8D Report

課程時數：3 小時

課程簡介：在介紹 8D 的基本意義及各步驟之書寫方法和應有的內容。

課程目標：提供活動小組成員之必要工具與知識，以期能順利完成 8D 程序

課程大綱

項次	課程大綱
一、	8D 各步驟目的，方法介紹
二、	SAC G8D 討論
三、	Check List 介紹
四、	個案演練

《1》何謂 8D ? (8D Disciplines)

- Problem–solving process：A problem–solving process with eight objectives.

- Standard：A standard that commits to solving problems at the root cause level.

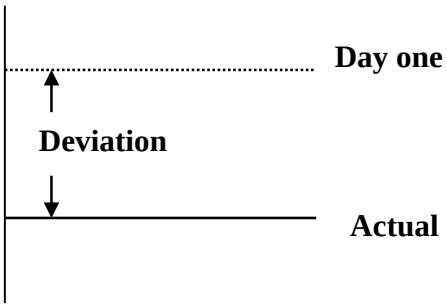
- Problem report：A reporting format that describes the team's progress at each step of the 8D process.

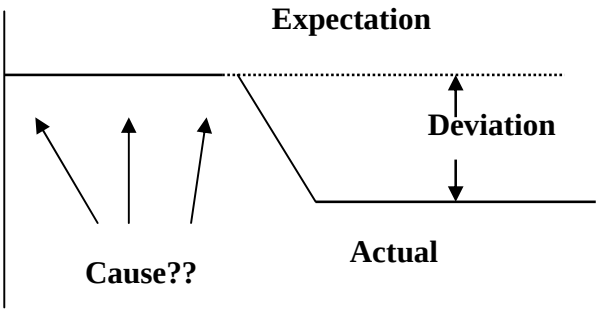
《2》使用時機：

- Never–Been–There Condition

&

- Change induced condition





D1.Use The Team Approach：(成立活動小組)--- To find right person

目的	方法	附件(選擇性)
當案件之複雜非單獨 1 人或單位可處理時，召集具製程及產品專業人員共同解決問題。	1. Champion(指導人)選定 ---- 責任單位主管 2. Team leader 選定 ---------- 單位主管指派 3. 決定小組所需要之技能及知識 4. 選擇 Members(2-4 人) -------- 相關單位人員 5. 建立成員分工原則及活動進行程序，時間表----由 Leader 指揮。	NA

- 活動小組可含有以下幾種角色：
  - ---- Championing (指導員)
  - ---- Leading (組長)
  - ---- Team Member (組員)
  - ---- Time Managing (時效管理)
  - ---- Scribing (書記)
  - ---- Recording (記錄)
  - ---- Facilitating (推動人)

Team Roles

Championing

- Have ownership of the system or process under consideration
- Have authority to make changes
- Make resources available to the team
- Support team decisions
- Use appropriate questions to monitor the team's progress
- Attend meetings as required

Leading

- Are the team's business manager
- Are spokesperson for the team
- Work with the team to set objectives and tasks
- Ask for and summarize members' opinions
- Direct the use of 8D methodology
- Focus on the meeting's purpose and agenda
- May give information to the team
- Direct decision-making
- Summarize decisions
- Form a sub-team with a Scribe，Facilitator and time Manager
- Explicitly give up the leadership role when participating in discussion.

Team Member

- Provide technical input
- Carry out assignments
- Offer information and ideas
- Give descriptive feedback
- Clarify issues

Time Managing

- Allocate time to each agenda item
- Monitor meeting progress against the agenda
- Keep time for the team
- Propose agenda time adjustments

Scribing

- Record the leader’s summary
- Restate and records team decisions during the meetings
- Make team decisions visible

Recording

- Transcribe meeting notes
- Maintain records

Facilitating

- Ensure that all members have the opportunity to contribute
- Focus on how the team is working together
- Give and ask for descriptive feedback
- Suggest process and maintenance checks
- Act as a team builder
- Focus on team maintenance
- Draw attention to communication skills
- Ensure the team starts and finishes effectively (Warming Up and Warming Down)
- Help team members to increase awareness of , and make contact with each other

