



A NEW CDIO-BASED CROSS-CULTURE TRAINING PROGRAM FOR INTERNATIONAL SOFTWARE ENGINEERS

Yingqiu Li, Tao Wen, Lu Yang



Dalian Neusoft Institute of Information
<http://english.neusoft.edu.cn>

5/11/2015

Content

BACK GROUND

1 PROGRAM SOURCE AND CONTENT

2 PROJECT STRUCTURE

3 HOW TO ORGANIZE TO DEVELOP THE PROJECT

4 ASSESSMENT AND EVALUATION

5 CONCLUSIONS



BACK GROUND

CDIO:

The primary goal of the CDIO Initiative is to help schools develop engineers who "able to conceive-design-implement-operate complex value-added engineering systems in a modern team-based environment and are mature and thoughtful individuals".

TOPCARES – started in DNII since 2009

- **T**echnical knowledge and reasoning
- **O**pen minded and innovation
- **P**ersonal and professional skills
- **C**ommunication and teamwork
- **A**ttitude & manner
- **R**esponsibility
- **E**thical values
- **S**ocial contribution by application practice



BACK GROUND

The Cross-culture Training Program for International Software Engineers (since 2010)

**A Development Team = 2 Japanese IT engineers +
2 the fourth-year students**

The following abilities are required to be enhanced by the training program

- Master the popular objective-oriented system analysis and design methods.
- Understand how to conceive-design-implement-operate a complex software system in the context of group work.
- Master management method of software project and use it in the real-world project.
- Communicate effectively in the cross-culture working environment.
- Write and present technology report in English.

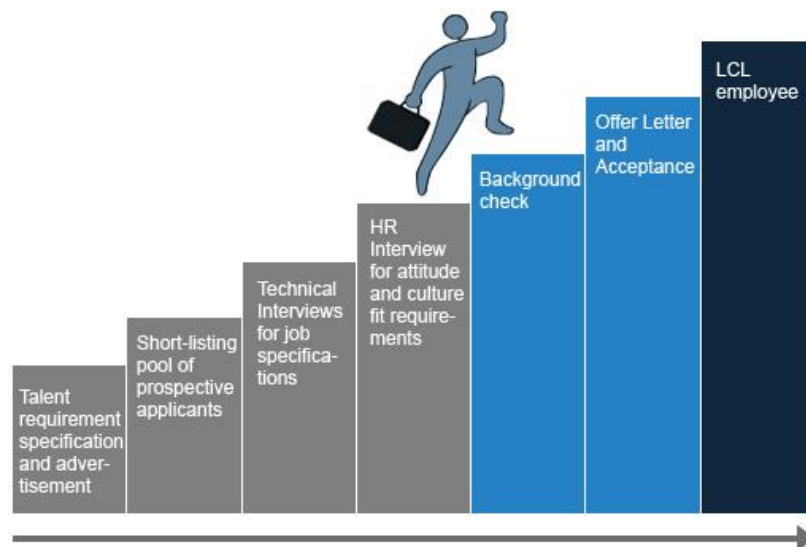


1

PROGRAM SOURCE AND CONTENT

Project : Recruitment management system

- Real customer requirements from outsourcing enterprise
- Direct communication with HR
- Business solution & Information system solution
- Project team with different roles
- Distinctly development process with evaluation for each stage



1

PROGRAM SOURCE AND CONTENT



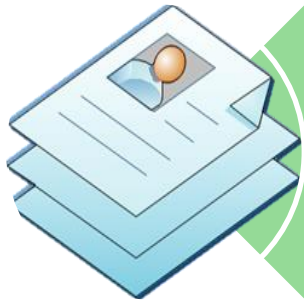
Job Application

- Online application
- CA uploading.



