

## Agenda

29<sup>th</sup>, April

- 14:30 – 15:15 Introduction
- Action Group
  - Who is ASD
  - Quality System, Quality Performance, Lean, etc.
- 15:15 – 16:15 Factory tour
- Lean Production
- 16:15 – 16:30 Break
- 16:30 – 16:45 Q&A
- 16:45 – 17:00 Group photo

# Contents

- Action Group Evolution
- ASD Vision
- ASD Organizations
- Product Road Map & Competence
- Sales Performance
- Factory Brief
- Quality System
- Lean Manufacturing

# Contents

- **Action Group Evolution (3 pages)**
- ASD Vision
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# Action Group Evolution

1976 Founded with a capital of US\$80,000. Clock radio launched to market.

1979 Established Optoelectronics Plant. Capital reached US\$400,000.

1985 Developed dual-deck Hi-fi system and world smallest 3-in-1 combo (radio, tape, recorder and TV).

1987 Developed 6" color TV.

1988 Established IT plant and HQ in Chung Li. Subsidiary in Malaysia (Action Industries).

1990 No. 1 leader for development of portable color TV/monitor combo products.

1992 Announced 10" color CRT display. Subsidiary office in USA (America Action).

1993 Announced 4" LCD TV and 15"/17" color display. Far Year HK indirect invested in Shenzhen Action.

1999 Established Shanghai Far Year Technology.

2001 Shenzhen Action won the Shenzhen Top 100 Hi-Tech Award.

2002 Public publication into stock market.

2003 Total Sales reached US\$300 million. Singapore Action publicly listed in the Singapore stock market.

2004 Issued Zero Coupon Euro Convertible Bond (ECB) of US\$35 millions.

2005 Won 50 fastest growth awarded number 22.

2006 ASD establishment for Philips OEM business.

2007 Established another new plant in China Ji'an.

2008 ASD started to be a major supplier for Philips AVM business.

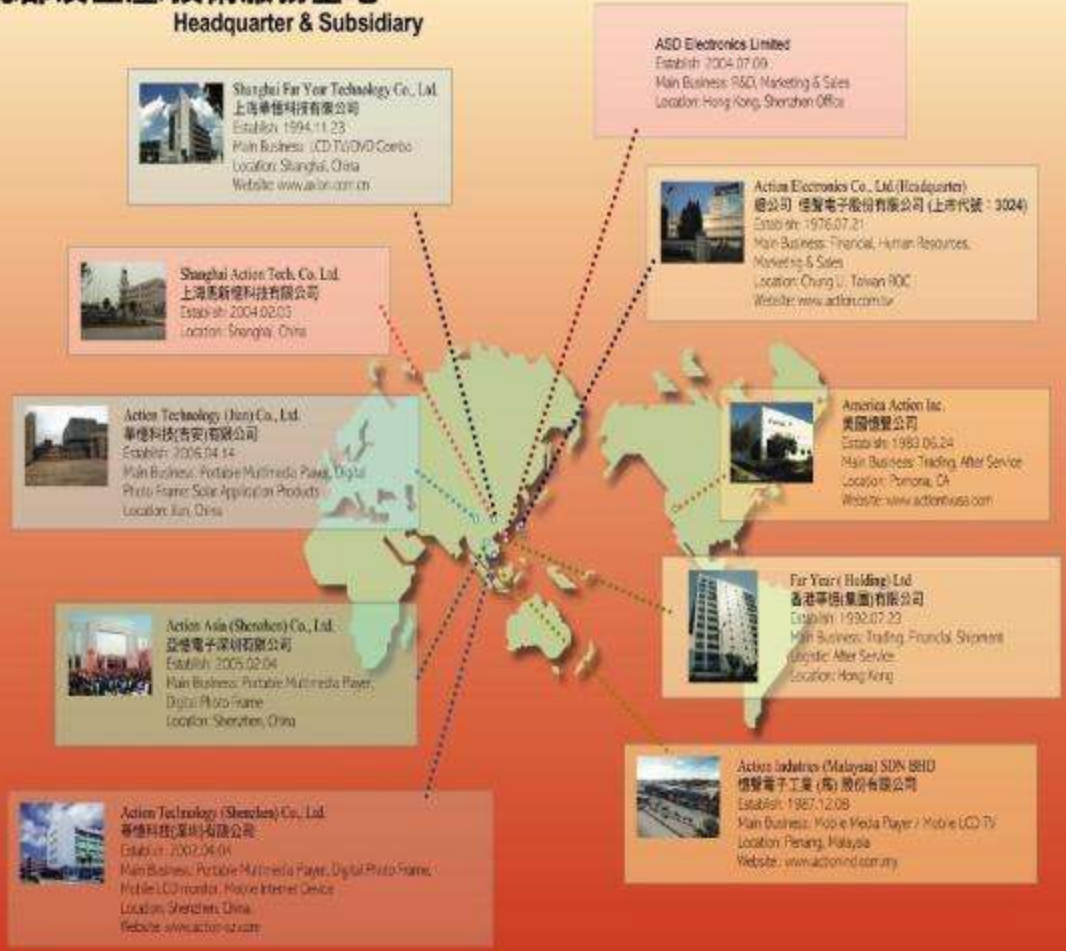
2009 Merged Taiwan Best and started to involved 3C retailer store business and selling in China domestic market.

2010 Establishment of ASD self-owned factory.

# Action Group

企業集團 Action Group

## 總部及生產/技術服務基地 Headquarter & Subsidiary



Groups	Locations
<b>Headquarters</b>	<b>Taiwan</b>
AFY	Hong Kong
<b>ASD</b>	<b>Shenzhen, China</b>
AAS	Shenzhen, China
ATS	Shenzhen, China
AMP	Penang, Malaysia
ASJ	Shanghai, China
AST	Shanghai, China
ATJ	Ji'an, China
AXN	America

- 10 branches worldwide under Action Group
- 3200 staffs in Action Group

# Who is ASD ?



- ⌚ ASD is a member of Action Group who is a 36 years consumer electronics group company.
- ⌚ Action Asia Limited (Singapore shareholder) is sub-group of Action Group, and ASD is a company under Action Asia Limited.
- ⌚ ASD is company owned competent Developing and Manufacturing capability in PDVD/TV, DPF and DVDP and blue-ray DVD products.
- ⌚ ASD serves Philips as the key OEM supplier for their AVM business for years, supporting Philips become the dominated brand in Portable DVD world wide with sales volume of 3M in year 2010 and No. 1 brand of DPF in Europe.
- ⌚ Manageable capacity, 3KK units monthly, for consumer AVM products, based on ASD current financial strength / supported by two stock listed company in Taiwan and Singapore, RD capability / 160+ RD engineers and Manufacture facility / 38,640 m<sup>2</sup> land area.
- ⌚ ASD was awarded global “Best Supplier” of Philips in 2010
- ⌚ With “Lean” operation and culture built, the factory capacity is flexible meet any potentials.

