Chapter 9

Survey of Supply Chain Performance Measurement Practices of Indian Industries

The previous Chapter demonstrates use of DEA for maintenance performance measurement to facilitate measurement of relative efficiencies, define targets and benchmarking of similar maintenance units. Based on an exploratory survey, this Chapter provides an analysis of performance measurement practices of Indian SCs.

9.0 INTRODUCTION

SC performance is one of the most critical issues in various industries in today's competitive business environment. In India, few surveys on SCM have been reported in literature (Jharkharia & Shankar, 2006). Indian industries made substantial progress since the 1990's after the liberalisation, though its SCM practices were restricted due to infrastructure deficiencies. It is therefore pertinent to understand the SC performance measurement practices of Indian Industries. A questionnaire-based survey is conducted to analyse the following in the Indian SC scenario:

1. Identify objectives of using SCPMS in the organisation
2. SC Performance measurement frameworks employed
3, Methods and Tools used in SCPMS
5. Important Metrics/Groups (Categories) Measured

In order to understand the factors from the list of variables, factor analysis has been performed. This analysis helps in separating the variables that are highly correlated into meaning full factors. Results of the survey revealed significant insights into the performance measurement practices of Indian SCs. This Chapter presents the important insights gained through the survey.

9.1 SCM: Indian Scenario

India embarked the policy of economic liberalisation two decades ago and since then Indian Industries have been counted as global players. Along with the industrial progress and liberalisation, SCM has also gained significance and visibility over the last decade in India (Jharkharia & Shankar, 2006). India is the fifth largest nation in terms of gross national product (GNP) and purchasing power parity (PPP). India is counted as one of the fastest growing markets in the world and is attributed with young entrepreneurial talents, cheap and skilled labour and rich in scientific and technological resources (Dangayach & Deshmukh, 2003; Sahay, Gupta, & Mohan, 2006). However, global rankings comparing countries for ease of doing business have ranked India rather poorly over the years (Sahay et al., 2006). The reasons attributed for India's dismal performance in these global surveys are: uncertainty in government policies; infrastructural deficiencies; unsatisfactory corporate and financial management of both private and public-sector enterprises; undependable quality; inadequate customer orientation; and negligible investment on R&D (Saad & Patel, 2006; Sahay et al., 2006). SCM becomes a challenging task for Indian businesses in such a scenario where expectations, opportunities and demands are high, but performance restricted by deficiencies mentioned. For many Indian companies, fostering trust between SC partners (service providers, suppliers etc.) and proceeding with appropriate performance measurement systems has been a new area with challenges (Sahay & Mohan, 2003).

A survey conducted by Sahay, Cavale, & Mohan (2003) reveals that almost one third of Indian companies have no SC strategy even though the corporate recognition of the importance of SC is increasing with a rapid speed. Of the companies surveyed, demand management and forecasting, customer service and inventory management ranked high in the priority scale of metrics of measures. Another survey of SCM practices of Indian automobile industries reveal that transportation and information management has predominant influence on the performance of supply chain in the Indian context (Saad & Patel, 2006). In terms of management tools employed, total quality management (TQM), and just in time (JIT) topped the list (Sahay et al., 2003). Outsourcing is an increasing trend due to many reasons with transportation as the most outsourced activity. The reasons for outsourcing are strategic reasons (26 %, process effectiveness (24 %), lower cost (27 %), lack of internal capability (11 %) and investment reasons (12 %) (Sahay et al., 2003). Large number of of Indian companies examined have a weak alignment of SC strategy with business strategy. Information technology can act

as a strong enabler for aligning SC to meet organisational strategy and achieve breakthrough in organisational effectiveness (Sahay et al., 2006). Based on a survey of Indian industries, Rahman (2004) states that internet is being increasingly being used for integrating SCs specifically in the areas of transportation, purchasing and order processing.

Jharkharia & Shankar, (2006) based on a questionnaire-based survey concludes that there are significant differences in SC practices between industry sectors. Companies in the auto sector significantly differ from those in the other sectors in the adoption of SCM practices though engineering and auto sectors have some similarities in certain aspects of SCM. The major stakeholder exercises some power or influence over the other entities of the SC. If this domination is effectively used by top managers for information sharing and initiatives in better SCM practices, overall SC effectiveness and customer satisfaction can improve significantly for Indian Companies (Jharkharia & Shankar, 2006; Kapoor & Ellinger, 2004).

9.1.1 SC performance measurement in Indian industries

Indian industries, in general, were comfortable with department wise performance measurement systems and practices but slow to implement SC wide performance measures due to their hesitation in trusting their SC partners (Sahay & Mohan, 2003). Another reason attributed is the rigid functional based organisational structure present in many Indian companies make it difficult to adapt to SC wide PMSs. However, this trend is gradually changing and SCs are more and more implementing SC wide performance measures. Top managers started realising that SC integration is possible only with appropriate SC performance measurement, feedback and control mechanism. Many organisations have aligned their departmental metrics with the overall SC objective to meet the business objective (Sahay & Mohan, 2003). However, to achieve the full benefit of SCM practices, there is a need to streamline processes for SC integration and an appropriate SCPMS will facilitate that.

