GS1 Australia
(Formerly EAN Australia)

Training needs of Australian Supply Chain Managers

A study jointly conducted by GS1 Australia and Monash University

MONASH University
Business and Economics

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1 Executive Summary

This study has examined the education, training and development needs of supply chain professionals in Australia. One hundred and nine completed questionnaires were received, giving a net response rate of 15%.

The findings show that Australian businesses have considerable activity with customers, suppliers and operations located in foreign countries. This activity is likely to increase even further in the future as Australian companies become global in their attempt to survive in a highly competitive environment. Supply chain professionals in Australia are highly educated with 86% holding a university education. They also have previous work experience in a variety of other functional areas. Around one-half of the respondents to the questionnaire had experience in general management, purchasing and warehousing. However, experience in the area of design and R&D is lacking. Supply chain professionals should broaden their experience in these two areas given the fact that product variety is increasing and product life cycles are decreasing, meaning that supply chain professionals are dealing with more products, more often.

Respondents indicated that they have decision-making responsibility (both total and partial) for a range of areas within their organisation (see Figure 6) and had also received considerable amount of formal or informal training in these areas (see Figure 7). As more organisations flatten their hierarchical structures and break down functional boundaries, managers will have to take on a much wider range of responsibilities. For supply chain professionals, these activities are likely to increase even further as organisations become highly integrated into their supply chains. With respect to specific training in the area of supply chain management, less than one-third (31%) of the respondents had received such training in the previous two years. This is clearly an area that requires immediate response given the comments made in the previous paragraphs regarding increasing product variety, decreasing product life cycles and the integration of supply chains. Much of the training received by respondents had been either on the job or provided by consultants. Academic institutions are missing out on this opportunity and should respond accordingly.

The survey also identifies that companies need to share additional information with their customers and suppliers to improve their own performance further, as well as the performance of their customers and suppliers. In this respect, forecast information from customers was identified by over 80% of the respondents. Distribution centre problems and up coming promotions up were also identified by around one-half of the respondents. Around 40% of the respondents indicated that their customers should know more about the company's challenges, strengths and alternative sources of supply in case of supply difficulties. Respondents identified a variety of areas in which they would like additional knowledge from their suppliers to operate more efficiently (see Figure 13). These results indicate that relationships with suppliers are not as well developed as they are with their customers. This is clearly an area on which companies should focus on in order to improve the performance of the whole supply chain.

Respondents indicated that their company's performance had improved on all fronts over the previous two years. Around three-quarters of the respondents indicated that performance had improved in the areas of productivity, cost effectiveness and sales volume. Around one-half to two-thirds of the respondents indicated improvement in all others areas (see Figure 15). This means that there is room for improvement. Respondents recognised the need to make improvements in profitability, innovation and the elimination of waste. The adoption of supply chain management technologies and principles is clearly a viable option for companies making further improvements in performance.

The findings of this study highlight the increasingly important role that industry associations such as GS1 Australia and academic institutions can play in developing supply chain professionals for the future. It is recommended that appropriate training programs in supply chain management are developed which are targeted at middle and top management in Australia and that formal accreditation of these programs be carried out by an appropriate organisation such as GS1 Australia.

2 Introduction

The competitive environment of the 21st century requires the integration of business processes from end consumer through the retailer, manufacturers and their suppliers to provide products, services and information that add value for customers. The integration of business processes will require the adoption of a wide range of new and appropriate strategies, technologies and practices along the supply chain. Many businesses (retailers, wholesalers, manufacturers and suppliers) have appointed supply chain managers to champion the adoption of supply chain principles.

This report presents the main findings of a national study conducted by Monash University in cooperation with GS1 Australia. The purpose of the research was to gain an in-depth understanding of the education, training and development needs of Australian supply chain managers and professionals holding key supply chain responsibilities. GS1 Australia is a not-for-profit organisation representing over 15,000 businesses that have adopted supply chain product identification, tracking and communication practices, through EAN•UCC global numbering, bar coding and electronic messaging systems. GS1 Australia has developed and delivered a number of short training courses to its members over the past two years.

3 Research Methodology

The research was conducted by means of a postal questionnaire survey which was developed in consultation with GS1 Australia. The survey questionnaire was divided into two sections: the first section consisted of 20 questions addressing the respondent's educational qualifications, areas of decision making and responsibility and the knowledge they required from their trading partners. The second section was more focussed on an evaluation of training courses run by GS1 Australia and has been addressed separately by GS1 Australia.

A sample of 750 member organisations was provided by GS1 Australia. The questionnaire, along with a covering letter and a prepaid envelope, was mailed out to the 'Supply Chain Manager' of each of the 750 companies in May 2005. Within two months, 109 completed questionaries were returned. In addition, 27 questionnaires were returned undelivered. A follow-up letter was also sent to the organisations as a reminder to complete and return the questionnaire. The final net response rate achieved was 15%. The data was entered into a Microsoft Access database and subsequently exported to a statistical analysis package for analysis.

4 Findings

This section discusses aggregated survey findings concerning: company background information; types and levels of training, education and employment experience; effect of training and education on company performance; types of supply chain information required; supply chain performance and supply chain improvements required.

4.1 Company Background

4.1.1 Location of Company Operations

Figure 1 reflects the fact that many companies had multiple operations or sales/service centres across different states in Australia. Of those surveyed, 57% had operations/centres in Victoria, 49% operated in New South Wales, 38% in Queensland, 28% in Western Australia and 25% in South Australia. This indicates that companies must ensure that their communication, transport and logistics need to be maintained to ensure an efficient and effective supply chain.