Data Statistics

- Common statements
- Custom statements



Resume processing

- Resume standardization
- Candidate status labels



Personal workbench management

- Recruiting Process
- Work transfer



Recruitment management

- Custom Recruitment Flow
- Candidates state share

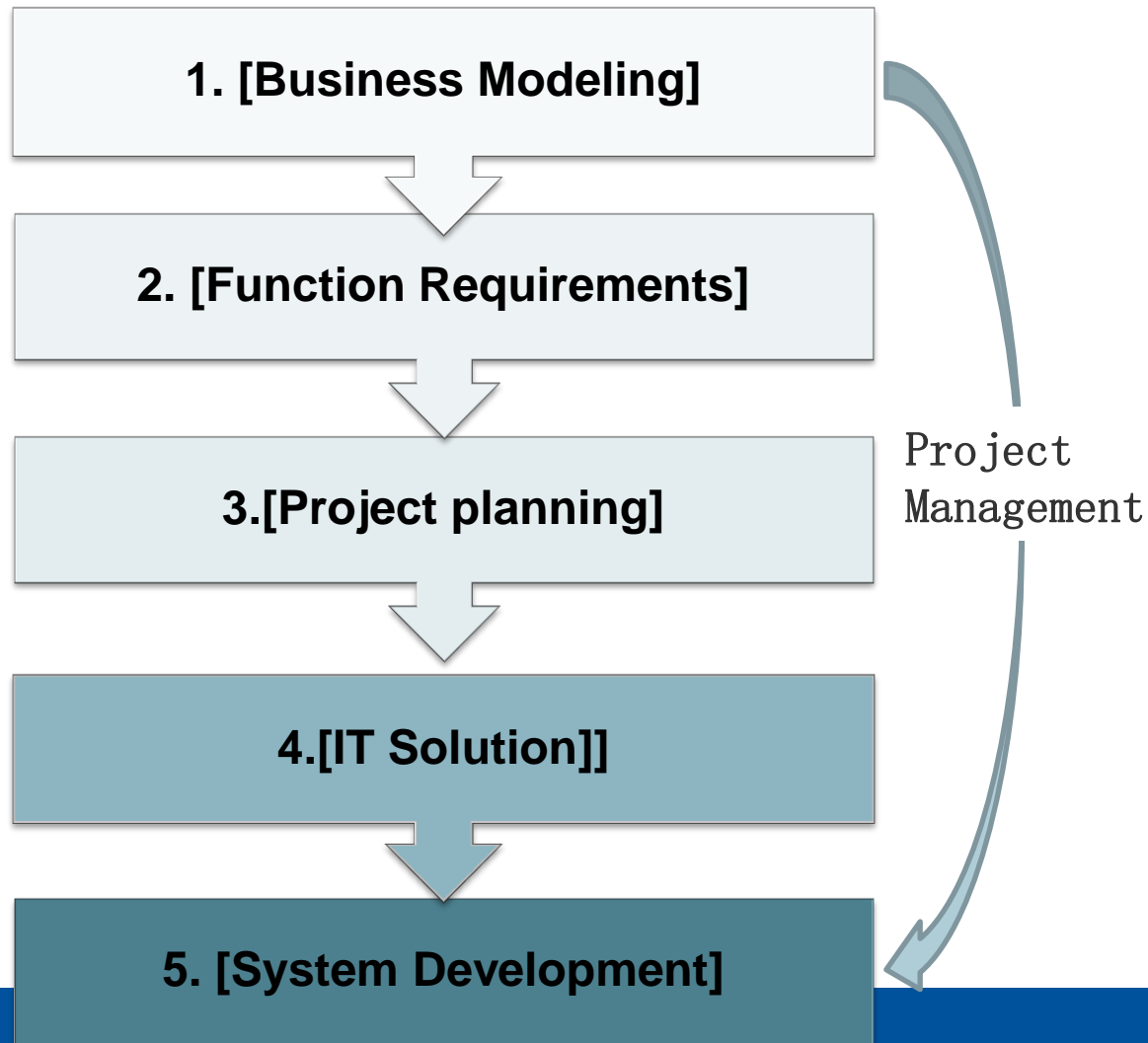


Authentication/ Role Management



1

PROGRAM SOURCE AND CONTENT



2 PROJECT STRUCTURE

Team work-mutual aid and cooperation

- Discussion
- Role play
- Cooperation
- Presentation



2 PROJECT STRUCTURE



Team Leader (TL)

