified the non-minority owner of Adarand Constructors Inc. as disadvantaged. As a result, the Tenth Circuit dismissed the case as moot and the vacated the judgment against the government. Adarand v. Slater, 169 F.3d 1292 (10th Cir. 1999). The district court decision was reinstated on January 20, 2000, however, when the Supreme Court rejected the mootness finding because there was nothing to prevent the government from reviving

the abandoned policy, and returned the case to the circuit court for further proceedings. Adarand Constructors v. Slater, 528 U.S. 216 (2000).

[31] Specifically, the Tenth Circuit opinion states: "Subsection 8(a) does not involve the use of SCCs, nor has Adarand made any showing that it has been injured by non-inclusion in the § 8(a) . . . . This case does not involve, nor has Adarand ever demonstrated standing to bring, a generalized challenge to the policy of maximizing contracting opportunities for small disadvantaged businesses set forth in 15 U.S.C. §§ 637 and 644(g), or to the various goals for fostering the participation of small minority-owned businesses promulgated pursuant to 15 U.S.C. § 644(g). Nor are we presented with any indication that Adarand has standing to challenge . . .§ 637d." 228 F.3d at 1152.

[32] 49 C.F.R. § 26.51(a),(b)(2000).

[33] Participation in the § 8(a) program is limited by statute and regulation to ten and one-half years, and each DBE is re-evaluated, and may be graduated from the program, based on the submission of financial and other information required annually.

[34] 49 C.F.R. § 2615 (2000)(allowing recipients to seek waivers and exemptions, despite the already non-mandatory nature of the program).

[35] The court of appeals found that the SCC had been based in part on "an ill-defined 12-15% goal apparently adopted by the Federal Highway Administration, for which "it could find no explanation in the record." This alone would have warranted summary judgment for Adarand, it concluded.

[36] The current regulations impose additional requirements on applicants with regard to individualized showing: they must submit a narrative statement describing the circumstances of that purported economic disadvantage. 13 C.F.R. § 124.104(b)(1)(2000). See also, 49 C.F.R. § 26.67(b)(1)(2000)(providing a $750,000 net worth limit for DBEs under transportation programs); id. § 26.65(b)(stating that businesses exceeding a certain amount of gross receipts are ineligible for the DBE program).

[37] Adarand Constructors, Inc. v. Mineta, 534 U.S. 103 (U.S. 2001).

[38] See, e.g., Bd. of Trs. of the Univ. of Alabama, 531 U.S. 356 (2001)(Congress could not abrogate state sovereign immunity to suit for compensatory damages under Title I of the Americans with Disability Act since historical record "fails to show that Congress did in fact identify a pattern of irrational state discrimination in employment against the disabled," and the rights and remedies provided against the state "raise the same sort of concerns as to congruence and proportionality" as found in previous cases.); Kimel v. Florida Bd. of Regents, 528 U.S. 62 (2000)(Applying "congruence and proportionality" standard, the Court determined that the Age Discrimination in Employment Act was not "appropriate legislation"under § 5); United States v. Morrison, 529 U.S. 598 (2000)(Court invalidated provision of Violence Against Women Act, providing victims of gender-motivated violence with a civil damages remedy, since even as a "prophylactic measure," it was "overbroad" and applied uniformly throughout the nation, rather than merely in states with congressionally documented records of this type gender discrimination.).

[39] Monterey Mech. Co. v. Wilson, 125 F.3d 702 (9th Cir.1997), reh'g en banc denied, 138 F.3d 1270 (9th Cir. 1998).

[40] 141 F.3d 344 (D.C.Cir. 1998).

[41] 61 FR 26042, Notices, Department of Justice, Proposed Reforms to Affirmative Action in Federal Procurement. (May 23, 1996)

[42] Response to Comments to Department of Justice Proposed Reforms to Affirmative Action in Federal Procurement, 62 FR 25649 (1997).

[43] Id. at 25650-52. An interim rule incorporating proposed DOJ revisions to the FAR regulation became effective in 1998. Federal Acquisition Regulation; Reform of Affirmative Action in Federal Procurement; Interim rule with request for comment, 63 FR 52426 (1998).

[44] 63 FR 35726, 35767 (1998).

[45] § 1101(b)(1), 112 Stat. at 113.

[46] See § 1101(b) of P.L. 109-59, the "Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users" (SAFETEA-LU), 119 Stat. 1144 (8-10-2005).