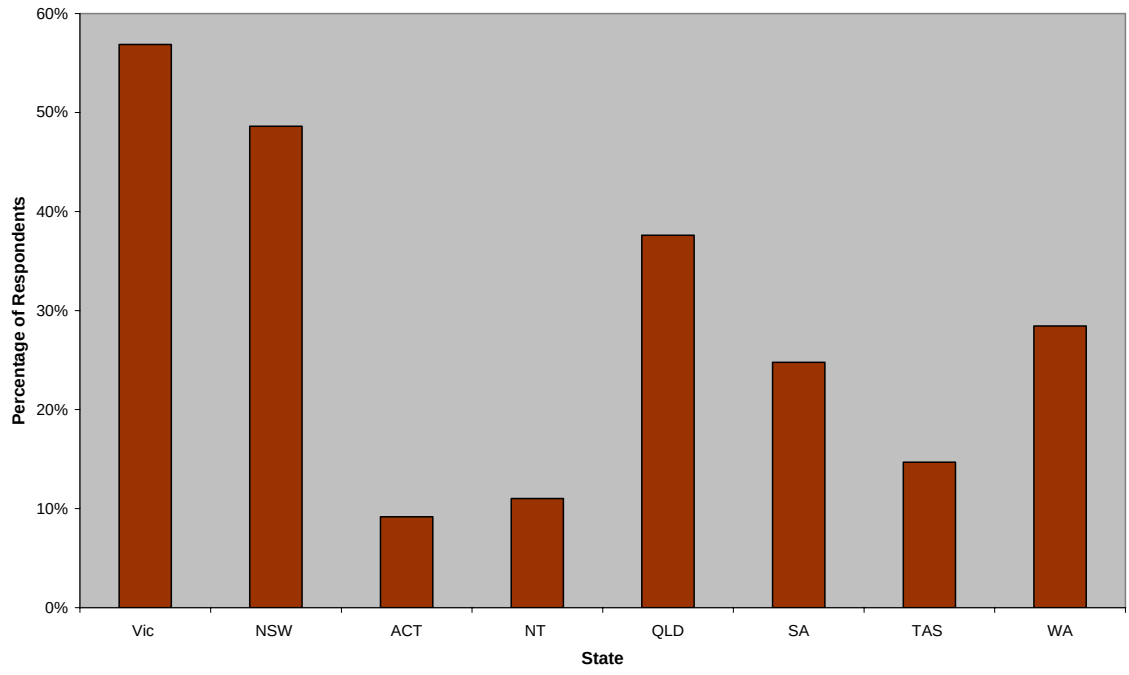

Figure 1: Location of Respondents across multiple states within Australia

4.1.2 Overseas Supply Chain Activity

Figure 2 shows that almost two-thirds of the respondents had suppliers located overseas, whilst one-half of the respondents had customers located overseas. This reveals that organisational boundaries are getting blurred and supply chains are embracing a more global character. This will have major ramifications on not only an organisation's operations but on the ways and means by which they interact with their customers and how judiciously they employ technology.

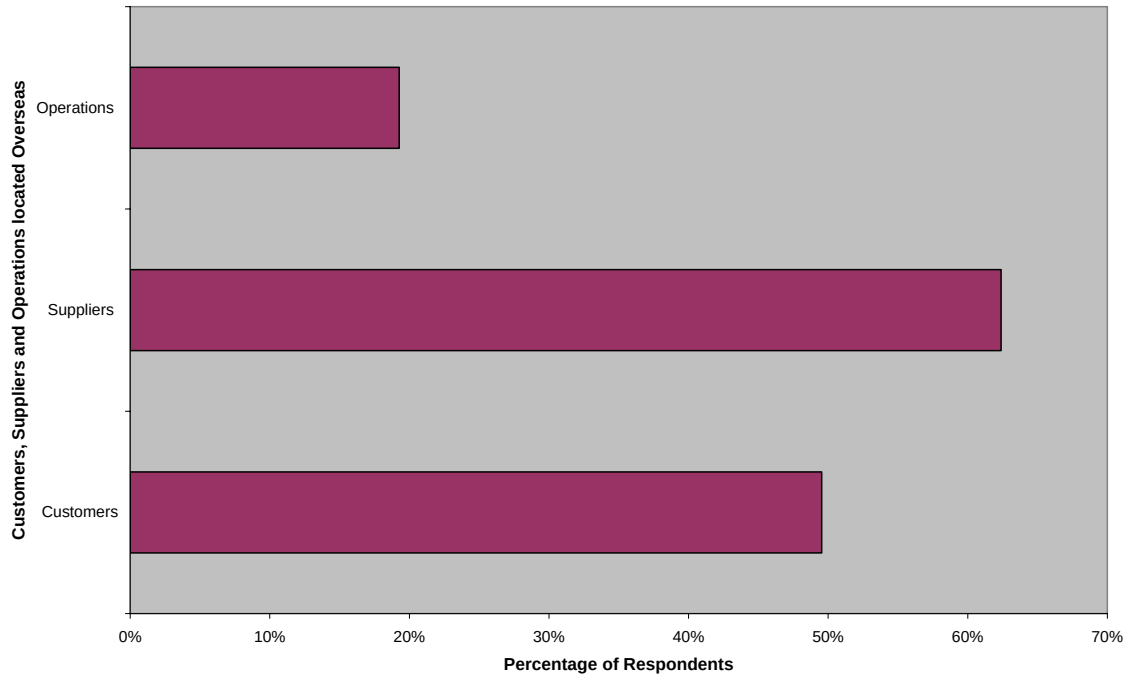

Figure 2: Major operations, customers and suppliers located overseas

4.2 Respondents' Employment Experience, Training and Education

4.2.1 Employment Experience

It is interesting to note from Figure 3 that over one-half of the respondents (55%) had general management experience. Having worked in this role provides a strategic view of the company. Almost one-half (47%) of the respondents had worked in purchasing and warehousing roles while 41% had prior experience in sales. However, respondents had least experience in areas such as design (15%) and R&D (19%).

Given that we are moving into an era where product life cycles are becoming shorter and organisations are differentiating themselves on the basis of product variety supply chain managers in the future will need to have more experience in areas like R&D and design. The 'Other' category identified by 28% of the respondents had production/operations management followed by IT listed as the functional areas that they had worked in prior to their current occupation.

