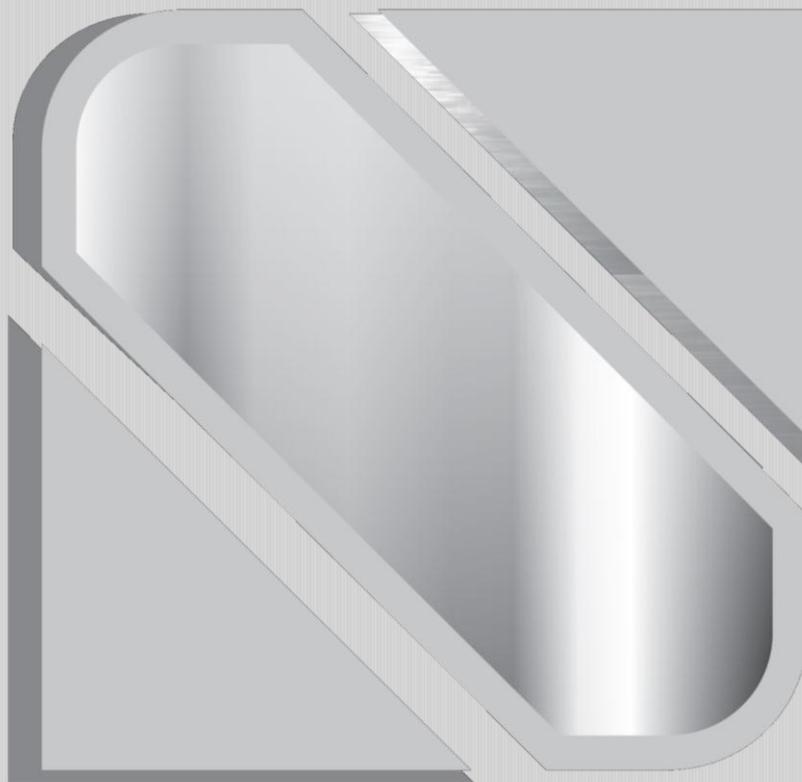


**2013 SQA with
Special
Commendation
Winner**



 **ssmc**

We are extremely pleased and deeply honored to receive this SQA Special Commendation Award. This is a recognition of our contributions to Business Excellence and it reaffirms our global leading position in the semiconductor industry and is the best testimony of our passion in pursuit of excellence.

It is also with feelings of pride. I am convinced that with our culture and the ambition to excel in every aspect of our business, we can advance to reach the silver line in the cloud of 999 points on SQA scoring scale in the years to come. As SSMC receives the SQA Special Commendation Award, we will continue our journey to "Raise the Bar" to sustain best-in-class performance.

"Together, We Raise Value"



Jagadish CV
Chief executive Officer
Systems on Silicon Manufacturing
Co Pte Ltd



INTRODUCTION

SSMC is constituted as a wafer foundry for NXP and TSMC (Taiwan Semiconductor Manufacturing Corporation), chartered to produce deep sub-micron processes systems-on-chip silicon.

In just over 14 years, SSMC has changed the way the world looks at emerging foundry services. Achieving new milestones each step of the way, SSMC broke record by achieving its first commercial billing, 17 months after groundbreaking. Produced its first yielding silicon only 90 days after the first process equipment was installed. Its CMOS (Complementary Metal Oxide Semiconductor) processes, capable of producing both standard and customized integrated circuits, has gained recognition from its global customers for its high quality and reliability ranging from Logic, RF, mixed-mode, Embedded Flash, EEPROM, BCD and High Voltage.

SSMC today remains a relentless manufacturer and innovator. SSMC is the choice source for advanced semiconductor wafers.

Purpose, vision and values

Vision

Going the extra mile to be the preferred source of advanced semiconductor wafers

Mission

To deliver best-in-class foundry services

Our core values

Together **W** **E** **Raise Value**

Working Together

Integrity

Taking Initiative

Innovate

Raising the Bar

Value People

Employee Profile

To meet the new challenges ahead, SSMC taps on its people's expertise to harness innovative solutions and technological advances to meet the customers' needs for faster time-to-market, shorter lead times and the highest possible quality of semiconductor wafers.

Major Equipment, Facilities and Technologies

As SSMC is always on the frontline of technologies, the organization has a complete range of equipment and facilities that are aligned with advanced modules.

Organizational Relationships

SSMC has a very close working relationship with its parent companies, NXP and TSMC. SSMC harnesses the manufacturing strengths of its parent companies – from sharing and adopting best methods, to on-going transfers and development of manufacturing processes and technologies.

SSMC has a global customer base that sells to America, Europe, Middle East, Asia Pacific and other countries.

SSMC procures products, resources and services from suppliers both locally and overseas. Suppliers in the Equipment, Materials and

Located in Pasir Ris Wafer Fab Park, SSMC occupies an area of 78,000 meters square and a total build-up area of 92,000 meters square with a total 8" wafer processing areas of 11,500 meters square

Product related services are segmented into Strategic, Key and

Commercial suppliers according to the supply risk, technology capability and vendor positioning.

Organizational Challenges

SSMC compares reasonably, and even ahead most of internal and external competitors in 8" Fabs

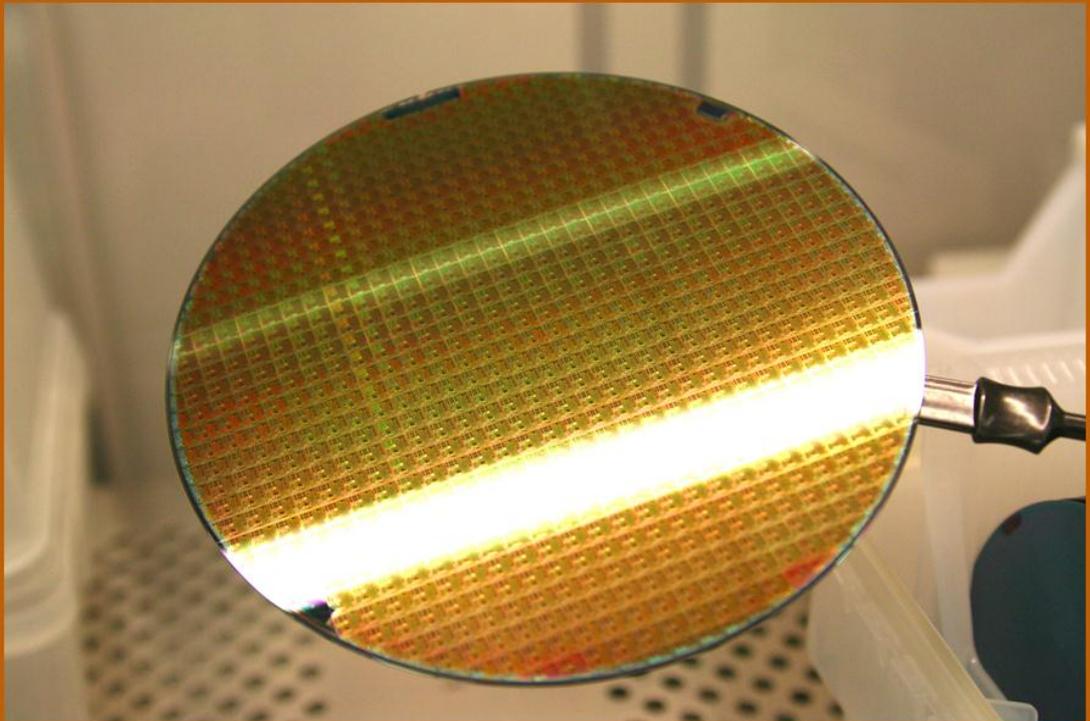
In order to remain competitive, we adopted measures and continue to challenge ourselves to be the best in the following key areas:

- Customer relationship management
- Business Development
- Manufacturing Excellence
- Strategic Partnership
- High Performing Workforc





LEADERSHIP



“SSMC is the benchmark under your leadership”

NXP BL-Interface products General Manager

“Jag, ... Well deserved recognition of the fantastic performance of you and your team in SSMC. You are the benchmark we try to aspire to...”

NXP BL-Power Management Site & Operation Manager

“I am also pleased that Systems on Silicon Manufacturing Company Pte. Ltd., ..., will be using this trail as a platform for increasing environmental awareness both amongst its staff and with its community partners”

DPM speech during 2012 Lorong Halus Wetland Carnival

1. LEADERSHIP

1.1 Senior Executive Leadership

Describe how senior leaders guide and sustain the organisation towards excellence.

SSMC has gained recognition from its global customers for consistently delivering semiconductor wafers of high quality and reliability. With a dedicated & motivated workforce, unified by a desire to make the customers' success, their success, delivery lead-times are continuously managed and improved to enable rapid customer product introduction in terms of getting into market and ramp-up in their respective business in terms of supplying in big volume.

The success of SSMC is attributed to a committed team of management team characterized by a strong vision, active leadership and dedicated personal involvement.

Development of Our Core Values

The management team acknowledged that core values are crucial to the success of the organization in line with the long term growth and self sufficiency and must become the fabric of the organization in order to exhibit appropriate sets of behavior, so as to manifest the vision and mission of the organization when dealing with customers, suppliers and other stakeholders.

SSMC desired core values are reviewed annually during our strategic planning workshops. In 2012, we further enhanced our core values to

Together We Raise Value;

- Working Together
- Integrity
- Innovate
- Taking Initiative
- Raising The Bar
- Value People

Senior Executives Involvements

Our management team recognizes the importance of cascading and reinforcing the mission, vision and core values to all stakeholders through active participation and role modeling. With these guiding principles, a three-level communication structure was established: company, divisional and individual.

Company Level

At the company level, our management team personally participates and spearheads the reinforcement right from the start: mission, vision, and core values communication workshops to share and cascade awareness and follow-up core values workshops to further entrench the mission, vision and core values amongst employees.

Divisional Level

At the divisional level, the divisional work-plans and goals are also formulated to support the mission, vision and core values and to

Individual Level

At the individual level, the management team members take it upon themselves to lead by example through some of the following channels and platforms:

- CEO Tea Session
- CEO & Divisional Town Meeting
- Skip-Level Dialogues
- Keynote addresses at company-wide, supplier, customer as well as community events
- Chairmanship, advisor and member of internal and external committees

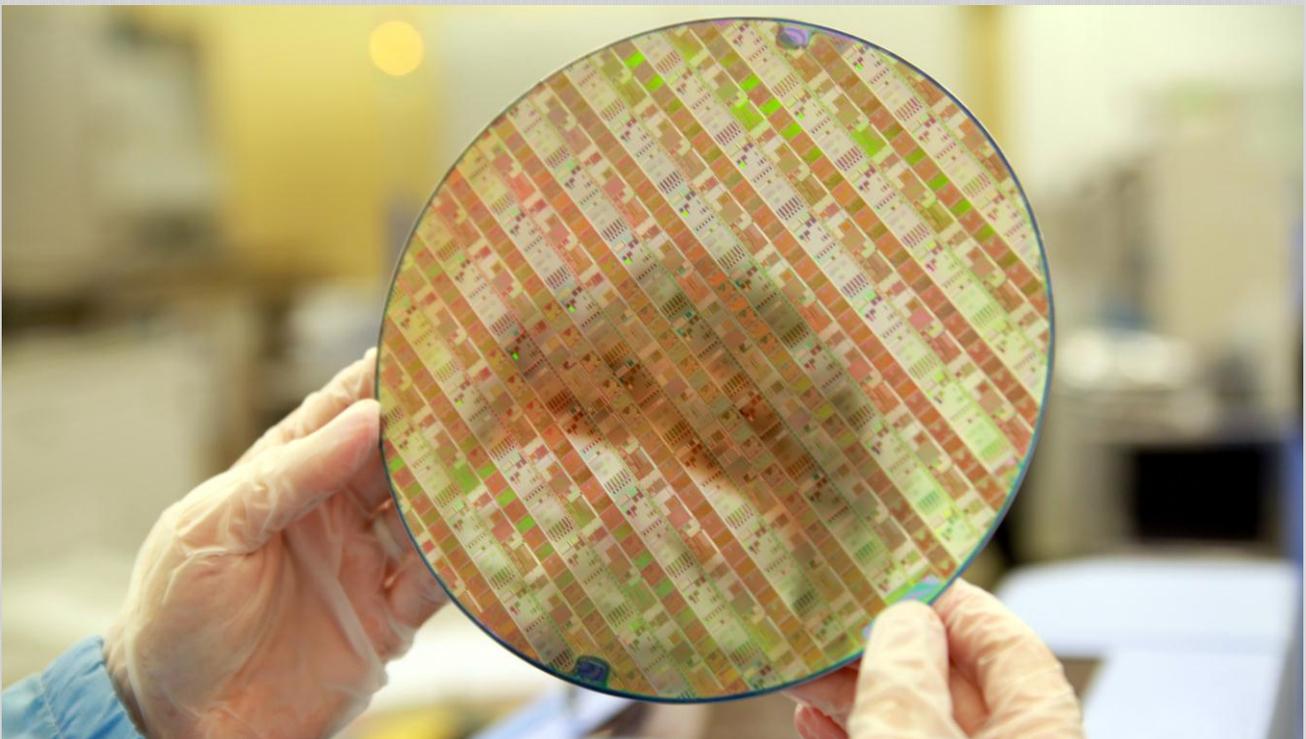
achieve company goals and objectives in a concerted manner.