D2.Problem Description：(問題解析)--- Important at initial stage

目的	方法	附件(選擇性)
藉由明確的〝是什麼問題造成什麼錯誤 (What's wrong with what)〞及詳細的可量化關係，去瞭解客戶(或下工程)的問題狀況。	1.解讀客戶的問題 1.1 利用問題的 5W2H 等量化的方式，未詳細條例客戶提出的問題。 2.解讀你的問題 2.1 使用客戶瞭解的用詞。 2.2 利用有效的解析手法，如：PM 分析、特性要因分析、IS/IS Not 分析及各項必要之層別。 2.3 描述發生問題時任何的改變，如：溫度、操作、材料….等。 2.4 是屬於〝Something Change〞或〝Never-Been-There〞之狀況(是變異問題或能力問題)。 3.與客戶及案件受影響之關係人一起 Review 以上之問題之解讀。 ※在 D2 任何的含糊與疏忽，都可能將小組導向錯誤的原因及產出錯誤的改善措施。	.IS/IS Not format (是/非分析) .Cause and effect diagram (要因分析) .在 D2 完成前必需要有確實並及時 Update 的活動歷程計劃表，但不一定要附於報告上。

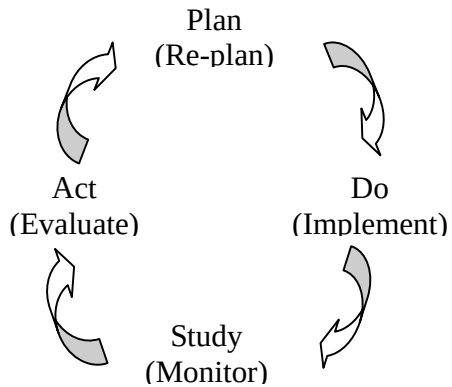
D3.Containment Corrective Actions：(應急改善措施)—Cost much sometimes

目的	方法	附件(選擇性)
以暫時性的控制方法來隔離問題的影響性，使缺失能被仰制不再繼續發生(止血)。---WIP Check usually	1.是否有暫時性控制措施之需求?如無 Go to D4 2.如果 Yes，則依 D2 所產出之數據及資訊，訂定控制措施並執行。(Containment plan 需同時考慮到是否造成其他影響，如：成本、交期、造成其他不良等)。 3.確認該措施被執行，包括書面的程序、指示或訓練記錄。 4.確認該措施之效果(可評核 IS/IS Not 中之 IS 均已排除) 5.容易犯的錯誤： 5.1Over kill。 5.2 當 D6(永久措施)有效實施後不知停止。 5.3 未明文化及持續 Monitor 6.應急措施之實施必須在〝Champion〞的參與下進行，同時該〝Champion〞為 Cross-Functional 聯繫的負責者。 7.任何緊急措施 8D 均不鼓勵另創一套緊急命令下達的架構而 By pass 常規性之核准程序。	.有效的數據分析以提供緊急對策的執行成效。

※經常使用的工具及技術：For D4

- Paynter Chart
- Reference to IS/IS not
- Process Flow Diagram
- SPC Data
- Inspection Report
- Incident Report
- Action Plan
- Cantt Chart
- PERK Chart
- Process Capability Studies

※Management Cycle (Ford)



- Decision Making Process
- Risk Analysis
- FMEA

D4.Define and Verify Root Cause：(界定及驗証真因)

目的	方法--CLPP	附件(選擇性)
藉由測試每一項可能的原因來區分及驗証真因，再對應原先 D2 的問題解析及數據，同時亦從流程中篩選出發生問題的地方(Escape point)及其檢出力。	· 分兩階段(1)找出真因 (2)找出 Escape point(漏失點) 1.Root cause： 1.1 從檢討 D2 的問題解析，提列所有的改變及可能的原因。 1.2 將篩選出的真因，與問題的來龍去脈做驗証，並可解釋及呼應所有已知的數據。 1.3 真因不只一個時，評估其相互影響及貢獻度，必要時針對不同的真因展開各自的 8D 程序或透過其他的手法(如：DOE、Process、Improvement、Approaches、Innovation、Robust)列出潛在的根因。 1.4 繼續 Escape Flow 2.Escape point： 2.1 檢討作業流程並且對真因及每一項潛在的真因，驗証其原有之管制點是否可偵檢出問題(或根本無管制點)。 2.2 進行 Control system 之改善或檢討，及 Control system 是否被改變。 2.3 明確界定那裡是 Escape point (脫序)。	提供經証實的數據來佐證真因已被驗証無誤。