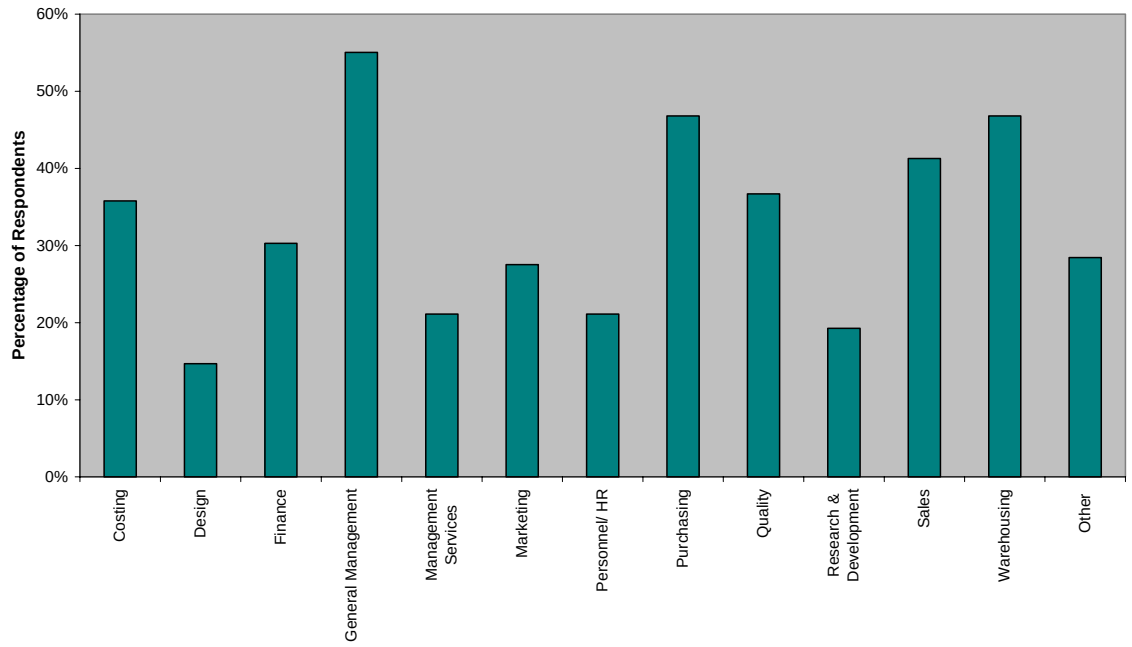

Figure 3: Previous Areas of Employment

4.2.2 Formal Education

The results examining the highest level of formal qualification held by the respondents (see Figure 4) show that Australian Supply Chain Managers are fairly well educated. This is supported by the fact that 86% of the respondents had a university education. Drilling down further reveals that 19% of the respondents had a diploma, 41% had a first degree and around one-quarter (26%) of them were post graduates. A comparison with previous studies such as D'Netto and Sohal (1999) indicating that 78.8% of the Production Managers had a diploma or a degree suggests that Supply Chain Managers are highly educated individuals.

A similar point is made in the research undertaken by Burcher et al. (2004) that seeks to present a comparison between three independent but related studies of Production Managers conducted in 1977, 1986 and 1999 in the UK. They highlight that the proportion of graduate production managers has increased significantly over the 20-year period.

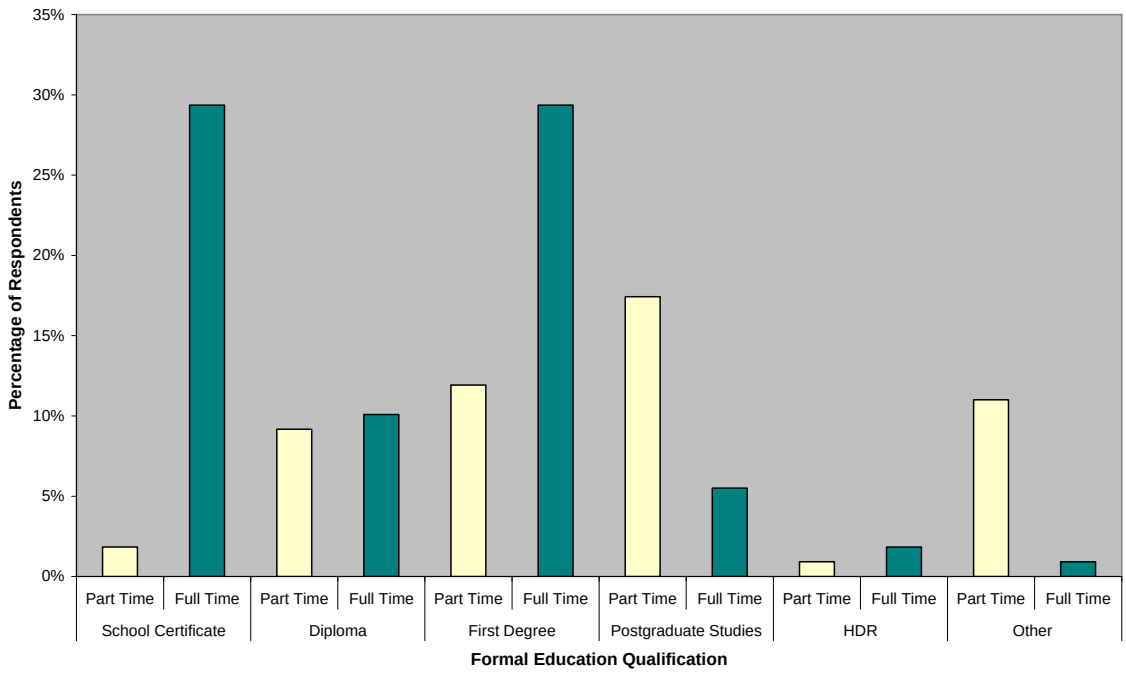

Figure 4: Formal Education Qualification

4.2.3 Applicability of Training and Education

With a few exceptions, the respondents found their formal education to be useful for their current jobs. As shown in Figure 5, almost one-half of the respondents (48%) found the education to be very useful to their job while close to one-third (32%) found it somewhat useful. This means that a majority of the supply chain managers were able to apply the formal education they received in their current role. However, it reinforces the importance of the training imparted by organisations like GS1 so that managers can update their skills.

