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Change Leadership in Organizations: The Case of Singapore's Small and Medium-Sized Enterprises

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Thomas Menkhoff, Chay Yue Wah, Benjamin Loh

**Change Leadership in
Organizations:
The Case of Singapore's Small
and Medium-Sized Enterprises**

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Göttingen**

Thomas Menkhoff, Chay Yue Wah, Benjamin Loh

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Abstract

The essay is based on a survey of organizational change management practices in small and medium-sized enterprises (SMEs) in Singapore which was conducted by the authors between 1999 - 2001 in collaboration with the Singapore Chinese Chamber of Commerce & Industry (SCCCI). The study was aimed at examining the adaptability and change readiness of Singapore's SMEs and their owners vis-à-vis the rapidly changing external business environment, as exemplified by the process of economic globalization, intense competition, technology development and the Asian crisis. A total of 101 companies responded to the survey which revealed some surprising facts about the adaptability and commitment of Singapore's small entrepreneurs to organizational change. The key findings are presented in the first part of the paper, followed by a more detailed analysis of technological change measures such as e-commerce adopted by the SME owner-managers and their respective drivers. The information gathered can assist researchers and policy makers to identify the determinants of effective organizational change management in local SMEs and help SMEs to improve their capabilities and manage future change proactively.

1. Introduction: Small Firms between Continuity and Change*

There is a general awareness of the importance of small and medium-sized enterprises (SMEs) for a country's economic growth, industrial development, and employment generation. Economies are increasingly favouring smaller firms in an era of industrial and technological change and development (Bjerke 1998: 252; Howard 1991: 118 - 119; Toffler 1991: 238 - 239) where the strategic resource of an economy is no longer based on financial capital, but on "*people with drive, energy and willingness to start new business ventures and rejuvenate old ones*" (Bjerke 1998: 253). In view of turbulent markets, the need for SME owners to make strategic responses towards the changing environment is crucial for sustaining success and survival (Pfeffer and Salancik 1978; EIU and Andersen Consulting 2000).

Major environmental changes such as the on-going process of economic globalization, intense competition, the rapidly evolving knowledge-based economy, continuous IT innovations, e.g. E-commerce etc. have focused management's attention on managing discontinuities in organizations' lives. As business management gurus argue, these external forces of change require not only 'adaptive', 'flexible' organizations and 'new' management approaches but also competent managers able to adapt to changing times and to manage organizational change (Beckhard 1969; Beckhard and Harris 1987; Tushman et al. 1997; Schaefer and Thomsen 1998).

Organizational change refers to both *planned* or *unplanned* transformations of an organization's structure, technology and/or human resources (Leavitt 1965). Planned organizational change entails activities that are intentional and purposive in nature and designed to fulfill some organizational goals. It emphasizes managerial *choice* (Child 1972, 1997) in contrast to unplanned change which implies shifts in organizational activities due to forces that are external in nature and beyond the organization's control. According to Leavitt (1965: 1145), change targets such as structure, technology, people and tasks are highly interdependent whereby "*change in any one usually results in compensatory (or retaliatory) change in others*". The task variable refers to the goal of organizations in producing goods and services, "*including the large numbers of different but operationally meaningful sub-tasks that may exist in complex organizations*" (Leavitt 1965: 1144); actors (people) refer to individuals who, in return for a variety of inducements, make contributions to the organization; technology refers to the setting and techniques whereby work is

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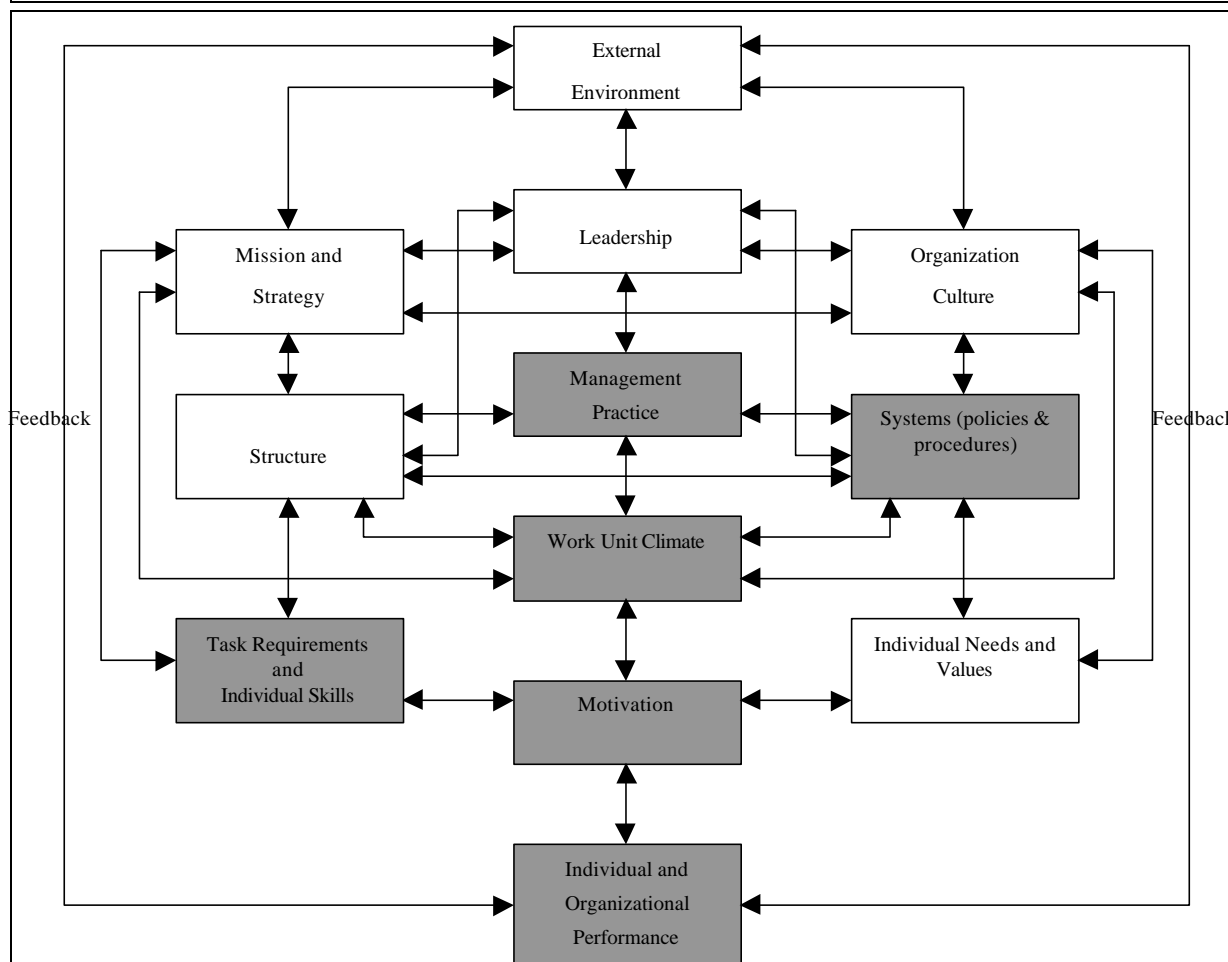
performed; and finally, structure refers to the systems of communication, authority and work-flow that exist among participants of the organization. In the literature on organizational change, planned change is often used synonymous with organizational development (OD) while unplanned change is discussed in the context of adaptation (Dyer 1985; Kirkpatrick 1985).

The significance of rapid organizational change in a global economy has stimulated the development of new OD techniques. There is an increasing pressure on both entrepreneurs and managers to implement concepts such as change management, business process reengineering, survey feedback, sensitivity training, team building, quality of work life programs or quality circles aimed at changing organizational work settings, technology and/or people for the purposes of improving organizational effectiveness and enhancing job satisfaction (Greenberg & Baron 1997: 563). Planned organizational change interventions are typically designed and sequenced by an internal or external change / OD agent, following a detailed diagnosis of an organization's shortcomings and needs. According to OD pioneer Bennis (1969: 113), a change agent is typically a behavioral scientist brought in to help a client system by applying his knowledge to the client's problems:

“The change agents I have in mind are professionals, men who, for the most part, have been trained and who hold doctorates in the behavioral sciences. Many of them hold university posts, and others work as full time consultant, but they owe their professional allegiance to one of the behavioral science disciplines”.

One of their core competencies is ‘change management’ which professional consultants define as a systematic process of aligning the organization's people and culture with changes in business strategy, organizational structure, systems and processes resulting in ownership and commitment to change, sustained and measurable improvement and improved capability to manage future change. Organizational change practitioners have developed various models detailing such change processes. Burke and Litwin's (1994) “diagnostic” model (see Figure 1) is a notable example. Figure 1 illustrates the complex interrelationship between environmental forces, intraorganisational change targets, feedback loops etc. Burke and Litwin distinguish between transactional change and transformational change. Transactional changes are defined as *“alterations [which] occur primarily via relatively short-term reciprocity among people and groups”* (Burke and Litwin 1994:76). Transformational changes are seen as *“alterations caused by interaction with environmental forces and therefore requir[ing] entirely new behaviour sets on the part of organization members”* (Burke and Litwin 1994: 75). Effective transformational change with regard to management practices, organisational climate, communication and/or motivation patterns (as indicated by the shaded areas in Figure 1) requires special competencies, and is much more difficult to implement compared to changes in the area of leadership, structure or strategy.