# Contents

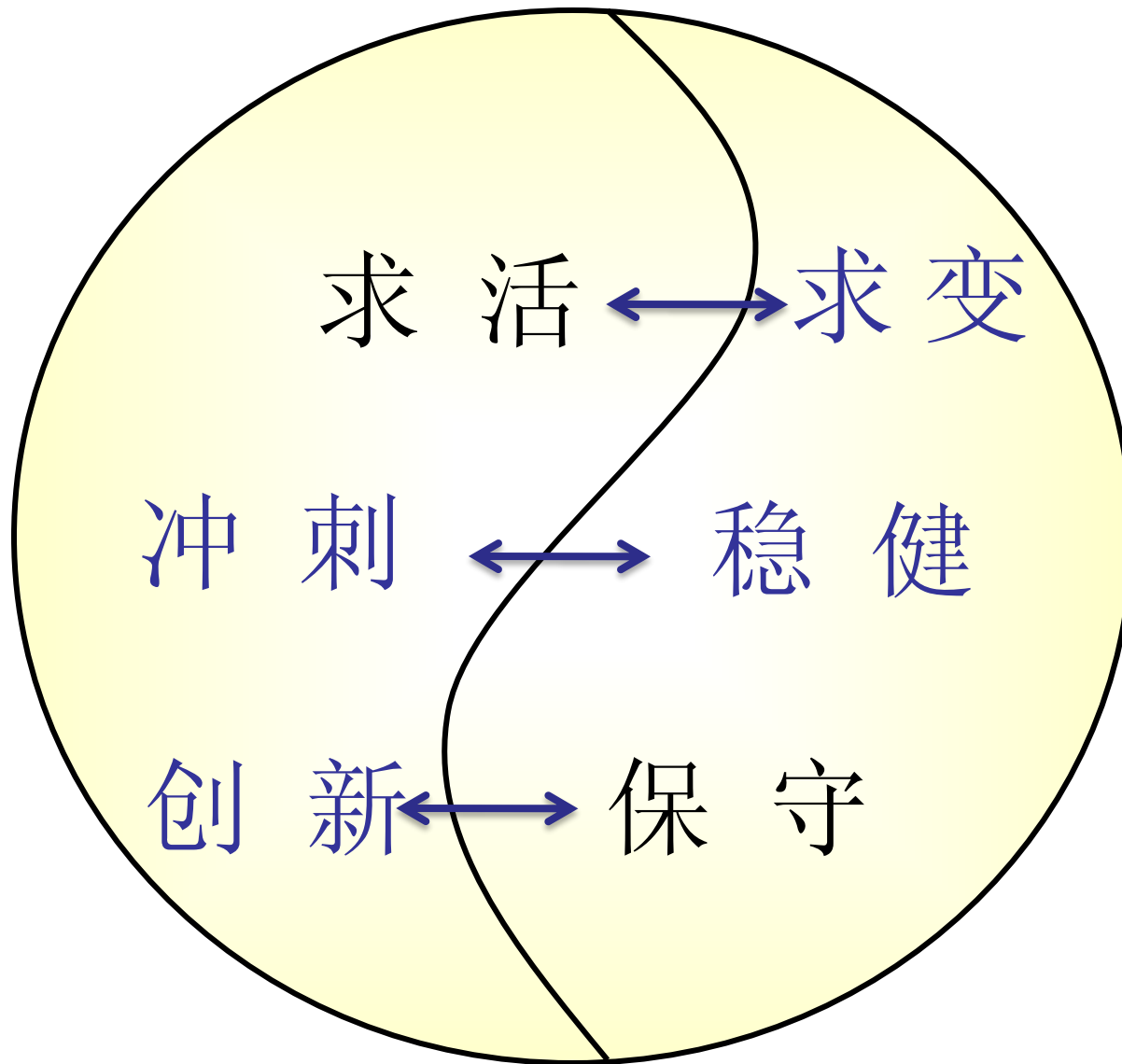
- Action Group Evolution
- **ASD Vision (3 pages)**
- ASD Organizations
- Product Road Map & Competence
- Sales Performance
- Factory Brief
- Quality System
- Lean Manufacturing

打拼成为“**PHILIPS**”的  
核心策略伙伴及最优秀供应厂商

**WE PROMISE TO MAKE BEST EFFORTS TO BECOME  
PHILIPS EXCELLENT SUPPLIER AND CORE STRATEGIC PARTNER**



# ASD's Management Philosophy





真 诚

**SINCERITY**

和 谐

**HARMONY**

进 取

**AGGRESSION**

行 动

**ACTION**

创 新

**INNOVATION**

回 报

**REWARD**

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- Action Group Evolution
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- Factory Brief
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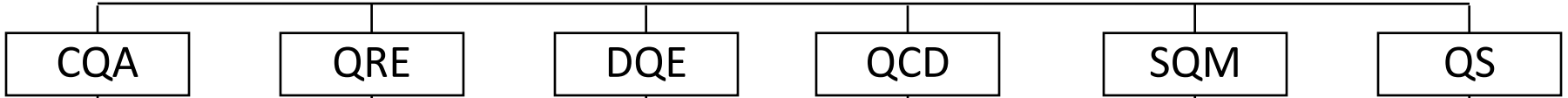
# ASD - QMD Organization



JQM/CQO



Henry Kuo



CQA

Carrie Zou



QRE

Situ Shujian



DQE

BJ Jiang



QCD

Crays Jue



SQM

Sam Li



QS

Hua Li



1. SKD customer Q
2. CKD customer Q
3. CBU
4. RMA
5. Drive quality improvement from SKD, CKD, CBU etc.

1. New model reliability test
2. New material reliability test
3. PS models ORT
4. ORT test plan control

1. Material verification
2. Material release
3. Material spec
4. Product verification
5. Product spec
6. Product release

1. Process quality plan
2. IPQC
3. OQC
4. OQA
5. Drive issue fixed in process
6. Guide prod. Related in Quality improvement

1. SQM plan, strategies
2. IQC
3. New supplier certification
4. QPA / QSA
5. Supplier disqualification
6. Drive material issues fixed
7. Leverage Key component supplier's quality improvement

1. Quality system
2. Quality system Certification
3. RoHS control system
4. Safety part control system
5. Vendor RoHS / Safety audit

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# ASD Products Road Map

Only Portable DVD  
7" & 8.5"



2006

Clock Radio w/DPF



Portable DVD

- Dual Screen
- Slide screen
- iPod function
- TV



2007-2008

DVD player



Blu-Ray  
- Portable  
- Home Player



DVD+ATSC+M/H



DPF w/ touch key



Portable DVD with TV  
- 7" & 8.5" & 9"



2009-2010

Home Media Player



Non-disc Media Player



2011

Empowering Your Market Strength



# Core Competence - R&D

## HW

Platform  
PCB layout

## SW

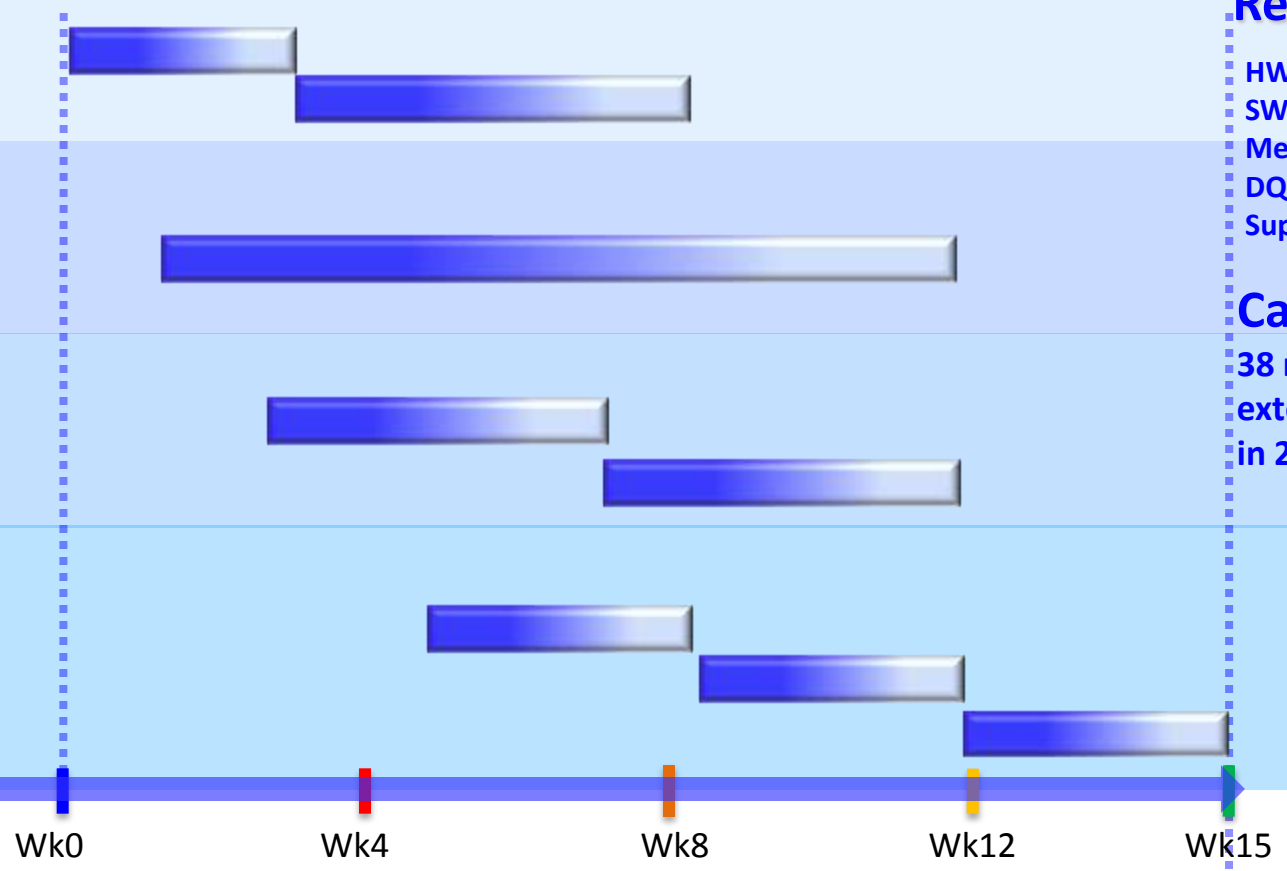
Dev. & Ver.