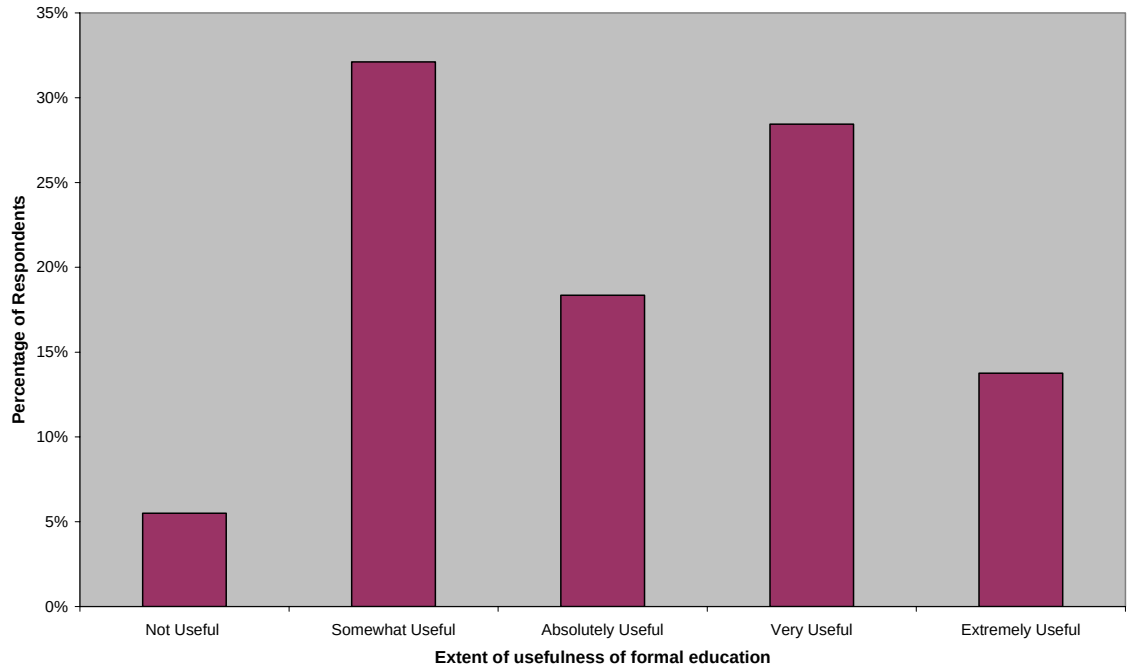

Figure 5: Extent to which education has been useful for the job

4.2.4 Respondents' Responsibilities

Figure 6 shows that an overwhelming 86% of the respondents were responsible for procurement/purchasing and around three-quarters of the respondents were responsible for areas such as customer service (77%), human resources (76%) and production/operations (75%). Around two-thirds of the respondents indicated that they were responsible for administration whilst just over one-half of the respondents indicated that they were responsible for areas like sales and marketing (53%) and finance and accounts (54%).

Examining Figure 6 in more detail shows that almost one-half of the respondents are partially responsible for human resources and around 45% of the respondents had total decision-making responsibility for procurement/purchasing. In brief, the majority of the respondents were responsible for a variety of functions. Many of these organisations are small organisations and hence the Supply Manager is responsible for performing more generalist functions. This is also consistent with the findings of D'Netto and Sohal (1999) whereby due to the dynamic character of the position, a Production Manager is required to gain knowledge across a variety of disciplines.

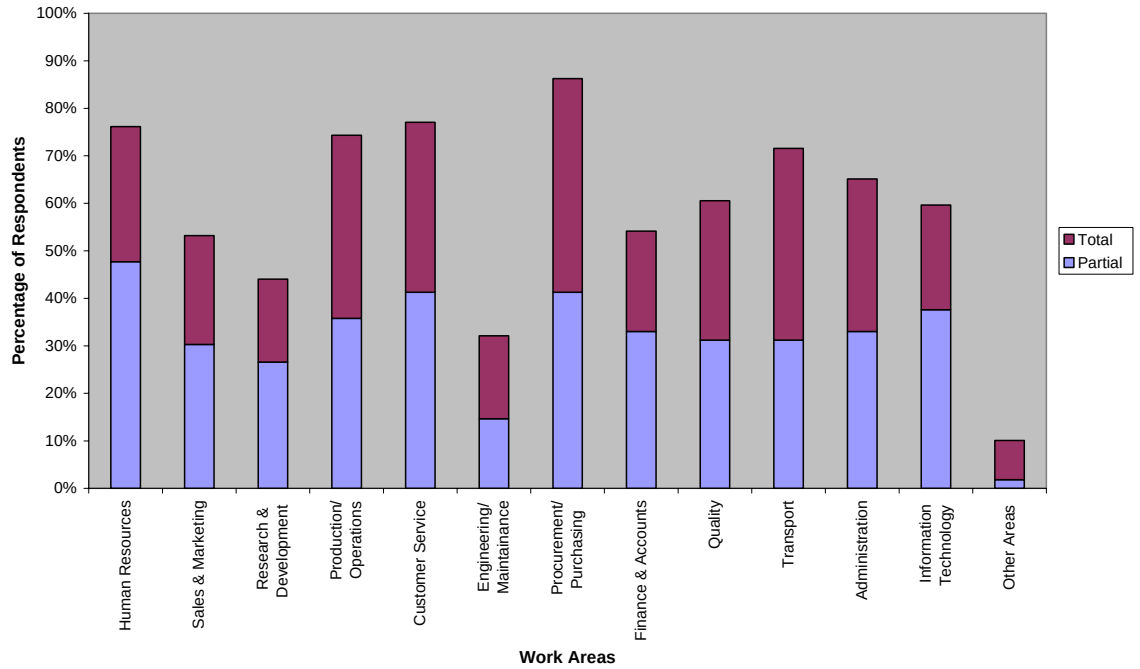

Figure 6: Decision Making Responsibilities

4.2.5 Types of Training Received

Figure 7 shows that around sixty percent of the respondents had received training in areas such as production/operations (59%), procurement/purchasing (59%) and human resources (56%). Furthermore, almost one-half had received training in quality (48%). There is consistency in the areas where the respondents have decision making responsibility and the areas where they have received formal and informal training.

The other element that surfaces in these questions is that a Supply Chain Manager's job encompasses a range of functional areas and a majority of the managers receive their training in an informal way. The results of this study complement the research conducted by Naim et al. (2000) which argues that the skills required by logistics professionals can be classified into four broad domains: (i) *finance* (and policy) including economics, accounting, law and environment; (ii) *organisation* including management skills; (iii) *technology* including control, transportation and information systems; and (iv) *people* including HR, supplier relationships, marketing and sales. They further add that the Council of Logistics Management (CLM) has also identified cross functional training as crucial for a supply chain managers so that he or she is more efficient and effective in their role.