Chief Architect (CA)

Requirement Engineer (RE)

Quality Assurance Manager (QAM)

Configuration Manager (CM)

Test Engineer (TE)

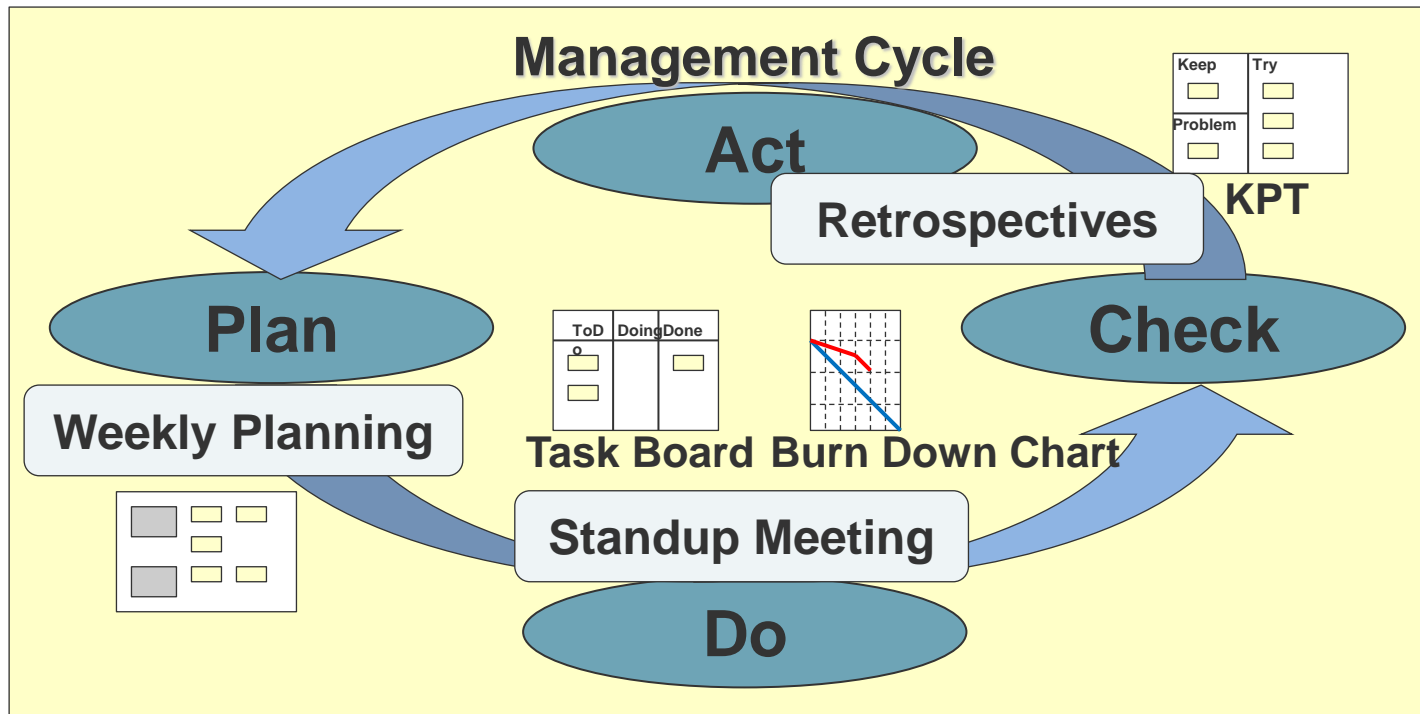


3

HOW TO ORGANIZE TO DEVELOP THE PROJECT

a type of “soft system” proceeding “daily work” in team

- Real customer requirements from outsourcing enterprise
- Tool of “MIERUKA”: Task Board, Burn Down Chart, Timetable, etc. Activity: Weekly Planning, Standup Meeting, Retrospectives, etc.