- Weekly and monthly BBS (Business Balance Scorecard) performance review meetings

In addition, a number of rewards and recognition schemes were introduced to encourage the desired behaviors among employees.

Other Stakeholders

SSMC management team also recognizes the importance of cascading our mission, vision and values to other stakeholders such as shareholders, customers, suppliers and local & global community at large.



1.1c How senior executives evaluate and improve the effectiveness of their leadership and personal involvement

The personal involvement of the management team members in activities reflects their responsibilities as role models in the organization. They make every possible effort to regularly evaluate and improve the effectiveness of their leadership and personal involvement.

1. Performance Appraisal

The performance appraisal measures how effective the management team member has been in setting and meeting

company objectives and performance.

2. Assessment & Development Tools

Introduced to supplement the leadership teambuilding workshop, management tools like MBTI, 360 deg feedbacks are used to provide each management team member a way to better assess his personality, communication style, coaching and others.

3. Employee Engagement Surveys (EES)

Employee engagement surveys are employed as another means of feedback to assess the perception employees have of the management team's leadership effectiveness.



1.2 Organizational Culture

Describe how the organisation develops a culture that is consistent with its values, and which encourages learning, innovation and achievement of organisation's objectives..

1.2a How the organization translates its values into policies, practices and behavior

Our management team strongly believes that the foundation of our journey to business excellence is to

have a strong organizational values that guides the behaviors of all employees, not only in their daily work activities, to manifest the mission and vision of the organization when dealing with customers, suppliers and other stakeholders.

To effectively translate our enhanced core values into organization policies and practices, our CEO sponsored core values committee to review essential core values that the organization must have to bring us towards the transformation and self-sufficiency phase.

1.2b How the organization permeates a culture consistent with its values, and which encourages and supports learning, innovation and achievement of organization’s objectives

To inculcate and reinforce the SSMC core values to all employees, the management team adopted the four-phase approach as depicted in Figure 1.2b below:

Phase 1: Induction

All new hires are introduced to the SSMC mission, vision and core values on a mandatory basis by the management team during the New Hires Orientation programs. These are further reinforced through core

values workshop to inculcate further understanding of the expected behaviors.

Phase 2: Communication & Awareness

All employees are constantly reminded through the various forms of communication channels such as employee newsletters, posters, intranet and at the various planned CEO, divisional and departmental town meetings.

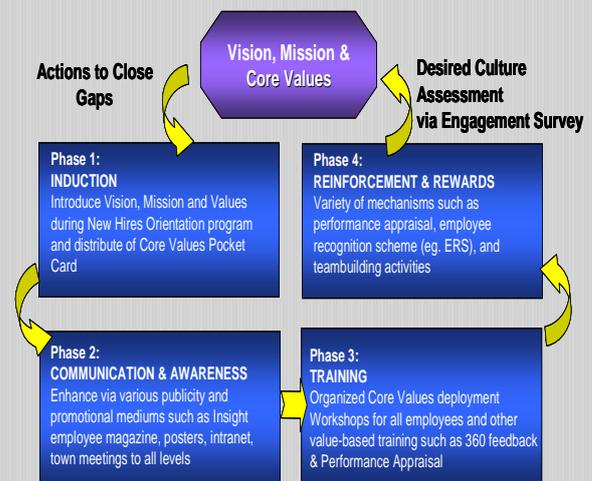


Figure 1.2b – Core values deployment and monitoring framework



Phase 3: Training

The management team and department heads conduct Core Values deployment workshops to emphasize the importance of having consistent values in our daily work activities. Other value-based trainings include coaching, 360-feedback and performance appraisal.

Phase 4: Reinforcement & Rewards

In SSMC, the management team believes that in order to institutionalize the culture in the organization, the existing reward & recognition schemes, team building sessions and the respective

supporting structures such as performance appraisal measures, recruitment process, bonus system and others were aligned and internalized to support learning, innovation and achievement of the organization's objectives.

1.2c. How the organization overcomes any differences between the current culture and the desired culture

Our management team recognizes that differences arise between existing culture and that which is desired by the organization, and acknowledges that efforts are required to bridge the gap. Differences between the current and desired culture are assessed and monitored at both individual and organizational levels.

Improvement areas and actions are then formulated by respective task forces, reviewed and endorsed by management team to close the Gap (if any) from the survey.

1.3 Corporate Social Responsibility Describe how the organisation addresses its responsibility to the community, environment and public, ensures ethical behaviour and practices good citizenship..

1.3a The organization's policy and goals in relation to its contribution to the community

and environment in which it operates.

SSMC has long maintained a responsible attitude to environmental issues. In our capacity, we strive to have a positive impact on our environment and community through continuous attention to our daily work practices. This commitment is reflected in our IMS (Integrated Management System) policy as below:

“We are committed to continually improve and innovate our processes and systems to deliver best-in-class foundry services to all our customers”.

Environmental Policy

Key programs such as establishing Environmental Management Systems and EcoVision are identified and established to support our environmental aspects of our policy:

• **Environmental Management Systems** ISO14001, an international systems-based standard for environmental management, was adopted to establish, implement, improve and maintain the environmental conservation and preservation activities.

• **EcoVision**

The emphasis of this program is to define aggressive targets to reduce the use of materials, specifically any materials that generates waste wherever possible. To meet the challenge, five key reduction areas are identified:

- a. Energy consumption
- b. Water consumption
- c. Waste generation
- d. Hazardous substances consumption
- e. Relevant substances consumption



Impact on Society Responsibility

SSMC strives to be an exemplary corporate citizen through our involvement and support in local community activities. This has led to the establishment of two main

goals and programs supporting them:

1. Promote industry-relevant training and education programs, in cooperation with academic

institutions or government agencies.

2. Involve in meaningful community activities and projects. 2013 marks the 10th year of the collaboration with the schools and SSMC is proud to be one of the 6 organizations that joined this program since its inception in 2004. Projects and activities are described below:

- a. Coastal/Mangrove clean up, Pulau Semakau visit, Newspaper collection and others.
- b. Annual blood donation drive to help Red Cross obtains sufficient blood supply for various needs.
- c. Funding support to needy organizations and/or cause

such as Tidal Waves Asia; Japan Tsunami, Bangkok Flood, Philippines Typhoon, Myanmar Cyclone; and worked with Lions Be-frienders for the elderly.

- d. Partnering with PUB to on Adoption of Lorong Halus Wetland & utilizing water efficiency fund programs to recycle the water.

SSMC has reached out to a bigger crowd by organizing factory visits. In reaching out to broader communities, SSMC's CEO, Mr. Jagadish, as has invited guest speaker at 2010 Singapore Green Summit, shared SSMC's perspective and experience on environmental conservation and outreach programs with other industrial partners.



1.3b How the organization communicates its policy and goals to employees and external parties and involves them in achieving the goals

The various modes of communication are described as follows:

Internal Parties – Employees

Channels used to communicate SSMC's community and environmental policies and programs to all employees, to create awareness among them and to involve them in achieving the goals established

External Parties

External parties that are involved in helping us achieve our goals are the suppliers and community with annual corporate review publication shared to various stake holders.

- Suppliers – suppliers form a critical element in our responsibilities towards the community and environment. We encourage our key suppliers to be ISO 14001 certified and work with them to achieve this goal.
- Community - SSMC website act as an information portal for the general public as well as our community program partners, providing updated information not only on SSMC

products but also the Integrated Management System policy where environmental and community commitment are clearly stated.

1.3cHow the organization establishes its governance system for transparency and accountability that is consistent with statutory and regulatory requirements or guidelines, and the protection of stakeholders and stockholder interests, as appropriate

Although SSMC is a private limited company, both our parent companies are public listed. SSMC therefore will need to demonstrate a very high level of corporate governance that is transparent, accountable and meet the various statutory and regulatory requirements and guidelines.

SSMC Board of Directors

SSMC Board of Directors consists of representation from both our parent companies, NXP and TSMC. The Board of Directors established the overall management policy of SSMC and provides general guidelines and control over the operations of SSMC.

SSMC Audit Committee

The Audit Committee of SSMC serves as a platform for the discussion, monitoring and review of the integrity of the SSMC's financial statements, the financial

reporting process, the quality and effectiveness of SSMC risk management and control framework (including accounting controls), discuss risks and provide guidance on changes in industry, government regulations & accounting standards and the internal and external audit processes.

SOx Committee

SSMC has established and maintained the internal controls as part of operational work to flag any deficiencies at early stage if any.

BEP Committee

The Management Team of SSMC will also act as the Business Ethics Policy Review Committee, the role of which is to regularly review the **Business Ethics Policy**, foster awareness of and promote compliance.

The Committees will be presented to the SSMC Board of Directors as updates or where relevant for endorsement and approval.



PLANNING



*“SSMC has established a rigorous Strategic Planning Framework
...to formulate business plan and strategic map...and rigorous
deployment of Business Balanced Scorecard.*

SPRING Singapore

2. PLANNING

2.1 Strategy Development & Deployment

Describe how the organisation develops its strategy and strategic objectives, and how they are deployed into action plans..

2.1a How the organisation determines its strategic challenges, and how the organization develops its strategy and strategic objectives to address these challenges. Include how the organisation adopts a global perspective in its planning. Summarise the organisation's key strategic short and long-term objectives and goals

SSMC has in place a well-integrated and hierarchical Strategic Planning Process which maps out the strategic directions and goals for the organization and enables it to monitor our organization performance both in short- and long-term.

Guided by our mission, vision and core values, SSMC conducts an annual planning using the Strategic

Planning Framework where the short-term and long-term strategies are formulated. The framework has four phases:

- Strategy Planning
- Strategy Deployment
- Operational Performance & Review
- Strategic Learning

Strategy Planning Phase

In this phase, key information (both external and internal) is used as inputs to assess the operating environment and formulate the business plan using the strategy map.

Key information used includes:

- Macro-economic developments
- Global competitive landscape
- Customer inputs
- Shareholders' investment plan
- Technology roadmap
- Capacity flexibility and plan
- Human Resource plan
- Global Best-In-Class organization Performance results
- Suppliers partnership & capabilities



Our management team, department heads and selected managers were grouped into various teams to discuss and propose the deliverables of Strategic Thrusts respectively and scenario planning. The output is articulated into the SSMC strategy map.

The strategy map provides a cause-and-effect linkage diagram, visually displaying all the strategic objectives and showing how one strategic objective affects another in four perspectives: financial, customers, processes, and learning & growth required to achieve our strategic destination – to be a financially sound as well as excellence organization.

The four perspectives are briefly described below:

- The **financial** perspective looks at the economic model of key levers driving our financial performance and

obligations to our financial contributors. The identification of key levers are assisted by the financial simulation model

- The **customer** perspective considers the value proposition of SSMC target customers and identifies the competencies that are most valuable to our customers.
- The **process** perspective focuses on the value chain of our key business processes that SSMC need to excel at to satisfy our financial obligations and our customer requirements
- The **learning & growth** perspective provides SSMC with the critical enablers of performance improvement, change and learning systems.

