TSMC’s Business Continuity Management (BCM) Introduction

Submitted by: TSMC
TSMC’s BCM Introduction

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Outline

- Supply Chain Overview
- TSMC’s BCM Introduction
- BCP Examples
Supply Chain Overview:
From Electronic Service, System to Semiconductor

Electronic Services
> $5,000B
Telecom, Internet, Broadcast …

Electronic Systems
> $1,400B
Communication
Consumer, Computer …

Semiconductors
$ 298B *

Materials & Equipments
$ 83B *

TSMC
Pioneer of Dedicated IC
Foundry business model (1987)
2010 revenue: US$13.3 billion
Manufacturing more than
7,000 products (IC) from
400 customers.

* Data from SEMI report 2010.

TSMC’s Risk Management

● Enterprise Risk Management (ERM):
  ■ TSMC established its Enterprise Risk Management (ERM) program based on both its corporate vision and its long-term sustainability and responsibility to both industry and society. ERM seeks to provide for TSMC’s adequate management of risks on behalf of all stakeholders.

● ERM Strategy:
  ■ Risk avoidance, risk transfer, risk mitigation and risk reductions are means to reduce corporate risks.
  ■ TSMC Business Continuity Management (BCM) is established to maintain wafer production or services delivery when a catastrophic incident occurs.
TSMC’s BCM Introduction

Objective

- BCM includes guidelines and procedures to be applied by companywide emergency and nature disasters through risk control, emergency response, crisis management and business continuity.

Scope

- Potential accidents or incidents which could cause significant production losses to the company, such as fire, chemical/gas leakage, earthquake, flood, incoming utility supply shortage, process excursion, product contamination, supply interruption, strike, sabotage, pandemic and IT unavailable, etc.

Strategy

- A framework with clear ownership of related function/department to safeguard customers and key stakeholders’ interest. Periodic review on threat identification, exercise and update on BCM.

BCM Organization Chart

VP or committee chairman will host a business continuity meeting for catastrophe events.

VP or Fab Dir. Crisis Management Business Continuity

QR AM/CSV Fin IT MM Fab Depts. Legal Public Relation RM

(Emergency Response Team, ERT)

Facility ISEP/ ERC Module Depts. Integration Manufacturing
Four Segments of TSMC’s BCM
(example: Factory’s manufacturing)

Preparedness before Disaster

BCM Implementation after Disaster

Emergency Response

Crisis Management

Business Continuity

Disaster

- Risk Prevention “in advance” is the foundation for successful BCM:
  - Clear ERT ownership, procedure, training & drills.
  - Critical risks’ identification & improvement (Earthquake, utility, leak, fire, IT etc.)
  - Verification via scenario test.

- Life safety Protection & Contamination / damage limitation:
  - Efficient ERC notification and ERT activation.
  - Protect employee safety via evacuation plan.
  - Fast response and damage assessment

- Damage Assessment and Crisis Communication
  - Damage assessment
  - Maintain min. facility system for clean room.
  - Decide reentry (ERT)

- Production Recovery or Relocation:
  - Production Recovery
  - Activate Backup plan for critical process or Services.

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BCP (Biz Continuity Plan)

1. Identify critical process or biz
2. Define the goal of TTR & OP level
3. Plan & Drill

Example: What is the adequate TTR for different IT systems?
1. Fab MES system
2. Report system (Fin, Manufacturing)
3. Analysis system
Balance Cost and Risk

Operational Level (Biz Impact)

Disaster - Normal Operation

Cost of Risk Preparedness

Time to Recover (TTR)

Cost of Impact & Downtime:

\[ F(X) = \text{financial, productivity, reputation, other tangible/ intangible} \]

TSMC’s Earthquake Business Continuity Plan

(Continuous Drill and Improvement)

Preparedness before Quake

Preventive Risk Control:

“Intrinsic Anti-Seismic”

Expected Normal Operation Level

Intrinsic Anti-Seismic Design

tscm’s Anti-seismic Modeling & Design

Old Building: Weak points

New Building: Design-in.

Tools & Facilities: Anti-seismic & min. power

BCM Implementation after Quake

Crisis Management: Quick Assess & Resume

Biz Recovery: Rapid Recovery

Assess & decide reentry (Fab-ERT)

Notification & trigger next level BCP if needed (RM, MM, CSV, AM, Fin)

Rapid wafer / tool recovery (Fab, MM, PC)

Recovery plan. (CSV, AM, Fin, QR)

Evacuation Plan (by intensity)

Assess Damage via "Visual + Simulation" (Fab –ERT)

Drills

Suffer low operation level.

Expected Normal Operation Level

Sustain with higher operation level.

Quake

Timeline (Continuous Improvement)
BCM for Employee & Society

Typhoon Morakot Disaster Relief Project: (Aug-2009)

Typhoon Morakot struck south Taiwan, causing Taiwan’s most severe flooding in 50 years. (Peak of the rain: 1400mm/day, >600 dead)

- Direct Support: >1000 employees’ families were affected.
  - Disbursed NTD 50 million for direct support.
  - Conducted site visits by direct supervisors.
  -Arranged other supports, such as “Water Truck” etc.

- Assisted to repair 94 damaged schools (elementary & middle)
  - Provided NTD 50 million
  - Initiated and teamed up with suppliers (Electrical, IT, repair....)
  - Book collection (>50K)

- Pledged NTD 100 million to assist in the government’s overall relief efforts.

TSMC’s Supply-Chain Risk Management
RM / BCP → Sustainability

2008 2011
Thanks for Your Attention