Figure 1: **Burke and Litwin's Model of Organisational Change**



Source: Burke/ Litwin (1994).

Research on 'Asian' firms (e.g. Menkhoff and Kay 2000) suggests that the response of many family-owned SMEs to the new wave of economic and technological forces is insufficient. Organizations fail to implement, for example, modern quality/productivity management concepts such as Total Quality Management (TQM) or Continuous Quality Improvement (CQI) due to lack of management know how, qualified staff and the organizational peculiarities of small family firms. Potential change targets, such as strategy, people, technology and so forth, represent challenges for SME owners. A recent survey (Chua 2001) of 158 ethnic Chinese enterprises in Singapore showed that a relatively large proportion of these firms pays insufficient attention to IT skills upgrading, innovation as a source of competitiveness, product customization, customer satisfaction and e-commerce operations. Based on these indicators, the author concluded that many SMEs in

Singapore are not yet ready for the new economy. Predictors and key ingredients of entrepreneurial ‘new economy compliance’, however, remain unclear.

SME policy makers do hope that new economy related assistance schemes will motivate more local small entrepreneurs to embrace related changes proactively. To increase online transaction capability of local SMEs and to encourage small entrepreneurs to adopt “ready-made” e-commerce solutions, both Singapore’s Productivity and Standards Board (PSB) and the Information Development Authority (IDA) have implemented various new economy related SME upgrading schemes during the past few years (see section 4.2). The characteristics of those small entrepreneurs who took up the challenge (and those who did not) have yet to be ascertained by empirical research.

Whether ethnic Chinese small enterprises in Singapore are ‘ready’ for the new economy is a hotly debated issue in the dynamic city state. Representative empirical data and sophisticated theoretical models, however, are hard to come by. With this in mind, our study¹ was conducted between 1999 and 2001 to generate data on the change propensity of the local business community vis-à-vis the rapidly changing business environment and associated challenges, such as the Asian crisis, the process of economic globalization, continuous technology development and so forth. It was aimed at providing answers to the following questions:

- To what extent are the often heard ‘change-or-go-bust’ slogans in conjunction with local SMEs based on facts or imagination?
- What is really going on in local SMEs in terms of organizational change practices and management?
- How well do the CEOs of local SMEs manage change?
- To what extent do demographic variables and traits of owner-managers of SMEs predict the successful initiation of organizational change?
- To what extent are local small entrepreneurs willing to take risks? Are they receptive to change?
- What is their entrepreneurial orientation?
- What are the results and outcomes of change efforts at the firms’ organizational level and their determinants?

Other goals included the identification of organizational change drivers in local SMEs and the formulation of policy recommendations aimed at increasing the (presumably insufficient) receptiveness of the local SME community towards the

¹ The authors gratefully acknowledge the support of the National University of Singapore (NUS Research Grant R-317-000-035-112 “The Management of Organizational Change and Resistance in Small and Medium-Sized Enterprises – The Singapore Case”), the Singapore Chinese Chamber of Commerce and Industry (SCCCI), the Institute of Management Consultants and of the various local SME owners and consultants who participated in the research.

supply of external management advisory services and utilization of proper change management concepts. The main research methods used included (i) semi-structured, qualitative interviews with management consultants and small entrepreneurs as well as (ii) a quantitative survey of 101 SMEs.

1.1 Background of Research Project

The project evolved in the context of the authors' consulting work as HRD advisors for SMEs in the region. During these assignments, it was realized that there are barriers towards change not only amongst middle managers or lower level employees but also amongst members of the firms' top management team. This observation represented a puzzle in view of:

- widespread theoretical pre-assumptions about the 'strong' spirit of Chinese capitalism, 'good' corporate governance and the premises of the Confucian ethics thesis as an explanatory framework for the 'successful' economic behaviour of Chinese entrepreneurs which ignore the down side of organizational behaviour in Chinese firms such as mis-management, resistance to change and authority etc. (Redding 1993; Backman 2000);
- the various external forces of change impacting on both small and big firms such as developments in technology and IT, changing customer needs and tastes, new legislation, increasing competitive pressures etc. as well as
- potentially disruptive internal forces of change in terms of customer complaints, reduced profits, outdated business strategies, low staff performance and morale, inadequate skills and knowledge bases and so forth.

To crack this paradox, it was decided to conduct a baseline survey in order to generate empirical data on the change management practices of local SMEs and their owners. This area represents - despite all the 'change-or-go-bust' slogans put forward by SME promotion bodies, consulting firms and other groups - a relative poorly researched area.

1.2 Methodology and Sample

Library, fieldwork and analysis were conducted in Singapore between April 1999 and January 2001. The methodologies employed included:

- semi-structured, qualitative expert interviews with management consultants and representatives of SME promotion bodies such as Singapore's Productivity and Standards Board (PSB);
- semi-structured, qualitative in-depth interviews with top executives, HR specialists and lower-level employees of SMEs;

- the administration of a questionnaire survey covering members (exclusively SMEs) of the Singapore Chinese Chamber of Commerce & Industry (SCCCI) from various sectors.

During the explorative stage of the study qualitative interviews with management consultants (9) and small entrepreneurs (5) were conducted to develop hypotheses about the change management practices of local SME owners and to facilitate the development of the research model as well as the measuring instruments. These key informants were identified with the help of the Singapore Chinese Chamber of Commerce & Industry (SCCCI) and Singapore's Institute of Management Consultants.

Subsequently, a SME survey was administered together with SCCCI across industries and business type. The questionnaire included six sections: (i) demographics, (ii) business characteristics, (iii) organizational change, (iv) personality traits, (v) firm performance and (vi) external management consultants. Interviewees were provided with two versions: one in English and one in Mandarin. The questionnaire was intensively discussed, modified and pretested with various subject matter experts and selected small businessmen to ensure that all the questions were adequately formulated and properly understood.

Quantitative data were obtained from corporate members of the Singapore Chinese Chamber of Commerce and Industry (SCCCI) which has a total membership of about 3,000 businesses. In view of the generally poor response rate of mailed questionnaire surveys in Singapore, the questionnaire was faxed to those companies who are linked to SCCCI via winfax (i.e. 1,000 firms) in the summer of 2000. Due to complaints by some of SCCCI's members about this "lengthy procedure" and the "blocking of their fax machines", the Chamber subsequently decided to use e-mail instead of winfax in order to send out the questionnaire. Altogether, about 1,000 SCCCI members received the questionnaire via e-mail. In all, only 14 questionnaires were returned within the given time frame of two to three weeks. In view of this very poor response rate, it was decided to contact SCCCI members directly and to interview them face-to-face with the help of a team of four interviewers. At the same time, a second survey wave was initiated in October 2000, covering 500 members of SCCCI. Sampled firms were selected at random from SCCCI's membership list. In all, 59 were returned.

The final sample was composed of altogether 101 small and medium-sized firms (defined as firms with less than 200 employees) operating in different sectors that include manufacturing (28.7 percent), trading (23.8 percent), professional services (20.8 percent), retailers (8.9 percent) and others. The key findings of the survey are presented in the next chapter.

2. Research Results: How Singapore's Small Entrepreneurs Manage Organizational Change

2.1 Business Characteristics: An Entrepreneurial Profile

The typical firm surveyed was a 100 % locally-owned, private limited company which has been established in the early 1990s by the respondent himself who owns a substantial proportion of the business without any involvement of external parties, such as institutional and/or equity investors.

The average respondent turned out to be a middle-aged (42.4 years), English-educated, male Chinese Singaporean with tertiary education and a specialization in engineering or management. He has been in his current position for 10.5 years, with an average organizational tenure and total working experience of 13.3 years and 20.8 years respectively.

Most respondents perceived themselves as so-called 'opportunistic entrepreneurs' (46.5 %) who are achievement-oriented, effective in terms of adaptation, business planning etc and willing to take risks (Smith 1967; Carland et al. 1984; Bracker, Keats and Pearson 1988). 'Craftsman entrepreneurs' who are typified in entrepreneurship literature as relatively non-adaptive and more risk adverse persons aiming for a comfortable living rather than the highest possible level of performance (Filley and Aldag 1978) made up 36.6 % of the sample. About 17 % of the respondents could not be categorized.