Based on a study of Indian automobile industry, Saad & Patel (2006), concludes that Indian SCs are predominantly using financial measures and productivity based performance measures. The SCPMS focus remains on productivity and cost related aspects. Even the cost and productivity measures remain confined to organisational boundaries. Sahay & Mohan (2003) even proposes an India-specific SC that focus on infrastructure, technology deployment and partnerships. Saad & Patel (2006), proposed a ‘measure set’ with their interdependency for performance measurement of Indian Automobile SCs which emphasises cost and productivity

as tangible measures and communication, learning and trust as intangible measures. Modification and adaptability required for employing existing frameworks such as SMART (strategic measurement analysis and reporting technique), PMQ (performance measurement questionnaire) and SCPMS framework by Gunasekaran, Patel, & Tirtiroglu (2001), for the Indian context has been suggested (Saad & Patel, 2006).

9.2 Purpose and Organisation of Survey

The purpose of the study is to understand performance measurement practices and preferences of SCs of Indian Industries. The study is therefore exploratory in nature. The object of the survey is to find the nature of SC practices and provide a good understanding and insight of the issues and opportunities in this area. The survey is not intended to offer any final or conclusive solution to the existing issues and challenges. An exploratory survey was thus conducted as part of this study.

An extensive literature review of related literature and inputs from expert opinion is used to develop the survey questionnaire. The survey questionnaire consisting of 61 questions is divided into sections as given below to obtain the required information:

1. Section 1: Information about the industry profile and the participant

2. Section 2: Objectives of using SCPMS in the organisation

3. Section 3: SC Performance measurement frameworks employed

4. Section 4: Methods and Tools in SCPMS

5. Section 5: Metrics/Groups (Categories) Measured

The survey questionnaire is designed in such a way to elicit responses from respondents in a truthful, non-threatening way. All the questions are of single dimension, but answers can (in most cases) accommodate multiple choices and variability in responses. The questions are grouped together as Sections to make the respondent easier to comprehend the questions and answer. Explanation of technical terms are included in the questions to avoid misinterpretations. The questionnaire was sent to 250 SC and logistics practitioners and 29 responses were received. 25 responses were considered for study after excluding inadequate

and incomplete responses. The cover letter and the questionnaire are placed at Annexure 9.1 and Annexure 9.2 respectively.

9.3 Results and Discussion

The survey provided pertinent insights to the SC performance measurement practices of Indian industries. The respondents were SC and logistics practitioners from a variety of industries the details of which are provided at Table 9.1. The designation of the respondents included Assistant Manager, Associate Professor, Business Owner, Business Process Consultant, Director, Founder & Principal Consultant, Managing Director, Research Analyst, SAP Consultant, Software Dev Analyst, Manager and Production engineer.

Table 9.1 Industry Sector Profile of Survey Respondents

Industry sector	Number of respondents
Manufacturer/ Assembler	9
IT Services	4
Services (other than IT)	7
Logistics	5
Total	25

9.3.1 Objectives of using SCPMS in the organisation

Respondents were asked about the purpose and objectives of using SCPMS in their respective organisation. Most of the respondents (84%) indicated that the SCPMS employed in their organisation has a clear purpose. The details of the respondents indicating existence of clear purpose for SCPMS is presented at Figure 9.1.

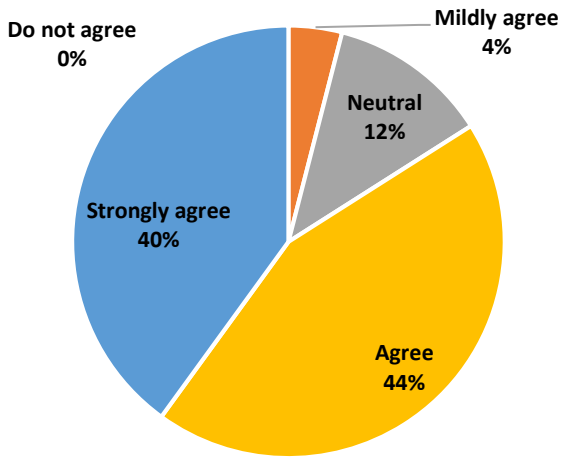

Figure 9.1 Respondents indicating SCPMS have a clear purpose in the organisation

A set of fifteen questions were administered to understand the objectives of using SCPMS in their respective organisation. The objectives of the SCPMS indicated based on the survey are placed at Table 9.2. The Table 9.2 also indicate the percentage of respondents strongly agreeing and the rank based on the percentage of positive responses. The comparative responses on the question of objectives and purposes of SCPMS is graphically represented at Figure 9.2.

Table 9.2 The objectives of the SCPMS as indicated by Survey

Objective of SCPMS	% of Respondents agree/ strongly support	Rank
Link to reward systems	76 %	7
Providing a fast Feedback	82 %	5
Relates to performance improvement, not just monitoring	92 %	1
Reinforces firm's strategy	76 %	8
Relates to both long-term and short-term objectives of the organization	88 %	2

Objective of SCPMS	% of Respondents agree/ strongly support	Rank
Matches the firm's organization culture	76 %	9
Consistent with the firm's existing recognition and reward system	64 %	12
Focuses on what is important to customers	80 %	6
Focuses on what the competition/ competitor is doing	40 %	13
Leads to identification and elimination of waste	86 %	3
Helps accelerate organizational learning	76 %	10
Acts as a strong communication tool	84 %	4
Acts as a vehicle for organizational change	36 %	14
Evaluate groups not individuals for performance to schedule	72 %	11

The analysis indicates that the three most commonly attributed objectives of SCPMS in the Indian context, based on the survey are:

1. “Relates to performance improvement, not just monitoring”

2. “Relates to both long-term and short-term objectives of the organisation”

3. “Leads to identification and elimination of waste (Operational wastes)”

Many respondents also indicated that the SCPMS acts as a strong communication tool and provides a fast feedback to the decision makers. Customer focus, linking to the reward system, reinforcing the firm’s strategy and helping to accelerate organisational learning are the other stated objectives and purposes of SCPMS.

