Continuous Improvement of Safety Culture – The Practice of Just Culture Decision Aid in China Airlines

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Outline

- Background
- Concept and Current Practices
- Just Culture Decision Aid (JCDA)
- Effectiveness Review
- Conclusion

Background

- Safety Culture is the key element of SMS (ICAO Doc 9859)

- In order to enhance SMS and to promote positive safety attitude of our employees continuously

- China Airlines (CAL) initiated its 3 years Safety Culture project (2013-2015)
  - Evaluate the long term status of safety atmosphere
  - Focus on the Flight Ops and Maintenance Departments specifically

Developing Process

- Began with a self-developed survey to scan the strength and weakness of the six sub-cultures

- Valid Survey Sample size : 40% of the employees and managers (total 1,245)
  - Flight Ops : 398
  - Maintenance : 847

Just
Mindful
Reporting
Safety Culture
Flexible
Informed
Learning

Developing Process

- "Just Culture" appeared to be the "bottleneck" among the six subs.

"An atmosphere of **trust** in which people are encouraged for providing essential safety-related information, but in which they are also clear about where the line must be drawn between **acceptable and unacceptable** behavior." (Reason, 1997)

- Our statistical result found that **Just Culture** has significant influence to other five sub-cultures.

Developing Process

- We adopted "Focus Group" and "Expert Panel" to catch the "Pain Point" of Just Culture
    - Disciplinary system came to be the target
    - Employees are more concerned about "Stick" than Carrot

- We had used Reason's Culpability Decision Tree (Reason, 1997) at that time for years, but found it lacks the persuasiveness in our local practice.
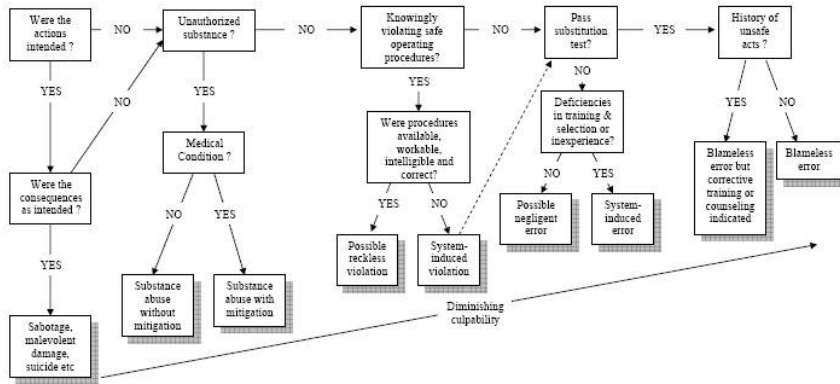
Developing Process

- Some important concerns in our practice weren't fully addressed in Reason's process.

Reason's Culpability Decision Tree

- Ex.
  - Comprehensive systematic factors
  - Voluntary Report
  - Consequence
  - Re-offense

Developing Process

- Based on the concept of Reason, we determined to develop a new model that needs to fit in with :
  - Just Culture
  - Reporting Culture
  - Practice in Taiwan
  - Decision model of the management level

Developing Process

Developed the Just Culture Decision Aid (JCDA)

Incorporated JCDA into the TRB/DRB procedures as a mandatory requirement

Promoted JCDA in both Flight Ops and Maintenance Depts.

- TRB：Technical Review Board
- DRB：Discipline Review Board

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Concept and Current Practice

- Overall Responsibility = System + Personal

Systematic Responsibility
- Task, Manual, Software/Hardware, System and Management
- Inter-organizational Interactions, Weather etc.