## Mechanical

Tooling  
Packing

## Maturity Test

DVT/EVT  
TR  
PMT



## Current Human Resources:

HW Engineers: X65  
SW Engineers: X25  
Mech. Engineers: X30  
DQA: X32  
Supporting staff: X22

## Capacity:

38 models and extended 150 versions in 2010

**New Model Average Time to Market: 15weeks**

# ASD Strengths



## People

- Owned experienced R&D and operational engineering staffs
- Action Group, more than 10 years portable audio/video product R&D and mfg. experience
- **ASD R&D and Engineering team focus developing & mfg. in audio/video electronic devices more than 5 year.**
- 24 hours response way of working

## System

- Certified and qualified by ISO, Wal-Mart, 3C, etc. 3rd parties
- SAP system application
- SFC traceability application (to be ready by 2011 Q2)
- **All the current system built to focus audio/video product in R&D and mfg.**

## Resources

- Action Group, cross-factories support from 6 locations - All the group focus upon audio/video products R&D and mfg.
- **Flexible capacity:**
  - **3KK/month capacity in ASD**
  - **Customer own capacity in ASD under customer demand**

## Supplier Chain

- **Strong key component sourcing capability (Leveraged from Group capacity in cost and volume)**
- Panel/loader sourcing competence from price & volume from long term of cooperation relationship
- Key component "multi-resources single buy" strategy
- Key components build strategic cooperation suppliers pool

## Development

- Strong developing engineering team built thru more than 30 new models/yearly practice
- **Successful achievement from DVD, PDVD/TV, DPF and BD series in "Quick - Design" from mature platform copy**
- **New models design leveraged from DFM, DFQ and DFC application**
- **Strong experienced engineering team in product development capacity**

## Competence

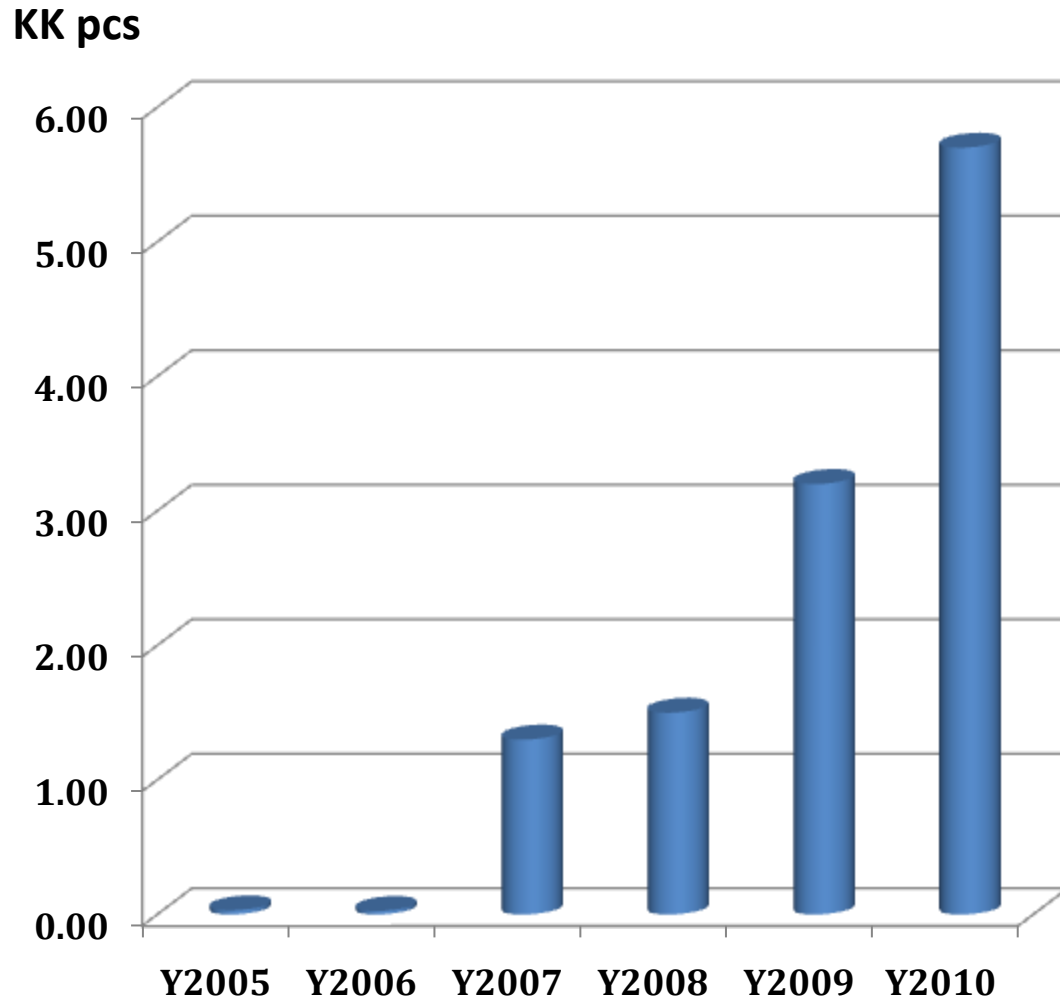
- Fast time to volume ramping vs. yield rate (2wks), Short time to market (15wks)
- Flexible capacity, e.g. Wal-Mart black Friday deal support, 1 million units in 45days
- **Audio/video product 6 million units/year delivery performance**
- **Lean mfg. capability is rooted in operation**



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# Business History - by year



Year	Sub - total
Y2005	31K
Y2006	26K
Y2007	1.3KK
Y2008	1.5KK
Y2009	3.2KK
Y2010	5.7KK
<b>Total</b>	<b>11KK</b>

# Business History - by product



Product Line

From Y2007 to Y2010

Portable DVD Player	7.5KK
DVD Player	2.1KK
Digital Picture Frame	1.5KK
<b>Total</b>	<b>11KK</b>

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# ASD Campus



**Building # C,D,E, F**  
1. Dormitories  
2. Dining rooms  
3. Entertainments, ATM, etc facilities

**Building A**  
Floor area: 13625m2  
1<sup>st</sup> floor: PCBA SMT  
2<sup>nd</sup> floor: PCBA DIP  
3<sup>rd</sup> floor: ASD Office

**Building B**  
Floor area: 20832m2  
1<sup>st</sup> floor: Warehouse  
2<sup>nd</sup> floor: DPF+DVD player  
3<sup>rd</sup> floor: Portable DVD0

**Maximum Capacity : 3KK/month**

# Factory Capacity

Product \ Capacity	Y2010 Capacity	Max Capacity
P-DVD, DVP, DPF, BD	400K/M	3000K/M
Belt Line --- Traditional	6	6--->12
Cell Line --- Lean mode	18	18--->65
In house PCBA	200K/M	1600K/M

**Remark** 1. Belt line can be extended 12 lines; Cell line can be extended: 65 lines  
2. PCBA: 60% in house, 40% outsourcing  
3. ASD Capacity utility: 45%