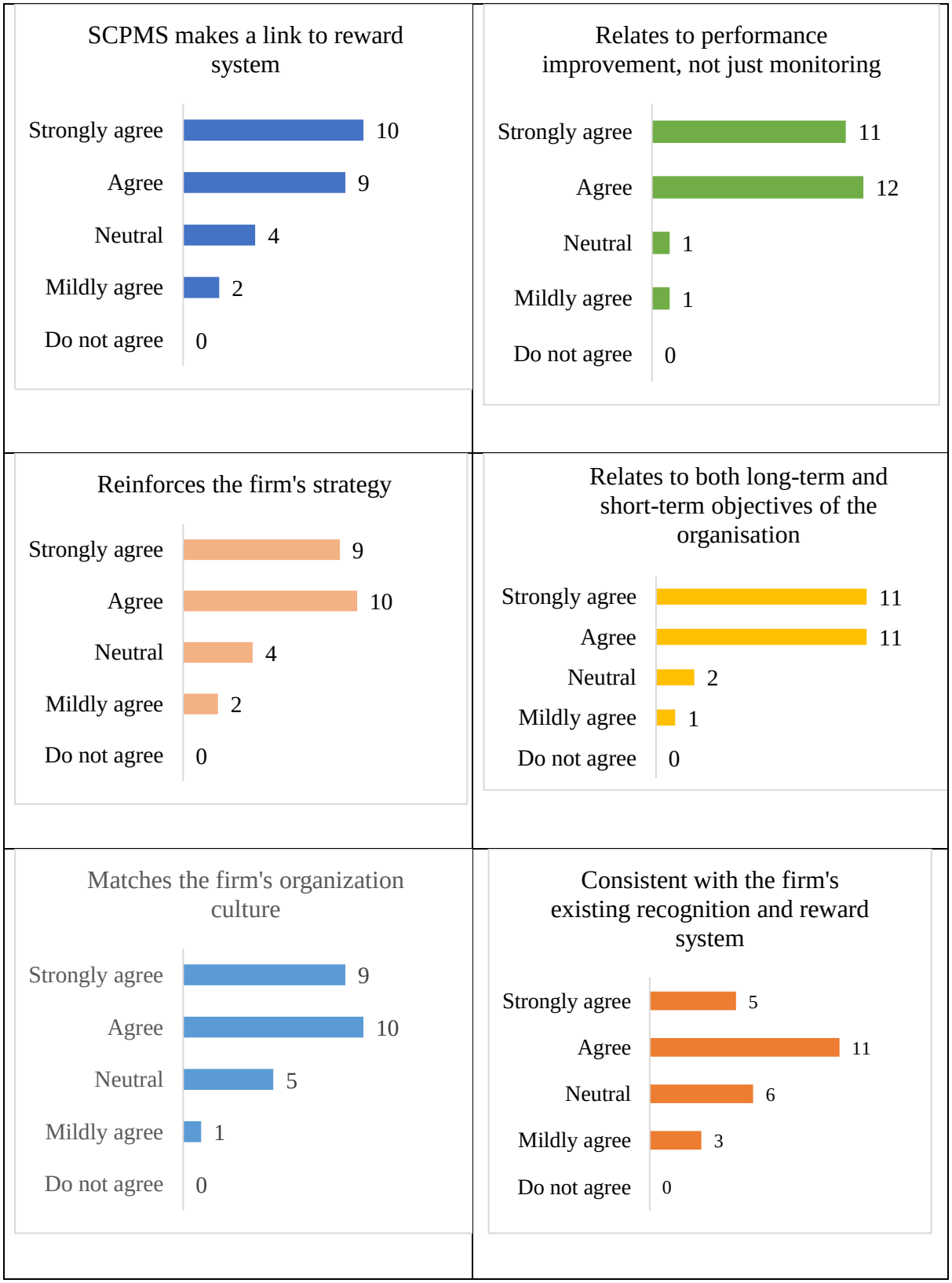

Figure 9.2 Objectives and Purpose of SCPMS in Indian Industries

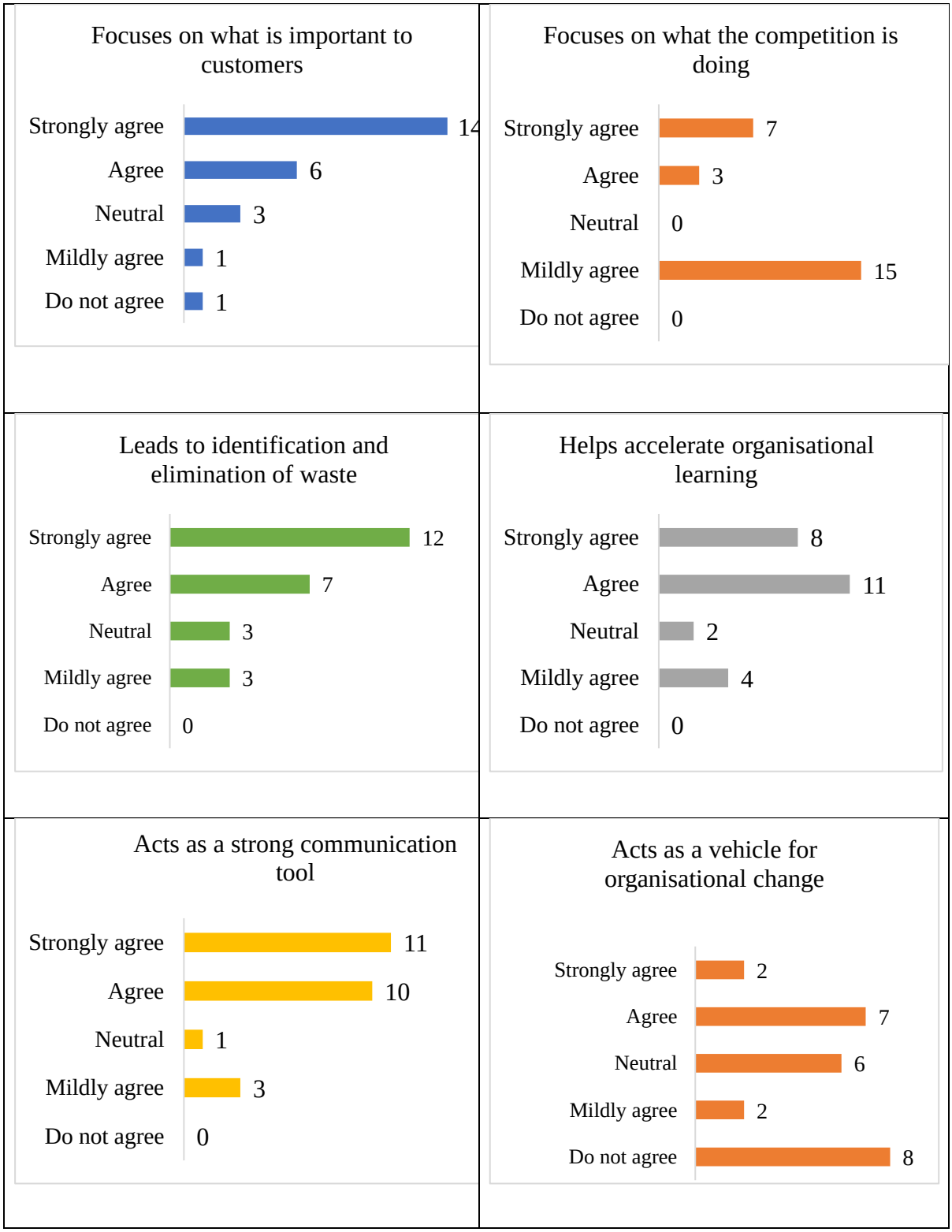

Figure 9.2 Objectives and Purpose of SCPMS in Indian Industries (Contd.)

9.3.2 Performance measurement frameworks employed

A set of five questions were asked to understand the type of performance measurement frameworks employed in their respective SCs. The types of performance measurement frameworks were defined as under:

1. **Balanced Model**: Balanced models will have the presence of both financial and non-financial indicators. Some examples are Performance Measurement Matrix, Balanced Scorecard (BSC), Performance Prism (PP).

2. **Quality Model**: These are frameworks in which a great importance is attributed to quality. An example is Business Excellence Model ("EFQM Model in Action | EFQM," n.d.).

3. Questionnaire based Model: These are frameworks based on questionnaire. The Performance Measurement Questionnaire (PMQ) and TOPP System (Rolstadås, 1998) are examples.

4. Hierarchical Models: SCPM models that are strictly hierarchical (or strictly vertical), characterised by cost and non-cost performance on different levels of aggregation are classified as hierarchical models. Frameworks where there is a clear hierarchy of indicators are: Performance Pyramid; Advanced Manufacturing Business Implementation Tool for Europe (AMBITE); the European Network for Advanced Performance Study (ENAPS) approach; and Integrated Dynamic Performance Measurement System (IDPMS).

5. **Support Models.** Frameworks that do not build a performance measurement system but help in the identification of the factors that influence performance indicator are classified as support models. Examples of these models are: Quantitative Model for Performance Measurement System (QMPMS) and Model for Predictive Performance Measurement System (MPPMS) (Cagnazzo et al., 2010).

The analysis indicates that ‘Quality’ based models are most widely used followed by ‘Balanced Models’ and ‘Support Models’. The ‘Questionnaire’ based models are the least used. The study therefore reveals that most SCPMS provide high importance to quality measurements and includes both financial and non-financial indicators. The survey result is summarised in Figure 9.3.