Personal Responsibility
- The employee fails to exercise that degree of care in which he "should" and "could" have in the circumstances
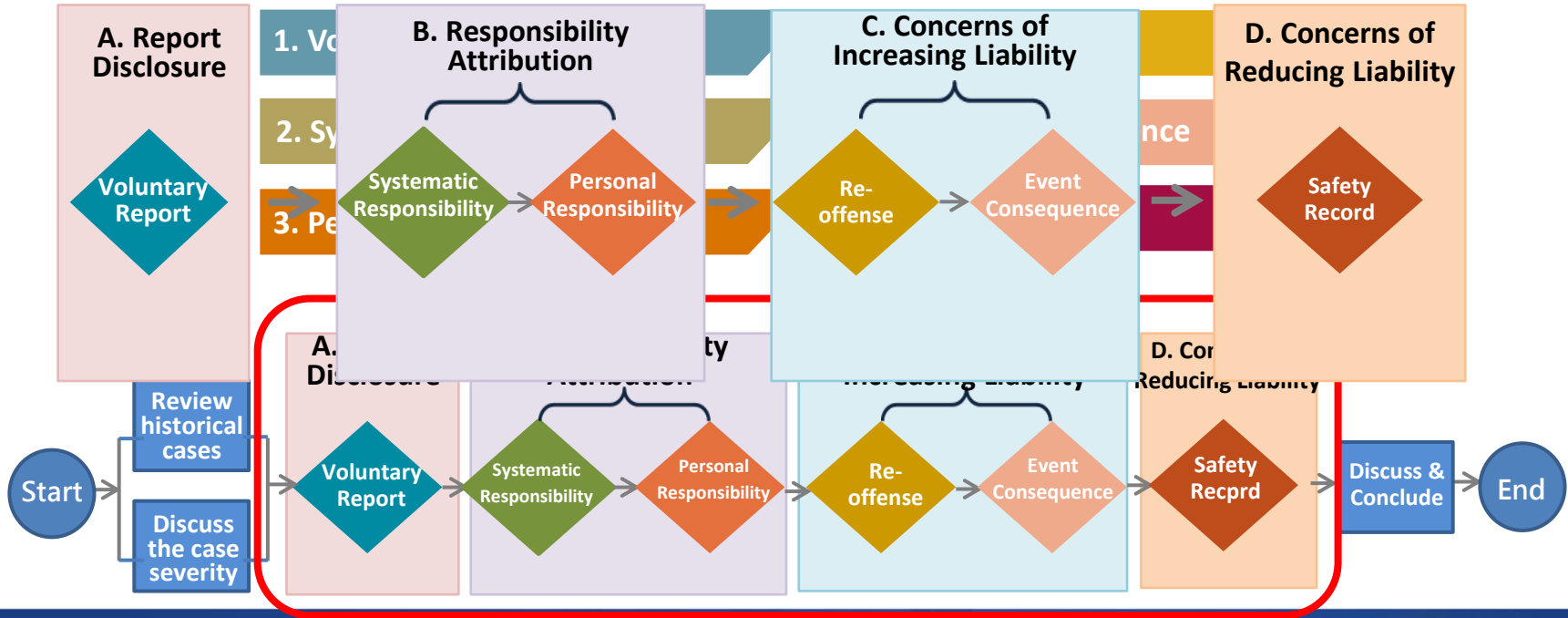
Concept and Current Practice

- Take "Voluntary Disclosure Report" into account
  - To enhance Reporting Culture

- Consider "Event Consequence", "Re-offense", and "Safety Record" of the employee
  - Fit the practice of Taiwan
  - Get greater support from the management
  - A balance between the cognitions of managers and workforces

Just Culture Decision Aid (JCDA)

Six Determinants

A. Report Disclosure
- Voluntary Report

B. Responsibility Attribution
- Systematic Responsibility
- Personal Responsibility

C. Concerns of Increasing Liability
- Re-offense
- Event Consequence

D. Concerns of Reducing Liability
- Safety Record

Start → Review historical cases / Discuss the case severity → A. Report Disclosure (Voluntary Report) → B. Responsibility Attribution (Systematic Responsibility, Personal Responsibility) → C. Concerns of Increasing Liability (Re-offense, Event Consequence) → D. Concerns of Reducing Liability (Safety Recprd) → Discuss & Conclude → End