# Lean Production Introduction



## Traditional production--- Belt Line

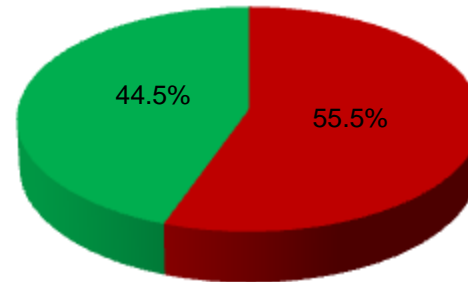


## Lean Production--- Cell line:



Lean Production: each cell 8 operators  
Flexibility: High Mix Low Volume models

## Lean Production %



■ 传统生产模式

■ 精益生产模式

Traditional line: 55.5%








Lean Production: 44.5%

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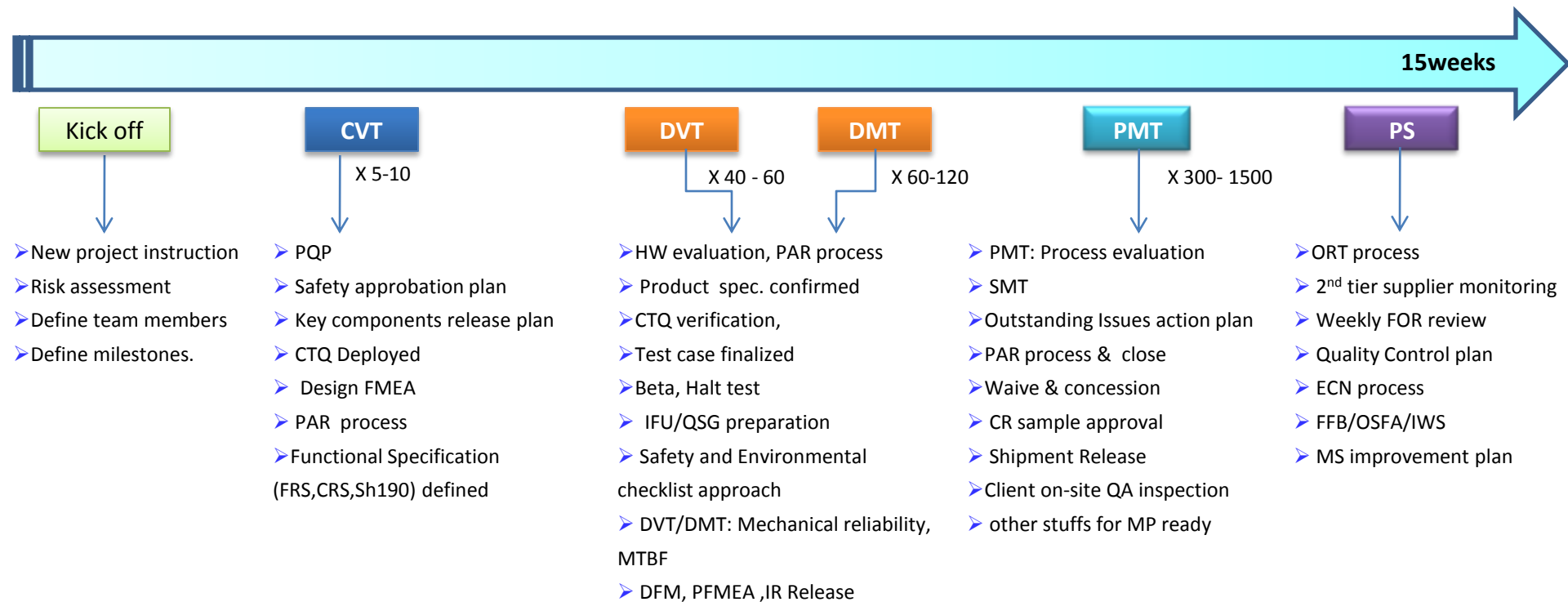


# System Certification

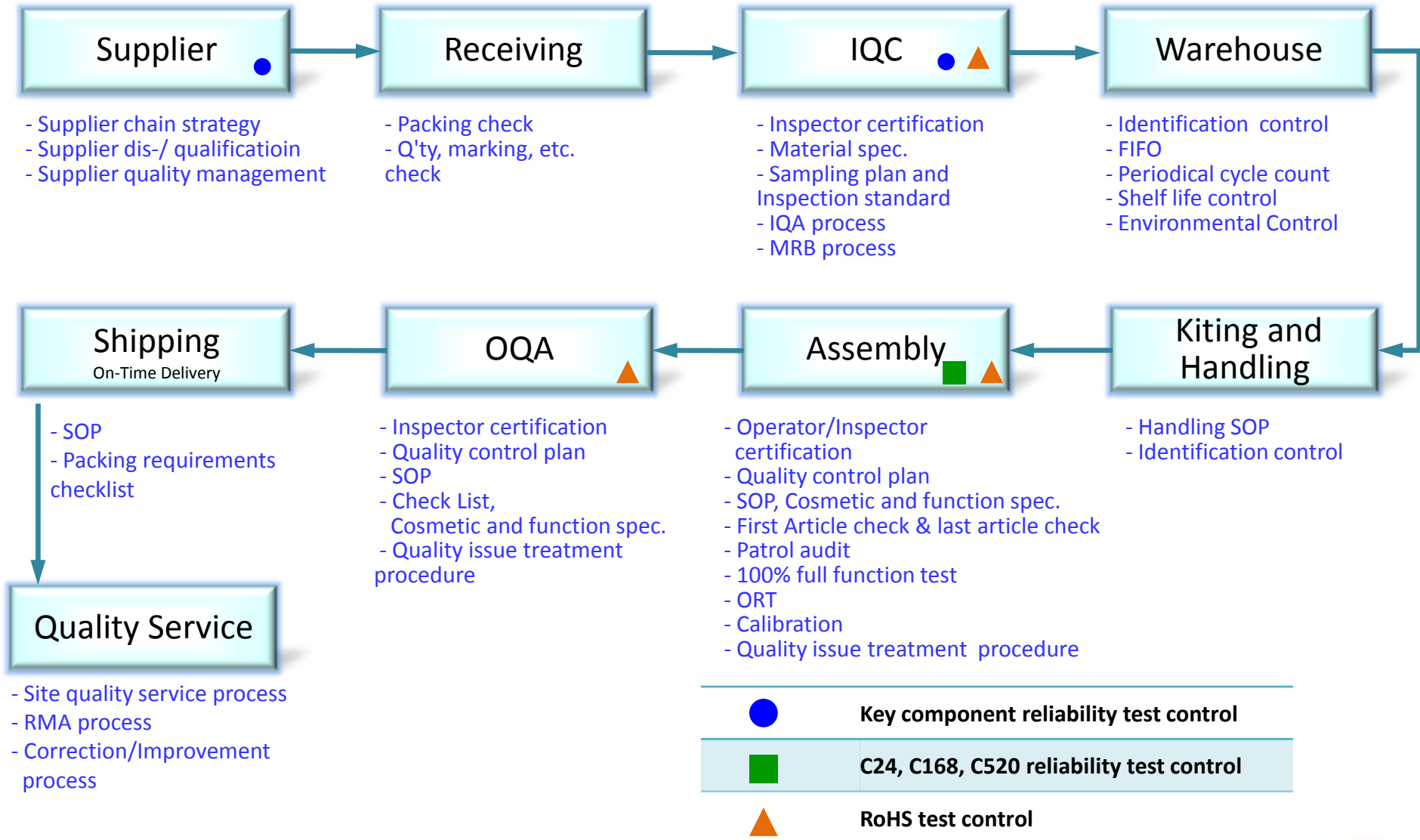
Certificate	Certified by
	UL
	3C
	Thai TISI / Malaysian SIRIM
	Wal-Mart ES / GSV / FCCA
	BEST BUY SER / C-TPAT
	ISO9001:2008 / ISO14001:2004
	UAT_534C(EICC) / UAT_520+++ (4QP) / RoHS / Process / ESD

# New Product Release - Quality Activities & Gates

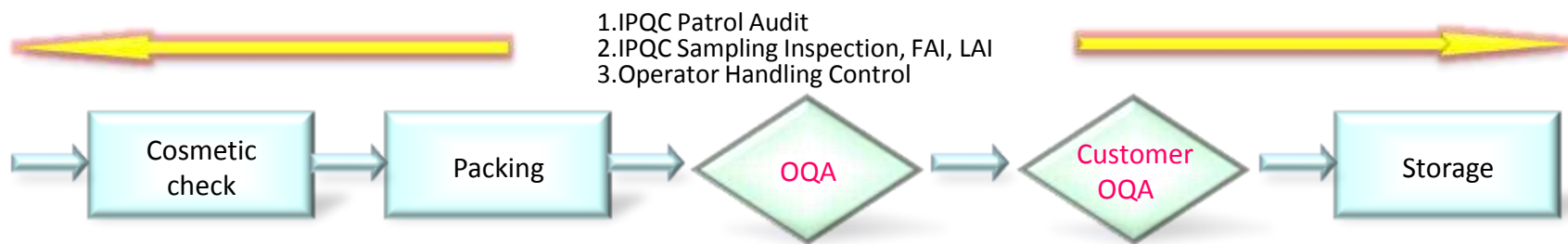
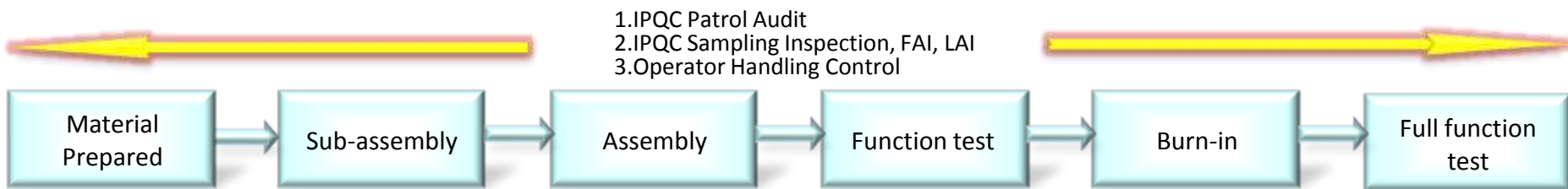
- Quality target proposed
- Sustainability requirements proposed
- Predecessor field quality analyzed
- Sustainability requirements approved
- Past project performance analyzed
- Quality targets committed, first field quality prediction
- Approbation requirements approved
- Safety risk assessment approved
- Provisional product validation test plan
- Measure system capability evaluated
- Approved plan
- Quality target verified
- Safety risk assessment updated
- Start approbation
- Sustaining scan finalized
- Quality organization in place for outgoing quality and field quality monitoring
- Approbation approved: drawings and paper of introducing countries available
- Agreement for delivery and dispensations approved (including safety and approbation)
- Field call rate and predictions approved