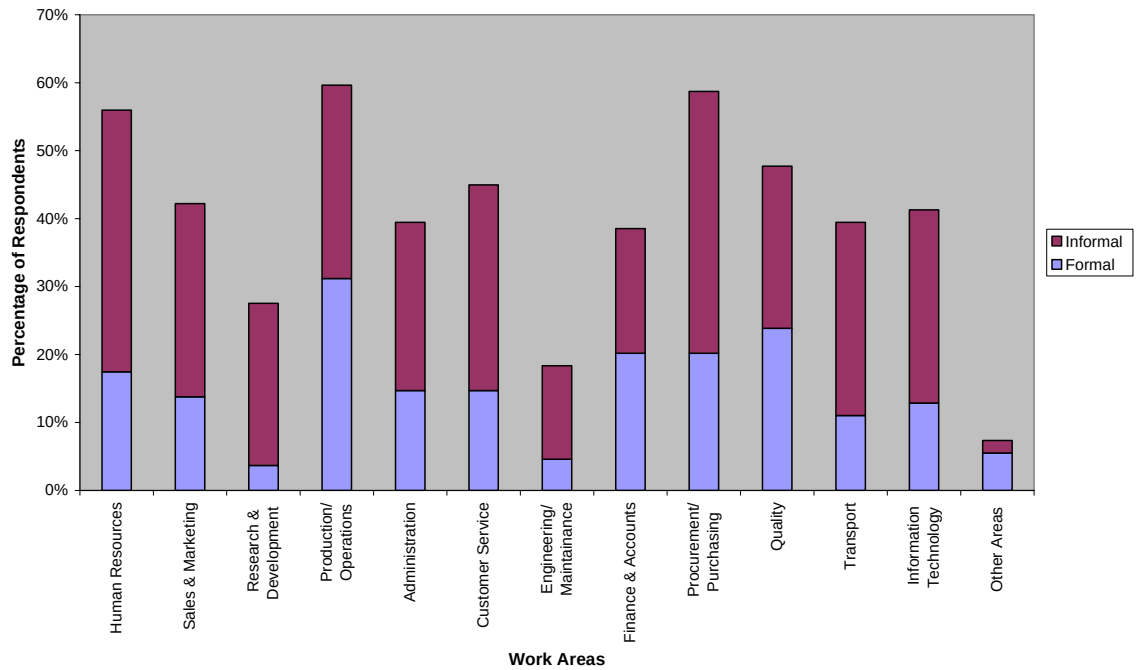

Figure 7: Formal and Informal training received

4.2.6 Further Training Required

Key areas that were identified for further training included procurement/purchasing (17% of the respondents), production/operations (16%), sales and marketing (16%), information technology (16%), finance and accounts (15%) and human resources (14%) (see Figure 8). These low figures reflect the fact that the cohort responding to the questionnaire was generally well educated and wanted to improve in a variety of areas.

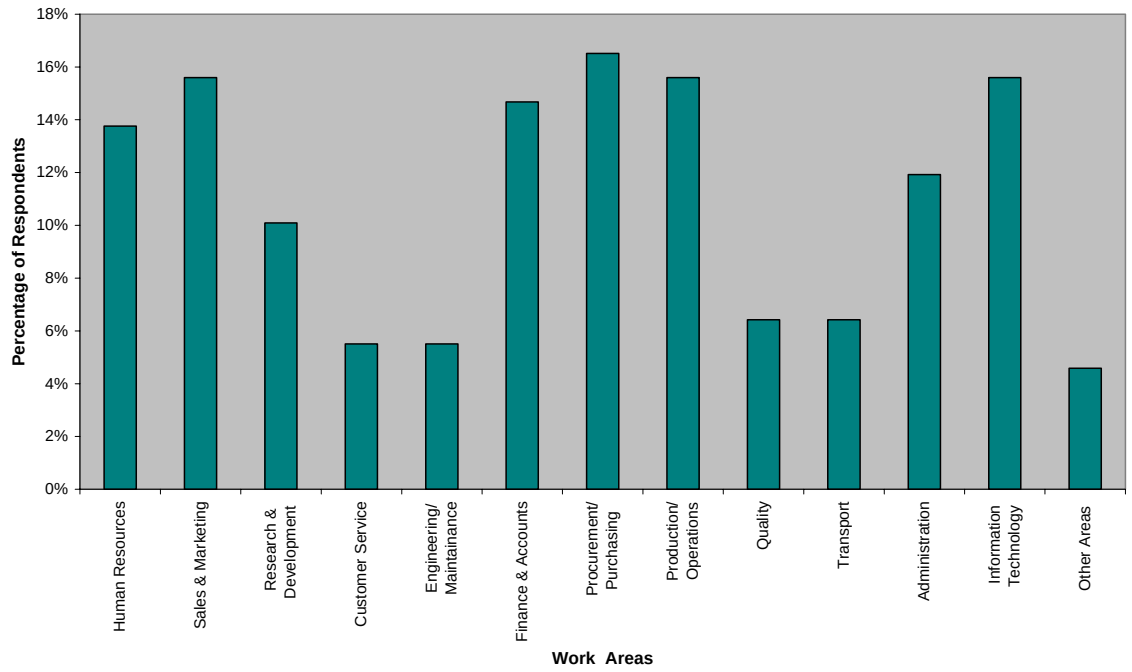

Figure 8: Further Training areas identified

4.2.7 Supply Chain Management Training

Only 31% of the respondents have had training in Supply Chain Management (SCM) technologies in the previous two years and this stands out as a major issue. With major changes taking place in the SCM domain, it is essential that more focussed training is conducted in this area. This training is essential as not only will it familiarise managers with the technological changes taking place in the supply chain landscape but develop skills in a variety of functional areas like procurement, production, operations, finance and accounts. This is particularly important for a Supply Chain Managers working for small and medium size enterprises as their role will require that they are adept in a variety of functions.

4.2.8 Location and Mode of Previous SCM Training

As Figure 9 shows, most of the training received by the respondents was on the job (27%) and from consultants (15%). Under the 'Other' category, some respondents claimed to be getting information from GS1 seminars/education sessions. This finding suggests that the kind of training that the respondents are receiving is inadequate as they are not receiving the training from a professional organisation.