Strategic measures (also called KPI – Key Performance Indicators), appropriate targets as well as initiatives will then be identified to ensure the progress of each strategic objective in the Strategy Map is measurable. Upon the approval of the management team, these measures will form a key part facilitate their preparation of the financial budget, their respective department BBS and alignment of company strategic directions. Our CEO will then communicate and share the SSMC strategy, BBS, Strategic Initiatives and Top Must Do (TMD) to all employees during the Leaders communication session and CEO Town meeting.

Departmental BBS

Division and department managers develop their department short-SSMC reviews the strategy, BBS Strategic Initiatives and Top Must Do in 2 forms

- Review Against Plans – review the performance relative to

of the SSMC Business Balanced Scorecard (BBS).

Strategy Deployment Phase

SSMC BBS and strategic initiatives and Top Must Do (TMD) shall be communicated to all division managers and departmental managers so as to term BBS based on the organization strategies, BBS and strategic initiatives to drive their day-to-day business. Upon confirmation of these objectives and performance measures, the division or department managers communicate them to their employees who incorporate them into their job goals.

plans at Company level, Division/department levels and Individual level.

- Reviews Against Business Changes





INFORMATION



“Semiconductor wafer maker SSMC has been mentoring turbocharger service provider Tru-Marine for a year now. Tru-Marine has learnt from SSMC is to identify and design desired customer experience... to create a memorable experience.

‘While Tru-Marine is new to this approach, we have learnt from SSMC and incorporated using similar outside-in concept to identify customer touch points...’ Tru-Marine said.

3. INFORMATION

3.1 Management of Information

Describe how the organization selects and manages information for planning, day-to-day management and performance evaluation. Describe how knowledge assets are systematically managed within the organization involving stakeholders, including customers, to create value for the organization.

3.1a How information needed to drive planning, day-to-day management and improvement to the organization's performance is selected and collected. List the key types of information and describe how they are related to the organization's performance objectives and goals.

SSMC is in a very competitive wafer foundry business and a rapidly changing business environment and thus, we fully appreciate that the value of information to an organization may be lost if the information is not available in the right format, the right time and to the right people. It is with this appreciation for the value of information that SSMC conscientiously mobilize the organization to select, collect, create, structure, store, analyze,

disseminate and use information that are aligned with our mission, vision and core values as well as the strategic initiatives of our organization.

Given the scope of our operations, there are essentially three levels of information within SSMC that are crucial to the management and operations of a wafer foundry. These three levels are differentiated by their focus, level of aggregation as well as complexity:

• **Business Management**

This group of information is relatively high level to provide our management team with regular updates of SSMC key performance indicators by aggregating and summarizing information. Structured along our strategic objectives and initiatives, it also forms the basis for our management team to make timely and informed strategic decisions as well as to monitor and control the results of business performance.

• **Comparative Information**

In order to drive ourselves to the next level of manufacturing excellence, SSMC makes a conscious effort to conduct comparative and benchmarking studies to explore and find new areas in which we can improve our competitiveness

- **Day-to-Day Information**

This level of information plays a critical role in the operations of SSMC. At this level, information collated, transmitted and used is extremely detailed and time

sensitive. This allows operational employees of each division and department to perform and execute their functions efficiently and effectively.



3.1b How the organization ensures that information is reliable, accessible and disseminated quickly to employees, suppliers/partners and customers. Include how the organization shares information to encourage learning and innovation.

Information Reliability

SSMC aims for information fiduciary (i.e., effectiveness, efficiency, reliability and legal compliance). To ensure that information is reliable, business process owners take the pro-active lead in collecting and

managing vital data and information within their business processes.

In addition, stringent accounting controls are imposed to ensure financial information is reliable and sensitive data is independently validated. Management information coherency is

achieved through agreed snapshot of the operations at specified time.

Systems Reliability

To safeguard the information, SSMC employs industry standard practices in the system maintenance,

information back-up and archive, installed disaster recovery plan and industry standard facilities to ensure IT infrastructure robustness. A summary of the key infrastructure established is described below:

- **System Maintenance**
All the IT systems, covering hardware and software, are under vendor maintenance support to ensure maximum uptime.
- **Back-up and Archive**
Data archiving and retention policies to help ensure optimal data access performance are defined collaboratively between the users and industrial standard practices.

Backup tapes are stored at a different secured location as per industrial standard practices.
- **Disaster recovery plan**
A disaster recovery hot site is set up to ensure business continuity in case our Data Centre is down. Business Continuity Plans are in place to evaluate and improve the organization's preparedness and awareness in the recovery procedures.
- **Network reliability**
The network at SSMC has a built-in redundancy. It has

two redundant links that act as a fail-over and load balancing. The network is monitored with alert mechanism in case of any failure.

Information Accessibility & Dissemination

SSMC have established the Information Security Management System (ISMS) code of practice, based on the ISO270001 standards, where information is relayed to relevant parties in a timely manner.

All authorized users, which include employees, customers and suppliers and general public, can access SSMC news, events, procedures and policies of the organization via the intranet, internet, vFab, email system and newsletter. Employees are also given IT accounts to access to relevant information from authorized application systems to execute their daily functions, learning and innovation in a timely manner.

3.1c How information is analyzed and used to support organizational planning and review.

Having established the rigorous process of collecting and incorporating a wide range of information to our business and day-to-day information management, we need to analyze to make them useful. We generally

have two types of analysis: quantitative as well as qualitative.

Day-to-day information is collected and disseminated daily to employee in-charge in the various division and department to take immediate actions to improve our operational excellence. Statistical data such as percentages, averages, deviations, sigma shifts, and other types are generated on a daily, weekly and monthly basis for trend analysis.

Apart from the quantitative analyses, SSMC also encourages qualitative analyses of the information we collect (for example, feedback from customer, employee, suppliers, and other stakeholders). Information of this nature is discussed at the respective divisional and departmental meetings as well as various committee and team meetings. Action plans are then established to address those issues required to improve our performance.

3.1d How the organization manages knowledge to create value. Include how knowledge is used or acted upon for business improvements.

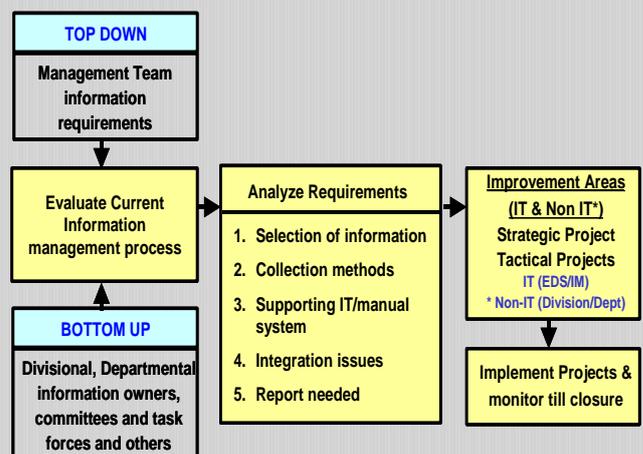
Knowledge Management (KM) is about retaining and delivering the right information to the right people to achieve optimal business outcomes. SSMC establishes DNA KM Portal to enable the organization to create, capture, organize, share

and apply knowledge. The DNA KM portal encompasses three key elements;

- Documentation – a central place where employee can get fast access to controlled documents
- Nurturing knowledge with Integrated Learning System and
- Analytical knowledge where employees share improvement and benchmarking projects.

3.1 e How the organization evaluates and improves its management of information and knowledge.

SSMC recognizes that to stay competitive, we continuously need to review our information management system to stay ahead and will require more efficient process of managing our information. Hence, we proactively evaluate the needs of the organization with regards to the management of information. The evaluation framework used is shown in Figure 3.2:



From a bottom-up approach, ie, from divisional and departmental level, process and system owners are responsible for reviewing how best to select, collect, and disseminate information.

From the top-down approach, on the other hand, information requirements of our management team are also constantly reviewed for adequacy and timeliness for strategic decision-making.

Besides reviewing our information systems, SSMC KPIs (or strategic measures) are also regularly reviewed to ensure their relevance and to capture and reflect new requirements.

3.2 Comparison and Benchmarking

Describe how the organization selects and uses comparative and benchmarking information to achieve performance improvements.

3.2a How comparative and benchmarking information is selected to improve the organization's performance.

SSMC believes strongly in the need to improve our organization excellence through constant comparative and benchmarking studies. This is crucial to our mission to be the "best-in-class" foundry services by setting and implementing high standards in

quality (ie, defect density & yield), cycle time, cost, delivery and service. This is also important in our journey towards making SSMC an operationally excellent organization. Hence, we regularly undertake comparative and benchmarking studies that should be based on the following principles:

- **Know** and understand your current process efficiency and effectiveness
- **Continually Look & Learn** externally (within or outside our own industry), to understand and compare against other organizations that have established excellent practices in order to improve ourselves
- **Be the benchmark** to drive improvement, raise the bar and be the best.

Based on these principles, each division is responsible for initiating and deploying comparative and benchmarking studies for their own areas of responsibility.

Comparative and Benchmarking Process

Despite SSMC's specialized approach towards comparative and benchmarking studies, all the divisions follow a 4-phase comparative and benchmarking process shown in Figure 3.3 below:

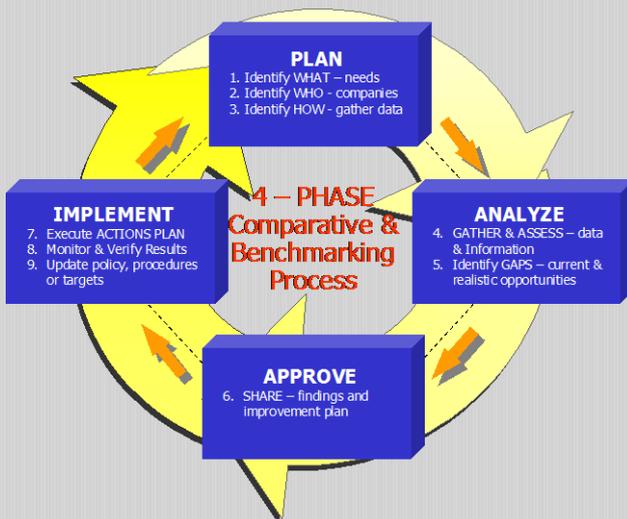


Figure 3.3 - Comparative & Benchmarking Process

Phase 1: Plan

Each division identifies the needs for comparison and benchmarking.

We will then scan the environment to identify best practices within as well as outside the semiconductor industry. We will then decide on the appropriate data collection or comparative methodology (eg., visits, publication, interviews, cluster teams and others)

Phase 2: Analyze

At this stage, we will proceed to gather information and data defined in Phase 1. Based on the data and information collected, we will review the findings and identify gaps in our current process. From these analyses, realistic opportunities of improvements will be identified and recommended for implementation.

Phase 3: Approve

A summary of the findings and improvement recommendations will

be presented to the sponsor(s) and shared with other impacted divisions of the respective study to increase to gain acceptance during the implementation phase.

Phase 4: Implement

Once the recommendation (targets, changes to the process, policy and others) is approved, implementation actions are executed and monitored. Affected procedures, policy and targets will be revised accordingly and are taken into consideration when planning for the next benchmarking or comparative study.

3.2b How comparative and benchmarking information is selected to improve the processes and to set stretched goals and/or encourage breakthrough improvements. Include a summary of comparative and benchmarking activities done.

Comparative and benchmarking studies are important for SSMC to set new targets during our strategic planning process and to challenge the organization to learn new ways to do things more efficiently and effectively.

SSMC has also been often benchmarked by many local and global communities such as

- SSMC Business Excellence

- SSMC Strategic Planning and Business Balance Score
- SSMC Total Customer Satisfaction and Service Excellence
- SSMC Business Continuity Management
- SSMC Environmental Conservations and Green Initiatives
- SSMC Best-Known-Method

3.2c How the organization evaluates and improves its overall process of selecting and using comparative and benchmarking information.

As each division reviews their respective benchmarking needs, new best practices will emerge to warrant new studies.