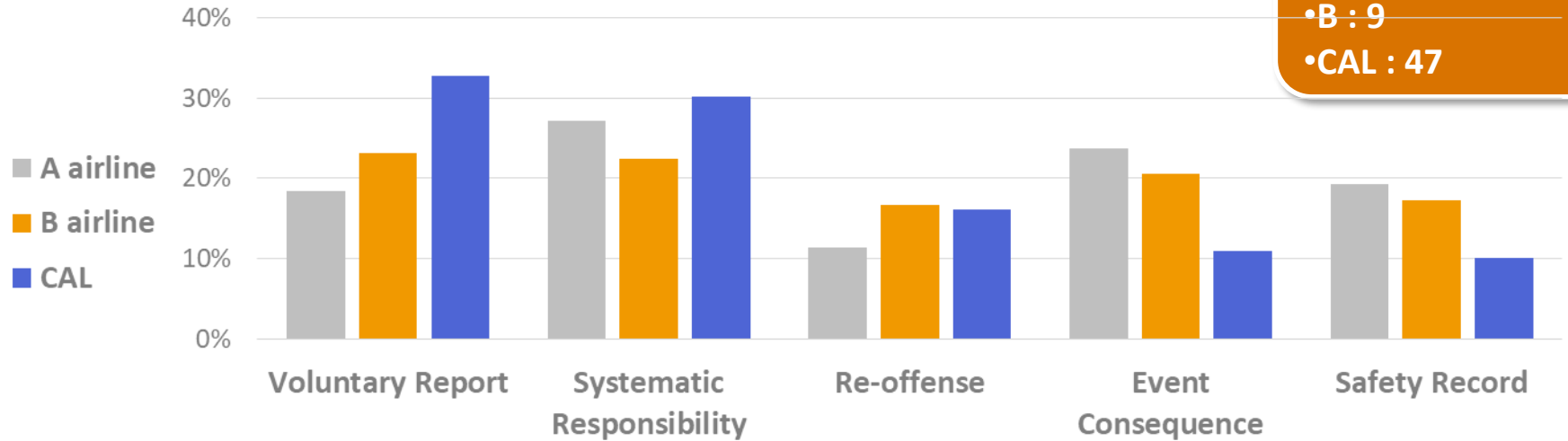CHINA AIRLINES   中原大學 Chung Yuan Christian University

Just Culture Decision Aid (JCDA)

- We used AHP (Analytic Hierarchy Process) to identify the importance (weight) of the five determinants (excluded Personal Responsibility)
  - The magnitude of increase or decrease of the liability

Survey Sample size
- A : 13
- B : 9
- CAL : 47

Legend:
- A airline
- B airline
- CAL

Categories: Voluntary Report, Systematic Responsibility, Re-offense, Event Consequence, Safety Record

Just Culture Decision Aid (JCDA)

Voluntary Report

- Date entered
  (Timing: within 24 hours)

- Report Contents
  (Not concealing relevant info.)
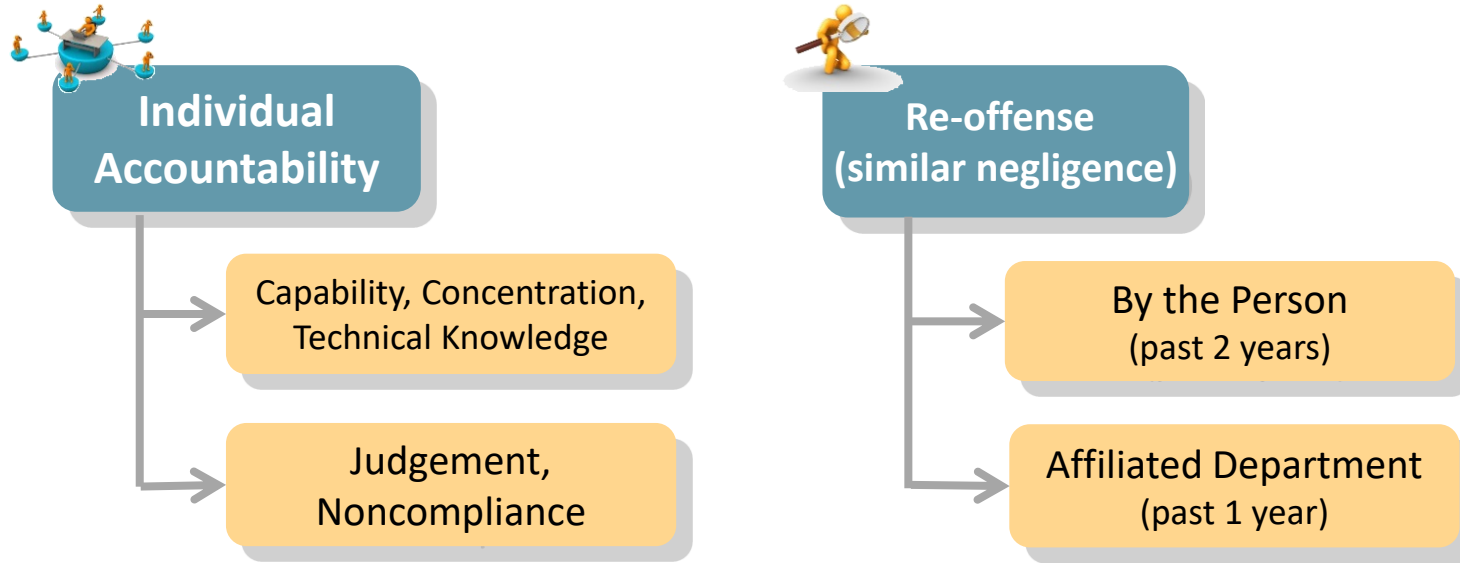
- Perceptibility