# QA System Outline - MP



# Lines QC System



<p><b>Operator Handling Control:</b> Document: SOP Execute: Operator</p> <ul style="list-style-type: none"> <li>➤ Packing for Cosmetic Protection</li> <li>➤ Delivering for Cosmetic Prevention</li> <li>➤ Operation Discipline</li> </ul>	<p><b>Operator self inspection:</b> Document: SOP, issues history Execute: Operator</p> <ul style="list-style-type: none"> <li>➤ Cosmetic check before assembling part</li> <li>➤ Cosmetic check after assembling part</li> </ul> <p>Frequency:100%</p>	<p><b>IPQC Patrol Audit :</b> Document: SOP, issue history, Check list Sample Execute: IPQC</p> <ul style="list-style-type: none"> <li>➤ Operator operation vs. document</li> <li>➤ Equipment parameters</li> <li>➤ Discipline</li> <li>➤ Key component inspection</li> <li>➤ FAI and LAI</li> </ul> <p>Frequency: according to SOP</p>	<p><b>OQA :</b> Document: SOP, issue history, Check list, Sample, Safety/SW/IFU criteria Execute: OQC</p> <ul style="list-style-type: none"> <li>➤ Cosmetic check</li> <li>➤ Full function inspection</li> <li>➤ Fit check</li> <li>➤ Packing check</li> </ul> <p>Frequency: according to SOP</p>	<p><b>Issue Treatment:</b> Document: SOP, Procedure Execute: Line management, PE, PQE</p> <ul style="list-style-type: none"> <li>➤ Reflection process</li> <li>➤ PE/PQE evaluate to</li> </ul> <ol style="list-style-type: none"> <li>1. Hold product &amp; Quarantined from quality abnormality sheet</li> <li>2. Record and Traceability</li> <li>3. Root cause/ Correction process</li> </ol>
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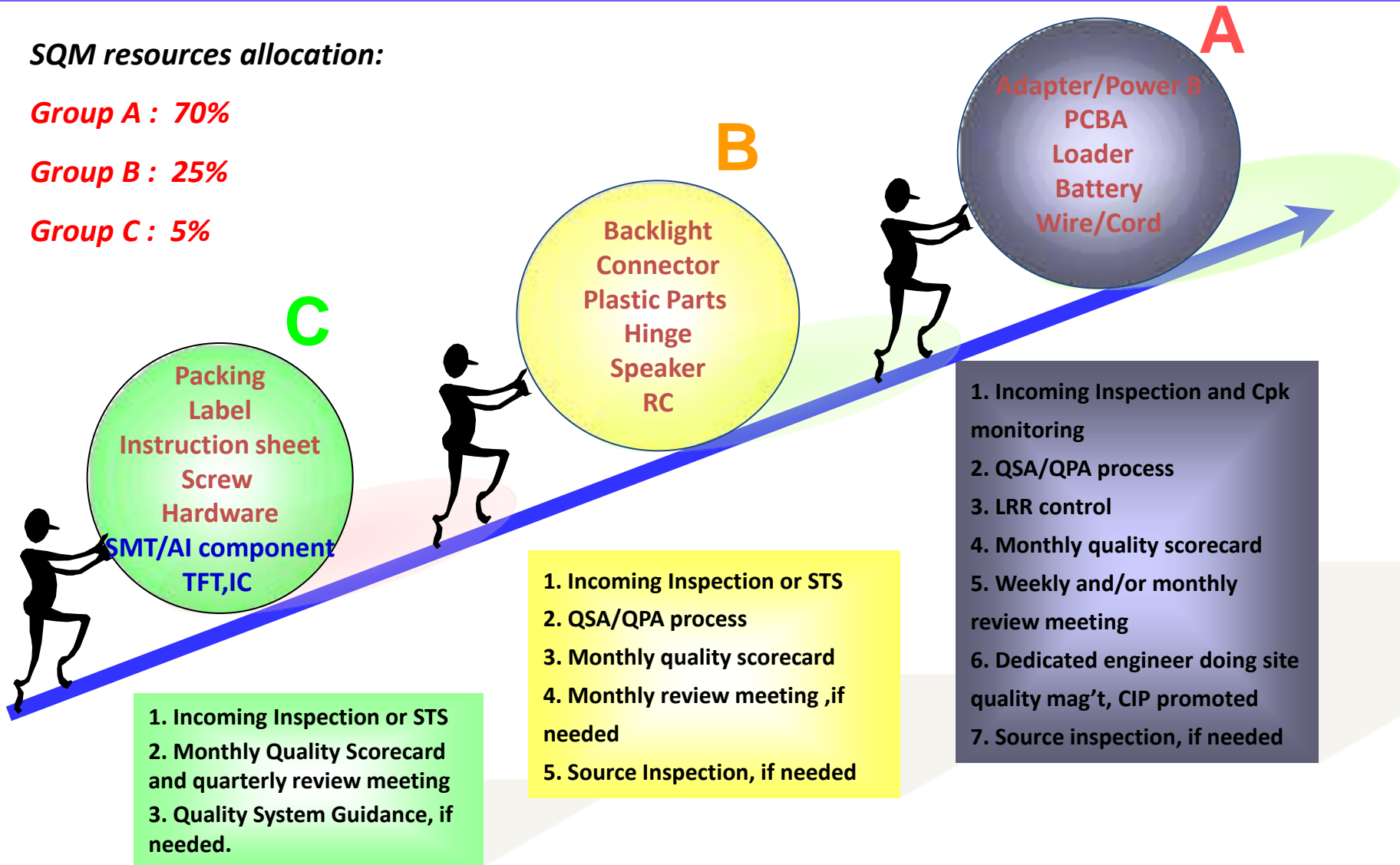
# SQM Strategies