D5.Implement Permanent Corrective Actions：(執行永久矯正措施)—Choose best action

目的	方法	附件(選擇性)
選擇最佳的永久性改善措施，去除真因的存在，並加入適當之管制點，預防 Escape point，並確定不會造成其他的異常。	· 下決定(Decision-Making)去選擇最佳措施之步驟 1.訂出最終之要求 2.列出評核項目(Must be & wants) 3.判斷各項 Wants 的重要關係 4.選出答案 5.將答案與評核項目的規格比較 6.分析冒險度 7.作出最後平衡性的選擇 · 小組中改善措施之產生有以下型態 1.獨自決定 2.表決 3.優先排序 4.協議 5.一致同意 · 需針對製程面及系統面一起考量 · 依 5W 2H 訂定 Action plan	.系統改善措施驗証性之數據 . FMEA . Cause & Effect Diagram . Action plan for next steps

※經常使用的工具及技術：

- Decision making
- Risk analysis
- FMEA
- BOM Review
- Force field analysis
- Robust design methods

- Process capability methods
- DOE
- Process control review

D6. Verify permanent corrective action：(確認永久對策之有效性)--- How effective

目的	方法	附件(選擇性)
將導入執行的永久對策進行驗証，確定其被執行及有效改善異常。	1.以量化之初期試產結果，來確認所選的矯措施，能有效解決問題 2.訂定長期的監控措施 3.使用定量的型式來描述驗証結果，如：$C_pk \geqq 2$ 或 ppm=0 4.直到永久性矯正措施被確認有效，否則繼續執行應急措施。 5.Control plan 檢討修訂。 與客戶確認異常不再被發現於出貨品中。	· 驗証評估數據(報告) · Updated control plan

D7.Prevent Recurrence：(再發防止)—Standardization/ Fan out

目的	方法	附件(選擇性)
藉由內外部相關系統的檢討，防止同樣的事件及相類似的事件再發，並由小組指導員(Champion)提出系統性的改善建議。	小組之建議對象，包括： · 政策方針實施 · ISO、QS 系統程序書 · 生產流程 · Control Plan · FMEA · Lessons Learned · 相關生產線，或其它站別、產品、機台之水平展開	· Revised FMEA

D8.Congratulate the Team：(小組檢討解散)-- Review

目的	方法	附件(選擇性)
進行小組經驗建立的檢討，及指出小組或個人在活動過程中之貢獻，對於無法在小組中提供有效幫助的成員，亦可提出協助其進步的方法。	1. 檢討小組活動的過程得失 2. 感謝各成員的努力 3. 對於過程中非全程參與之人員，亦應提出感謝 4. 對 Champion 進行結案簡報 (以上 2.3 項較適用於 Never-Been-There 之改善案件)	.

Conclusion: 1. Risk review through 8D for solid prevention
2. 8D is a friend for you even promotion
3. The purpose: No 8D again.

1. SAC G8D Report Format 之說明

(1) SAC-STD-001 REV-E　Annex C: G8D ANALYSIS FORM-SAMPLE

GLOBAL 8-DISCIPLINE REOPRT			
Title		Originated	Last Updated
Product / Process Information	Organization(s)		
D0 Symptoms			
D0 Emergency Response Action(s)			Implemented
D0 Verification		By	Date
D1 Team (Name, Dept., Phone)			
Champion	Member		
Team Leader	Member		
Member	Member		
Member	Member		
D2 Problem Statement			
D2 Problem Description			
D3 Interim ESCAPE Containment Action(s)			Implemented
D3 Interim PROBLEM Containment Action(s)			Implemented
D3 Verification / Validation		By	Date
D4 ESCAPE Root Cause(s)			
D4 PROBLEM Root Cause(s)			
D4 Verification		By	Date
D5 Chosen ESCAPE Permanent Corrective Action(s)			
D5 Chosen PROBLEM Permanent Corrective Action(s)			
D5 Verification		By	Date
D6 Implemented ESCAPE Permanent Corrective Action(S)			Implemented
D6 Implemented PROBLEM Permanent Corrective Action(S)			Implemented
D6 Verification		By	Date
D7 Preventive Action(s)			Implemented
D7 Systemic Preventive Recommendation(s)			Responsible
D8 Team and Individual Recognition		Closed By	Date Closed

Check List for 8D procedure

Attention for report writing:

1. Don't use the terminology used internally that customer can't understand.
2. Need to attach some supplementary material to support your report.
3. There should be content in each Discipline, blank is not proper.