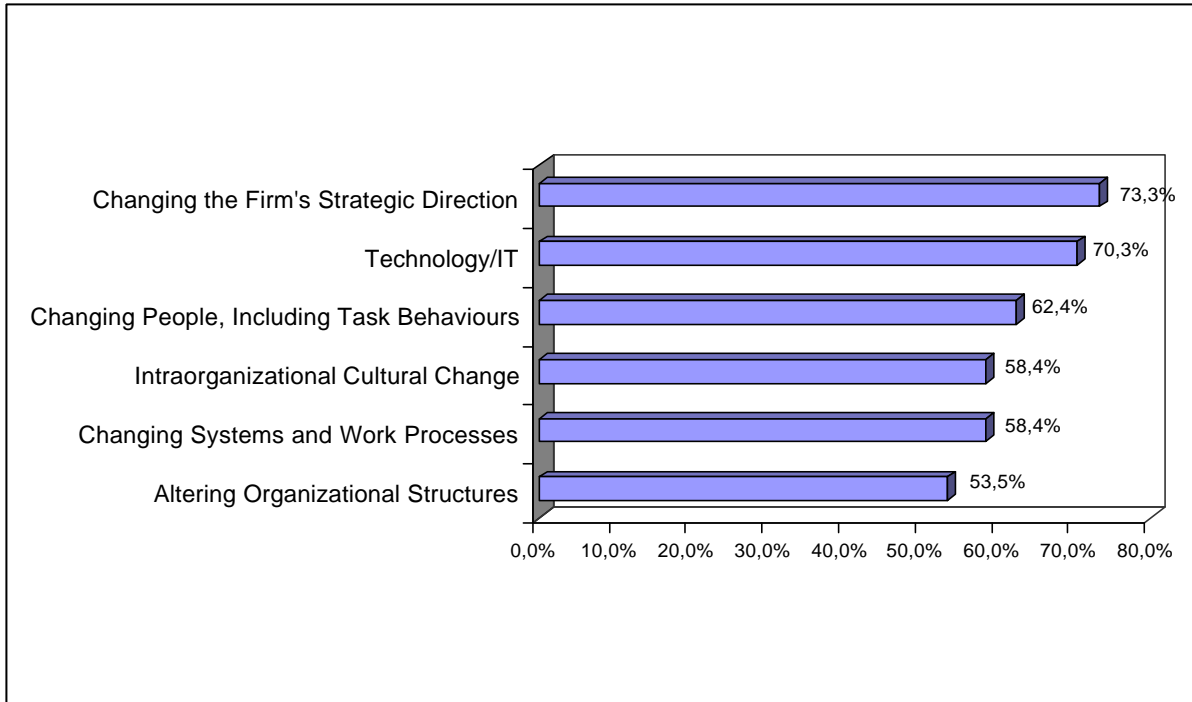
Emphasis was put on the measurement of two personality traits which have been identified as change drivers: 'willingness to take risks' and 'receptivity to change'. Most local entrepreneurs (52.5 %) classified themselves as risk-takers while 36.6 % appeared to be more risk-averse (i.e. not willing to take risks); 10.9 % were neutral. With regard to the degree of change propensity, 76.2 % of the sampled entrepreneurs turned out to be receptive to change while 13.9 % were not (about 10 % were neutral).

Contrary to the sometimes negative image of small entrepreneurs as being backward, risk-averse and static, survey data on the respondents' demographics suggest that the sampled small businessmen and -women are flexible, adaptable individuals who – due to their personality traits – are open to the initiation of change and willing to take risks. This hypothesis is supported by data on the firms' change management practices.

2.2 Change Management Practices of Local SMEs: Change Targets

The survey suggests that the sampled Singaporean SME owners implement organizational change measures on a routine basis. Changing the firm's strategic direction and technology, IT-related changes, and changes related to people and their task behaviour were the most frequently adopted measures (see Figure 2).

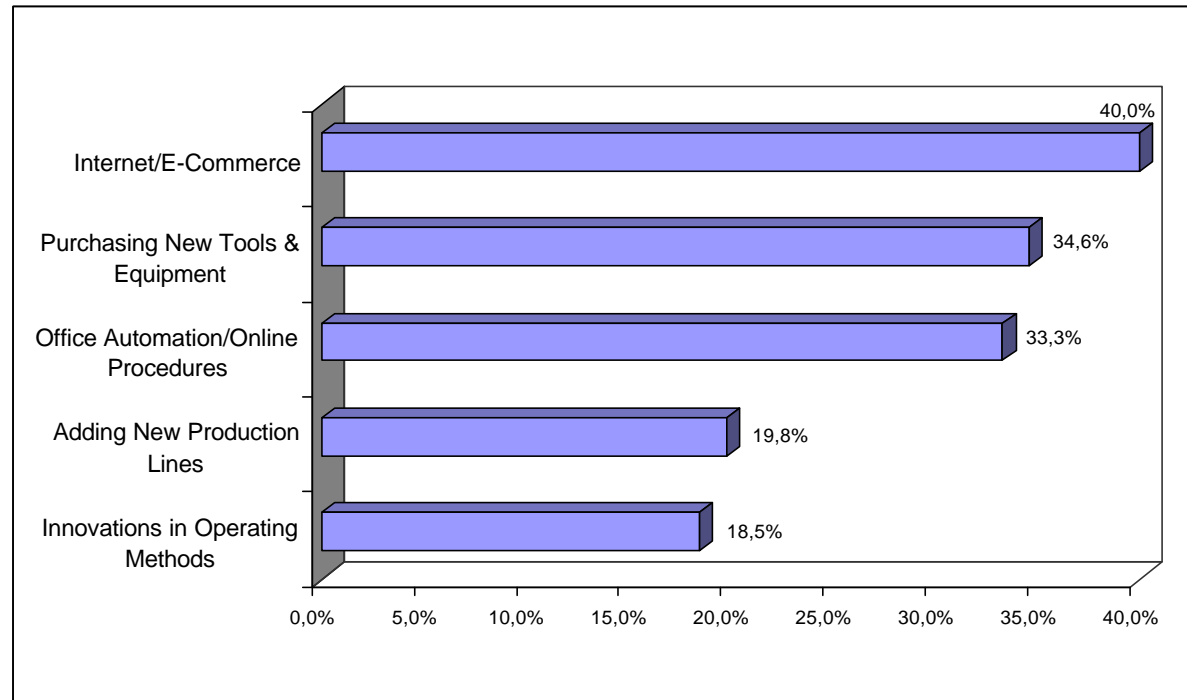
Figure 2: Most Frequently Adopted Change Measures



Source: SME survey

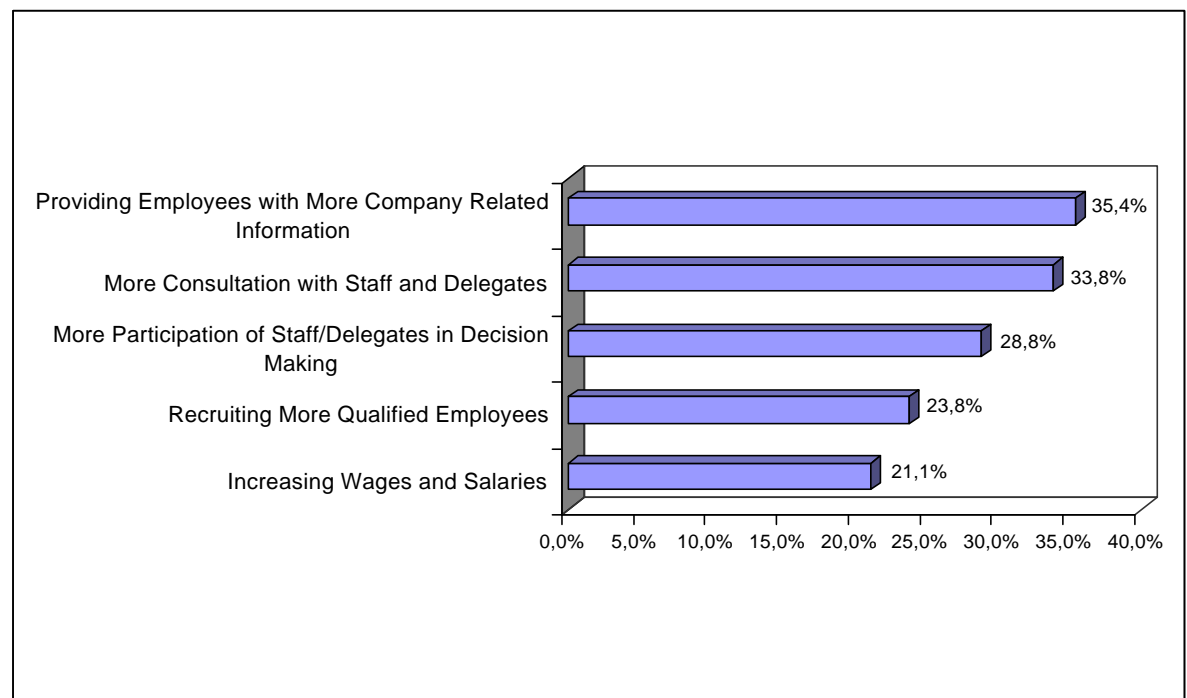
In terms of technology-related changes, internet and e-commerce, purchase of new tools and equipment, as well as office automation and implementation of online procedures were classified as the three most important, major and critical change areas (see Figure 3). Significant people-related changes included the provision of employees with more company-related information, more consultation, and more staff participation in decision-making processes (see Figure 4).