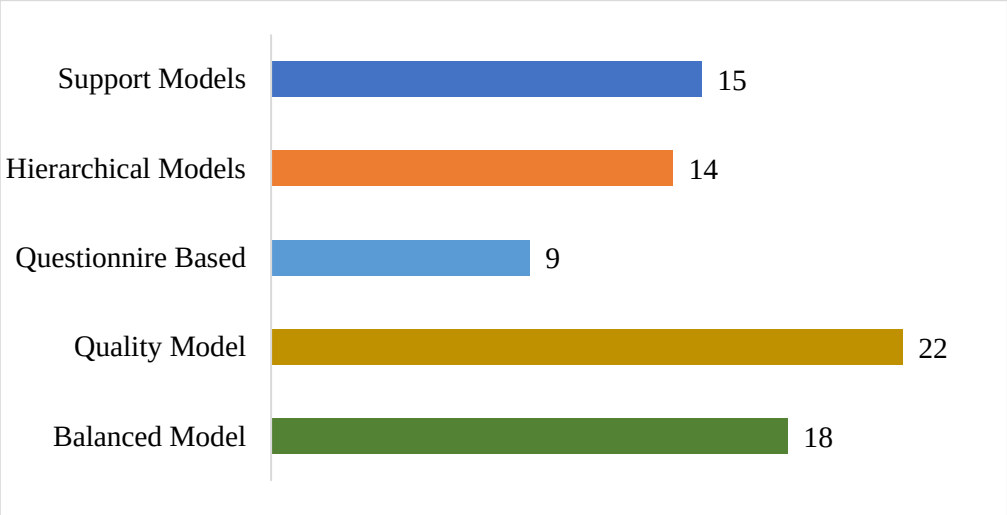

Figure 9.3 Type of Performance Measurement Framework Employed

9.3.3 Methods and tools employed

Performance measurement frameworks for SC use different types of frameworks and tools s part of it. Some of the most commonly used tools and frameworks are the balanced score card (BSC), frameworks based on BSC or modified BSC, performance pyramid (PP), SCOR model, fuzzy set approach, process-based tools, economic value added (EVA) etc. Respondents were asked about the type of framework used in their SCPMS. Response to these questions indicated that 20% to 52% of the respondents are not aware of the type of tools used in their respective SCPMSs. Process based measurement tools and economic value-added EVA based tools topped the list followed by BSC based frameworks. The survey results are shown at Figure 9.4.

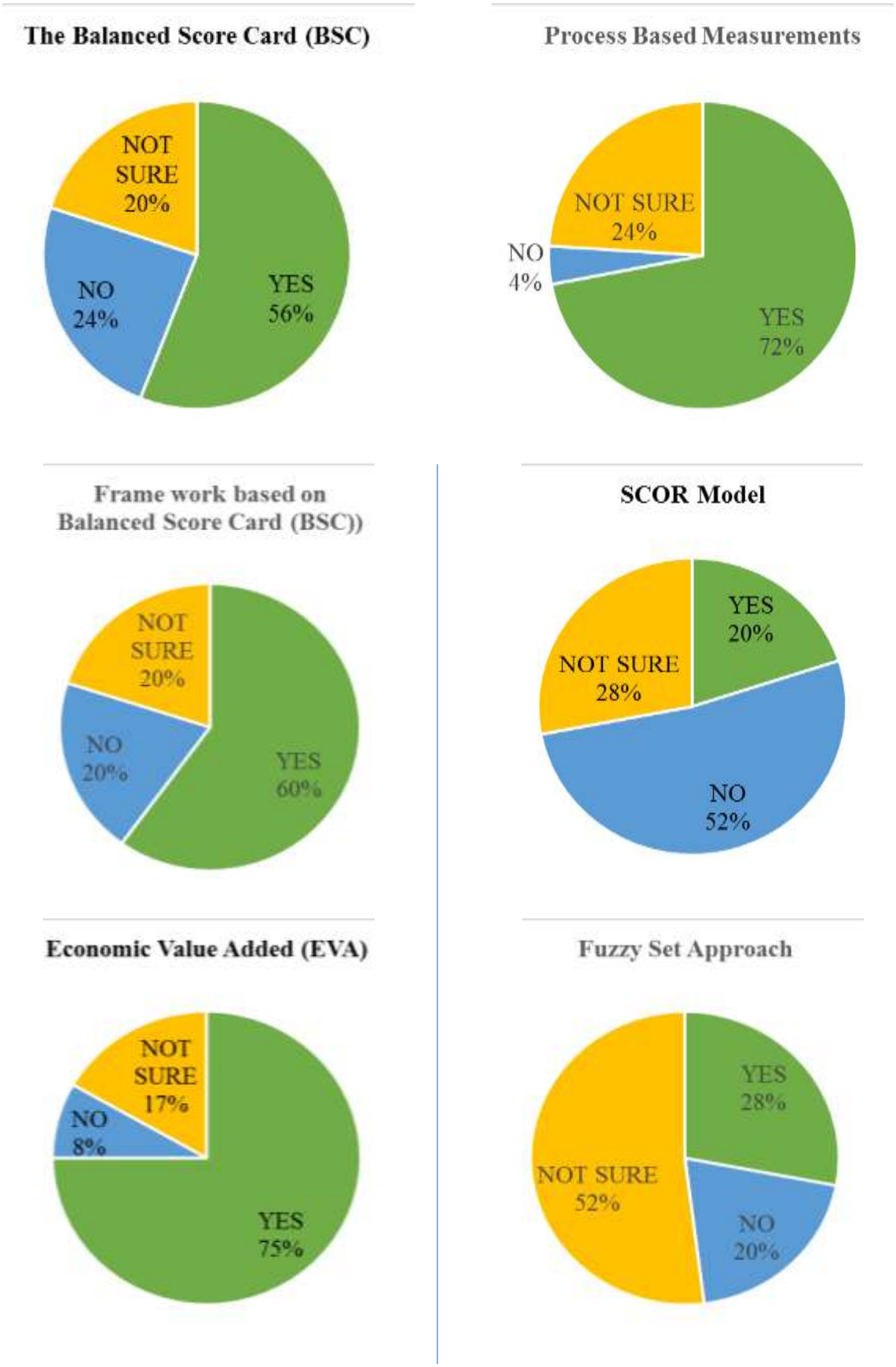

Figure 9.4 Methods and Tools Employed in SCPMS

9.3.4 Metrics and groups (categories) measured

There was a set of 24 questions to understand the metrics and groups of entities that are part of the SCPMSs. These questions revealed what exactly are the measures or group of measures which are significant to the respective organisations and are included in the SCPMSs. The list of measures and their rankings are placed at Table 9.3. The survey indicates the top five metrics being most commonly measured as follows:

1. Order fulfilment performance
2. Quality of services
3. Delivery Performance
4. Customer Satisfaction
5. Supply Chain response time