Problem Description (D0, D2) Caution: Describe all the content in only 1 or 2 sentences by proper combination of 5M2E and others. Too many sentences will cause complex and difficult to understand.
(1) What phenomenon found: _____ (2) How discrepancy found: _____ (3) Who found: _____ (4) When found: _____ (5) Where found: (Name:) ☐Testing IQC ☐After Testing ☐Burn-In IQC ☐After Burn-In ☐End User IQC ☐SMT (6) How many found: ___ / ___(Defect Rate: ____ %) (7) Why found (optional): _____ (8) ☐Capability Problem ☐Abnormality Problem (9) Sample returned : ☐No ☐Yes Ý Sample Analysis (10) What's Special Requirements from Customer: _____
Team Up (D1) Caution: Under no circumstance, need to decide a champion and leader at first stage. Otherwise, 8D process deserves to fail.

Team Up meeting:

- When : _____
- Where : _____

Champion : _____
Team Leader : _____
Team Member :

- ☐ PE : _____
- ☐ MFG : _____
- ☐ R&D : _____
- ☐ QA : _____
- ☐ PIS : _____
- ☐ Others : _____

Lot Information (D2)

Caution:

1. Don't just list compamy's lot no. in your report. Customer only recognize (customer) lot no.
2. For electrical fail problem, checking the probing record is most important.

(1) Customer: _____
(2) Lot No. : _____
(3) PKG/PIN: _____
(4) Device # : _____
(5) Shipping Date : _____ Destination: _____
(6) Shipping Q'TY: _____
(7) Blind Build: ☐Yes ☐No (Only for electric Open/Short or Reliability issue)

Lot Disposition (D5)

Caution:

In this phase, you may see the defect parts. A detail record about the defect phenomenon including distribution analysis and illustration will help you find the root cause.

☐ Return and Re-screen

- What's Re-screen Procedure: _____
- When Received: _____ When Shipped: _____
- How Many Received: _____ How Many Shipped: _____
- Re-screen Result:
  * Defect Rate:___/___(___%)_
  *Defect Description and Distribution: (Tray (tube), cavity no., outline dimension and defect location on Package)

  _____
  _____

☐ Go Customer Site (Name: _____) Re-screen

- Who Leads: _____
- How Many Operator: _____
- When: _____
- Re-screen Result:
  * Defect Rate:___/___(___%)_
  *Defect Description and Distribution: (Tray (tube), cavity no., outline dimension and defect location on Package)

  _____
  _____

☐ Waive

☐ Scrap the Whole Lot

Possible Cause Judgment

Caution:

Cause & Effect analysis came out by brainstorming or inherent file will help the completion.

☐ Insufficient Information

Ý Need Further Clarification with Customer

* Key Questions: _____
* Who Owner: _____
* What Results: _____

☐ Assembly Process Problem

Ý Which Process: _____

Ý Possible Cause(s): _____

☐ Testing Site Problem

Ý Why Testing Process: _____

Ý Possible Cause(s): _____

☐ Can't Judge Whether Assembly or Testing Problem

Ý Why Can't Judge: _____

Ý ☐ Go Testing Site Checking

* Who Owner: _____
* What Found: _____

Ý ☐ Wait for Returned Sample(s) or Lot

☐ End User Problem

Ý Why End User: _____

Ý Possible Cause(s): _____

What's Cause & Effect Diagram or Analysis?

_____

Containment Action (D3)

Caution:

1. Containment action is only short turn. So the implementation period should be clearly defined.
2. Describe in terms of what, how, who, when, results/effectiveness.
3. For the WIP (work in process), the disposition and results need to display in D3.