*SQM resources allocation:*

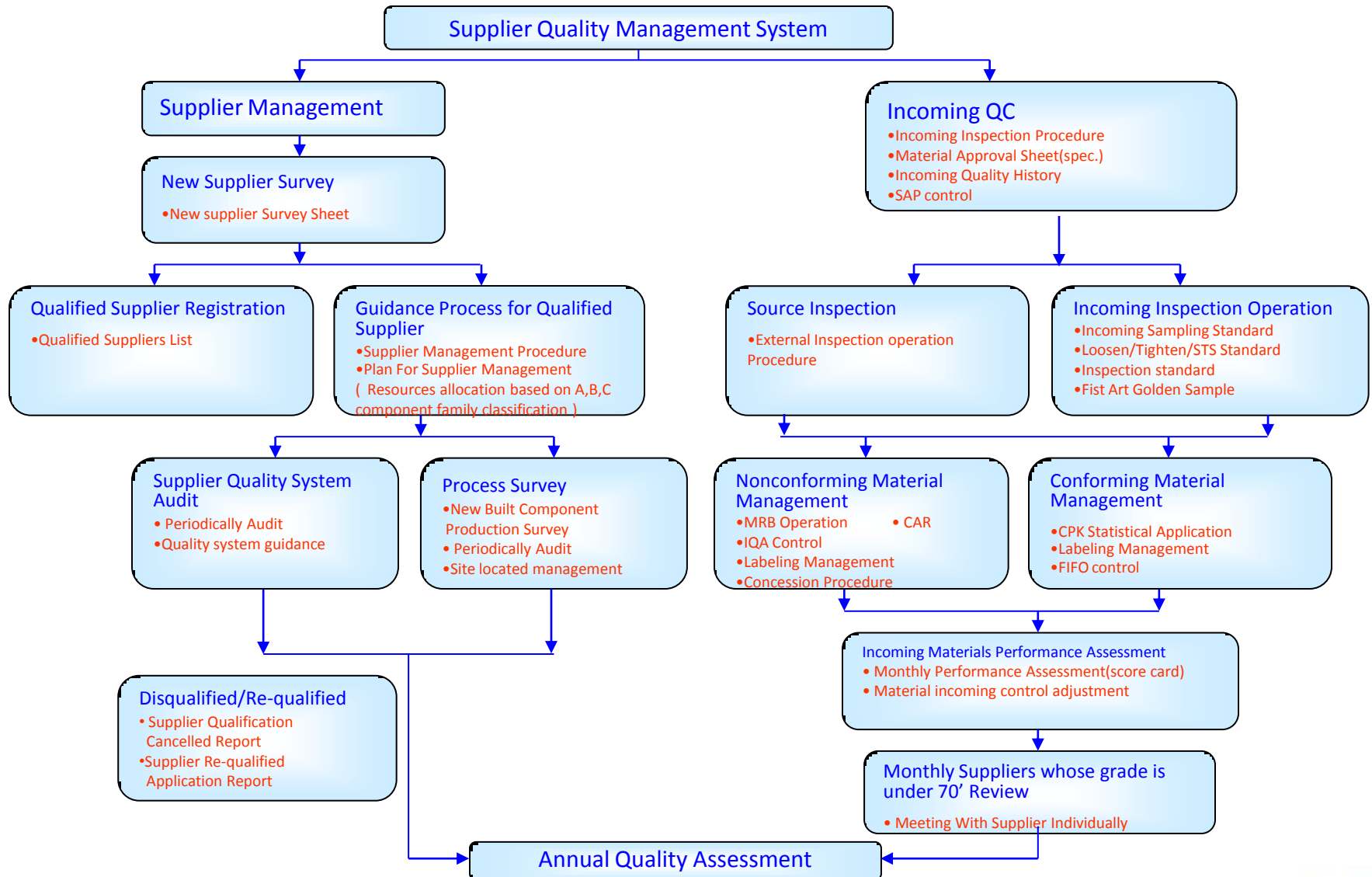
**Group A : 70%**

**Group B : 25%**

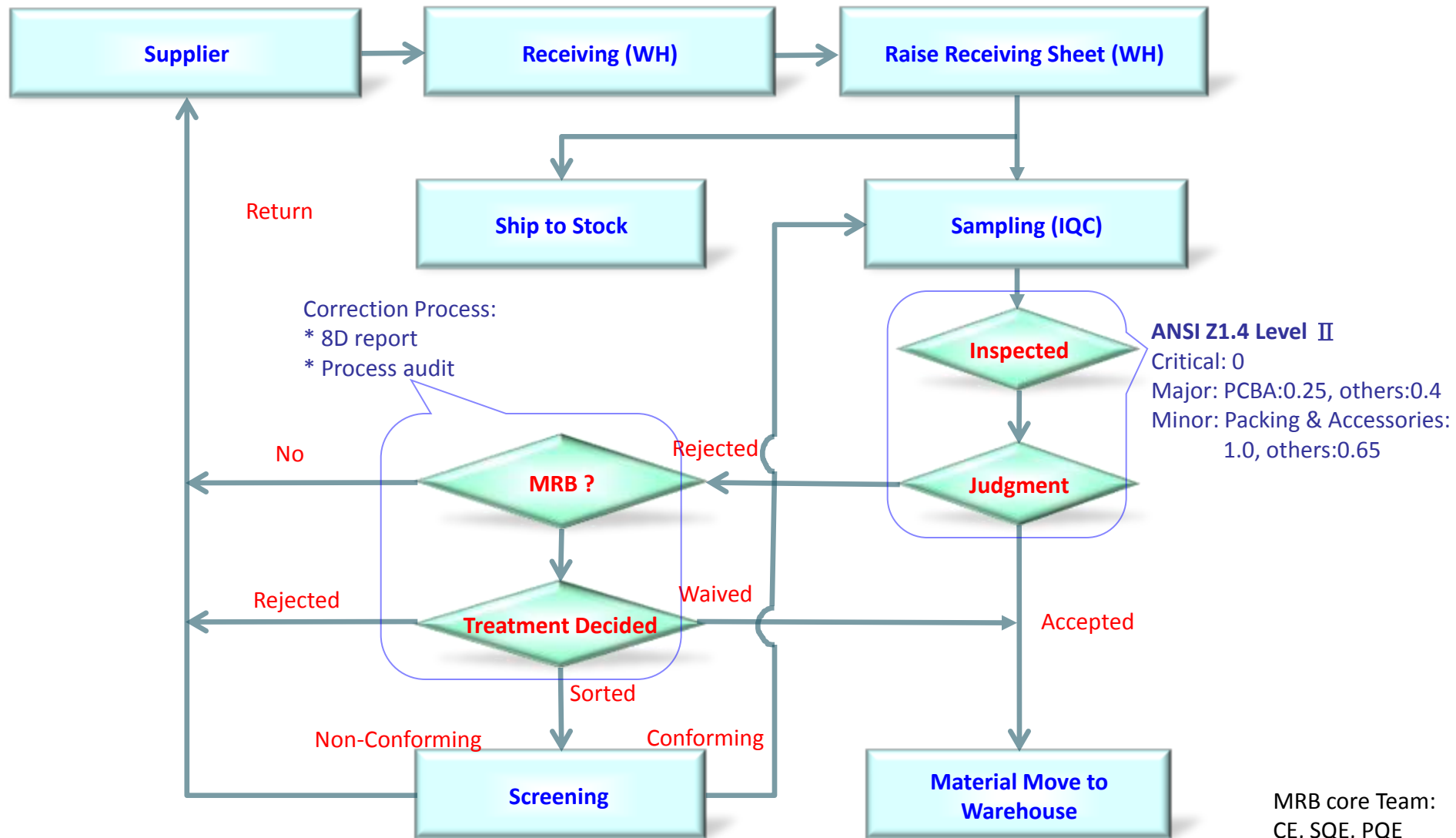
**Group C : 5%**



# Supplier Quality Management



# IQC Flow



# Reliability Test Plan

## Developing Phases

## MP: ORT

### DVT:

- 5 sets Climatic(high/low temp.) test.
- 5 sets bare drop test.
- 2 boxes drop & vibration test.
- 1 box stacking test.
- 5 sets socket & switch life test.
- 30 sets CTQ validation.
- 30 sets full function @40 °C burn-in 1000Hrs .

### PMT:

- 5 sets Climatic(high/low temp.) test.
- 2 de-boxes drop& vibration test.
- 20 sets process maturity test@40°C burn-in 168Hrs .

### Finished product:

- Burn-in reduction: 100% vs.30% product 2 hrs @40°C burn-in
- 40 sets full function burn-in 24Hrs/model family/day.
- 10 sets full function burn-in 168Hrs/model family/day.
- 5 sets full function burn-in 520Hrs/model family/month.
- 5 sets Climatic (high/low temp.) test/model family/month.
- 2 sets drop& vibration test /model family/month.
- 2 sets socket & switch life test /model family/month.

DVT

DMT

PMT

PS

### DMT:

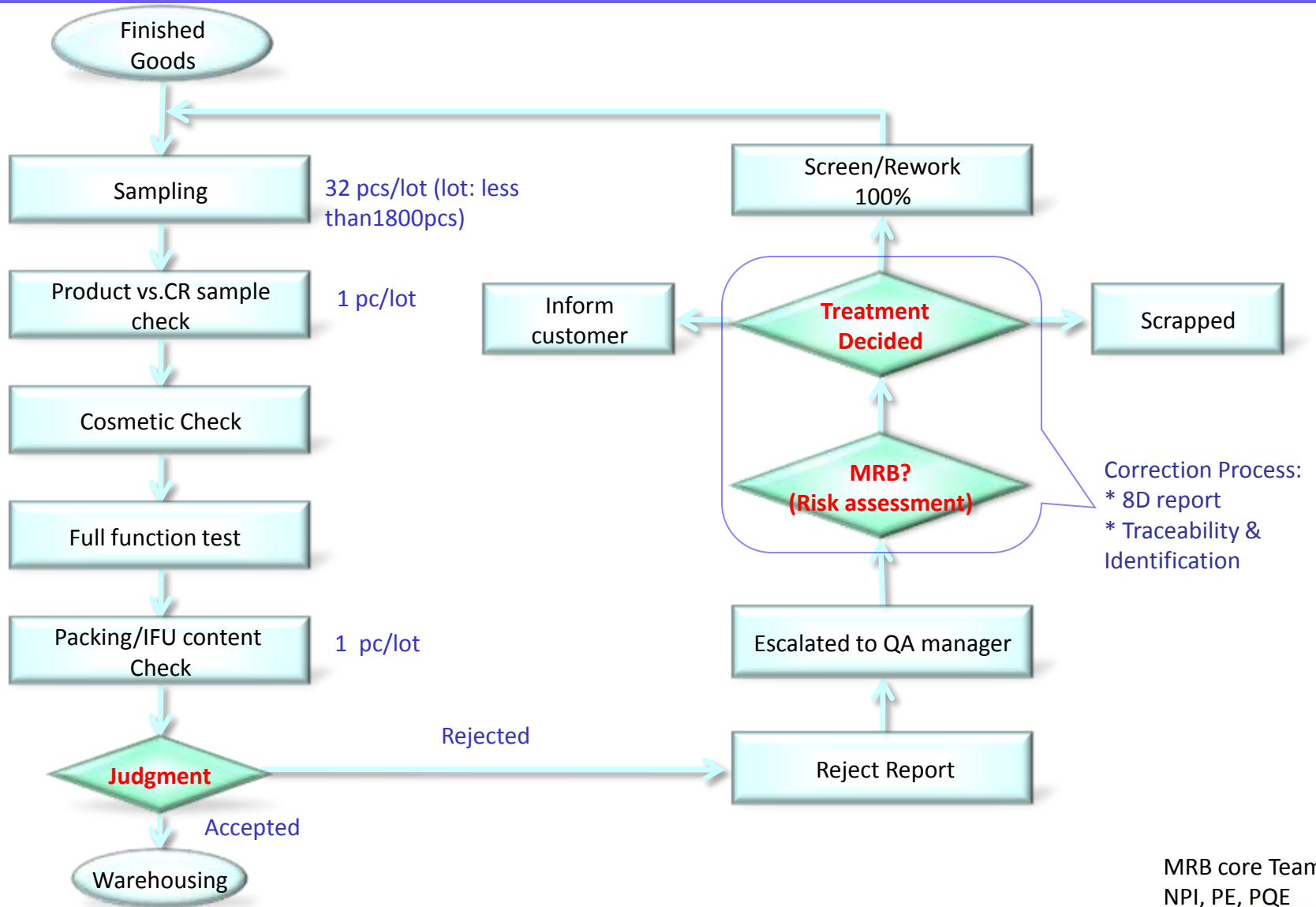
- 5 sets Climatic(high/low temp.) test.
- 5 sets bare drop test.
- 2 boxes drop & vibration test.
- 1 box stacking test.
- 5 sets socket & switch life test.
- 30 sets CTQ validation.
- 40 sets design maturity test @40°C burn-in 1000Hrs.