On an annual basis, the overall process of selecting and use of comparative and benchmarking information is review during our strategy planning process. Based on SSMC Strategic Key Thrust, each task force and division will review the 4 phase comparative and benchmarking process to ensure relevant comparative and benchmarking information is available to support the development of SSMC strategic objectives and goals.



PEOPLE



“Thanks for meeting our needs. Team at SSMC is always there when we need you.”

NXP HPMS-IP Project Manager

“Very BIG Thank You, for the advanced SSMC support”

NXP IP & Technology – Physical Design Director

4. PEOPLE

4.1 Human Resource Planning

Describe how the organisation's human resource strategies address the needs and development of its workforce.

4.1a How organisation develops its human resource strategies, policies and plans. This includes how the human resource strategies, policies and plans are aligned to the strategic plans.

The objective of human resource planning is to build high performance workforce to enable the organization to deliver results and drive performance to achieve SSMC's mission, vision, core values, strategic objectives and goals.

SSMC human resource strategies, policies and plans are driven from and aligned to the annual strategic planning thrusts where short- and long-term direction and focus of the organization is defined. This strategic direction and focus will be the guiding force to drive the plans of the various key processes in the human resource planning framework shown in figure 4.1 below.

SSMC's human resource planning framework consists of six key and

closely inter-related human resource policies, systems and processes:

1. Manpower planning and recruitment
2. Performance management and recognition
3. Learning and organization development
4. Remuneration and benefits
5. Employee wellness and engagement
6. Talent management



Figure 4.1 – HR Planning Framework

4.1b. Describe the organization's human resource requirements and plans, based on the organization's strategic objectives and goals.

The key requirements of each of these human resource processes coupled with the organization strategic objectives and goals and operational needs form the input to the Annual Human Resource

Manpower plan and the Annual Total Human Resource plan.

Annual Manpower Plan

Annually, division and department managers, in establishing their respective divisional and department objectives in line with the strategic plans, determine the number of employees required to achieve the desired objectives.

Annual Human Resource Plan

In addition to the Annual Human Resource Manpower plan, it is also important to ensure that the human resources plan supports the strategic requirements of the organization. Hence, an annual Human Resource plan encompassing the key processes is prepared each year to highlight key human resource activities such as recruitment focus, health promotion, performance appraisal and others for the coming financial year.

4.1c How the organization uses feedback to improve human resources strategies, policies and plans.

Execution of the Total Human Resource Plans will be deployed in various forms:

- Division and department managers

- Cross-functional committees such as Sports and Recreation Committees, Patent Committee, and others
- Employee communication channels such as CEO town meeting, division and department meetings, by way of emails, notice boards, posters, road-shows, meetings, task forces, intranet and others

Feedback to improve human resources strategies, policies and plans come mainly from external and internal sources.

External Feedback

Regulatory and labor related changes at the national and industry level as well as benchmarking in areas such as compensation and others are used to enhance and shape our human resources strategies and policies to ensure that we stay relevant and minimal interruptions to business and operations.

Internal Feedback

Our employee engagement survey is one of the primary way in which feedback is gathered and improvement actions to the Human Resources plans and policies are implemented. Feedbacks are also gathered other platforms such as CEO tea sessions, exit interviews from line managers to meet their needs.

4.2 Employee Engagement

Describe how organisation engages the employees to contribute to the achievements of organisation's objectives and goals.

4.2a The strategies adopted and the mechanisms available to encourage and support individual and team participation in achieving organization's objectives and goals..

Inline with our strategic objective to build a thinking workforce, employee engagement strategies and mechanisms established play a pivotal role in facilitating employees to contribute and commit to the achievement of SSMC objectives and goals. SSMC has put in place two key involvement strategies: Transform and Committee involvement.

The first strategy is to garner employees' great ideas, individually or as a team, on ways to improve current organization performance and challenges to bring SSMC's performance to a higher level through breakthrough or innovative means. The second strategy, on the other hand, drive employee engagement by involving employees at all levels in committees that are driving company-wide initiatives. These committees are chaired by

respective management team members.

4.2b The process of implementation of the mechanisms for employee engagement and the review of their effectiveness.

10K Ideas

Introduced in 2008 (an enhanced scheme from the eSuggest initiated in 2001), 10K Ideas is an avenue to capture great improvement ideas from employees on various aspects of their work that contribute to the company objectives.

Evaluators, who are the process and functional owners, assess the ideas and classify them into Basic or Golden level based on cost savings/avoidance and impact to the organization.

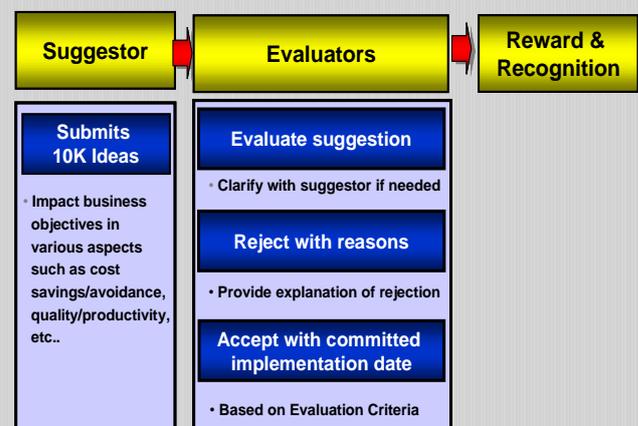


Figure 4.2 – An Overview of 10K Idea

Lean Six Sigma (LSS) Teams

Augmented to Lean Six Sigma (LSS) methodology and team in 2008, this

engagement mechanism focused on nurturing teamwork among employees from all levels to achieve the sectional, departmental or organizational goal and celebrate successes.

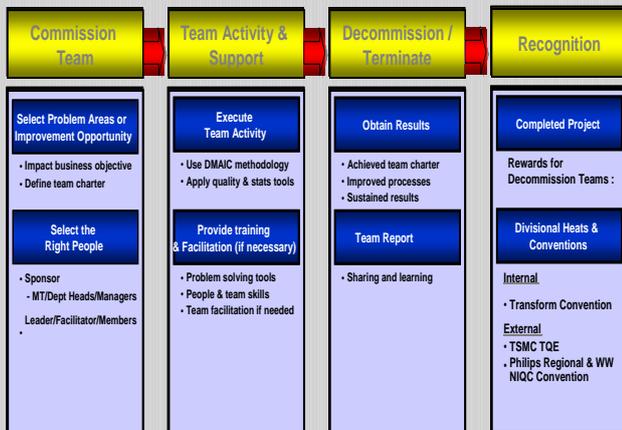


Figure 4.3 – An overview of Lean Six Sigma (LSS)

To encourage learning and sharing as well as reaching new peaks, Transform convention is held annually for Top LSS teams to further compete and showcase their innovations and results. The winners of the Transform convention will participate at the National Innovation & Quality Circle, parent companies' team convention to further encourage the cross-company learning and sharing.

Professional/Technical Paper Publication

Initiated in 2003, this platform is another avenue to encourage collaboration among area experts to make contribution to the industry through knowledge sharing and

learning in the respective field of expertise.

SSMC writer(s) prepares Professional/Technical Paper and submits to the department and/or division head for review.

SSMC Best Known Method (BKM)

SSMC Best Known Method (BKM) encourages employees to engage in breakthrough improvement in the operational and technical aspects of their functions. This mechanism also helps to build technical core competencies of our employees. BKM are ideas that are new and has not been implemented in any facilities in our parent companies.

Patent / Trade Secret

Initiated in 2002, this channel continues to encourage inventions in SSMC and rewarding our inventors.

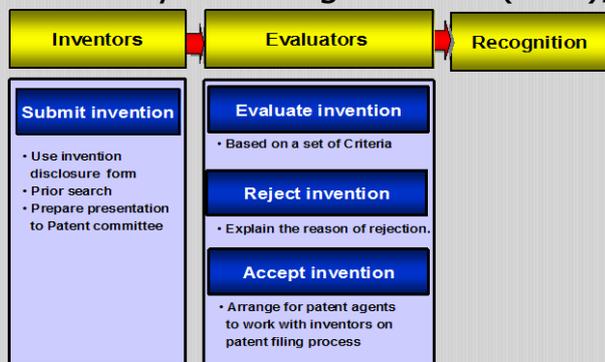
All approved inventions will be reclassified into two broad categories: Patent and Trade Secret to ensure SSMC intellectual property are protected throughout the process.

Committees

This is a platform to develop employees beyond their own areas of work and to strengthen the teamwork across all divisions and at all levels.

The committee members are either nominated or from employees voluntary participation across all divisions to have a good spread of representation for the necessary input and expertise. These committees are generally driving company-wide initiatives. Hence, most of them are chaired by a manager and sponsored by a member of management team.

There are about more than 10 cross-functional committees working on different initiative and scope. For examples, Business Continuity Management (BCM),



Safety, Information Security and Management System (ISMS), Environmental, Patent, Employee Magazine (Insight), Sports & Recreation, and others.

4.2c. How the organization evaluates and improve its overall employee engagement process.

The management team, respective system owner and committees are involved in reviewing the strategies and processes to further the cause of employee engagement.

A Transform Committee meets on an annual basis to review the overall employee engagement process i.e., the adequacy of strategies and mechanisms in place, the improvement in the various mechanism and other policy or infrastructure required to better support these engagement mechanism.

4.3 Employee Learning and Development

Describe how the organisation engages its entire workforce in learning and development to achieve high performance..

4.3a How the organization identifies the learning and development needs for all employees to support its objectives and goals

In line with our core values, SSMC is committed to provide learning and development opportunities to equip every employee with the skills/competences necessary to perform his/her function well and to achieve the organization's objectives and goals.

The following five pillars of Learning & Development Structure and Programs provide guidance to managers to identify the needs of employees to meet organization needs:

1. Technical/Functional skills
2. Personal Effectiveness
3. Leadership Development

4. Professional Development
5. Career Development

Technical/Functional Skills

Our technical/functional learning matrix is established based on the Competency Development Framework (CDF) that defines the competency modules and levels required for each function. Level 1 equips employees with basic competency while Level 4 equips employees with advanced skills to ensure successful application of skills and knowledge.

Personal Effectiveness

Personal effectiveness programs aim to provide employees with skills that enable them to work more effectively and efficiently across functions and organizations. Examples of personal effectiveness core programs include project management, financial interpretations, lean six sigma, presentation skills, software programs, language skills, core values workshop, and others.

Leadership development

These programs are organized to develop effective leadership, managerial and supervisory skills for existing and new people managers. Examples of core leadership programs include managerial coaching, managing a team, supervisory skills, performance appraisal, and others.

Professional Development

SSMC encourages staff to continually upgrade and pursue relevant qualification that will enhance their professional standing and personal development through the SEED (Staff Education and Development) scheme. We sponsor part-time and formal programs in relevant areas leading to diploma, advanced diploma, degree and post-degree qualification pursued at local institutions.

Career Development

Career interest and development is another area of discussion incorporated in the annual performance appraisal process. Employees can indicate his/her career interest and together with the manager discuss and identify relevant development actions for the employees using the Career Development Model.

This learning and development needs will consolidate into the Total Learning & Development Plan for the year.

4.3b How learning and development opportunities are delivered, and reviewed for their contribution to individual and organization effectiveness.

Once the Total Learning Plan is finalized, the human resource team partners with internal and external training providers and facilitates the

Total Learning Plan implementation through a variety of delivery mechanisms

- **Technical/Functional Skills**

Competency Development Framework (CDF) is a key platform where each technical/functional competency modules are established and delivered through self-learning (e-Learning), classroom or On-The-Job (OJT). At the end of the learning module, there will be an assessment such as Multiple Choice Question (MCQ) Checklist, Trainer Assessment to assess and the effectiveness of the module delivered

- **Other Learning & Development Pillars**

For other learning and development plans under Personal Effectiveness, Leadership Development, Professional Development and Career Development, SSMC provides a wide spectrum of formal training through courses, seminars, workshops, conferences, eLearning, functional learning & sharing session which may be conducted by in-house or external trainers and area experts.

4.3c How organization evaluates and improves its overall learning and development process.