Describe Object Operation/Station: _____

Describe Possible Escape Point: _____

What	How	Who	When Start ~ Finish	Results (Evidence Needed)
☐Shut Down Process				
☐Stop Shipping				
☐ WIP Check				

☐ Trace The Influenced Lot				
☐ Tighten Monitor / Inspection				
☐ Personnel Training				
☐ Other Actions				

Sample Failure Analysis (D4)

Caution:

Failure mode categorization and figures will help grasp failure mechanism.

When Received: _____ How Many Received: _____

- ☐ Visual Inspection Ý Finding: _____
- ☐ Electric O/S Test Ý Finding: _____
- ☐ Lead / Ball Scanner Ý Finding: _____
- ☐ Outline Dimension Measurement Ý Finding: _____
- ☐ SAT Ý Finding: _____
- ☐ Decapsulation Ý Finding: _____
- ☐ Other Analysis : (Description: _____) Ý Finding: _____
- ☐ Entrust FA Analysis Ý Finding: _____

Findings Summarization: _____

_____

_____

Possible Cause Suggestion:

_____

_____

LOT History (D4)

- ☐ Build Instruction, Bonding Diagram and BOM Ý Finding: _____
- ☐ MFG Inspection Record Ý Finding: _____
- ☐ QC Monitor/ Gate Record Ý Finding: _____
- ☐ Process Parameter Ý Finding: _____
- ☐ Machine Maintenance Record Ý Finding: _____
- ☐ Any Process Abnormality (EDN/EDR/QE Alarm) Ý Finding: _____
- ☐ Any Process Change Ý Finding: _____
- ☐ MTM (Machine to Machine) Analysis Ý Finding: _____
- ☐ Machines and Lots Matrix (Check List) Ý Finding: _____(Only when cause unknown)

Root Cause Verification (D4).

Caution:

Always focuses on process control- why happened and why not detected.

Cause Identification:

Defect Mechanism Analysis : _____

1. Why Happened?
   - ☐ Manpower Ý What Problem: _____
   - ☐ Method Ý What Problem: _____
   - ☐ Material Ý What Problem: _____
   - ☐ Machine Ý What Problem: _____
   - ☐ Measurement Ý What Problem: _____
   - ☐ Environment Ý What Problem: _____
2. Why not detected?
   - ☐ Manpower Ý What Problem: _____
   - ☐ Method Ý What Problem: _____
   - ☐ Machine Ý What Problem: _____
   - ☐ Measurement Ý What Problem: _____

Need revised Cause & Effect Diagram :

_____

Need Confirmation Run to Verify Causes?

☐ Yes Ý Verification Plan: _____

Ý Verification Result: _____

☐ No

Corrective Action (D5)

Caution:

1. Focus on "How eliminate the occurrence or reduce the occurrence" and " How to increase the detection"
2. Regarding to root cause(s), list down all the actions by 5M1E.
3. Actions should reduce the PRN (Severity, Occurrence and Detection) or have the consideration of standardization. Otherwise, action is not thought effective.
4. Fool-proofing methodology is the most commended way to solve problems.

Action items	How	Who	When Started	When Finished
Manpower Ý Action				
Method Ý Action				
Material Ý Action	1. Problem lots Disposition 2. Raw Material Disposition			
Machine Ý Action				
Measurement Ý Action				

Environment Ý Action				
Spec Modification or Standardization				

Validate Permanent Corrective Action (D6)

Caution:

Until permanent corrective actions are validated implemented and effective, then containment action would be terminated.

Actions checked	Check Period	Who Check	Check Results (Evidence will be needed)	Effective or Not

If the results are ineffective then need to re-verify the root cause.

Prevent Recurrence (D7)

Caution:

1. To eliminate the same or the similar causes, consider the following items to be improved.
2. FMEA analysis, Control Plan revision and design feedback is a must-do.

☐ System:

New customer /PKG/ Device phase-in, or new production line, etc.

Ý Action : _____

Ý Document # : _____ Rev: (___)

☐ Process Control Plan: (Change control or new 5M1E, etc.)

Ý Action : _____

Ý Control Plan # : _____Name: _____ Rev: (___)

FMEA Analysis and Revision:

FMEA Document #: _____Name: _____Rev: (___)
Severity Improved from _____ to _____
Occasion Improvement From _____ to _____
Detection Improved from _____ to _____
RPN (Sev * Occ * Det) Calculated from _____ to _____

Recognize Team and Individual Contributions (D8)