### Component level:

- 60 pcs AC adapter power dynamic on/off burn-in 168Hrs
- 30 pcs battery charge & discharge 30cycles /spec/supply/month.
- IEC/UL safety test 3pcs each /3models/month

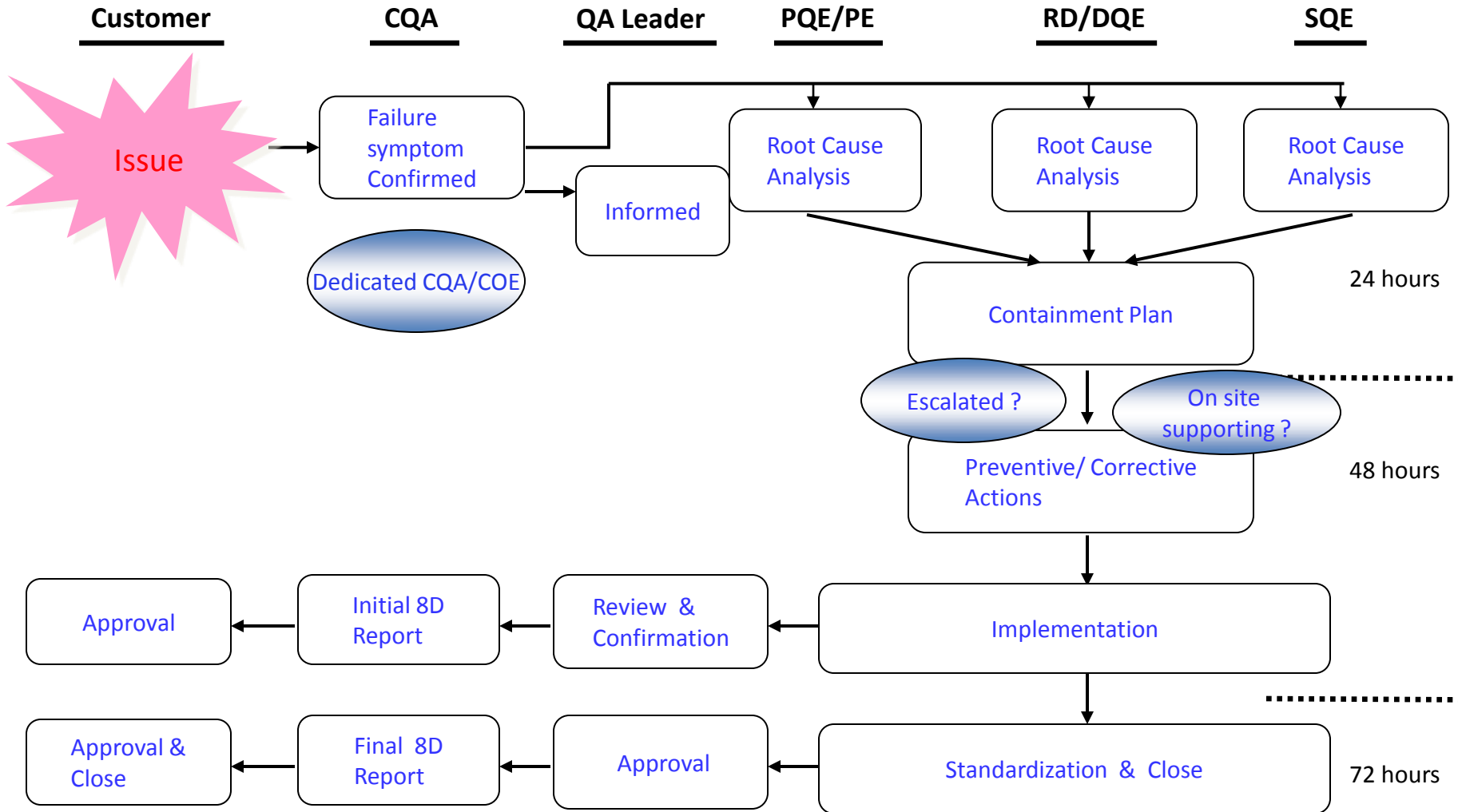


# OQA Flow



MRB core Team:  
NPI, PE, PQE

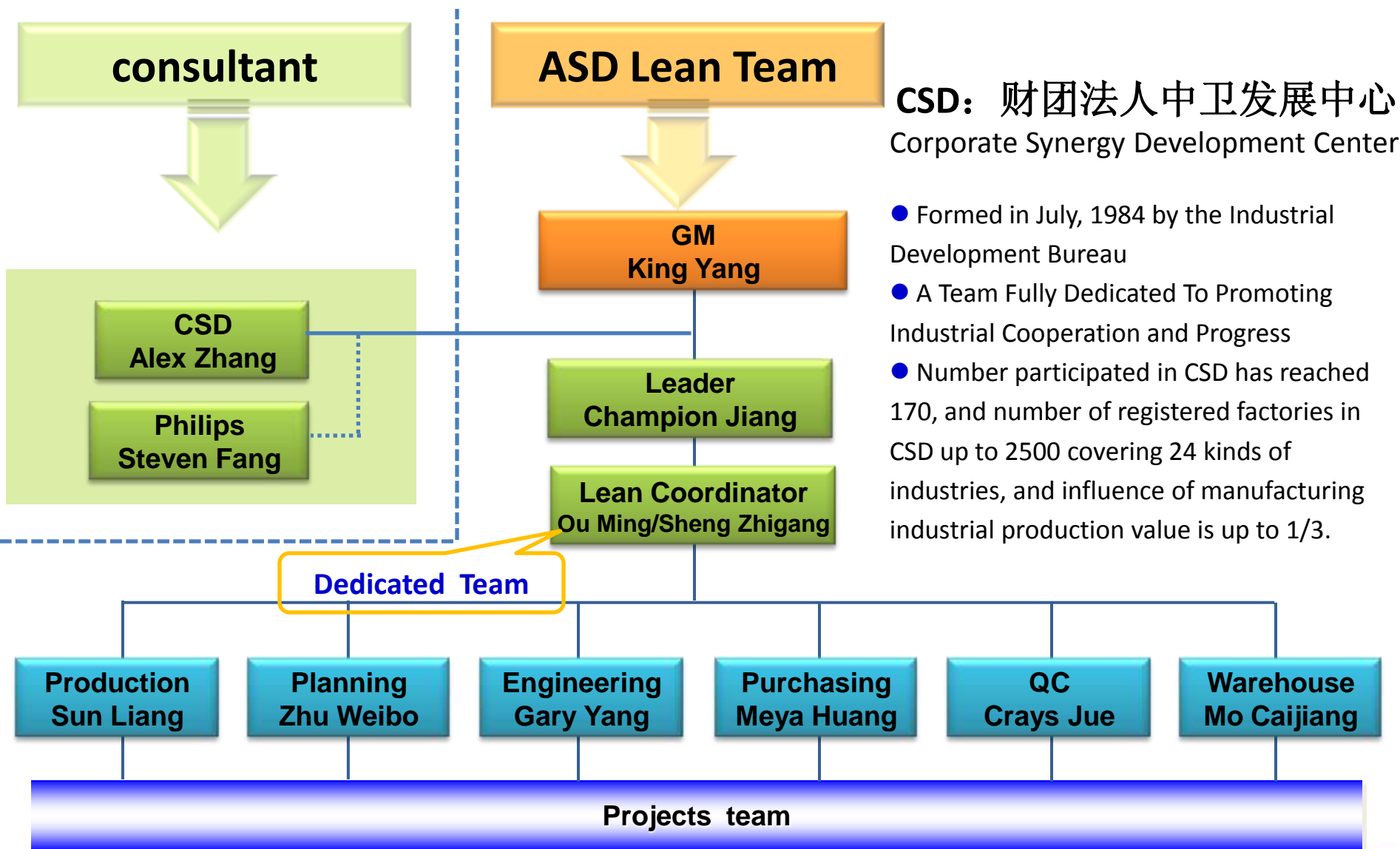
# Quality Issue Handling Procedure



# Contents

- Action Group Evolution
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- **Lean Manufacturing (8 pages)**