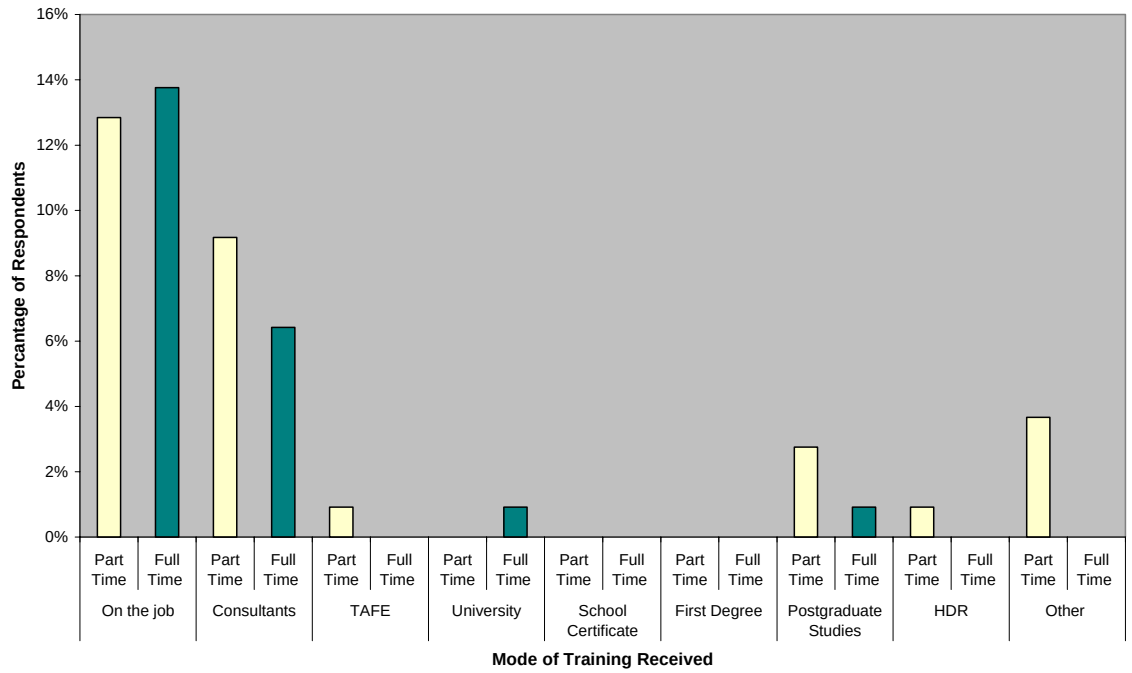

Figure 9: Mode of Training received in relation to SCM Technologies

4.2.9 Benefiting from SCM Training

Only 9% of the respondents claimed to have applied the training they received as outlined in section 3.2.5 to benefit their company to some extent, while 19% have applied it to a good extent. Only 4% have been able to apply training to a great extent (see Figure 10). This reflects that a major proportion of the managers has not been able to utilise this training to the benefit of their company. This can be linked to the previous question where the training was received by consultants or on the job and the efficacy of the training sources can be questioned. It also highlights the importance of professional training to be given in the SCM domain. Educational institutions are potentially missing out on the opportunity to provide training.

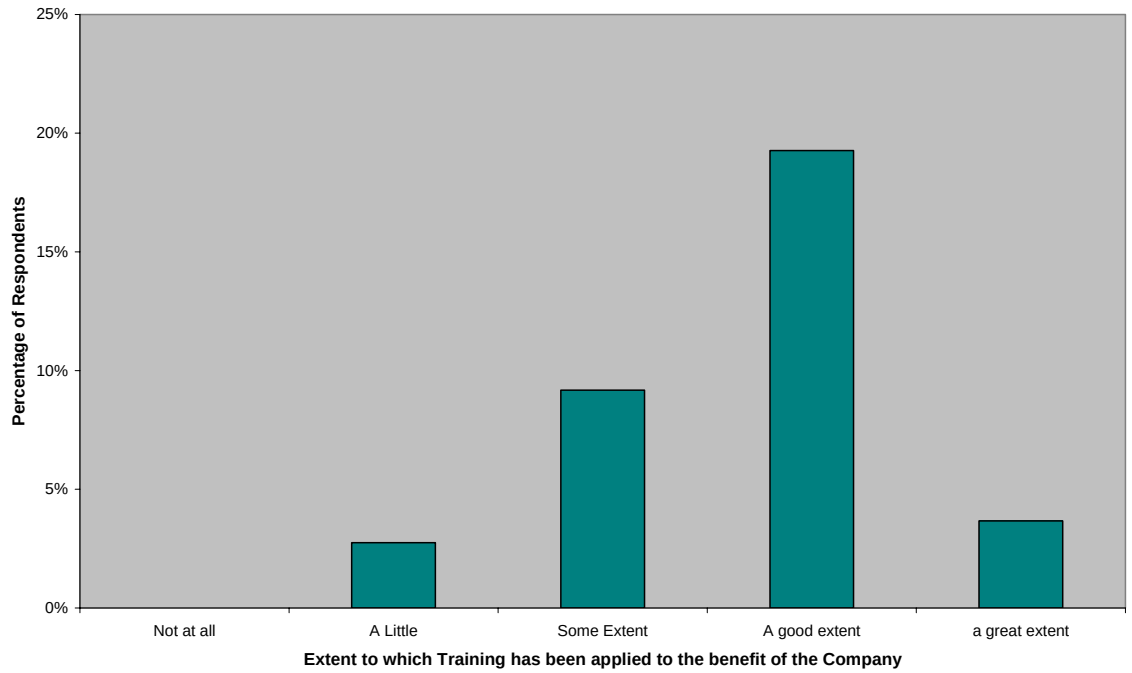

Figure 10: Extent to which training has been applied for the benefit of the Company

4.3 Supply Chain Knowledge Requirements

4.3.1 What the Company Needs to Know from their Customers

Figure 11 shows that an overwhelming 83% of the respondents claimed that it was crucial to obtain forecast information from their customer. Over one-half of the respondents highlighted the importance of upcoming promotions (57%) and distribution centre problems (53%). These results tie in with the literature on information sharing, forecasting and the bullwhip effect whereby *guesstimates* increase in magnitude upstream in the supply chain (Lee et al., 1997; Chen et al., 2000; Lee & Whang, 2000). This also reinforces the significance of relationships in the supply chain and elements of cooperation and trust between trading partners. Under the "Other" category the reasons that were cited were changes in strategy and market conditions.

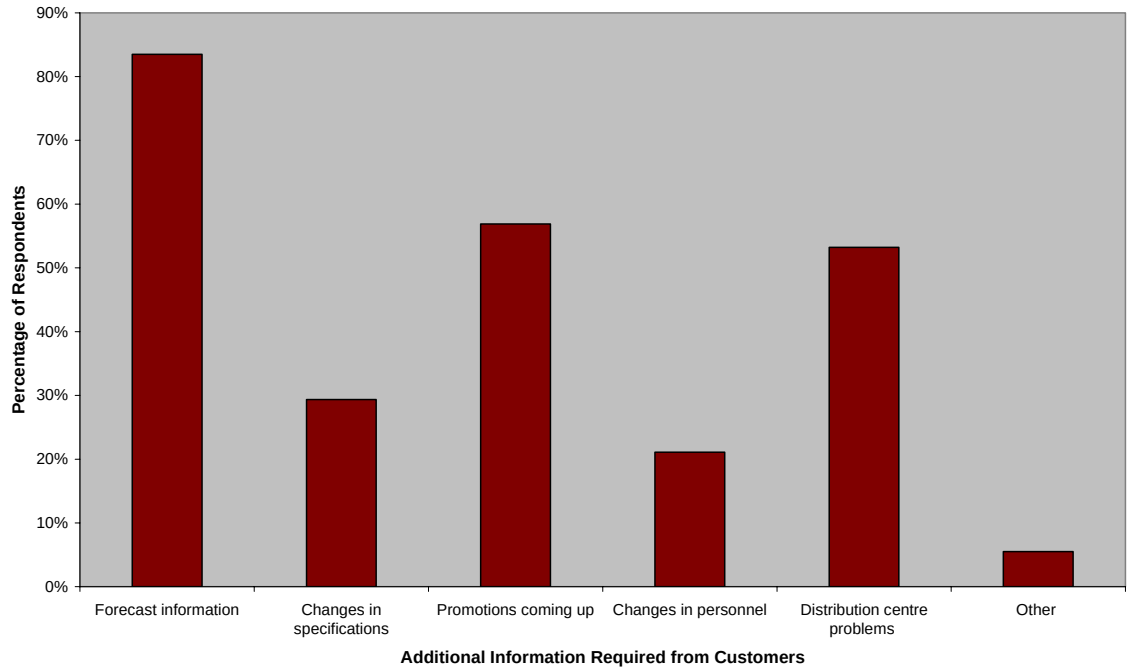

Figure 11: Additional Information Required from Customers

4.3.2 What the Customers Need to Know about the Company

The most important additional information needed by the customers, identified by close to one-half of the respondents (48%), is alternatives in case of supply difficulties for a specified product (see Figure 12). This was closely followed by own company challenges (43%) and strengths (41%). This implies that the customer requires a better understanding of the issues/challenges that are being faced by its trading partners. This will enable the customer to develop a closer relationship with their trading partners and help them internally in planning and devising appropriate strategies in dealing with their trading partners.