Table 9.3 The Metrics and Groups Measured as part of SCPMS

METRICS / ENTITIES INCLUDED IN SCPMS	NUMBER OF FIRMS USING THE MEASURE	RANK
Delivery Performance	22	3
Order fulfilment performance	23	1
Supply Chain response time	21	5
Production flexibility	11	20
Total logistics management cost	19	10
Value added productivity	18	13
Warranty cost	11	19
Cash to cash cycle time	15	17
Inventory days of supply	20	9
Return on investment	18	15
Gross revenue/Profit before tax	21	6
Waste reduction	16	16
Carbon footprint	10	21
Market Share	13	18
Number of customers retained/ Customer loyalty	20	8
Customer Satisfaction	22	4
Quality of services	23	2

METRICS / ENTITIES INCLUDED IN SCPMS	NUMBER OF FIRMS USING THE MEASURE	RANK
Third party logistics provider's performance	19	11
Supply chain Flexibility	18	14
Supply Chain risk	19	12
Employee satisfaction	17	16
Supplier Performance	20	7

The graphical representation of the entities measured with number of positive responses is placed at Figure 9.5.

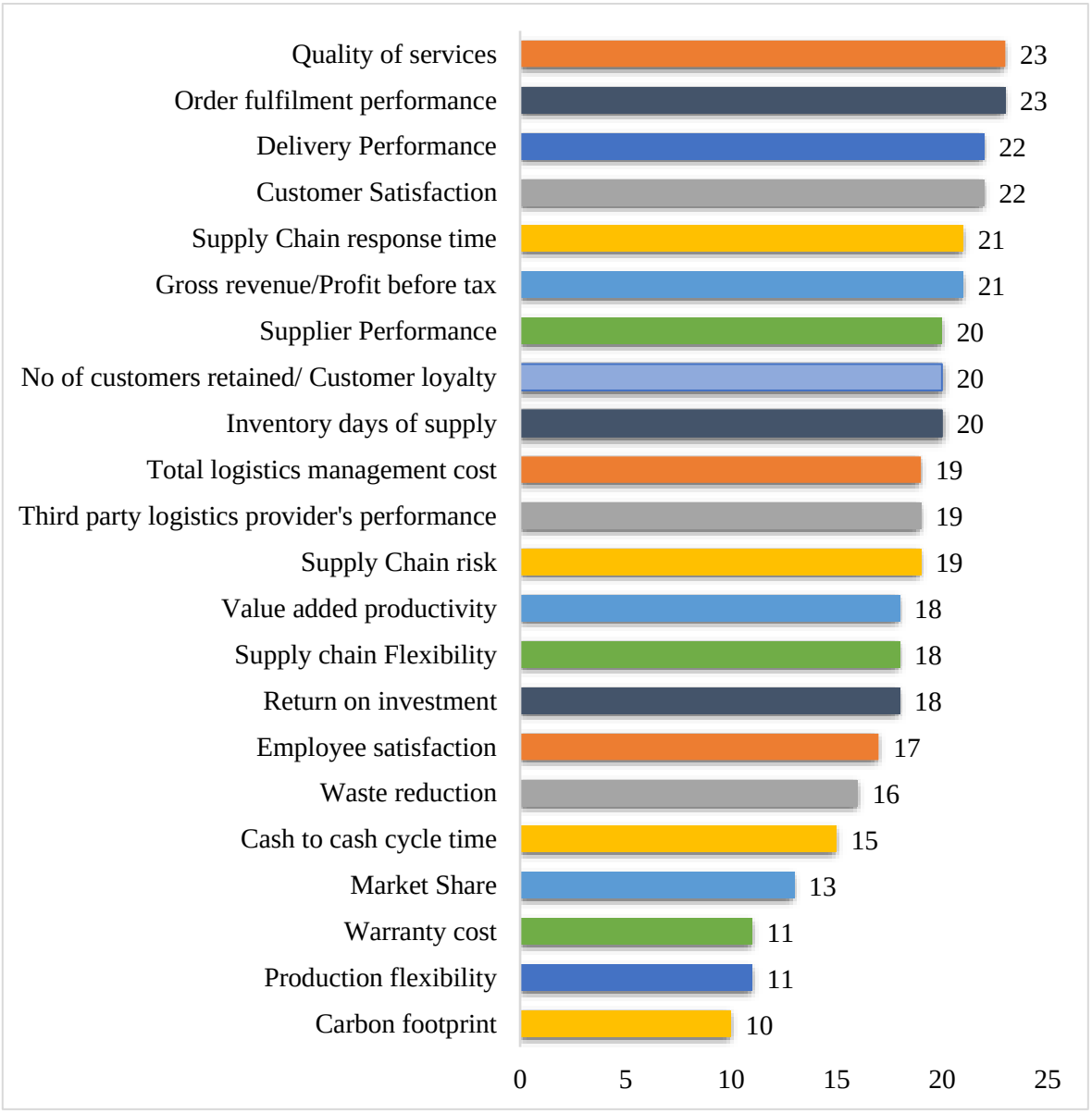

Figure 9.5 Metrics and Entities Measured as part of SCPMS

9.4 Multivariate Analysis

Survey questionnaire consisted of fifteen questions related to SCPMS planning, implementation and use at the respondent's organization. These fifteen variables were asked in a six-point Likert type scale ranging from strongly disagree to strongly agree. Multivariate analysis is a suitable method to understand the factors from the list of variables. Factor analysis has been performed and the results analysed.

The KMO test reveals that the sample is adequate (.731) and the Bartlett's Test of Sphericity also shows significant ($p<0.000$) which mean all the fifteen variables are highly correlated and Factor analysis has to be applied in order to take out the factors from the variables which will be uncorrelated. The KMO and Bartlett's Test result is placed at Table 9.4.