Figure 3: Major / Critical Changes in Technology-Related Areas



Source: SME survey

Figure 4: Major / Critical Changes in People-Related Areas

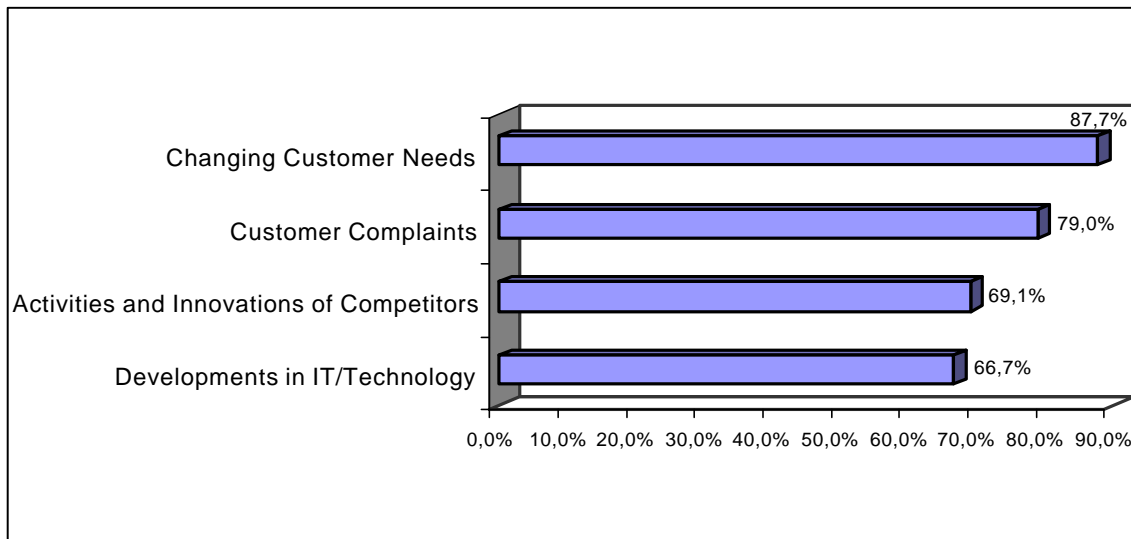


Source: SME survey

2.3 Drivers of Change

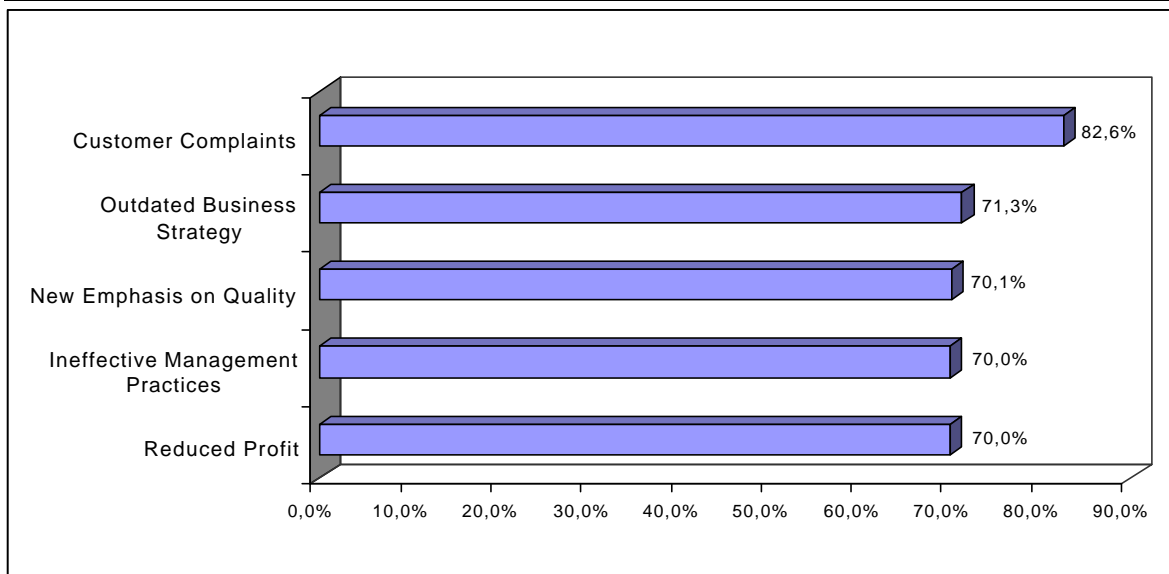
The three most important internal drivers of change which motivated respondents to initiate organizational changes were customer complaints, outdated business strategies and a new emphasis on quality (see Figure 5). Changing customer needs, customer complaints, as well as activities and innovations of competitors turned out to be the most important external forces of change (see Figure 6).

Figure 5: Major Internal Drivers of Organizational Change



Source: SME survey

Figure 6: Major External Drivers of Organizational Change



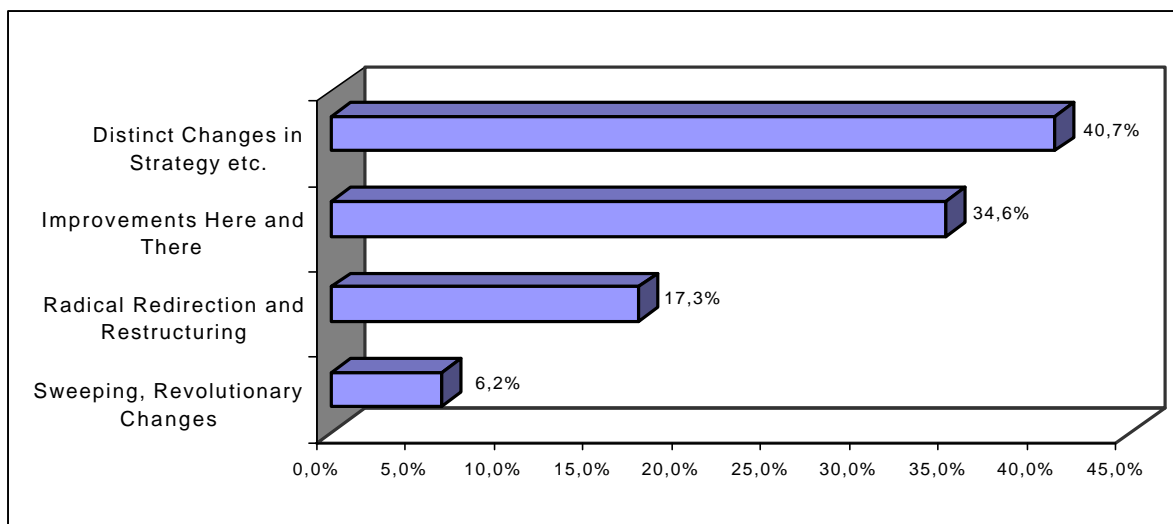
Source: SME survey

2.4 Type and Extent of Organizational Change Measures

Most respondents (58,8 %) interpreted the nature of organizational change measures which had been initiated in their firms since mid-1997 as both reactive and proactive; 27.5 % assessed the changes as reactive in nature. Only 13.8 % of all respondents had proactively implemented organizational change measures in anticipation of future difficulties, threats and opportunities. The majority (66.3 %) claimed that the adopted change measures were based on a detailed plan of action. Almost half (46.3 %) of the respondents characterized the situation they had faced in their firms since mid-1997 as one of high urgency of change and low resistance towards change.

Those who had implemented sweeping, revolutionary changes throughout their firms made up only a small proportion of the survey participants (6.2 %). About 17 % had initiated a radical redirection and restructuring of certain departments. Most respondents characterized the extent of change which had occurred in their firms (e.g. changes with regard to strategies, structures and/or management processes) since mid-1997 as either distinct (40.7 %) or gradual (34.6 %), for example by improving work methods, policies and procedures in certain areas (see Figure 7).