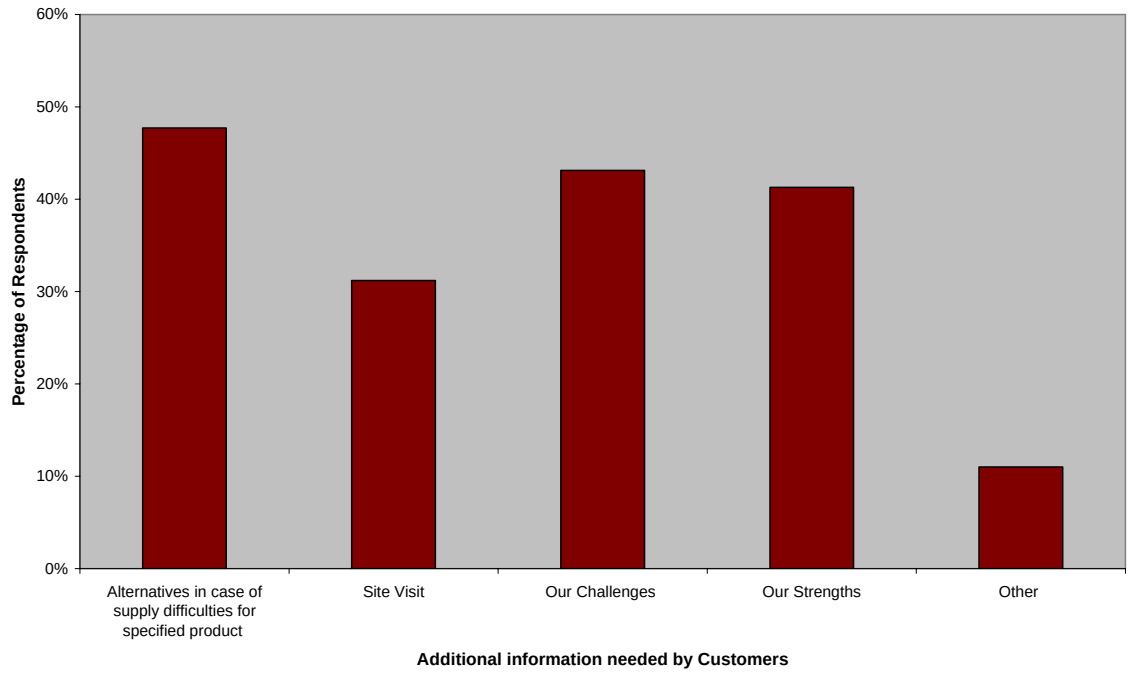

Figure 12: Additional information needed by Customers

4.3.2 What the Company Needs to Know About Their Suppliers

Figure 13 indicates that over one-half of the respondents (56%) considered having additional knowledge on supply difficulties as one of the most crucial variables for their company to operate more effectively. Under the umbrella of supply difficulties stood issues such as raw materials (46%), closely followed by capacity (45%). It is interesting that almost one-third of the companies (28%) are thinking beyond their immediate suppliers and are concerned about the bottlenecks that may be faced by their suppliers.

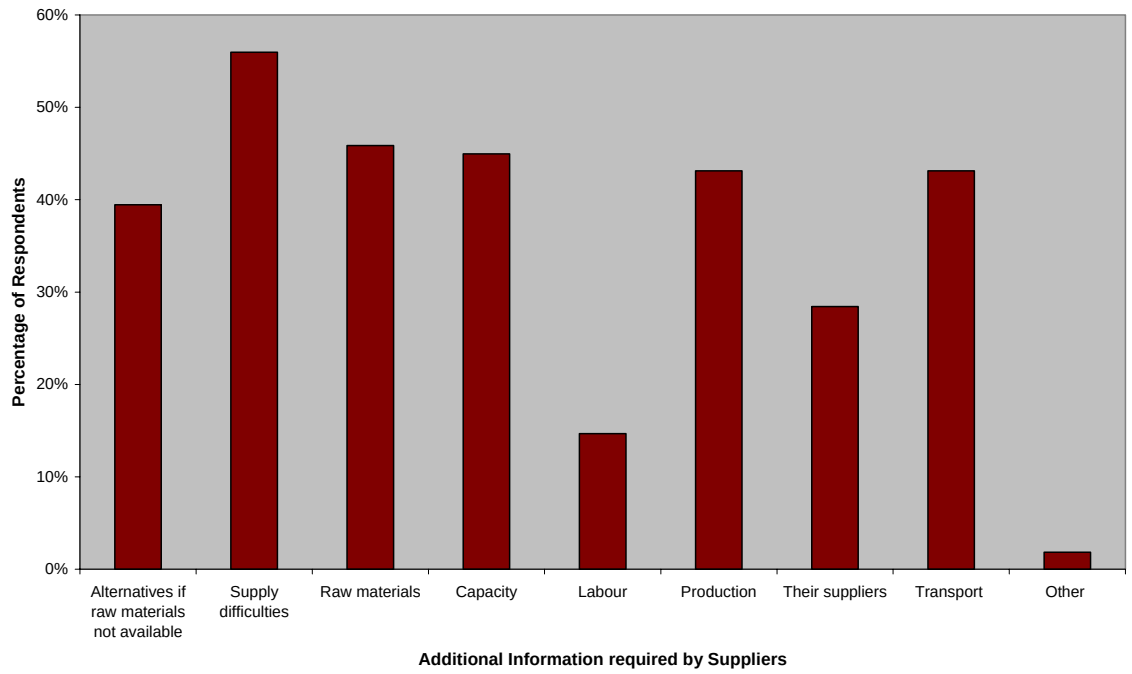

Figure 13: Additional Information required by Suppliers

4.4 Company Performance and Improvement Requirements

4.4.1 Company Performance

Around three-quarters of the respondents reported that their company's performance had improved in the areas of productivity (78%) and cost effectiveness (72%) (see Figure 14). Almost two-thirds indicated that their performance had improved in the areas of sales volume (68%) and deliveries-in-full (63%). Almost one-half of the respondents mentioned that innovation had remained largely unchanged, followed by inventory turns (42%), product quality (42%) and deliveries on time (39%). Thus companies need to focus on implementing innovative practices along with focusing on the supply chain functions such as deliveries and inventory management in order to gain competitive advantage.