Table 9.4 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.731
Bartlett's Test of Sphericity	Approx. Chi-Square	261.594
	df	105
	Sig.	0.000

9.4.1 Variance explained

Table 9.5 shows the total variance explained by all the components. Three factors emerged based on eigen value (>1) and factor 1 alone explains 52% of variance and in total 69% of variance explained by these three factors. Balance of the Components are therefore not evaluated for Extraction Sums of Squared Loadings and Rotation Sums of Squared Loadings.

Table 9.5 Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.879	52.529	52.529	7.879	52.529	52.529	4.439	29.593	29.593
2	1.324	8.829	61.357	1.324	8.829	61.357	2.996	19.971	49.564
3	1.171	7.810	69.167	1.171	7.810	69.167	2.940	19.603	69.167
4	.904	6.027	75.194						
5	.794	5.291	80.486						
6	.685	4.568	85.054						
7	.645	4.298	89.351						
8	.541	3.605	92.956						
9	.343	2.284	95.240						
10	.271	1.808	97.048						
11	.156	1.037	98.085						
12	.126	.837	98.922						
13	.069	.462	99.385						
14	.050	.333	99.718						
15	.042	.282	100.00						
Extraction Method: Principal Component Analysis.									

9.4.2 Rotated component matrix

Varimax procedure is applied to find out the variables contributing under each factor. The Rotated Component Matrix is placed at Table 9.3 and Component Transformation Matrix is placed at Table 9.4. Principal Component Analysis is used as the extraction method and Varimax with Kaiser Normalization for rotation. A cut of point of 0.63 is taken and the variables that emerged for these factors are listed below:

Factor 1 - Strategic Orientation

Variables are: i. SCPMS reinforces the firm's strategy: ii. Relates to both long-term and short-term objectives of the organisation; iii. Matches the firm's organization culture;

iv. Focuses on what is important to customers and v. Focuses on what the competition is doing.

Factor 2 – Internal Focus

Variables are: i. SCPMS leads to identification and elimination of waste; ii. Acts as a vehicle for organisational change; iii. Helps accelerate organisational learning; iv Evaluate groups not individuals for performance to schedule.

Factor 3- Motivation and Control

Variables are: i. SCPMS has a clear purpose: ii. Makes a link to reward systems and iii. Relates to performance improvement not just monitoring.

Table 9.6 Rotated Component Matrix[a]

Variable	Component		
	1	2	3
VAR00001	.059	.206	.743
VAR00002	.363	-.002	.780
VAR00003	.627	.113	.416
VAR00004	.243	.324	.661
VAR00005	.695	.278	.244
VAR00006	.811	.202	.294
VAR00007	.642	.323	.335
VAR00008	.522	.337	.499
VAR00009	.842	.269	.089
VAR00010	.815	.251	.224
VAR00011	.578	.631	-.098
VAR00012	.209	.808	.392
VAR00013	.377	.450	.558
VAR00014	.255	.732	.334
VAR00015	.261	.758	.133

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 7 iterations.

Table 9.7 Component Transformation Matrix

Component	1	2	3
1	.692	.521	.499
2	-.592	.016	.806
3	-.412	.853	-.320

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

The first factor that emerged from factor analysis is 'Strategic Orientation' followed by 'Internal Focus' and 'Motivation and control'. This analysis helps in separating the variables that are highly correlated into meaningful factors.

'Strategic Orientation' helps SC to achieve a specific, worthy end goal and objectives. The performance measures in Indian SCs therefore, facilitate to set direction, focus efforts, define the processes and provide consistence. A significant impact of implementing PMS in organizations is that individuals who are part of organizations respond to measures.

'**Internal Focus'** imply that measures implemented in their organization send people strong messages about what matters and what response is expected from them. The right measures then not only offer a means of tracking whether objectives are being implemented, but also a means of communicating objectives and encouraging its implementation.

The **'Motivation and Control'** factor indicates PMS usage to establish performance related reward mechanism and thereby facilitating a feedback and control mechanism in the organisation. Relating PMSs to people and teams make people responsible for that function and imply employee action for performance improvements.

9.5 Conclusion and Limitations

The exploratory survey-based research provided an insight to the performance measurement practices of Indian SCs. The respondents were practitioners from a cross section

of the industry with manufacturing companies (30%) leading, followed by logistics companies (17 %) and IT services (17 %). However, it is observed that there are lot of similarities in the survey responses irrespective of the industry sector. Majority of the respondents agreed that there is clarity in the objectives of SCPMs implemented in their enterprise. The study gave clarity in understanding the objectives of implementing SCPMSs and metrics (measures) used in SCPMSs. The first factor that emerged from factor analysis is 'Strategic Orientation' followed by 'Internal Focus' and 'Motivation and Control'. This analysis helps in separating the variables that are highly correlated into meaningful factors.

The present study indicates a departure from previous surveys on Indian SCs (Saad & Patel, 2006; Sahay et al., 2003; Sahay & Mohan, 2003) that Indian SCs started expanding to SC wide PMSs from department wise PMSs. Many organisations started using balanced measures in addition to financial performance measures. The industry sectoral differences are diminishing in SC wide performance measures.

The limitation of the study is that the sample size is relatively small and is not representing many industry sectors. Some of the respondents appear to be not aware of the SC wide performance measurement practices in their organisation, instead they responded based on their knowledge of their department wise performance measurement practices. The study was exploratory in nature to gather preliminary understanding.