Figure 7: **Extent of Organizational Changes Initiated by Respondents**



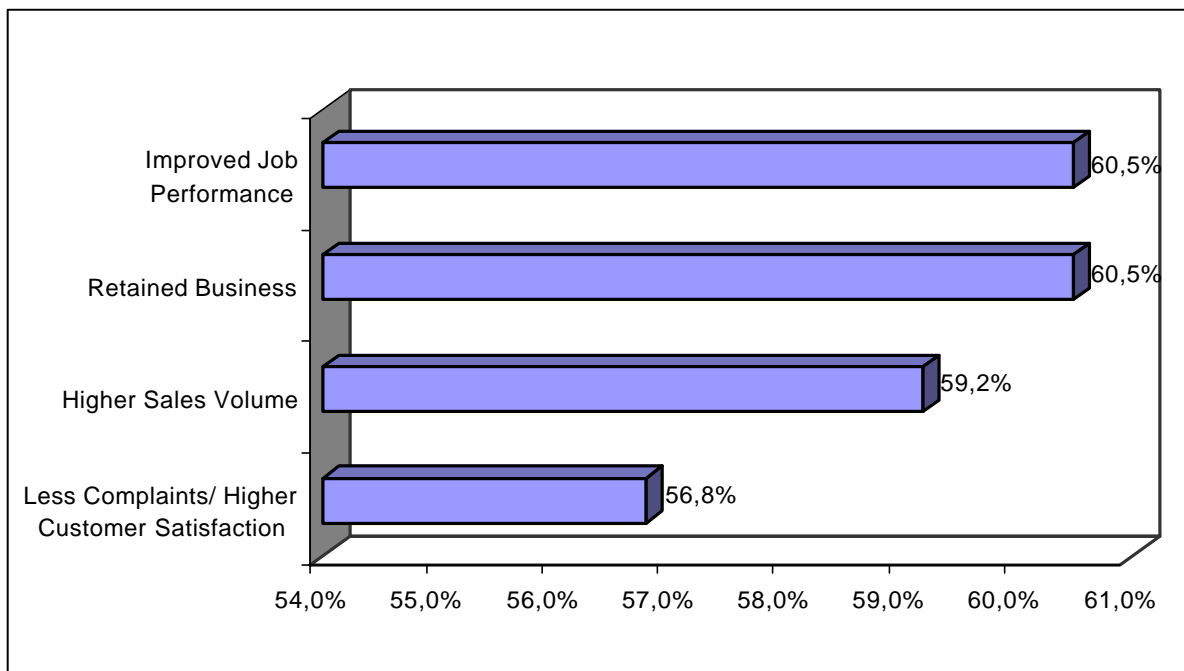
Source: SME survey

2.5 Outcome and Impact of Change Measures

More than half of all survey participants characterized the outcome of organizational change measures as successful (55.6 %) and claimed that they had assessed the effects of implemented organizational change measures (75.3 %). Improved job performance (60.5 %) and retained business (60.5 %), higher sales volume (59.2 %) and less customer complaints /higher customer satisfaction were cited as

the three most important benefits of change initiatives (see Figure 8). Adverse administrative effects, increase in staff turnover and disruption of production were cited as the three most important negative consequences of implemented change measures.

Figure 8: Scale of Benefits Obtained by Change Measures



Source: SME survey

2.6 Resistance and Barriers to Change

All firms encountered resistance to change, particularly amongst non-executive employees but also amongst middle managers and top managers. Slightly more than half of the survey participants (57.5 %) felt that they had been successful in tackling this problem, 41.3 % interpreted themselves as somewhat successful while a small proportion (1.3 %) felt that they were not successful in overcoming resistance amongst staff.

Cost factors, fear, bad habits and mindset problems, inability of old staff to catch up with new developments, insufficient knowledge about new technologies, managerial perception differences and poor communication were cited as main barriers to change.

2.7 Change Management Competency

More than 70 % of the respondents rated their change management competencies as good/very good although only 21 % had attended a relevant training course. About

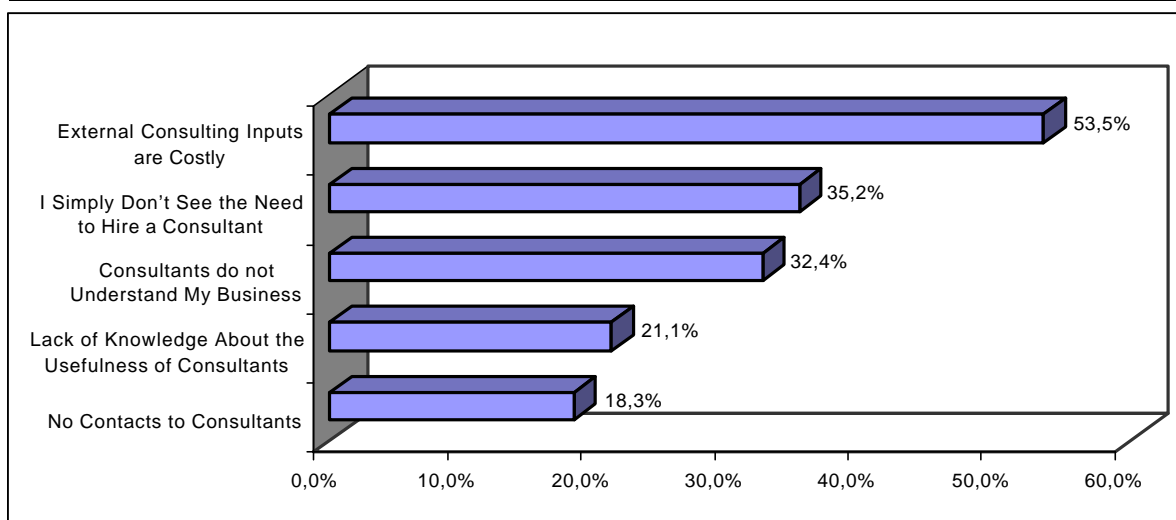
one third of all surveyed SME representatives (31 %) believed that they have a good/very good understanding of the change management concept.

2.8 Management Consultancy Services and SME Assistance Schemes

As expected, about two-thirds of all survey participants (70.3 %) had never utilized the services of external management consultants. Amongst those who had hired external expertise, general management, information management/computer applications and financial management turned out as the most frequently received consulting inputs.

Of those who had utilized external expertise, 40 % acknowledged that the consultant(s) had a high impact on firm performance. Half of the respondents assessed the business impact of external management experts as moderate while 10 % rated it as low. The three most important reasons for not seeking external advice included the perception that external consulting inputs are costly, that many SME owners do not see the need to hire a consultant and that consultants do not fully understand the nature of the respective business (see Figure 9). Altogether, 45 % of the SMEs surveyed had utilized official SME assistance schemes provided by the government.

Figure 9: Reasons for Not Utilizing External Consultancy Services



Source: SME survey

3. Research Results: How Singapore's Small Entrepreneurs Manage Technological Change

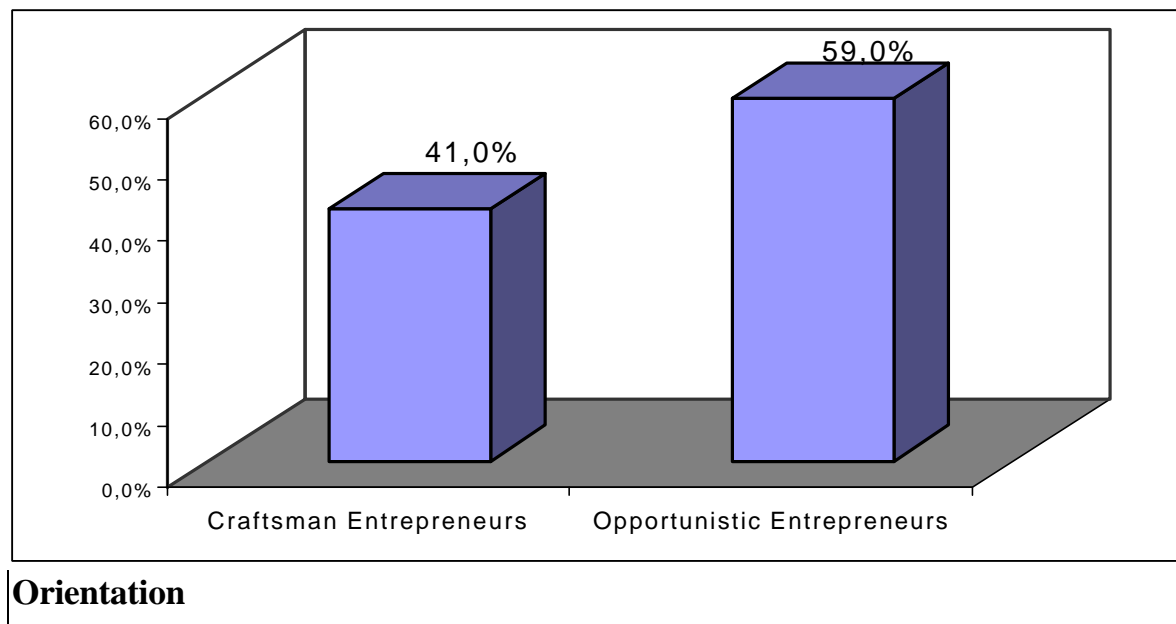
Technology has been identified as one of the most important factors behind the competitive advantage of successful SMEs (Simon 1996). This might partly explain why technology/IT-related changes scored as the second most important/critical change target of the small entrepreneurs surveyed in the context of this study (see Figure 2) which indicates the great value placed by local SMEs

on technological change measures. In view of the general paucity of data on the management of technological change in local (Chinese) SMEs, the following paragraph is aimed at examining potential differences between (i) craftsman and (ii) opportunistic entrepreneurs. Craftsman entrepreneurs who are typified in the entrepreneurship literature as relatively non-adaptive and more risk adverse persons aiming for a comfortable living rather than the highest possible level of performance made up 36.6 % (37 respondents) of the sample. We would expect them to be less receptive to technological change than opportunistic entrepreneurs who are usually seen as (more) achievement-oriented, effective in terms of adaptation, business planning etc., and willing to take risks. Opportunistic craftsmen made up 46 % (47 respondents) of the sample.