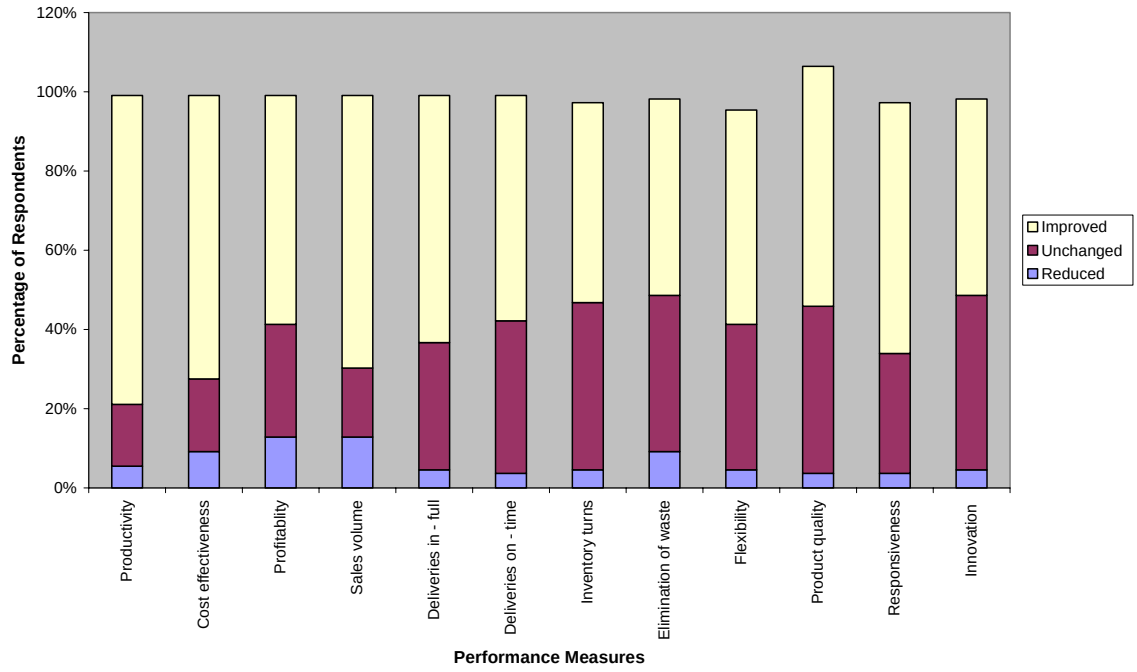

Figure 14: Company Performance over the last two years

4.4.2 Improvements Required

Figure 15 shows that areas where further improvement is required are profitability and innovation tied at 17%, with elimination of waste at 16% and deliveries on time at 14%. The fact that innovation is an area that requires urgent improvement ties in with the previous question that highlights that innovation is one of the areas which largely remains unchanged.

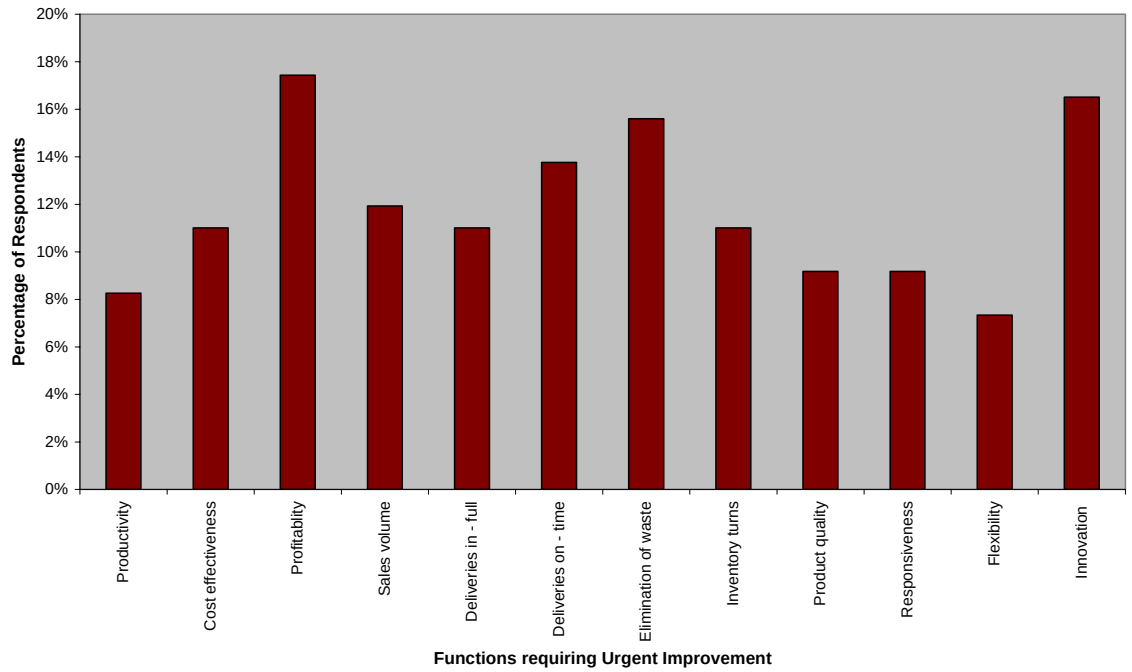

Figure 15: Functions requiring urgent improvement

5 Conclusion

The results of this study highlight that supply chain professionals in Australia are highly educated and they have worked in a variety of functional areas before taking on the role of a supply chain manager in their organisation. Therefore it would not be correct to label them as a “homogenous group” as each supply chain manager is responsible for a wide range of functions within their organisation ranging from human resources and marketing to accounts and finance.

Considering the complex role of the supply chain manager, an area of emerging concern was that only one-third of the respondents had received training in SCM technologies in the last two years. Moreover, questions can be raised on the efficacy of the training since most of the training received was either on the job or by consultants. This highlights that there is an excellent opportunity for academic institutions and professional organisations like GS1 to step in and provide such education and training. The survey also reinforced the value of forecast information to be shared along the supply chain in order to develop a better understanding of the customer. The results indicated that the relationship with suppliers is not as developed as it is with the customers and should be addressed.

Finally, the results on improvement in performance indicate that there is room for further improvement particularly in areas of profitability, elimination of waste and innovation, which would lead to a more efficient and effective supply chain.

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