Training must be closely monitored to ensure continuous benefits to the organization as a whole, especially the efforts placed in training, educating and developing employees must ultimately contribute to the achievement of the organizational objectives.

Annually before the finalization of the next year's Annual Training Plan, human resources department will conduct a review on the effectiveness of the overall learning and development process. Inputs to this review include training indicators, effectiveness assessment such as participants' reaction, learning and application feedback on identified programs, and impact to organization and business (ref. strategy map).

4.4 Employee Health and Satisfaction

Describe how the organisation develops a work environment that enhances the well-being and satisfaction of employees. Describe the formal and informal assessment methods for assessing employee satisfaction.

4.4a How the organization develops a supportive work environment that enhances employee well-being and satisfaction, and promotes a harmonious relationship between management and

unions/employees. Include how the organization supports the needs of a diverse workforce.

SSMC attributes its achievement largely to our engaged and motivated employees. Besides having the abilities and competencies to carry out the assigned jobs and contribute towards the achievement of the organization objectives, we believe in providing employees with conducive work environment through policies and programs to enhance the well-being and satisfaction of employees. Key programs in this areas are described below:

- **Employee Wellness Program** – focuses on enhancing physical and mental wellness of our employees
- **Employee Engagement** – focuses on cultivating mutually respectful and trusting relationship.
- **Personal Growth and Development** – focuses on providing opportunities to grow and continuously learn new things

Employee Wellness Program

We believe that employees must be well (both physically and mentally) to carry out their assigned responsibilities effectively and efficiently. Hence we encouraged all our employees to lead a healthy

life style through the four pillars of our wellness programs:

1. Sports, Recreation and Community (SRC) and Interest Groups;
2. Employee Privilege Program (EPP)
3. Healthy Living programs
4. Wellness Facilities



Employee Engagement

SSMC recognizes that regular and open communication via formal or informal channels contribute to a positive, harmonious working relationship among colleagues, managers and team members.

All employees are encouraged to voice their views and queries via various channels such as CEO town meeting, CEO tea-session, skip level, 1-1 sessions, division meetings, department meetings and others.

Personal Growth and Development

To get employees to carry out their assigned responsibilities effectively

and efficiently, SSMC understands that apart from giving employees clear job expectations and description, we must also provide employees, when opportunity arises, give them higher responsibilities or rotate them to other job functions in order to broaden their work horizon and thus, nurturing their personal growth and development.

To support this approach, SSMC establishes internal job postings policy where employees can apply for any position advertised or open in SSMC. Other development opportunities such as taking up challenging work assignments, participating in cross-functional projects, overseas assignment at parent organizations for technology/product transfers and short-term assignments.

4.4b/c How the organization measures and assess employee satisfaction and evaluates and improves its approach to enhancing employee well-being and satisfaction

Employee satisfaction is measured directly through our Engagement Survey (EES). The EES is conducted every two years to measure various aspects of satisfaction such as engagement, well-being, leadership, immediate management, learning and career

development, performance management and others.

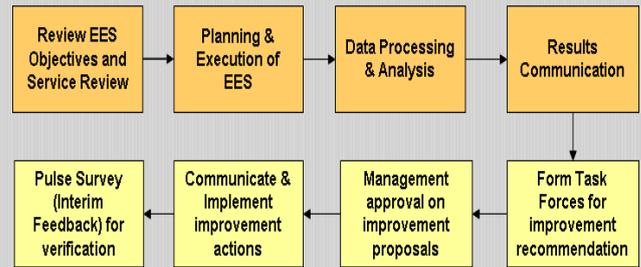


Figure 4.9 – Employee Engagement Survey (EES) Process

The levels of satisfaction are determined by the percentage of total favorable responses. These analysis are then used to compare with previous years survey results as well as the benchmarked norm to identify and prioritize improvement areas. Task forces are formed to identify improvement opportunities and propose recommendations to the management team for endorsement. These improvement actions are communicated and implemented accordingly.



4.5 Employee Performance and Recognition

Describe how the organisation's employee performance appraisal, recognition, promotion, compensation, and reward systems encourage employees to achieve high performance, aligned to the organisation's objectives and goals.

4.5a. How the organization's employee performance and recognition systems support high performance, innovative and creative behavior and achievement of objectives and goals

SSMC uses systematic performance appraisal system to evaluate the performance of employees, both quantitatively and qualitatively, so that they may be rewarded according to their contributions to the organization objectives and goals. In addition, recognition and reward systems are also established to encourage innovative contribution beyond the job scope and to act as a positive reinforcement for our employees.

Performance Appraisal

This is a mechanism used to assess contributions of employees within the job scope. They are assessed both for their job outputs as well as behaviors at work. The basis for measuring the job outputs is the

extent of achievement of work goals deployed to the individual.

SSMC practices open appraisal system where employees are given opportunities to do self-evaluation and discussion with their supervisors/managers about their individual performance. The measurement of the linkage of individual performance to the department and organization goals is done through the systematic deployment of the Business Balance Scorecard. As a result, all employees have had their individual work goals linked to the respective department or company objectives and goals. In addition, employees are also appraised for their behaviors according to the core values of SSMC. This transparent appraisal process enables the employees to determine how their strengths can be maintained and improvement areas enhanced.

Recognition & Reward

Salary increments and bonuses are important factors for SSMC to attract and retain high performing employees. Thus, the annual increments and individual bonus, are competitively adjusted, and accorded to employees based solely on the individual performance and their contribution to the organization's goals. This bonus system is communicated openly at our quarterly CEO town meeting to ensure all employees understand them.

SSMC has been able to reward employees with bonuses that are above the industry to recognize the efforts of our employees for keeping SSMC on par, if not, ahead of our competition and fabrication facilities of our parent organizations.

Employees who perform well and have the desired competence and attributes to assume higher responsibilities will be promoted accordingly. Employees with higher potentials are identified in the succession planning and may be rotated to other functions to broaden their scope and perspective. Corrective Performance Action (CPA), on the other hand, is a process established to help focus on employees who are not able to meet the desired performance levels

to identify improvement areas and support needed to meet targets.

4.5b. How the organization evaluate and improves its performance management and recognition systems.

The review and improvement process for the performance and recognition systems takes place at least once a year at the HR review platform or the weekly HR meeting with the management team. Inputs used for this review come from the employee engagement survey results (leadership, Pay & Benefits, Performance Management), Remuneration & Benefits surveys, as well as managers and division heads.





PROCESS



“SSMC did a lot of improvement on tool uptime , stability & achieve good yield performance.”

TSMC Vice President, Operations / Affiliate Fabs

“Many thanks for helping us with this project. Thanks for understanding how important this yield improvement and we know SSMC really do its best to support this job... SSMC have co-work for many process generations, SSMC's team always give us the greatest support... We know with SSMC's great support, there is no problem that can not be solved.”

End Customer

5. PROCESSES

5.1 Innovation Processes

Describe how the organisation manages innovation and designs new products and services and their related production and delivery systems..

5.1a How innovation management process supports value creation. Include how creative ideas are harvested, evaluated and implemented..

To stay competitive, SSMC has to strive, not only to improve our manufacturing and business processes, but be innovative, creative and think out the box to acquire, evaluate and implement creative ideas from all sources to achieve best-in-class results.

Continuous Improvement & Innovation System

Transform Portal is the system that we have established to capture, evaluate and implement improvement and innovative or breakthrough ideas. 10K ideas, Lean 6 Sigma (LSS), Best Known Method, Patents & Trade Secrets and Publications are described in criteria 4.2 under Employee Involvement & Commitment.

5.1b How new products and services and their related production and delivery systems are

designed and introduced. Include how employees, customers and suppliers/partners are involved in the design process.

SSMC was chartered as a foundry providing wafer fabrication and wafer sorting/probing services to our customers. This charter is heavily dependent on the technologies we offered. These technologies can come with various options such as low power, polyimide, redistribution layer (RDL) and others.

The availability of these numerous technologies (or SSMC products) offers a wide choice for our customers to select the appropriate technology to run their prototypes and mass production to produce the device (or semiconductor chips) according to their chip design and functionality requirements.

Technology Creation Process

Depending on the technology the customer's product requires, the process to develop/transfer the new or existing technologies demands different resources, qualification requirements and time. Nevertheless, a development or transfer team will be established, consisting all engineering modules, our mother fab (ie., the fab where the technology will be co-developed or transferred from our parent companies) and suppliers.

All new technologies development/transfer process have defined six-phase milestones

Each phase comes with a checklist

Product Introduction

Product introduction is the core service offering SSMC provides to all our customers to ensure all customers' product (device/chips) functionality and requirements are met before mass production in SSMC.

A product transfer team or prototype team will be established respectively and the product introduction process is kicked off and released three-phase milestone

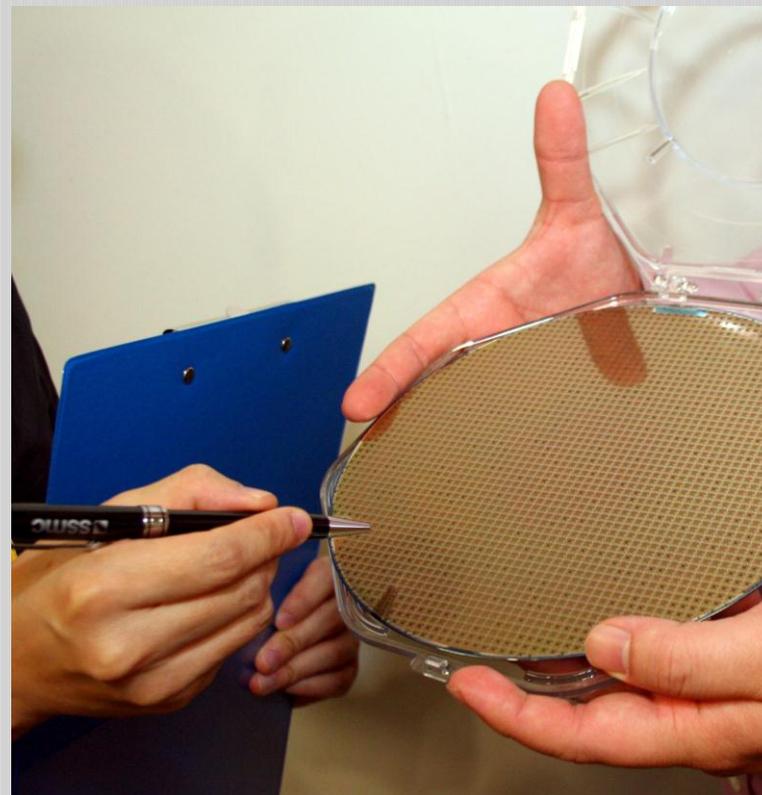
The transfer or prototype team holds initiation meetings to review the customer's requirements, phase checklists and product release criteria to ensure all requirements

5.1c How the organisation evaluates and improves these innovation processes.

Continuous Improvement & Innovation System

A Transform committee meets on an annual basis to review the Continuous Improvement & Innovation system review and improve on the overall innovation framework and guidelines based on company strategy directions and business requirements. This

and pre-defined qualification criteria and ends when the items in the checklist are completed and the qualification requirements are met.



committee also has the responsibility to ensure that no duplication of resources, ambiguity, and alignment in the respective mechanism used.

Since 2009, SSMC has established Lean 6 Sigma Black Belt Program and certified >70 Black Belts. The certification process is vigorous as black belts require to complete projects and passed examinations with simulated case studies.

This is a remarkable milestone for SSMC as the certified Black Belts are the seeds to further strengthen the Lean Six Sigma culture and continuous improvement drives within SSMC to scale greater height towards excellence journey.



The purpose to have Trade Secret is to encourage innovations within the organization but inventions' secrecy and non-disclosure to competitors at times required.

The organization has also participated actively in various external platforms and won many innovations awards. These include Eureka award, Multi-Million Dollar Award, National Innovation Quality Circle Star/Gold Award, WSH Innovation Gold Award and Innovation Class Certification from SPRING Singapore.

Technology Creation & Product Introduction Processes

The technology creation and production introduction processes,

also part of the key business processes of SSMC, are being reviewed annually at the Strategic Planning workshop to assess the need to improve the processes under the following situation: the need to hasten the product to market, to provide more value add, cost efficiency and others.

