

# Industry Engagement in TVET and Japanese Cooperation in Vietnam: The Case of Hanoi University of Industry

**Junichi Mori**

16 January 2024

AUDA-NEPAD and JICA Ogata Research Institute  
Webinar



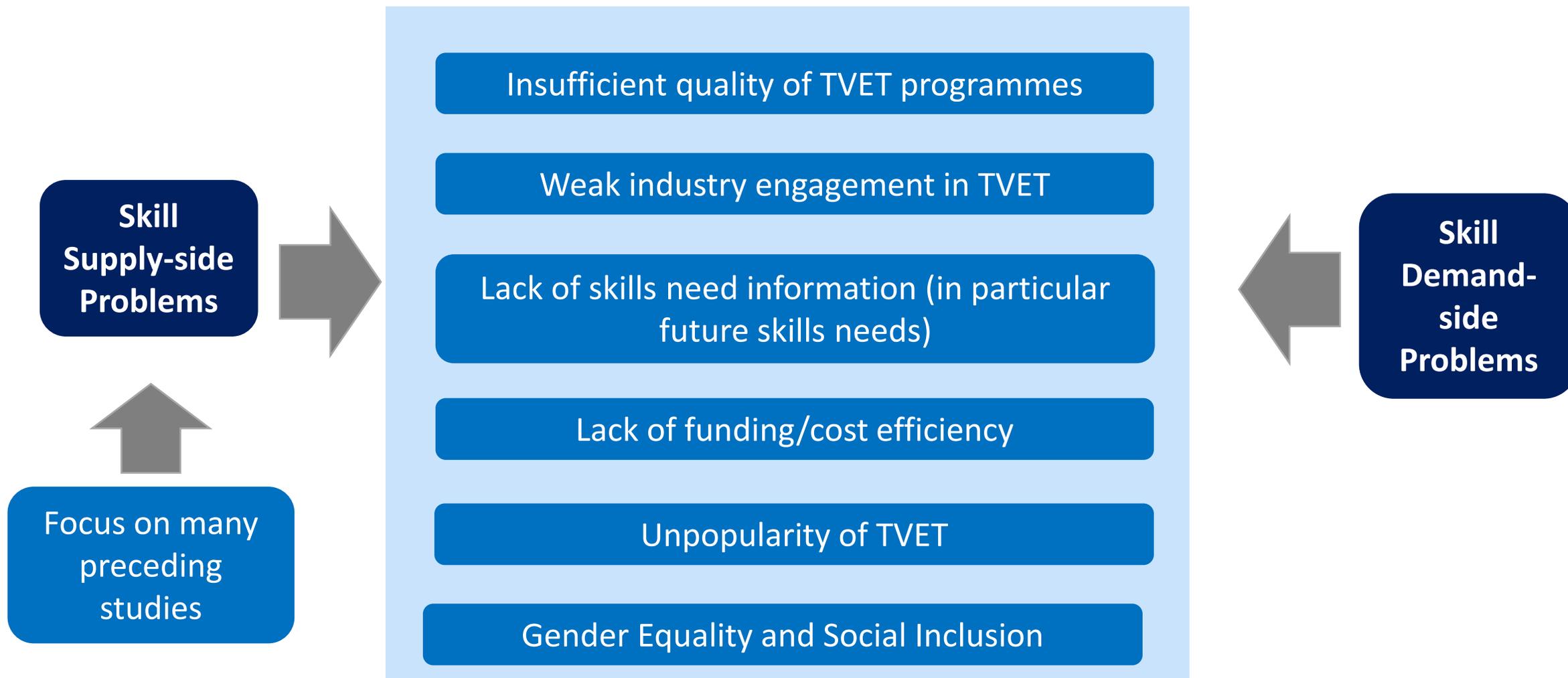
# Agenda

1. Common Challenges for Technical and Vocational Education and Training (TVET) and Policy Trend
2. Overview of Industry Engagement in TVET in Vietnam
3. JICA Support to Hanoi University of Industry (HaUI)
4. Progress After the HaUI-JICA Project
5. Challenges in Disseminating the HaUI Model
6. Concluding Remarks

# Common Challenges for Skills Development / Technical and Vocational Education and Training (TVET) and Policy Trend



# Common Challenges for Skills Development/Technical and Vocational Education and Training (TVET)



# Key trends in skills and TVET strategies

Lifelong learning ([see ILO 2023](#)).

Quality apprenticeship / work-based learning (see [ILO R208](#) adopted in 2023).

Promotion of gender quality and social inclusion.

Flexible training and certification models (e.g. micro-credentials, recognition of prior learning) for workers and TVET instructors.

Sectoral approaches to skills development towards integrated skills policies and enhanced industry engagement in TVET.

Local approaches to skills development to cope with diverse skills needs

Digital talent development and Digitalisation of TVET.

Engagement of workers for better understanding of skills needs and upskilling.

# Overview of Industry Engagement in TVET in Vietnam



# Direction of Current Skills Policies

## Basic direction of technical and vocational education and training (TVET) reform

- The improvement of labour market information system.
- Promotion of employer training initiatives.
- Improvement of education and training programs in accordance with employer skill needs.
- Attempt to import models developed in advanced countries (e.g. curricula, sector skills councils, competency-based skill evaluation).
- As many developing countries are doing, Vietnam is adopting measures to develop an **employer-led skill formation system**, which is created primarily in developed countries and promoted as international best practice by those countries as a part of the supply-side approach.