Systematic/ Environment Responsibility

- Competency, Task, Notification, Manual/Document

- Software/Hardware, Systems and Management

- Inter-organizational Interaction, Environmental Factors

Just Culture Decision Aid (JCDA)

Individual Accountability

→ Capability, Concentration, Technical Knowledge

→ Judgement, Noncompliance

Re-offense (similar negligence)

→ By the Person (past 2 years)

→ Affiliated Department (past 1 year)

Just Culture Decision Aid (JCDA)

Event Consequence

→ Personnel Injury

→ Financial Loss

→ Damaged Reputation

Safety Record (past 2 years)
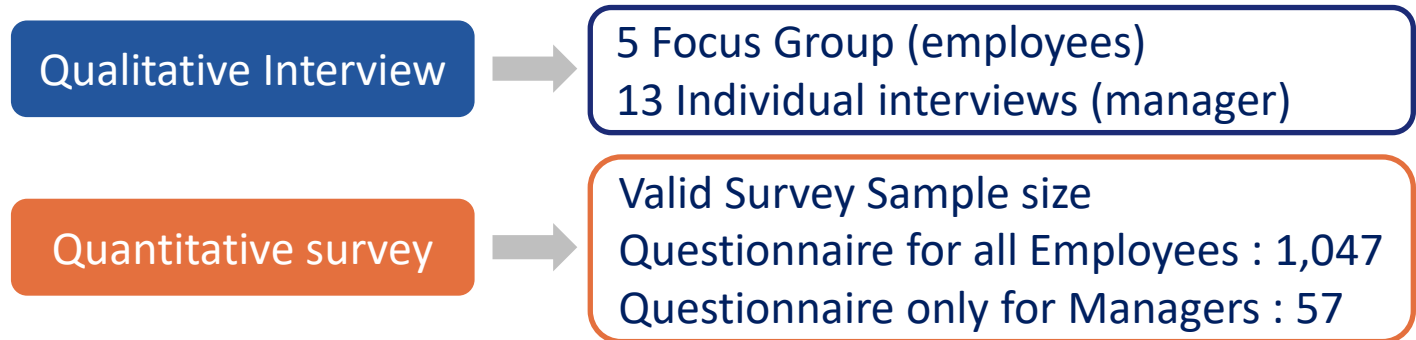
→ Safety Promotion/ Improvement

→ Negligence Record

Effectiveness Review

- Initiate an external review of the performance of JCDA
- The updated feedback from the managers and employees are both favorable and promising.

| Qualitative Interview | → | 5 Focus Group (employees)
13 Individual interviews (manager) |

| Quantitative survey | → | Valid Survey Sample size
Questionnaire for all Employees : 1,047
Questionnaire only for Managers : 57 |

Effectiveness Review

Qualitative Interview & Focus Group

- More than 80% managers and employees are for the use of JCDA and agree JCDA could enhance Just Culture.

Quantitative Survey

- Compared to 2013, the score of Just Culture in 2019 has improved from "Somewhat Agree" to "Agree".
- Managers' Survey showed three criteria of JCDA are above "Agree" level - Usability, Concurrence, and Fairness.