[47] 49 C.F.R. pt. 26 (2003).

[48] Id. at § 26.45.

[49] Id. at § 26.51.

[50] Id. at § 26.53(a).

[51] Id at § 26.43(a).

[52] 345 F.3d 964 (8th Cir. 2003), cert. denied 541 U.S. 1041 (U.S. 2004).

[53] See Appendix — The Compelling Interest for Affirmative Action in Federal Procurement: A Preliminary Survey, 61 FR 26050 (May 23, 1996).

[54] 407 F.3d 983 (9th Cir. 2005), cert. denied, 126 S. Ct. 1332 (2006).

[55] 49 C.F.R. § 26.51(a).

[56] 262 F.3d 1306 (Fed.Cir. 2001).

[57] 10 U.S.C. § 2323.

[58] The appellate opinion underscored certain additional elements for the lower court's review on remand. In determining whether a "compelling Government interest" justified the SDB program, the lower court must decide if the § 1207 program is "truly remedial." This requires a determination whether the program targets present discrimination or the "lingering effects" of past discrimination. If the latter, the opinion notes, the probative currency of the evidence must be determined, as must the existence of specific evidence of discrimination against Asian Americans in the particular industry involved in this case. As to whether the § 1207 program is narrowly tailored, the Federal Circuit highlighted three areas for remand consideration. First, the trial court should conduct "a probing analysis of the efficacy of race-neutral alternatives" to the § 1207 program. Second, the court must review evidence demonstrating whether the 5% goal of SDB participation was relevant to the number of qualified, willing, and able SDBs in the industry. Finally, the lower court had to determine whether the § 1207 program was over-inclusive by "presuming" that the five groups identified in the statute were victims of discrimination.

[59] Rothe Dev. Corp. v. U.S. Dep't of Defense, 324 F. Supp.2d 840 (W.D.Tex. 2004).

[60] 950 F. Supp. 357 (D.D.C. 1996). See also Klaver Constr. Co. v. Kansas Dep't of Transp., 211 F. Supp.2d 1296 (D.Kan. 2002).

[61] See Interstate Traffic Control v. Beverage, 101 F. Supp. 2d 445 (S.D. W.Va. 2000); Ellsworth Associates v. United States, 926 F.Supp. 207 (D.D.C. 1996).

[62] 488 U.S. 469 (1989).

[63] See, e.g., Indianapolis Minority Contractors Ass'n v. Wiley, 187 F.3d 743 (7th Cir. 1999); Associated Gen. Contractors of California v. Coalition, 950 F.2d 1401, 1416-18 (9th Cir. 1991), cert. denied , 503 U.S. 585 (1992);Coral Constr. Co. v. King County, 941 F.2d 910 (9th Cir. 1991), cert. denied, 502 U.S. 1033 (1992).

[64] See, e.g., Builders' Ass'n of Greater Chicago v. Cook County, 256 F.3d 642 (7th Cir. 2001); Associated Gen.l Contractors of Ohio, Inc. v. Drabik, 214 F.3d 730 (6th Cir. 2000), cert. denied, 531 U.S. 1148 (2001); W.H. Scott Constr. Co., Inc. v. City of Jackson, 199 F.3d 206 (5th Cir. 1999); Engineering Contractors Ass'n v. Metro. Dade County, 122 F.3d 895 (11th Cir. 1997), cert. denied, 523 U.S. 1004 (1998); Concrete Works of Colorado, Inc. v. City and County of Denver, 36 F.3d 196 (10th Cir. 1994), cert. denied 514 U.S. 1004 (1995); O'Donnell Constr. Co. v. District of Columbia, 963 F.2d 420 (D.C.Cir. 1992).

[65] See, e.g., Contractors Ass'n of Eastern Pennsylvania, Inc. v. City of Philadelphia, 91 F.3d 586 (3d Cir. 1996), cert. denied, 519 U.S. 1113 (1997); Associated Util. Contrs. of Md., Inc. v. Mayor of Baltimore, 83 F. Supp. 2d 613 (D. Md. 2000); Main Line Paving Co. v. Bd. Of Educ., 725 F. Supp. 1349 (E.D. Pa. 1989).