3.1 Impact of Entrepreneurial Orientation on Initiation of Technological Change(s)

The various cross tabulations and non-parametric tests which were conducted as part of the initial exploratory data analysis work indicate that opportunistic entrepreneurs are indeed more likely to implement technological change measures compared to craftsman entrepreneurs (see Figure 10).

Figure 10: Initiation of Technological Changes by Entrepreneurial



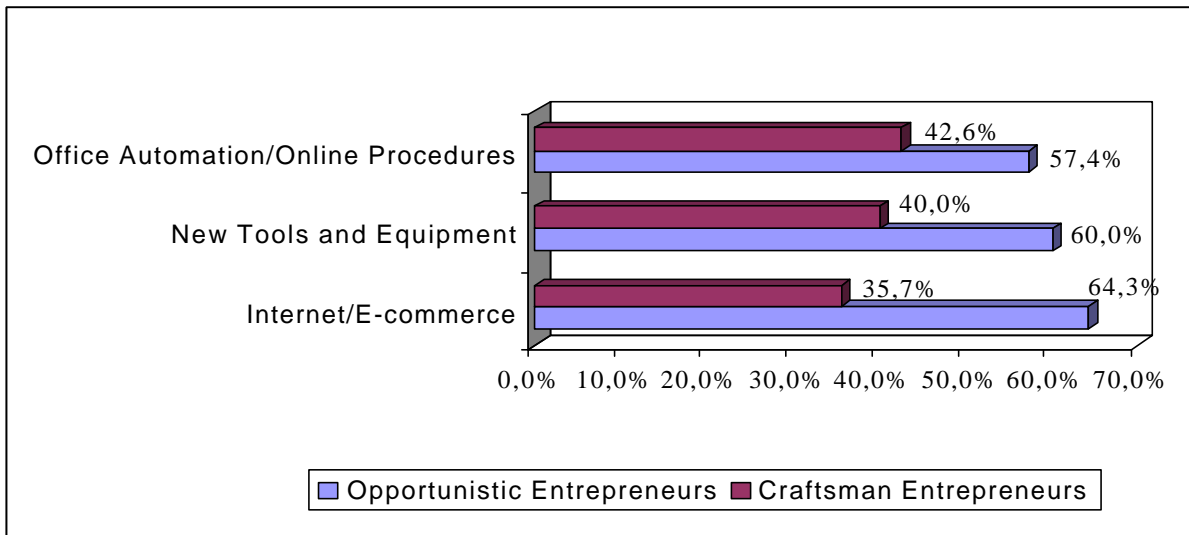
Source: SME survey

3.2 Impact of Entrepreneurial Orientation on Major Technological Change(s)

With regard to the top three major/critical technology related changes adopted by the sampled small Singaporean entrepreneurs as illustrated in Figure 2, the data

analysis revealed that opportunistic entrepreneurs are comparatively more active in implementing internet and e-commerce initiatives, purchasing new tools and equipment and automating their offices as well as operating procedures than craftsman entrepreneurs (see Figure 11).

Figure 11: Implementation of Different Technological Changes by Entrepreneurial Orientation

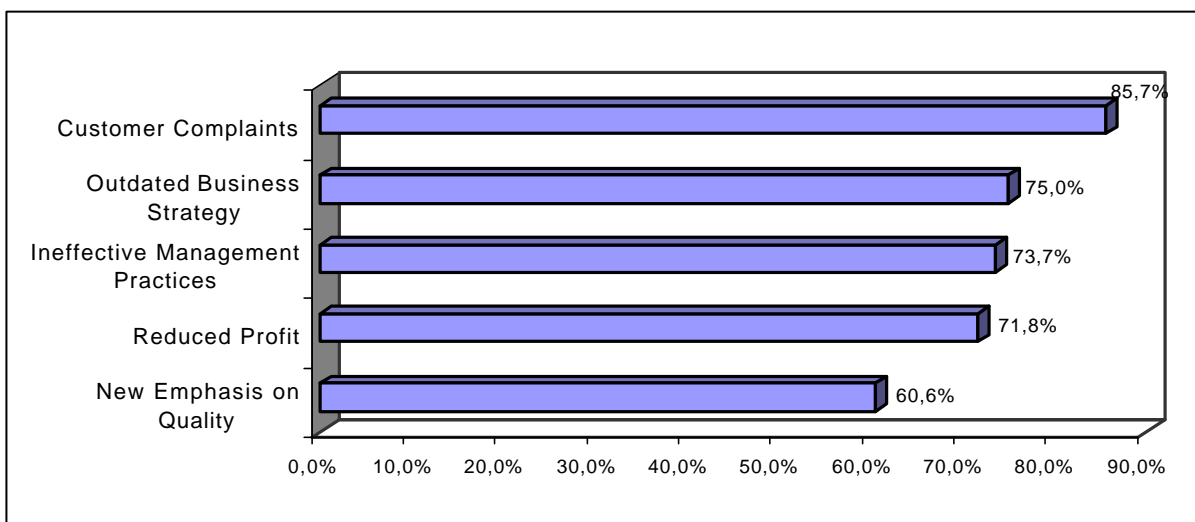


Source: SME survey

3.3 Critical Internal Drivers of Technological Change(s)

The five most important/critical internal forces of change which motivated respondents to initiate technological changes were customer complaints, outdated business strategies, ineffective management strategies, reduced profit and a new emphasis on quality (see Figure 12).

Figure 12: Important/Critical Internal Drivers of Technological Changes

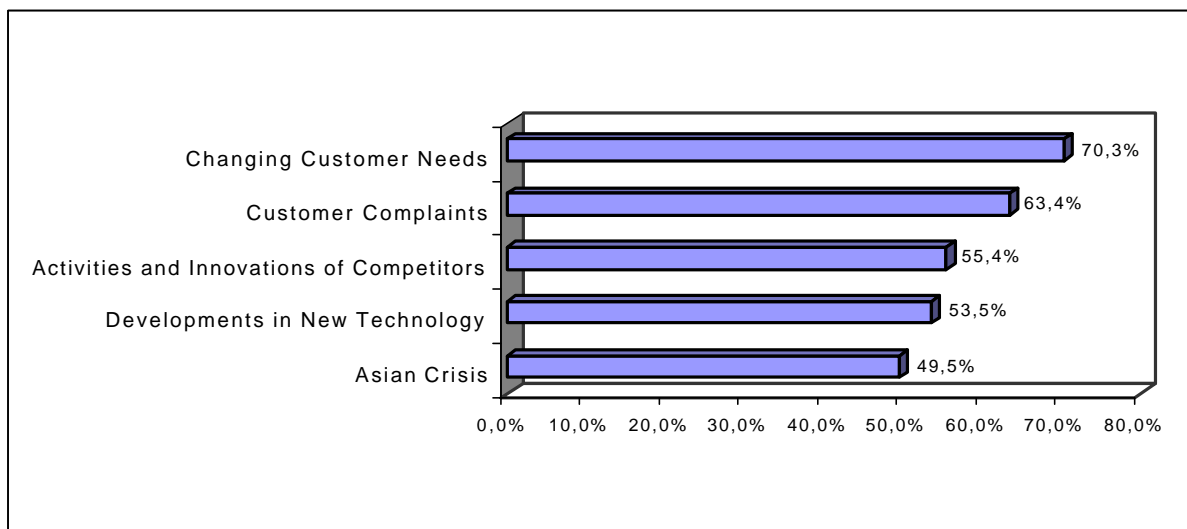


Source: SME survey

3.4 Critical External Drivers of Technological Change(s)

Changing customer needs, preferences and tastes, customer complaints, as well as activities and innovations of competitors turned out to be the most important external forces of change triggering technological change measures, followed by developments in new technology and the Asian crisis (see Figure 13).