5.2 Process Management and Improvement

Describe how the organisation manages and improves its production/delivery processes (including support processes) for its products and services.

5.2a/b Define the key production and delivery processes of its products and services and their support processes. Include a description of their requirements and performance measures or indicators.

Describe how the organisation manages these key processes to meet process

Requirements and maintain process performance to ensure products and services meet customer and operational requirements. Include how the organisation is able to sustain its operations in emergencies and disasters for business continuity.

Key Business Processes

SSMC has identified five key business processes to support its strategy:

- Business Management
- Technology Creation
- Production Introduction
- Business Fulfillment
- Business Acquisition
- Business Support

This process focuses on the formulation of business plans and strategy annually at the Strategic Planning workshop to identify strategic objectives and goals as well as initiatives to be deployed to the rest of the organization.

In SSMC, KPI and initiatives are tracked and reviewed monthly at the company, division and department level using the Business Balanced Scorecard (BBS).

Technology Creation Process

The Technology Creation process focuses on the introduction and the release of technologies according to technology roadmap, customer request and market opportunities.

Product Introduction Process

The Product Introduction Process looks at the implementation and releasing customer products according to customer requirements and as such, starts with an evaluation of the product in prototype form, followed by evaluation to check functionality over customer site and reliability assessment during the Tape Out Prototype 1st Silicon phase and ends

with when the product is qualified or Released To Production (RTP).

Business Fulfillment Process

Business Fulfillment Process oversees the operational supply chain management including resolving production constraints. The process covers the action and decision processes needed to ascertain the production volume with respect to customer's forecasted requirements. The sales order for wafer production must be fulfilled in requested time and quantity with the quality agreed with the customers and at the lowest possible cost.

Business Acquisition Process

This process concentrates on the activities with respect to the commercial liaison with the customers and the various activities that are carried out to fulfill customer expectations, manage customer relationship and satisfaction as well as proactive selling to acquire new business.

Business Support Processes

Other than the key business processes, the following support processes also support the organization's production and delivery processes.

These include:

- Human Resource Management
- Supply Chain Management

- Information Technology Management
- Finance & Accounting
- Integrated Management Systems (Quality/ Environmental Health & Safety/Information Security/Business Continuity Management)
- Facilities Management



SSMC integrates BCM as part of its management policies and culture, taking steps to manage risks and formulating business continuity plans (BCP) from 2002. In 2007 SSMC became one of the few organizations to be TR19 certified and in 2010, and being the first wafer fab in Singapore to attain the BCM SS 540 Singapore Standard and converted to ISO23001 in 2013. SSMC is also involved as a member of BCM Technical Committee, sponsored by Spring Singapore.

SSMC's risk management policy assures business continuity and

protects stakeholders, assets and operations. To ensure that its BCM plans do actually work, SSMC has been reviewing and testing its BCP on an annual basis.

It has also planned the exercises in accordance to the global outlook and simulating different scenarios every year. The effort was recognized by Singapore Government and Singapore Business Federation, and SSMC was invited to share the benefits of having BCM in 2011 National Security Dialogue.

Productivity Excellence

The organization continues to drive productivity in every aspect of business to maintain lean and stay competitive. Productivity has always been one of company-wide strategic initiative – Top Must Do (TMD), driving tool and people productivity over the years through continuously process streamlining and automation. Various key performing indices (KPI) are used to track and improve operations productivity.

5.2c How the organisation evaluates and improves these key processes to achieve better process performance and improvement to products and services.

SSMC adopts two-pronged approach: strategic and tactical level to review its key processes to achieve better process performance and improvement to products and services.

Strategic Level

At the strategic level review, SSMC recognizes that the key business processes are critical to the achievement of our strategic objectives and goals, and thus, review them systematically on an annual basis at the Strategic Planning Workshop to assess and ensure the existing key processes are able to support future directions.

Tactical Level

At the tactical level, these processes are rigorously reviewed and improved using a variety of methods:

- **Process Performances**

Process measurements and targets are defined by responsible management team, and are key elements of our ongoing review and improvement process to help to motivate employees to achieve the performance goals with steep learning curve.

The review of KPIs are extensive and covering all levels in the organization through various meetings for their review and comparison.

In situations where performance deviates from the target, taskforce or LSS team will be formed to drive for recovery action plan and the improvement cycle is repeated. Where performance exceeds benchmark or target, recognition is given to the team.

- **Quality Management Systems Audit**

A part of the QMS internal audits, all key and support processes of SSMC are audited to ensure effectiveness under the International Standards framework of ISO9001 and ISO/TS16949. Areas of improvement identified through this audit.

- **Business Excellence Criteria Evaluation**

Business Excellence internal self assessment is carried out annually by BEST Committee steering committee against the requirements of an internationally benchmarked business excellence framework to assess where the organization is on the journey, identify gaps. Areas of improvements across seven categories are identified and actions to be taken for improved performance. The

organization was also recognized externally with the awards received

- Singapore Quality Award (SQA) in Year 2005
- Manufacturing Excellence (MAXA) Award in Year 2006
- Singapore Environment Achievement Award (SEAA) in Year 2007

5.3 Supplier and Partnering Processes

Describe how the organisation manages its key suppliers and/or partner interaction processes for the production and delivery of its products and services

5.3a How the organisation identifies and selects its suppliers and partners. Include a description of the key performance requirements for suppliers and/or partners and how the relationship and partnership fit into the overall strategy of the organisation

In SSMC, we believe that to be successful in meeting its customer's requirements on quality, cost and delivery, supplier's support is one of the critical success factors. To further enforce this value into the mind of all employees, 'Supplier as Partner' was incorporated as one of our core values and have since then

been further enhanced with the new set of Core Values launched in 2013 under "Working Together".

To ensure successful working relationship and/or partnership with our suppliers, SSMC segmented our suppliers into categories based on the type of products and services rendered:

Supplier Identification and Selection

It begins with an identification of needs of the organization. Key requirements, performance indicators and specifications are established. New suppliers are then short listed based on the requirements defined in the Request for Quotation (RFQ). Short listed suppliers are qualified based on a set of criteria and approved.

The selected supplier will be awarded approved vendor status or service contract and continues to undergo continuous monitoring of performance by SSMC through the following processes: regular quality audits and assessment, Supplier Rating System (SRS), Supplier SPC, schedule review and improvement/partnership programs.

Supplier Partnership Programs

Supplier Partnership Workshops are conducted to drive alignment of suppliers to SSMC's overall strategic thrust.

5.3b How the organisation communicates and ensures that its requirements are met by suppliers and/or partners and how timely and actionable feedback is provided to suppliers and/or partners

The initial requirements and specifications are communicated to our suppliers and partners through the RFQ process. Once the suppliers are qualified, they are managed under our supplier management process where changes to any requirements are communicated to all suppliers using the Supplier Change Management platform.

Incoming Quality Assurance system is in place to ensure the quality of incoming parts and products. Incoming materials are subject to inspection against Specifications Limits. SAP system tracks the delivery particulars and schedule of parts and products from our suppliers. If a supplier is unable to meet its delivery or quality requirements, material reject and complaint are issued to our suppliers. All exceptions are reviewed and approved by Material Review Board (MRB).

In addition to the IQA system, site-audits are also carried out on a regular basis to ensure systems gaps are reviewed and improvements made.



5.3c How the organisation works with suppliers and/or partners to understand their needs, and the plans and processes established to help suppliers and/or partners improve their goods and services, as appropriate.

SSMC focuses on its Key and Strategic suppliers using the following platforms to facilitate exchange of idea & plans to strike cooperative breakthrough and continuous improvement:

- **SRS Review:** meetings held with the Key and strategic suppliers to review their performance based on a set of pre-defined requirement. Performance of the supplier will then be benchmarked against each other, or previous quarter result to drive for continuous improvement. Suppliers also make

use of this platform to give SSMC feedback and suggestion to explore partnership activities.

- **SSMC Supplier Day** : SSMC host Supplier Day to recognize and congratulate its Key and Strategic suppliers with outstanding performance based on the SRS criteria and supported SSMC in achieving our excellent results.
- **Executive Meeting** : SSMC and Supplier's Management team shares market performance, company current and future direction, strategy, performances and expectation in such platform and renew commitment to partner each other for mutual success and to break new grounds through joint partnership and continuous improvements.





CUSTOMERS



“This is fantastic news! Many thanks for making this aggressive schedule happen. Great decision by the team to do the “risk tape-out” and simply an amazing job by the fab and Ops team to get it pushed through so fast. Many thanks for your continued support to make the impossible possible and let’s see how we turn the silicon into dollars.”

6.1 Customer Requirements

Describe how the organization determines requirements of customers and markets to ensure the relevance of current product/services and to develop new opportunities and/or markets

6.1a How the organization segments its customers and/or markets.



SSMC has also put in place a Customer Intelligence, Market Intelligence (CIMI) platform to provide the relevant insights and information for the end markets. This platform is also used to proactively identify new technology niches, “Hot” product applications, commercial

6.1b How the organization uses different listening and learning strategies to analyze current and anticipate future customer/market needs.

Listening and learning about our customers’ needs have always been

State the customer/market requirements for each segment.

Our Customers

SSMC manufactures, and sells Integrated Circuits (ICs) in wafer form or die form to customers globally which serve a wide segment such as Consumer, Communications, Computing, Smart-chip & Green Electronics and Automotive.

necessities and logistics requirements that SSMC may need to consider participating in. The review of this End market segmentation information enables us to develop marketing plans, services and tailor our products to meet the end customers’ needs.

an integral part of our Marketing and Business Development strategy. Only by closely understanding our customers’ expectations and requirements of products and services, will we be able to anticipate, prepare and implement to meet their

future needs. Various approaches are

- **Demand Planning**

Demand planning is a mechanism where the customers' demand are consolidated and reviewed and acted on. There are two Business Day review platforms which are responsible for analyzing customers' demand, demand trends and customer development plans. In both platforms, plans and actions are generated (when required) and reviewed to ensure that customers current and emerging requirements are addressed adequately with respect to SSMC's business strategy.

- **Customer Visits and Business Reviews**

Customer visits and business reviews are scheduled on a regular basis. Key topics covered include customer's product roadmaps, demand forecast, customers expectations, improvement plans and future business trends.

- **Customer Survey**

Customer Satisfaction Survey ratings are a key element in assessing customer needs as it

used by SSMC to listen and learn.

generates quantitative measurements on SSMC's performance and key feedback on customer's needs and requirements. These information are collated, analyzed and addressed with practical actions which are then feed back to our customers.

- **Customer Audits**

Customer audits (Quality Management Systems, Automotive Audits) are a mechanism to access the readiness of SSMC in meeting customers' needs for manufacturing and also to gauge SSMC's standing in the eyes of the customers. Valuable feedback from the customer in areas of improvement has enabled us to continuously improve and raise our level of performance.

6.1c How the organization incorporates customer requirements, and future market needs into strategic and improvement plans.

SSMC recognizes that customers' requirements and future market needs are instrumental in formulating strategic and improvement plans.

Information gathered from the various listening posts, customer and market requirements are reviewed and analyzed thoroughly. The results from these analysis will then be used in the formulation of new technology

Analysis and Use of Information

The Business Day 1 platform chaired by SSMC's Business Account Manager (BAM) reviews and rationalizes the S&OP Constrained Plan. This is then used to create the Master Production Plan (MPP).

The Business Day 2 platform which is also chaired by BAM reviews and identifies new business development initiatives and actions which can be translated into a marketing plan as well as updating our New Tape Out (NTO) plan, new service offerings and customer partnership activities.

The Business Leads Review platform which is also chaired by BAM focuses specially on new business leads and New Tape Out opportunities that are still in the planning stage by the customers. This review allows us to formulate longer term plans which help in growing and strengthening our customer & product portfolio.

or options (derivatives) development or introduction, new service offerings , new tape outs or modification to the customer's development plan.



New Technology/Option Requests (NTR)

New technology and/or option request are reviewed and approved at the Technology Review Meeting (TRM). Business case which involves analysis of Returns On Investments (ROI), technical feasibility, project schedules and resource requirements are used to assess the request.