Annexure 9.1

COVER LETTER

Study of Performance Measurement Practices in Supply Chains: A Survey of Indian Industries

Dear _____ ,

The aim of this study is to understand the Performance Measurement Practices in Indian Supply Chains. The questions are intended to identify objectives of using SCPMS in your organisation, list the supply chain performance measurement frameworks employed, methods and tools used and the important metrics/groups (Categories) measured.

This survey is part of academic research undertaken by Prof G.P.Kurien. The information collected through this survey will only be used for academic purpose. The identity of the person interviewed and the name (and details) of the organisation concerned will not be revelled in the report of this study. The information collected through this survey will only be used for academic purpose. The identity of the person interviewed and the name (and details) of the organisation concerned will not be revealed in the report of this study.

You are requested to participate in the survey using Google Forms (link to the Google form sent to your email) or email me the filled questionnaire form.

Thanking you for your time and valuable inputs. Your input will significantly contribute to the development in knowledge of Supply Chain Management.

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Phone: +91 9974989072

Annexure 9.2

QUESTIONNAIRE

1.1. Contact Information:

Name: (Mr, Mrs, Ms, Miss, Dr.) _____

Job Position: _____

Phone: _____ Email: _____

1.2. Company Information:

Company Name: _____

Web address: _____

Mailing Address: _____ _____ ____
_____

Product Name(s): _____ ____

Type of Company:

- ☐ Manufacturer
- ☐ Assembler
- ☐ IT Services
- ☐ Other than IT Services
- ☐ Logistics
- ☐ Other (Indicate) _____

2. Objectives of using Supply Chain Performance Measurement System (SCPMS) in your organisation:

SER NO	QUESTION	STRONGLY DISAGREE	SOMEWHAT DISAGREE	SLIGHTLY DISAGREE	SLIGHTLY AGREE	SOMEWHAT AGREE	STRONGLY AGREE
2.1	SCPMS in my Company have a clear purpose.						
2.2	It makes a link to reward systems						

SER NO	QUESTION	STRONGLY DISAGREE	SOMEWHAT DISAGREE	SLIGHTLY DISAGREE	SLIGHTLY AGREE	SOMEWHAT AGREE	STRONGLY AGREE
2.3	It provides fast feedback						
2.4	It relates to performance improvement, not just monitoring.						
2.5	It reinforces the firm's strategy						
2.6	It relates to both long-term and short-term objectives of the organization						
2.7	It matches the firm's organization culture						
2.8	It is consistent with the firm's existing recognition and reward system						
2.9	It focusses on what is important to customers						
2.10	It focusses on what the competition is doing						
2.11	It leads to identification and elimination of waste.						
2.12	It helps accelerate organizational learning.						
2.13	It acts as a strong communication tool						
2.14	It acts as a vehicle for organizational change						
2.15	Evaluate groups not individuals for performance to schedule						

3. Supply Chain Performance measurement frameworks employed in your organisation

Please indicate the type of Supply Chain Performance Model Employed in your

SER NO	QUESTION	YES	NO	I AM NOT SURE
3.1	**Balanced Model**: These models consider the presence of both financial and non-financial indicators			
3.2	**Quality Models**: These are frameworks in which a great importance is attributed to Quality			
3.3	**Questionnaire-based Models:** These are frameworks based on questionnaire			
3.4	**Hierarchical Models:** models that are hierarchical (or strictly vertical), characterized by cost and non-cost performance on different levels of aggregation			
3.5	**Support Models:** Frameworks that do not build a performance measurement system but help in the identification of the factors that influence performance indicator are classified as support models			
3.6	Any other Model: Name _____ _____			
3.7	We do not use any of these tools _____			

Please indicate whether you use the following Methods and Tools in your performance measurement system:

SER. NO	METHODS AND TOOLS USED TO MEASURE SUPPLY CHAIN PERFORMANCE	YES	NO	I AM NOT SURE
3.8	The Balanced Score Card (unchanged)			
3.9	Framework based on Balanced Score Card			
3.10	SCOR Model			

SER. NO	METHODS AND TOOLS USED TO MEASURE SUPPLY CHAIN PERFORMANCE	YES	NO	I AM NOT SURE
3.11	Process based measurements			
3.12	Economic Value added			
3.13	Supply chain performance measurement framework			
3.14	Fuzzy-set approach			
3.15	Any other Framework: __ _____ _____			

4. Metrics/ Groups (categories) Measured

Please indicate whether these are measured as part of SCPMS

SER NO	QUESTION	YES	NO	I AM NOT SURE
4.1	Delivery Performance			
4.2	Order fulfilment performance			
4.3	Supply Chain response time			
4.4	Production flexibility			
4.5	Total logistics management cost			
4.6	Value added productivity			
4.7	Warranty cost			
4.8	Cash to cash cycle time			
4.9	Inventory days of supply			
4.10	Return on Investment			
4.11	Gross Revenue/ Profit before tax			
4.12	Waste reduction			
4.13	Carbon Footprint			
4.14	Market Share			
4.15	Number of Customers retained / Customer loyalty			
4.16	Customer Satisfaction			
4.17	Quality of services			

SER NO	QUESTION	YES	NO	I AM NOT SURE
4.18	Third party logistics provider's performance			
4.19	Supply Chain Flexibility			
4.20	Supply Chain risk			
4.21	Employee satisfaction			
4.22	Employee turnover per year			
4.23	Number of suggestions implemented per employee			
4.24	Supplier performance			
4.25	Others 1			
4.26	Others 2			
4.27	Others 3			

Thank you for sparing your time and for the valuable inputs.