Figure 13: Important/Critical External Drivers of Technological Changes

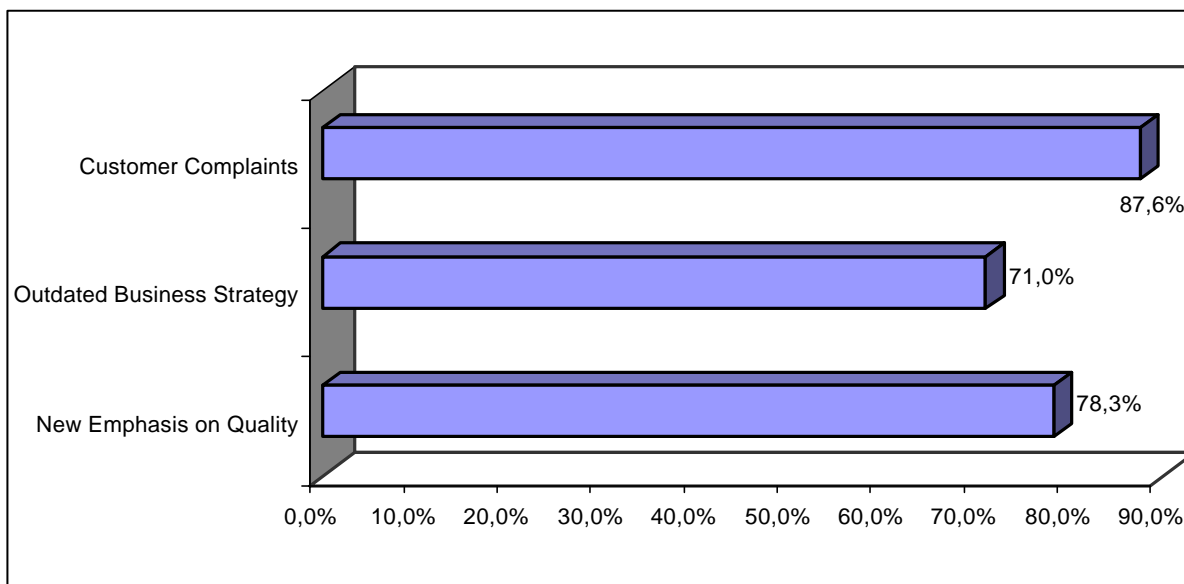


Source: SME survey

3.5 Critical Internal Drivers of Internet and E-Commerce Related Technological Change(s)

In view of the relatively large number of respondents (68 %) who had - in one way or another - embraced internet and e-commerce as part of their technological change projects, it was decided to explore the internal drivers of these initiatives. Customer complaints turned out as the most critical internal driving force of Internet and e-commerce-related technology change measures, followed by outdated business strategies and quality considerations. The results are reported in Figure 14.

Figure 14: Important/Critical Internal Drivers of Internet & E-Commerce Related Technological Changes

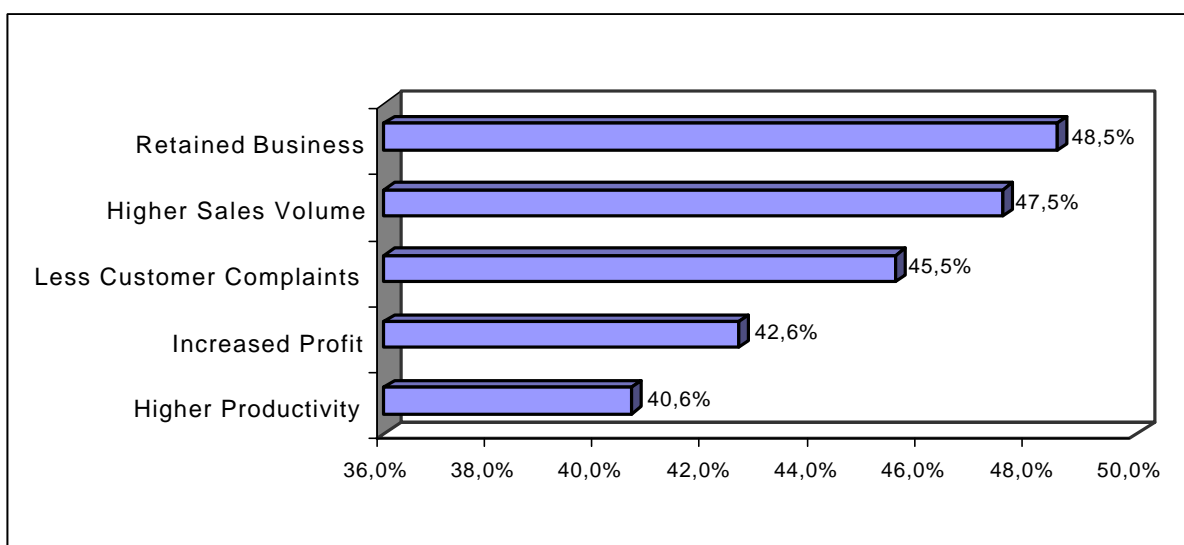


Source: SME survey

3.6 Benefits of Technological Change(s)

The top five important / critical benefits of technological change were retained business/improved job performance, higher sales volume, lesser customer complaints, increased profit and higher productivity (see Figure 15).

Figure 15: Important/Critical Benefits of Technological Change

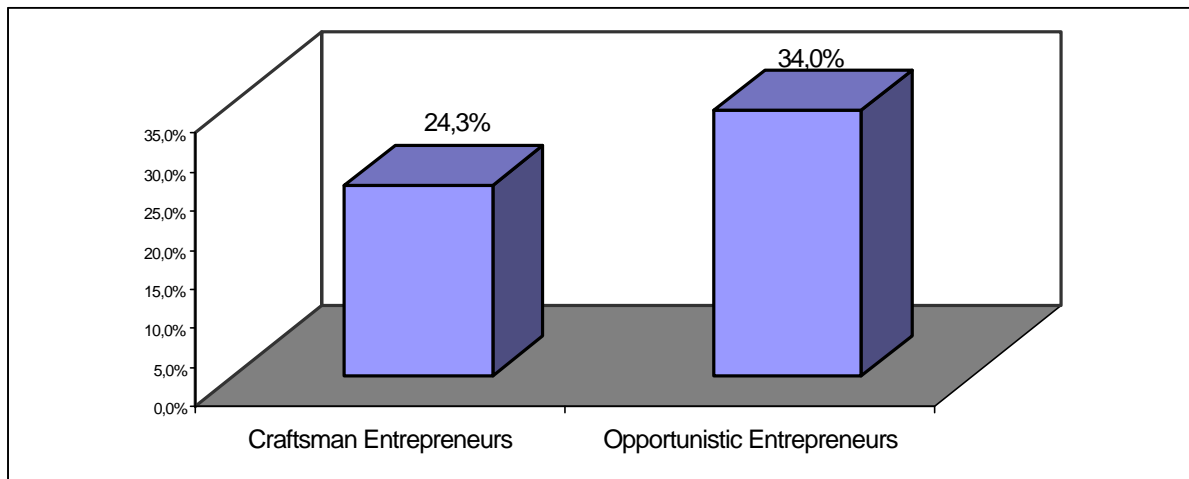


Source: SME survey

3.7 Utilization of External Management Consultants

About two-thirds of all survey participants (70.3 %) had never utilized the services of external management consultants. Are there any differences between the two types of entrepreneurs introduced earlier in this respect? As indicated by Figure 16, opportunistic entrepreneurs are more likely to utilize the services of external management consultants than craftsman entrepreneurs. While 34 % of the opportunistic small businessmen surveyed had done so, the respective percentage of craftsman entrepreneurs was about 24 %.

Figure 16: Utilization of External Management Consultants by Entrepreneurial Orientation



Source: SME survey

4. Case Studies

4.1 Leveraging Machine Technology: The Case of Ultra Industrial Automation Pte Ltd.

Established in 1989, Ultra Industrial Automation Pte Ltd (UIA) is one of the leading stockists and distributors of automation components and instrumentation mechanical tool accessories in Singapore. Their products are used in a wide and diverse range of industries such as disk drive, semiconductor, and packaging companies.

Mr Chris Chan who holds a diploma in electrical engineering is the co-founder and director of UIA. He was responsible for initiating technological changes within his company in response to the increasing competition and innovation by/of rival companies in the automation components industry. At that time, Mr Chan was con-

vinced that he had to cut component cost by 10 % to 30 % in order to keep his clients and increase his market share in the industry. Therefore in 1994, UIA diversified its operation to include the manufacture of its own Modular Aluminum Profile Structure (MAPS) which is a safety enclosure for machine structures. Their low-cost product was priced 20 % to 30 % lower than their existing foreign-based rivals, and this change led the company to achieve a turnover of over a million dollars that year.

However, the implementation of this technological change was not smooth-sailing from the start. MAPS raw materials had to be sourced from overseas suppliers initially and this resulted in problems concerning the quantity of orders and delay in lead times. This was solved in late 1998, when Mr Chan forged a business alliance with a local supplier which was able to produce the materials that could meet the specific requirements of the manufacture of MAPS. This move has since cut down inventory costs, lead time, and allowed longer payment terms than overseas suppliers as well as better profit margins. Besides the manufacture of MAPS, Mr Chan also introduced new products such as 'Stepper' and 'Servo Drive' which are controller and positioning systems for his products.

In addition to a highly focused product range, Mr Chan felt that another part of UIA's competitive edge is its ability to conduct after-sales training for its customers. Through specialized and regular professional support, UIA helped its customers to cope with their present as well as future technical requirements. UIA's engineers are trained in conducting seminars and are also constantly updated on the latest innovations through regular attachment with overseas companies. Mr Chan also invested in a machine shop to add value to products sold to his customers. The introduction of this service provided end-users with a one-stop service for the servicing and finishing of all the product's component parts. This gave him a further edge over his competitors as none of them provided such an intensive machining capability.

With the technological innovation and increase in his product range, Mr Chan needed a bigger market place to sell his products. He felt that his products had to enter into the global market beyond his existing Southeast Asian base. Therefore beginning end-1997, he exported his products to Taiwan, South Africa, China, Mexico, and USA. His next target is the European market.