Likert scale
1: Strongly Disagree
2: Disagree
3: Somewhat Disagree
4: Somewhat Agree
5: Agree
6: Strongly Agree

Radar chart comparing 2013 and 2019 safety culture dimensions: Just, Report, Learn, Inform, Flexible, Mindful (scale 3–6).
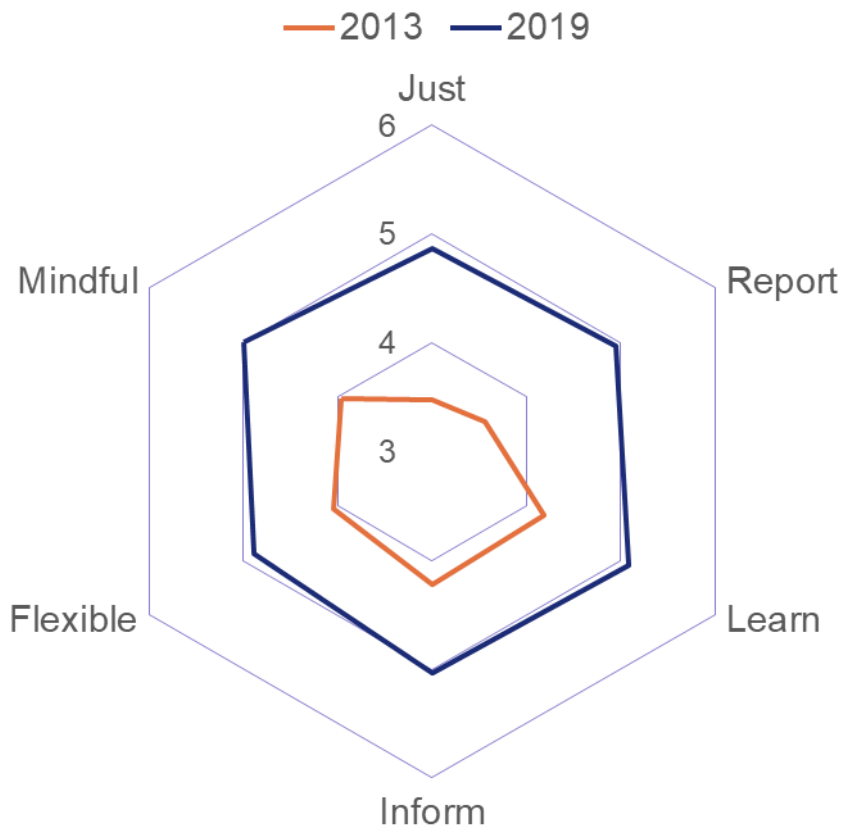
- **Valid Survey Sample size**
  - 2013 : 1,245
  - 2019 : 1,047
- Opinion ranges from 1 ~ 6
- Overall Average of Safety Culture reaches the "Agree" level
- Neutral Level: 3.5

Likert scale
1: Strongly Disagree
2: Disagree
3: Somewhat Disagree
4: Somewhat Agree
5: Agree
6: Strongly Agree

Conclusion – What we achieved

- Solid evidences indicated JCDA works well in CAL after the implementation of 4+ years.
  - *Both managers and employees gave positive feedbacks.*
  - *The status of Safety Culture at 2019 is improved significantly comparing with the survey conducted in 2013.*

Conclusion – What needs to keep doing

- Learning Culutre: Ongoing training and workshops for managers to use JCDA properly.

- Informed Culture: Spreading the promotion of JCDA, especially "positive" cases, to enhance the confidence and the willingness of voluntary reporting of employees.

- Flexible Culture: Evaluate JCDA periodically to improve its Usability, Concurrence, and Fairness

Conclusion – What valuable to take home

Trust & Respect

- The practice of JCDA in CAL demonstrated the prominence to transform safety policy into specific and appropriate procedure.
  - ➢ A success Disciplinary system should be objective and convincible to establish the **trust** in the company.
  - ➢ Just Culture : The line between **acceptable and unacceptable** behavior should be "written in black and white".

Thank you

CONCLUSIONS

What role should the Foundation consider in terms to further the state of understanding, awareness or implementation of the themes of this presentation?

1. Assemble an AeroSafety World article or website media to highlight the usefulness of JDCA in CAL.
2. Convene a group of experts around the world to participate in a tabletop exercise to take the understanding of next steps to a new level.
3. Approach CAL for examining this topic for follow-up and further collaboration.
4. Partner with CAL to construct a workshop for airliners' managers.