3

HOW TO ORGANIZE TO DEVELOP THE PROJECT

Task Board: Daily Tasks which have to be done

	To Do	Doing	Done
Mr. A			
Mr. B			
Ms. C			
Mr. D			
Ms. E			
Ms. F			
Ms. G			

Stagnating tasks

Planned tasks have been done. or No more tasks have been planned.



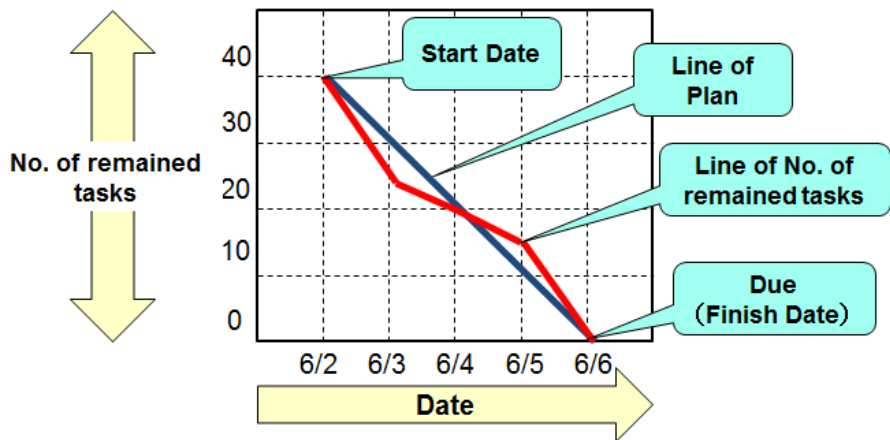


An example of Task Board



3 PROJECT STRUCTURE

Tools : Burn Down Chart, Timetable, WBS, etc.



	Mon.	Tue.	Wed.	Thu.	Fri.
9:00					
9:30	Standup Meeting & Ad Hoc Meeting				
10:00	Weekly Meeting		Regular Meeting with User		
12:00	Lunch				
13:00					Retrospective
15:00		Progress Reporting			Study Session
18:00			Leave Office		

Task Name	Duration	Deliverables	Start
Preparation	1 day		Mon 14/11/17
Project Understanding	2 hrs		Mon 14/11/17
Team building	2 hrs	project charter	Mon 14/11/17
Agile Development learning	2 hrs		Mon 14/11/17
Product	22 days		Tue 14/11/18
Business modeling	1 day	roles, Business process model	Tue 14/11/18
Function modeling	6 days	specification, UI Specification	Wed 14/11/19
usecase diagram	2 days		Wed 14/11/19
usecase specification	3 days		Wed 14/11/19
glossary document	1 day		Mon 14/11/24
conceptual model	1 day		Mon 14/11/24
SRS	3 days		Fri 14/11/21
UISpecification	2 days		Mon 14/11/24
model refine	1 day		Wed 14/11/26
Function modeling complete	0 days		Tue 14/11/25
Architecture design	1 day	System structure	Thu 14/11/27
Data model design	1 day	Data model	Fri 14/11/28
Sprint1	5 days		Mon 14/12/1
Planning	2 hrs	Weekly plan	Mon 14/12/1
Development	4.5 days	Test specification, Bug records	Mon 14/12/1
Review	4 hrs	shippable production increment	Fri 14/12/5



3

HOW TO ORGANIZE TO DEVELOP THE PROJECT

Weekly Planning: To share goal and tasks to do by all team members

- ✓ objective
 - to share “Task Goal” and tasks, and check tasks to do
- ✓ explanation
 - to specify “Task Goal” (what should achieve) and tasks to do (what and how should do to achieve the “Task Goal”) as “Task” at the beginning of team’s Management Cycle (usually 1 week)
 - to take 2 to 3 hours for the Weekly Planning