Mr. Chan anticipates the Southeast Asian region to experience robust industrial development in the 21st century and is gearing up his company to seize these tremendous growth opportunities. Already in the pipeline are plans to extend the company's manufacturing operations to neighbouring countries like Indonesia, Malaysia and China. And with an overall annual turnover of more than S\$13 million, UIA is well positioned to be a leading player in its specialized market.

4.2 Embracing E-Commerce: The Case of Far East Flora

Far East Flora was founded by the Cheok brothers in 1965. At that time, the three brothers operated their retail flower business from the back of their van. Their first flowers and gifts department was formed in 1978 to complement and improve the company's product line and services. Since then, Far East Flora has expanded and sells over 2,000 freshly cut flowers and other gift items in its garden "supermarket". As a member of Interflora, they embarked on an e-marketplace platform to sell and deliver their products to over 60 countries worldwide. Today, Far East Flora is a major importer, exporter and wholesaler of fresh-cut flowers and enjoying a turnover of S\$22 million last year.

Far East Flora Pte. Ltd. is an SME which has taken advantage of government assistance schemes to reinvent itself for the new economy. To assist the SME sector to keep pace with changing environmental demands, the Singapore government offers over sixty assistance schemes to ensure that SMEs survive and remain competitive. One such scheme is the 'Jumpstart Programme' which is offered by the Singapore Productivity and Standards Board (PSB). The scheme aims to accelerate the online transaction capability of SMEs by helping them to adopt 'ready-made' e-commerce solutions. 17,000 SMEs have taken advantage of this scheme. Another 1,500 SMEs also took advantage of the e-Business Industry Development Scheme which is jointly offered by PSB and the Information Development Authority (IDA). This scheme allows SMEs to join an e-marketplace that is customized to meet the needs of suppliers and customers in various industry sectors.

5. Conclusion

Contrary to popular belief that local SME entrepreneurs are risk-averse, unprogressive and rigid, the study revealed that most respondents (53 %) see themselves as risk-takers. Three in four respondents (76 %) characterized themselves as receptive to change. The collected data show that local entrepreneurs have the gusto to take up risks, and that they are flexible and responsive to both internal and external forces of change. Our pioneering research on change management practices of SMEs in Singapore relates the pattern of organizational changes engaged by local SME owner-managers as well as the drivers, barriers and types of respective adaptation processes, in the midst of challenges and developments occurring in a never static business environment.

Survey data indicate that the demographic characteristics of small entrepreneurs in terms of age, organizational tenure, educational level and specialization as well as the cognitive perspectives of SME owners are decisive when it comes to an understanding of the propensity to change, proactive change management and improved firm performance.

The study clearly shows that Singapore's small entrepreneurs put great value on new technology adoption and respective change projects. After strategy, technology is the second most important change target of the sampled small Singaporean (Chinese) entrepreneurs. The companies studied by case analysis did proactively embrace Internet and e-commerce and invested in the modernization and automation of tools, equipment, operating procedures and offices. Besides internal and external forces of change, such as customer complaints and outdated business strategies, entrepreneurial orientation and demographic traits are important predictors of one's receptivity to technological change. Entrepreneurs with an opportunistic orientation, tertiary education and a specialization in either engineering or management are more likely to master technological change compared to craftsman entrepreneurs who put significantly less emphasis on change measures.

To sum up, the data clearly show that more local small and medium-sized companies have come to accept the importance and benefits of organizational change and external change advocates such as management consultants and official SME incentive schemes. However, to further propagate the change management concept as a sort of new economy survival toolkit, relevant skills upgrading and awareness building measures are necessary to turn more local SME owner-managers into change masters.

References

- Backman, M. (2000):** Asian Eclipse – Exposing the Dark Side of Business in Asia, Singapore: Wiley.
- Beckhard, R. (1969):** Organizational Development: Strategies and Models, Reading, MA: Addison Wesley.
- Beckhard, R. and Harris, R.T. (1987):** Organizational Transitions – Managing Complex Change, 2nd ed., Reading, MA: Addison-Wesley.
- Bennis, W. (1969):** Organizational Development: Its Nature, Origins and Prospects, Reading, MA: Addison Wesley.
- Bjerke, B. (1998):** Entrepreneurship and SMEs in the Singaporean Context, in: M. H. Toh and K. Y. Tan (eds.): Competitiveness of the Singapore Economy: A Strategic Perspective, Singapore: Singapore University Press, pp. 249-293.
- Bracker, J., Keats, B. and Pearson, J. (1988):** Planning and Financial Performance Among Small Firms in a Growth Industry, in: Strategic Management Journal, Vol. 9, No. 6, pp. 591-603.
- Burke, W. and Litwin, G.H. (1994):** Diagnostic Models for Organizational Development, in: A. Howard and Associates (eds.): Diagnosis for Organizational Change, London and New York: Guilford Press.
- Carland, J.W., Hoy, F., Boulton, W.R. and Carland, J.A.C. (1984):** Differentiating Entrepreneurs from Small Business Owners: A Conceptualization, in: Academy of Management Review, Vol.9, No. 2, pp. 354-359.
- Child, J. (1972):** Organizational Structure, Environment, and Performance: The Role of Strategic Choice, in: Sociology, Vol. 6, pp. 1-22.
- Child, J. (1997):** Strategic Choice in the Analysis of Action, Structure, Organizations and Environment: Retrospect and Prospect, in: Organization Studies, Vol. 18, No.1, pp. 43-76.
- Chua Soo Ee (2001):** The New Economy and Chinese Enterprises in Singapore, unpublished Ms., Faculty of Business Administration, National University of Singapore.
- Dyer, W.G. (1985):** The Cycle of Cultural Evolution in Organizations, in: R. Kilmann, M.J. Saxton and R. Serpa (eds.): Gaining Control of the Corporate Culture, San Francisco/ London: Jossey Bass, pp. 200-229.
- Economist Intelligence Unit and Andersen Consulting (2000):** Beyond the Bamboo Network: Successful Strategies for Change in Asia, Hong Kong: Economist Intelligence Unit.

- Filley, A.C. and Aldag, R.J. (1978):** Characteristics and Measurement of an Organizational Typology, in: *Academy of Management Journal*, Vol. 21, No.4, pp. 578 –591.
- Greenberg, J. and Baron, R. A. (1997):** *Behavior in Organizations: Understanding and Managing the Human Side of Work*, 7th ed., Upper Saddle River, NJ: Prentice Hall.
- Howard, R. (1991):** *Can Small Businesses Help Countries Compete? Entrepreneurship: Creativity at Work*, Boston: Harvard Business School Press.
- Kirkpatrick, D. (1985):** *How to Manage Change Effectively*, San Francisco/London: Jossey Bass.
- Leavitt, H.J. (1965):** Applied Organizational Change in Industry: Structural, Technical and Human Approach, in: J. G. March (ed.): *Handbook of Organizations*, Chicago: Rand McNally and Company, pp. 1144-1170.
- Menkhoff, T. (1993):** Trade Routes, Trust and Trading Networks - Chinese Small Enterprises in Singapore, *Bielefeld Studies on the Sociology of Development* Vol. 54 (edited by Prof. H.-D. Evers), Saarbruecken/ Fort Lauderdale: Breitenbach Publishers.
- Menkhoff, T. and Kay, L. (2000):** Worlds Apart? Reflections on the Relationship between Small Entrepreneurs in Singapore and External Change Advocates, Working Paper No. 154, Dept. of Sociology, National University of Singapore.
- Menkhoff, T. (2001):** Chinese Market Cultures in the Asian-Pacific Region between Continuity and Change (in German), in: H. Schrader, M. Kaiser and Ruediger Korff (eds.): *Markt, Kultur und Gesellschaft – Zur Aktualitaet von 25 Jahren Entwicklungsforschung. Festschrift zum 65. Geburtstag von Hans-Dieter Evers*, Muenster: LIT Verlag, pp. 53-75.
- Pfeffer, J. and Salancik, G.R. (1978):** *The External Control of Organizations: A Resource Dependency Perspective*, New York: Harper and Row.
- Redding, S.G. (1993):** *The Spirit of Chinese Capitalism*, Berlin: de Gruyter.
- Schaefer, R.H. and Thomson, H.A. (1998):** Successful Change Programs begin with Results, in: *Harvard Business Review on Change*, Boston, MA.: Harvard Business School Publishing, pp. 189-213.
- Simon, H. (1996):** *Hidden Champions: Lessons from 500 of the World's Best Unknown Companies*, Boston, MA: Harvard Business School Press.

Smith, N. (1967): The Entrepreneur and His Firm: The Relationship between Type of Man and Type of Company, East Lansing, Mich.: Michigan State University.

Toffler, A. (1991): Power Shift, London: Bantan Books.

Tushman, M.L., Newman, W.H. and Romanelli, E. (1997): Convergence and Upheaval: Managing the Unsteady Pace of Organizational Evolution, in: M. L. Tushman and P. Anderson (eds.): Managing Strategic Innovation and Change – A Collection of Readings, New York/Oxford: Oxford University Press, pp. 583-594.

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