Upon approval, a technology transfer or a technology development project team is initiated to ensure that the technology is transferred or developed in time to meet the customers' requirements or future market needs.

New Service Introductions/Enhancements

To differentiate ourselves as a preferred supplier, SSMC has to go the extra mile to develop and continuously enhance our existing service offerings to help customers’ achieve time-to-market or assist them in the ease of doing business and interacting with SSMC.

Customer Development Plan (CDP)

CDP is a structured template which is used to develop and track demand

status with existing end customers. Currently the CDP covers all the key customers. The CDP contains the following key information for engaging the customer: Customer profile, Customer Strategy overview, Competitive action plans, SSMC Sales goals, Development Initiatives and Bonding strategies. The CDP plan is reviewed monthly during the Business Day 2 sessions. Figure 6.3 shows a typical flow of a Customer Development Plan

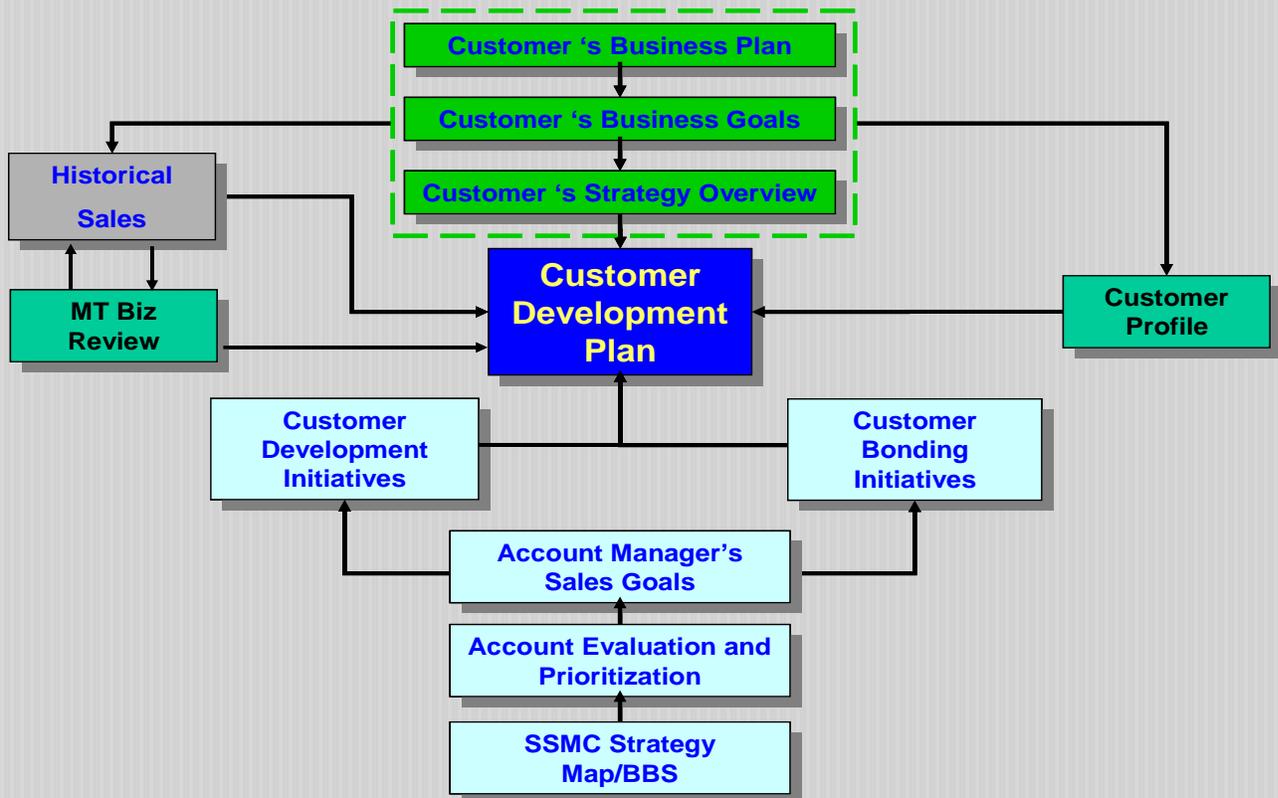


Figure 6.3 – Overview of Customer Development Plan

6.1d How the organization evaluates and improves its processes for determining current and future requirements

SSMC believes in continuously evaluating and improving its

processes to meet market needs and requirements.

There are various review platforms that drive this continuous evaluation and enhancement of processes.



6.2 Customer Relationship

Describe how the organization manages its relationship with customers for repeat business and/or positive referrals.

6.2a How the organization provides easy access for customers to conduct business, seek assistance and information, and make complaints. Describes key customer contact requirements and how these requirements are determined and deployed to all people in the response chain.

SSMC views our customers as vital to the growth and continuity of the business of SSMC and recognizes that relationship with our customers goes beyond sales. As a manufacturing company certified to the Service Class, SSMC continues to strive to excel both operationally as well as

providing best in class service to our customers

Customer support team meets regularly with the end customer via teleconferencing, or face-to-face meetings. Members can be easily reached by e-mail, cellular phone and in some cases even via social media communication tools like Whatsapp.

Regular newsletters and presentations are also presented to our customers. They contain the latest updates on our process technologies, manufacturing indices and foundry services to keep customers informed of the latest offerings and developments and provide channel to maintain a consistent presence and strong share-of-mind amongst our customers.

welcome to SSMC iFab

SSMC

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EZHV V/R-Gate Accomplished at SSMC

EZHV provides an integrated cost effective solution for Compact Fluorescent lamps, LED and Power Supply devices. It enables dimmable lighting ability but yet retains the power-saving attributes of CFL applications.

On 3 November, NXP reached two key milestones V-Gate and R-Gate for EZHV process with an outstanding yield of 98-99% at SSMC. EZHV is a 650v Silicon-On-Insulator Process, which allows complete isolation of the circuit structure from the bulk substrate, permitting improved device performance such as resistance to latch-up and lower parasitic capacitance required during High Voltage Applications. We would like to acknowledge NXP, BL IPIVMS, PLS and ICN6 for their support in making the EZHV transfer a success in SSMC.

1 2 3 4 5 6 7 8 9 10 11 12 13

iFab Tools

- Production WIP
- Prototype WIP
- BOM report
- Mask Management
- eRFI
- iFab registration (Proto/Product WIP)

iFab Performance

- SDC
- Reliability
- Capacity

Customer Touch-Point Requirements

Standards are set for all our customer-facing employees to ensure that services we provide are consistent and excellent. The requirements are determined based on feedback from the results of our various customer interactions as well as from customer satisfaction surveys

Total Customer Satisfaction (TCS) – Deployment of Customer Mindset to all staff

To ensure that our customers are served to the fullest extent of our ability, SSMC evolved our Customer Relationship Management (CRM) programs to a more comprehensive Total Customer Satisfaction Mindset which is deployed to all SSMC employees. SSMC incorporated the TCS initiative into SSMC's core training program which covers all employees.

Objectives of these trainings are to provide to all our customer-facing employees with skills to handle the challenging and difficult customer interfacing issues and to respond uniformly to enquiries, issues, problems and complaints tactfully, emphatically and expeditiously.

6.2b How the organization ensures that complaints are resolved effectively and promptly and that

all complaints received are aggregated and analyzed for use in overall improvement.

Complaint Handling Process

In SSMC, every complaint is treated with high priority and is assigned to a dedicated team to effectively handle and resolve the problem in the most effective and fastest manner.

The Customer Complaint Handling (CCH) defines how the complaints are received and managed within SSMC to ensure root causes are identified and eliminated with effective corrective and preventive solutions.

Complaints are tracked and monitored to ensure every customer complaint or dissatisfaction is handled and resolved promptly. All complaint data are summarized and analyzed monthly to avoid repeated incidents.



6.2c How the organization evaluates and improves its customer relationship management

Our customer relationship management process is currently assessed on a continuous basis through the various platforms that have been mentioned

earlier. These platforms are again shown in the overview below. All aspects of the customer relations activities are reviewed, together with informal feedback from the customer facing employees, customer satisfaction survey results, and the service performance indicators such as response time, complaints and other indicators.

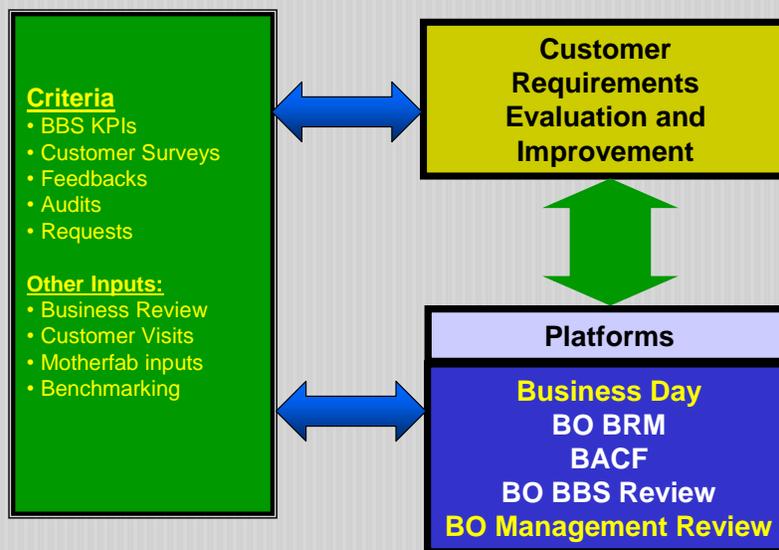


Figure 6.11 – Platforms where Customer Relationship health/requirements are reviewed

BO Business Review Meeting

This is a key weekly platform where the Business Operations Division reviews with the CEO on the health and satisfaction level of the customers. Business fulfillment, business development and customer issues / opportunities are discussed and reviewed in this key platform.

Business Days Platform

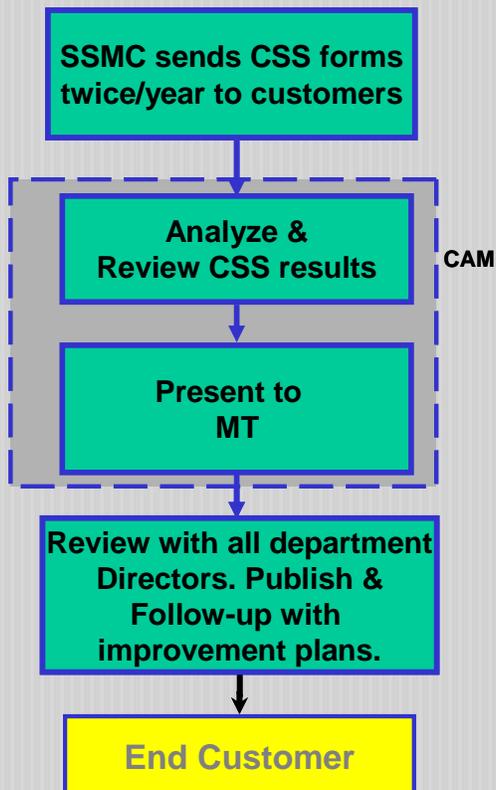
Divided into Business Day 1 and Day 2 platforms, these monthly platforms chaired by our Business & Customer Account Managers to review on our fulfillment performance of customer’s demand and also focus on actions that will strengthen customers’ relationships and satisfaction levels.

6.3 Customer Satisfaction

Describe the organization's system of determining customer satisfaction and how this information is used to improve its operations

6.3a How the organization determines customer satisfaction

Customer satisfaction is the extent to which customer requirements are met or exceeded in terms of both products and services. Customer satisfaction is measured primarily through Customer Satisfaction Surveys conducted by SSMC. In addition to using these survey results, SSMC also uses the compliment to complaint ratio as an internal measure of customer satisfaction.



The SSMC Customer Satisfaction survey focuses on the following categories:

- Product Quality
- Service Quality
- Overall Perception , Image & attributes
- Benchmark
- Strategic Comments

The customer satisfaction survey is conducted on a half yearly basis. The results from the survey are collated, analyzed and feedback to the SSMC Management team and all Head of Departments to gather improvement actions which are then feedback to the customers that we have surveyed.