# Lean Production Team



# Lean Production Milestones

1. Lean Concept and Tools Training

5. Deploy improvements

- ✓ M'TL Handling
- ✓ Benchmark line set up
- ✓ Productivity
- ✓ Lead time

2. As-Is State Review

6. Review with Philips

3. Invite Philips team to have close review with CSD

4. Improvement Plan Draft

7. Projects review

- ✓ As-Is Problem Define
- ✓ Set up Objectives

8. Results Presentation

- Continuous Improvement
- Productivities Improvement
- WIP & Stock Improvement
- Establish JIDOKA (自動化) Sys.
- KANBAN Management
- Pull production System

Jul-Sep 2010

Oct-Dec 2010

Jan-Feb 2011

Mar 2011- Apr 2012

# Lean Project Outline

期程	第一阶段	第二阶段
期間	2010/7-2011/6	2011/7-2012/6
目標	<ol style="list-style-type: none"> <li>1. 縮短生產Lead Time</li> <li>2. 降低庫存</li> <li>3. 提升生產力</li> <li>4. 減少不良率</li> </ol>	<ol style="list-style-type: none"> <li>1. 縮短生產Lead Time</li> <li>2. 降低庫存</li> <li>3. 提升生產力</li> <li>4. 減少不良率</li> <li>5. 人力低減</li> </ol>
課題	<ol style="list-style-type: none"> <li>1. 降低零件庫存</li> <li>2. 縮短生產流程(L/T)</li> <li>3. 提升作業生產力</li> <li>4. 拉式生產系統局部建構</li> </ol>	<ol style="list-style-type: none"> <li>1. 持續點庫存降低及生產力提升</li> <li>2. 簡易自動化系統導入</li> <li>3. 目視化管理</li> <li>4. 拉式生產系統全面架構</li> </ol>
作法	<ol style="list-style-type: none"> <li>1. 物與情報流程導入</li> <li>2. 物料需求管理、交期管理、進料管理&amp;倉庫管理、配送管理等</li> <li>3. 現場Layout及作業改善</li> <li>4. 生產指示系統改善</li> <li>5. 2S(整理/整頓)</li> </ol>	<ol style="list-style-type: none"> <li>1. 情報流程改善</li> <li>2. 整流及流程化</li> <li>3. 定時或定量搬運系統導入</li> <li>4. 換模換線改善</li> <li>5. 自動化導入</li> <li>6. 2S(整理/整頓)</li> <li>7. 製造現場目視化管理</li> <li>8. 改善措施標準化</li> </ol>

# Lean Production Goals

## Lead Time 时间缩短

- Y2010 (Aug-Jan)

↓ 20%

- Y2011

↓ 10%

↓ Total: 30%

## PPH 生产力提升

- Y2010 (Aug-Jan)

↑ 20%

- Y2011

↑ 10%

↑ Total: 30%

## WIP 库存天数-金额

- Y2010 (Aug-Jan)

↓ 15%

- Y2011

↓ 10%

↓ Total: 25%

## Yield rate 品质提升

- Y2010 (Aug-Jan)

↑ 20%

- Y2011

↑ 10%

↑ Total: 30%

# Lean Production - Implement Schedule (Phase 1)

NO.	Description	Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11
1	Lean production Training Courses		→										
2	Value Stream Mapping (As-Is)			→				→					
3	Baseline measures Review	→							→				
4	Define the problem		→							→			
5	To Draft The Improvement Plan		→							→			
6	Setting the challenge objectives		→								→		
7	Layout & Operation Improvement				→					→			→
8	6S Improvement		→										
9	Projects Presentation							→					→



# Lean Improvement Projects (Phase 1.1)

No	Lean No	Project	Actual	Status	Leader	Team member
1	AAS-LEAN-001	Video BU pre-forming PPH improvement : 20%	Battery: 50pcs to 62pcs Panel: 41pcs to 50.3pcs	Done	张安生	张安生,游慧兰,韦友华,余有盛
2	AAS-LEAN-002	PCBA SMT on time shipment: 98%	On time delivery: 78%----> 83%----> ??	On going	朱伟波	黄珉全,欧立娇,鲍祥孝,何异江,刘小静,周俊峰,李应平
3	AAS-LEAN-003	Home BU testing capacity improvement: 25%	Testing PPH : 27pcs/H to 34pcs/H, improve 26%	Done	周俊峰	罗孝华,李教辉,刘永安,施扬毅,李应平
4	AAS-LEAN-004	QA working Eff: 25%	Eff improve: 39%: 2.5 PCS/H to 3.6PCS/H	Done	施扬毅	岳长明,陈远洋,张政,曾建军,周理论,刘永安
5	AAS-LEAN-005	Portable model set up Cell mode 1.PPH: 3.87pcs 2. Line balance: 90% 3. Change over: 5 mins.	1.PPH: 2.66pcs to 4.4pcs 2.Line balance: 78% to 92% 3. Change over: 30 mins to 15 mins.	Done	杨勇	陈建云,张安生,余有盛,张静

# Lean Improvement Projects (Phase 1.1)

No	Lean No	Project	Actual	Status	Leader	Team member
6	AAS-LEAN-006	Home BU pre-forming PPH improvement: PPH: 60pcs	Phase1 (Oct-30):PPH from 47pcs to 53pcs Phase2(Dec-10):PPH from 53pcs to 60pcs	Done	孙亮	李应平,徐国华,罗孝华,周星光,谢晓玲,袁伟平
7	AAS-LEAN-007	Warehouse (Space saving; materials turn over days)	1. Raw material Turn over day: 20 days to 8.5 days 2. Space utilization: 39%~61%	Done	黄香英	杨斌,罗丽华,陆棋妹,王丽君,吉桂兰,覃玉领,胡小群,刘志红
8	AAS-LEAN-008	Avoid wasting	Electronic cost saving : about 80K RMB, is waiting for FIN dept confirmation	Done	陈外兵	王世峰,章凯,彭少建,钟德顺,乔金志,龚德武,张丽娟,陈芳
9	AAS-LEAN-019	PCBA DIP PPH improvement: Target: 7.2pcs	PPH from 5.5pcs/H to 7.3pcs/H	Done	欧明	戴丽萍,黄培龙,朱伟波,卢文召,陶伟军
10	AAS-LEAN-010	Material supply Efficiency: 400pcs to 1200pcs /H	1.Materials supply Eff: 1050pcs/H 2. Manpower saving: 2 operators	On going	杨珂	杨斌,各仓管,SQE,采购员,欧明,余有盛

# Lean Improvement Projects (Phase 1.2)



序号	专案编号	专案名称	专案改善目标	负责人
1	AAS-LEAN-011	降低电源板来料抽检不良率	电源板来料抽检DPPM由4800降低到900	李绍良
2	AAS-LEAN-012	降低P-DVD按键板不良率	P-DVD按键板不良率降低30%	焦火根
3	AAS-LEAN-013	降低P-DVD作业不良	P-DVD组装作业不良降低30%	章爱兵
4	AAS-LEAN-014	提升P-DVD组装线效率	提升P-DVD CBU组装PPH由2.3提升到2.9pcs/per/h	张长新
5	AAS-LEAN-015	提升出AAS-P SKD机种生产效率	提升出AAS-P SKD生产效率25%	李应平
6	AAS-LEAN-016	物流效率提升	1.供料人员减少10% 2.实现小批量供料上线	莫财江
7	AAS-LEAN-017	二楼车间生产节能改善	生产电费降低8%	陈外兵