3

HOW TO ORGANIZE TO DEVELOP THE PROJECT

Standup Meeting: to check tasks of the day by all team members

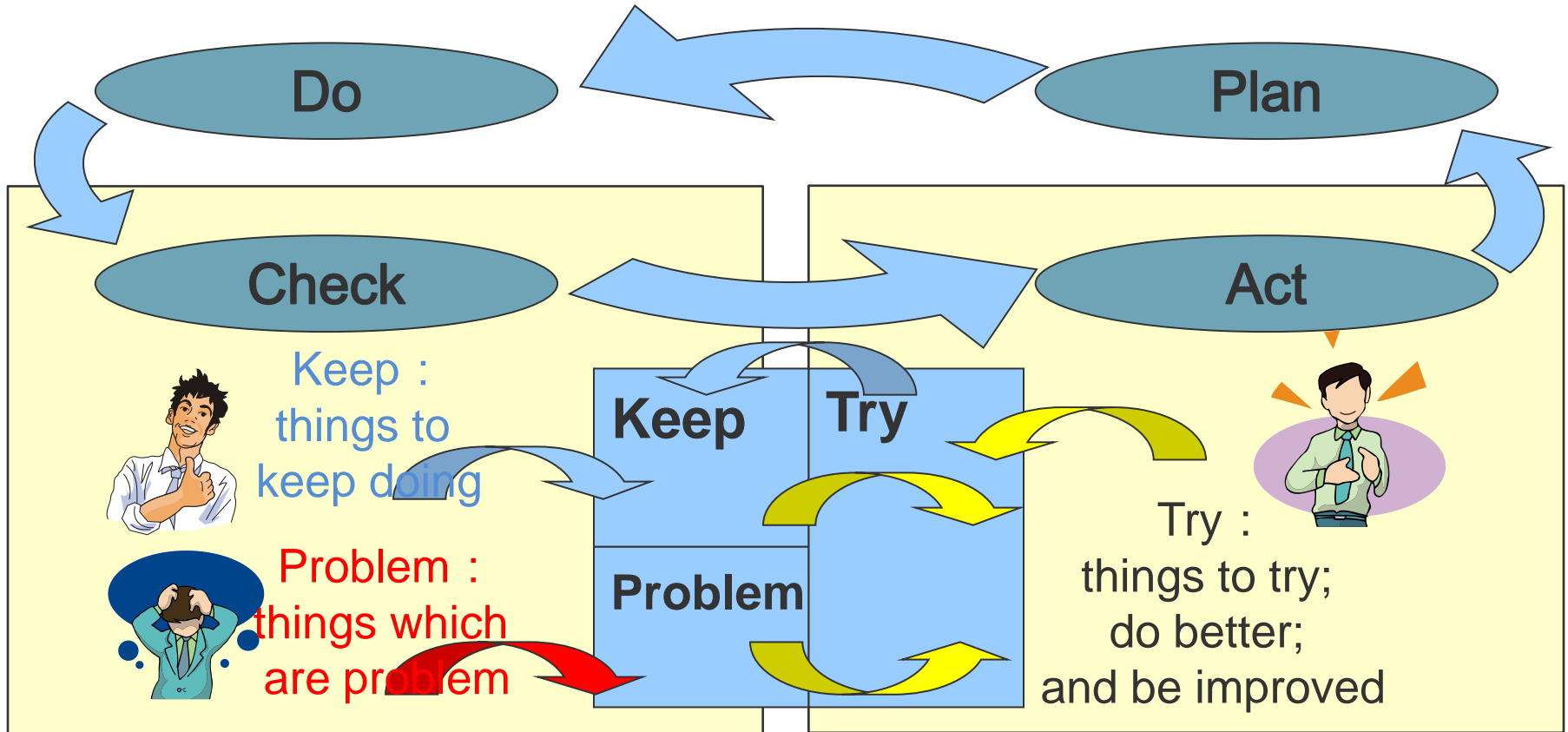
- ✓ objective
 - to check to proceed tasks without any problems
- ✓ explanation
 - To conduct at the beginning of work in the morning is important!
 - to report “tasks of the day”, “tasks done yesterday” and “problems” by all team members in front of the tool of “MIERUKA” such as Task Board