[66] See, e.g., Associated Gen. Contractors of Ohio v. Drabik, 214 F.3d 730 (6th Cir. 2000); Kornhass Constr., Inc. v. State of Oklahoma, 140 F. Supp. 2d 1232 (W.D.Okla, 2001); Webster v. Fulton County, Ga. 51 F. Supp.2d 1354 (N.D. Ga. 1999); Associated Gen. Contractors v. New Haven, 791 F. Supp. 941, 948 (D. Conn. 1992).

[67] Associated Gen. Contractors, 214 F.3d 730. Compare Builders Ass'n of Greater Chicago v. City of Chicago, 298 F. Supp. 2d, 725, 740 (finding DBE plan not to be narrowly tailored where waivers were "rarely or never granted") with N. Contr., Inc. v. Illinois, 2005 U.S.Dist. LEXIS 19868 (D. Ill. 2005), aff'd 2007 U.S. App. LEXIS 320 (7th Cir. 2007)(state transportation funding plan approved where flexibility assured by "the employment of individualized DBE goals on a contract-by-contract basis, and through the maintenance of a waiver provision to account for those situations in which achievement of the set DBE goals is not reasonably possible.").

[68] See, e.g., Contractors Ass'n of Eastern Pennsylvania, 91 F.3d 586; Associated Gen. Contractors of Ohio, 214 F.3d 730; Concrete Works of Colorado v. City and County of Denver, 86 F. Supp 2d 1042 (D.Colo. 2000).

[69] Sherbrooke Turf, 345 F.3d 964, 970 (8th Cir. 2003), cert. denied 541 U.S. 1041 (U.S. 2004).; see also Milwaukee County Paver Ass'n v. Fiedler, 922 F.2d 419, 423 (7th Cir. 1991)("If the state does exactly what the statute expects it to do, and the statute is conceded for the purposes of the litigation to be constitutional, we do not see how the state can be though to have violated the Constitution.").

[70] 407 F.3d 983 (9th Cir. 2005), cert. denied, 126 S. Ct. 1332 (2006).

[71] Generally, the court determined that Congress had a compelling interest in creating a remedial scheme to overcome effects of past discrimination in the transportation contracting industry. Further, TEA-21 was narrowly tailored to this end because it created no quotas, it is limited in duration (Congress must periodically re-authorize it), and it contains income limits to lessen the burden on non-minority firms.

[72] Id. at 998.

[73] 2007 U.S. App. LEXIS 320 (7th Cir. 2007).

[74] 123 F.Supp.2d 1087 (N.D. Ill. 2000), aff'd 256 F.3d 642 (7th Cir. 2001).

[75] A notice describing DOT's implementation of the guidance was published in the *Federal Register* on Aug. 21, 2006. 71 FR 48579. Questions and answers regarding *Western States* Paving are available on the DOT website at [http://www.fhwa.dot.gov/civilrights/dbe_memo_a5.htm].

[76] See, e.g., Rothe Dev. Corp. v. United States DOD, 262 F.3d 1306 (Fed. Cir. 2001); Associated Gen. Contrs. of Ohio, Inc. v. Drabik, 214 F.3d 730 (6th Cir. 2000); Eng'g Contractors Ass'n of S. Fla., Inc. v. Metro. Dade County, 122 F.3d 895, 911-13 (11th Cir. 1997); Contractors Ass'n of E. Pa., Inc. v. City of Philadelphia, 91 F.3d 586, 605 n.21 (3d Cir. 1996); Concrete Works of Colo., Inc. v. City and County of Denver, 36 F.3d 1513, 1520-21 (10th Cir. 1994); Harrison and Burrowes Bridge Constructors, Inc. v. Cuomo, 981 F.2d 50, 60 (2d Cir. 1992); Coral Constr. Co. v. King County, 941 F.2d 910, 919-20 (9th Cir. 1991).

[77] 517 U.S. 899 (1996).

[78] Rothe Dev. Corp. v. United States DOD, 262 F.3d 1306, 1327 (Fed. Cir. 2001).

[79] Adarand Constructors Inc. v. Slater, 228 F.3d 1147 (10th Cir. 2000).

[80] 321 F.3d 950 (10th Cir. 2003), cert. denied, 540 U.S. 1027 (U.S. 2003).

[81] Id. at 973.

[82] Concrete Works of Colorado v. City and County of Denver, cert. denied 540 U.S. 1047 (2003).

INDEX

A

B

C

D

E

F

G

H

I

J

K

L

M

N

O

P

Q

R

S

T

U

V

W

Y

Z