In addition to the formal survey, SSMC also extracts valuable information on customer satisfaction from regular business review for NXP and TSMC end customers respectively.

Compliment/Complaint Ratio

SSMC also uses customer compliment/complaint ratio to provide additional information on incidences that caused customer satisfaction and dissatisfaction.

6.3b How the organization determines customer satisfaction feedback into strategic and improvement plans.

As mentioned in item 2.1 under Strategy Development & Deployment, results from the customer satisfaction were collated and used as inputs to align and develop future organization strategic plans.

6.3c. How the organization evaluates and improves its overall process of determining customer satisfaction.

The overall customer satisfaction process is championed by the Marketing and Business Development Department

Since 2009, SSMC decided to enhance the scope of the survey by attempting to acquire increased feedback from what SSMC terms as KEY and STRATEGIC customers (the KEY and STRATEGIC customers are defined on an annual basis). This belief is that the Key and Strategic customers have different needs and requirements and these prompted SSMC make the enhancement to the scope of customers surveyed.





RESULTS



Manufacturing Excellence Award Ceremony



Prime Minister Mr. Hsien Loong presenting the MAXA award to Mr. Jagadish CV



ISO/TS16949 . ISO9001 . ISO/IEC 27001 . ISO14001 . QC80000 . OSHMS/OHSAS 18001 . BCM SS540 , SA8000

7.1 CUSTOMER RESULTS

The satisfaction of our customers has been central to our organization's growth. We use surveys to find out and compare the level of satisfaction our customers derive from our products and services.

SSMC has performed well against the target and

has consistently improved to very high level of preferred supplier ranking. Starting the year 2009 SSMC started measuring percentage of customers who rated SSMC as their preferred supplier. The surveys are carried out twice a year and results are analyzed, required improvement actions defined and feedback conveyed back to customers.

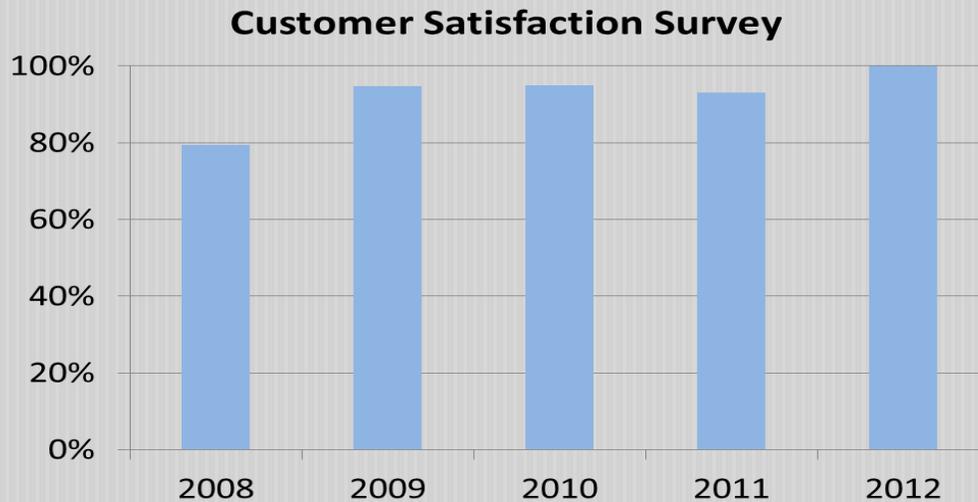


Figure 7.1a – Customer Satisfaction Survey

End Customer Award, an accolade for SSMC, provides us with another satisfaction perspective. Although every end customer recognition mechanism differs, we pride ourselves in receiving many awards, recognitions and compliments from our customers mainly due to the following :

- Enhance technology, customer portfolio and capacity to meet customers' requirements
- Establish customers' partnership projects
- Achieve customer returns at ppb (parts per billion) level performance

7.2 Financial and Market Results

One of SSMC's strategic imperatives is to achieve healthy financial performances. Unlike many semiconductor foundries that have a number of fabrication plants, forming a cluster to benefit from the economies of scale to lower their cost base, SSMC has embarked on More of Moore Journey over the years to stay profitable and ranked top 100 most profitable major Electrical Component Manufacturers in Year 2012 (source : Plimsoll Global Report, pg 419) despite being single stand-alone fabrication plant.

Best In Class Financial Performance

PLIMSOLL
MUST-HAVE BUSINESS INTELLIGENCE 12 December 2012

Your company:

Financial Health of the world's 500 largest Electrical Components Manufacturers

Plimsoll's assessment of your company shows how its performance compares to the other major Electrical Component Manufacturers including:

- SYSTEMS ON SILICON MANUFACTURING COMPANY PTE LTD has been rated as "STRONG" reflecting your recent excellent performance
- You are currently the 456th largest company in the Global market
- You are the 100th most profitable

The analysis of your company is comprehensive and will give you the strategic information you need to continue to perform well in your Global industry.

Yours sincerely
P. Bennett
Peter Bennett
Global Analyst - peter@plimsollworld.com

7.3 People Results

SSMC uses various indicators to gauge employee engagement, learning and development and Satisfaction such as

- Transform participations
- Training hours per employees
- Employees Turnover
- Employee Engagement Survey (EES)

To recognize the teams' achievement, our top CIT/LSS teams are showcased and competed at the annual SSMC Transform Convention where management team members are invited to be the juries.



7.4 Operational Results

Key factors customers use to decide on their preferred choice of foundry suppliers are quality wafers (in terms of high yields, low defect density) fast cycle time as well as on-time delivery performance. In SSMC, these are also the key factors we strive and challenge ourselves to achieve operational excellence.

SSMC has also long maintained a responsible attitude towards environmental issues. Key programs such as EcoVision has defined aggressive targets to reduce consumption in five key areas to be "environmental friendly".

- Energy
- Water
- Waste
- Hazardous Substances
- Relevant Substances

In addition, SSMC strives to be an exemplary corporate citizen through our involvement and support in community activities

- Establish Environmental Management Systems and EcoVision
- Establish robust corporate governance and maintain zero non-conformance to the internal controls
- Promote industry-relevant training and education programs, in cooperation with academic institutions or government agencies
- Involve in meaningful community activities and projects with schools, Annual blood donation and funding support to needy organizations

PARAMETERS	2003 – 2012 Realized Savings
 Energy	Total saving of 17,000,000 kWh of electricity, equivalent to 3600 4-room HDB flat consumption per year.
 Water	Total saving of 1,000,000 m³ of water, equivalent to 400 Olympic size swimming pools.
 Waste	Total amount of waste reduced = 232,000 tons.
 Relevant Substances	Total amount of relevant substances reduced = 80,000 kilograms.



Acronym

A

ABCD9 – Advanced Bipolar
CMOS DMOS
ACH – Aluminium
chlorohydrate
A-Gate – Available Gate
ASP – Average Selling Price
AOP – Annual Operating Plan

B

BACF – Business Acquisition
Customer Fulfillment
BBS – Business Balanced
Scorecard
BCD – Bipolar CMOS DMOS
BCM – Business Continuity
Management
BCP – Business Continuity
Plan
BEP – Business Ethics Policy
BKM – Best Known Methods
BL – Business Line
BRM – Business Review
Meeting

C

CASP – Corporate and Schools
Partnership
CASD – Capacity Allocation
Supply Demand
CAR – Corrective Action
Request
CCB – Change Control Board
CCH – Customer Complaint
Handling
CDA – Compressed Dry Air
CDP – Customer Development
Plan

CDF – Competency
Development Framework
CIMI – Customer Intelligence,
Market
CISCO –Computer Information
System Company
Intelligence
CMOS – Complementary Metal
Oxide Semiconductor
CoBIT – Control Objectives for
Information and Related
Technology
CPA - Corrective Performance
Action
CRM – Customer Relationship
Management
CSS – Customer Satisfaction
Survey
CUP – Central Utility Plant
C-Clip – Customer Confirmed
Line Item Performance

D

DCRM – Demand & Capacity
Review Meeting
DISC – Behavior Assessment
Tool
DL – Direct Labour
DRC – Dependency Ratio
Ceiling
DMAIC – Define, Measure,
Analyze, Improve, Control
DNA KM – Documentation,
Nurturing, Analytical
Knowledge Management
DPD – Demand Planning
Division
D0 – Defect Density

Acronym

E

EBIT – Earning Before Interest & Tax
ECN - Engineering Change Notice

E

EDBI – Economic Development Board of Singapore
EDS – Electronic Data System
EES – Employee Engagement Survey
EHS – Environmental Health & Safety
EN – Engineering Notice
EPP – Employee Privilege Programs
ERS – Employee Recognition Scheme
eCWR – Electronic Control Wafer Recycling

F

FA – Failure Analysis
FMEA – Failure Mode & Effects Analysis
FTE – Full Time Equivalent

G

GDP - Gross Domestic Product

H

HCL – Hydrochloric acid
HPMS – High Performance Mixed Signal

I

IC – Integrated Circuits

IDL – Indirect Labour
IDM – Indirect Material
IHL – Institute of Higher Learning
ILS – Integrated Learning System
IMS – Integrated Management System
IoS – Impact on Society
IP - Intellectual Property
IQA – Incoming Quality Assurance
ISMS – Information Security Management System
ISSG–RTO – Steam generation for oxide growth

J

JV – Joint Venture
JG – Job Grade

K

KM – Knowledge Management
KPI – Key Performance Indicators

L

LSS – Lean Six Sigma

M

MAXA – Manufacturing Excellence Award
MAC – Media Access Control

M

MBTI – Myers-Briggs Type Indicator
MFC – Metal Fringe Cap
MLR – Multi Layer Reticle
MMS – Mask Management system

Acronym

MPP – Master Production Plan
MPW – Multi Product Wafer
MRB – Material Review Board
MTP – Multiple-Time-Programming
MTTD – Mainstream Technology Transfer Department

N

NAOH – Sodium Hydroxide
NCR – Non Conforming Review
NEA – National Environment Agency
NIQC – National Innovation & Quality Circle
NTO – New Tape Out
NTR – New Technology Request
NRE – Non-Recurring Engineering

O

O-Clip – Original Confirmed Line Item Performance
OEM – Original Equipment Maker
OJT – On-The-Job Training
OTP – One-Time-Programming

P

PCN – Process Change Notification
PDB – Product Database
PDCA – Plan, Do, Check, Act
PF – Process Freeze
PFC – Perfluorocarbon

PRS – Process Release Standards

Q

QMS – Quality Management system
QRB – Qualification Review Board

R

RDL – Redistribution Layer
RFS – Release for Supply
RF – Radio Frequency
RF-ID – Radio Frequency Identification
RFQ – Request for Quotation
R-Gate – Released Gate
ROI – Returns On Investment
RMA – Return Material Authorization
RTP – Release to Production

R

R&M – Repair and Maintenance
R2A – Results to Action

S

SAP - Systems, Applications and Products in Data Processing
SDCR – Sales Debit and Credit Request
SEAA – Singapore Environment Achievement Award
SEED – Staff Education and Development
S-Gate – Specified Gate
SERC – Science and Engineering Research Council

Acronym

SSMC – Systems on Silicon
Manufacturing Company
SMIC – Semiconductor
Manufacturing International
Corporation
SoX – Sarbanes-Oxley
SPC – Statistical Process
Control
SRS – Supplier Rating System
SRC – Sports, Recreation,
Community
SWOT – Strengths,
Weaknesses, Opportunities,
Threats
S&OP – Sales and Operations
Planning

T

TCS – Total Customer
Satisfaction
TEM – Transmission Electron
Microscope
TMD – Top Must Do
TSMC – Taiwan
Semiconductor Manufacturing
Company

TTD – Technical Transfer
Development

U

UMC – United Microelectronics
Corporation
UPS – Ultra Pure Water
UPS – Uninterrupted Power
Supply

V

VDA – Verband der
Automobile Industry
VSD – Variable Speed Device
V-Gate – Validated Gate
VLAN – Virtual Local Area
Network

W

WAT – Wafer Acceptance Test
WIP – Work In Progress
WSH – Workplace Health &
Safety

8

8D - Eight Disciplines Problem
Solving