3

HOW TO ORGANIZE TO DEVELOP THE PROJECT

Retrospective : to check tasks of the day by all team members



Individual Evaluation : self-evaluation and TL evaluation

- ✓ Taking Responsibility(30%)
- ✓ Problem Solving/Creativity(30%)
- ✓ Collaboration/Teamwork(20%)
- ✓ Communication/Interpersonal Skills(20%)

ASSESSMENT

Team evaluation

- ✓ Quality of the oral presentation(20%)
- ✓ Quality of time management(10%)
- ✓ Documents (20%)
- ✓ Quality of phase work (30%)
- ✓ Management(20%)



A survey on the improvement of system analysis & design ability and project management ability of trainees.

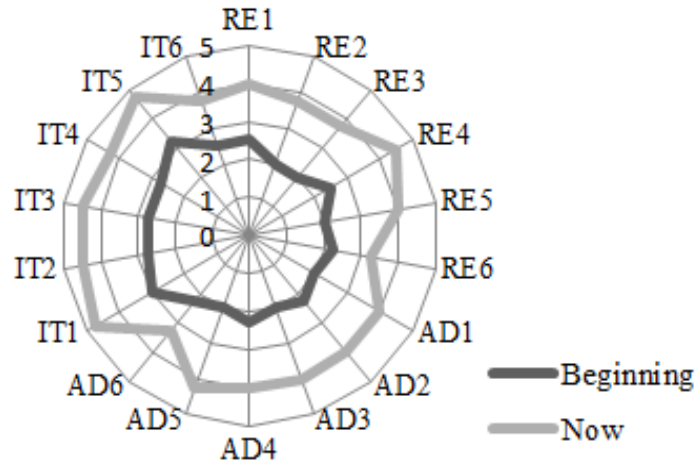


Figure 6. Evaluation of Analysis & Design

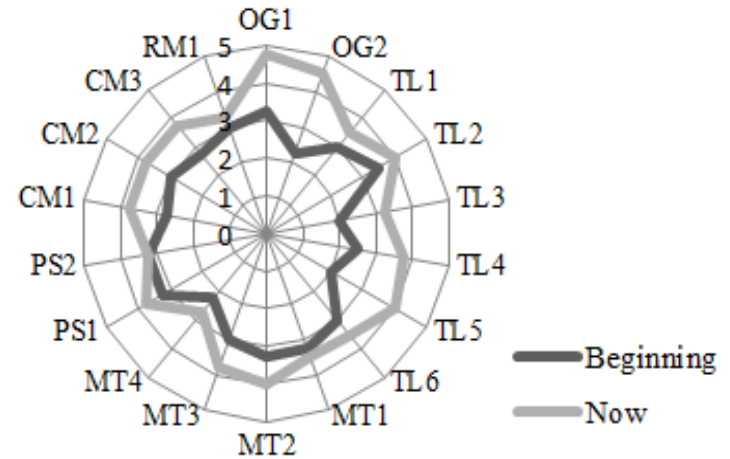


Figure 7. Evaluation of Management



Practices show that students' ability in project management and soft skills have been improved dramatically. As a result, they can achieve the expected results.

The success of the program attributes to :

- the well designed training content and the implementation process based on the CDIO Initiative
- the organization of the development process
 - ✓ PDCA cycles built in the process
 - ✓ efficient team facilitation skills, such as activities and tools of “MIERUKA”
- excellent instructors



Thank you !