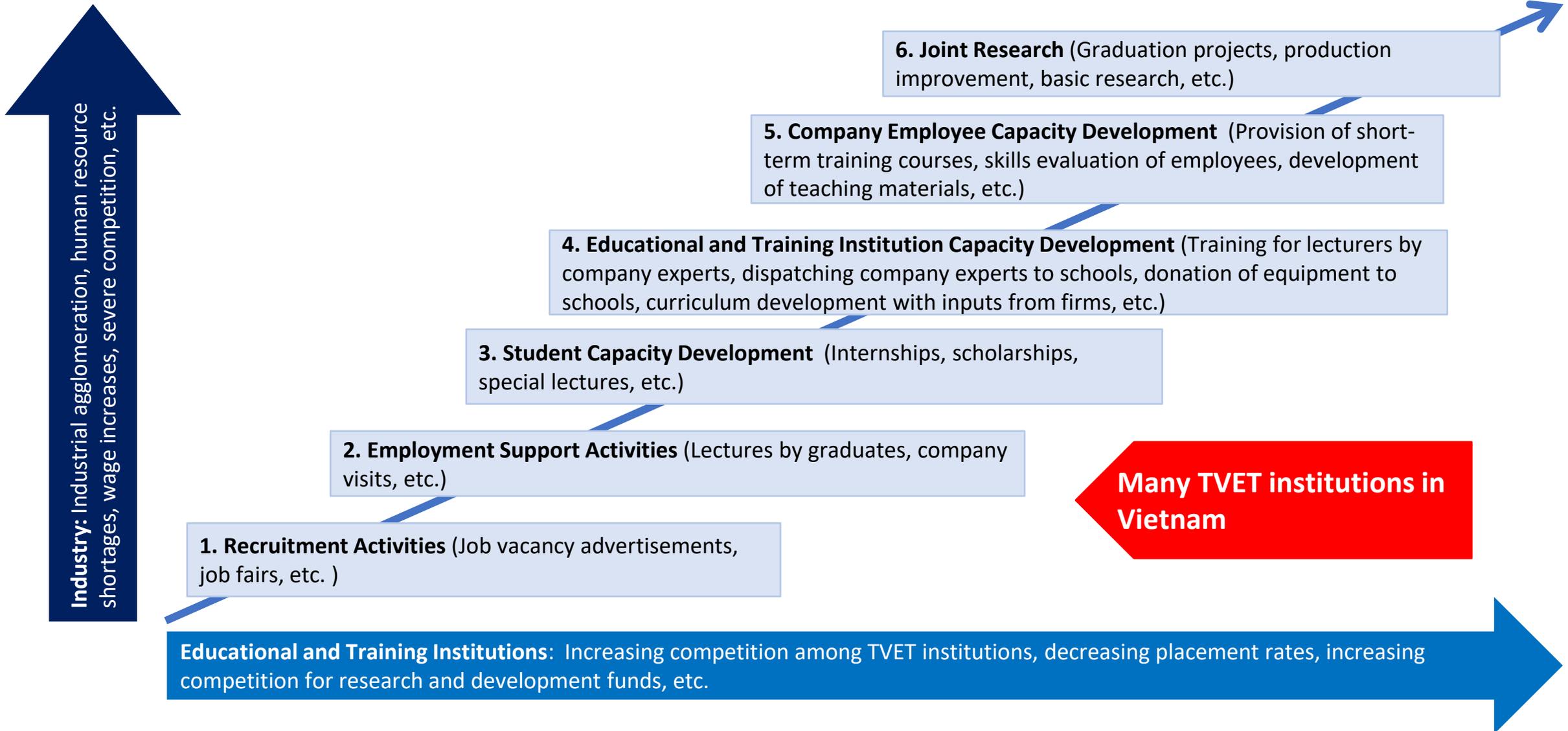
## Few policies effectively intervene in the demand-side

- The government has issued various industrial policies, but they are often said to be ineffective.
- Skills and industrial policies are not sufficiently integrated (e.g. growth drivers and skills needs).

# Challenges for Industry Engagement in Vietnam's TVET Systems

- Despite various policies aiming to promote industry engagement, policymakers and educators struggle to involve firms in improving education and training programs.
- Most cooperation activities between TVET institutions and firms tend to be limited to recruitment and unsystematic employment-related activities, such as job fairs and unstructured internships.

# Challenges for Industry Engagement



## Challenges for Industry Engagement (Contd.)

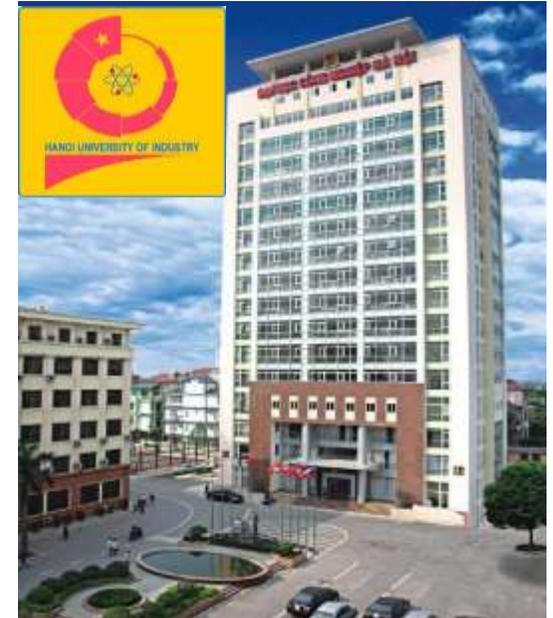
- The standard measures of the employer-led skill formation system often focus on the general improvement of regulatory framework and business environments.
- In order to make the system work and deliver the required results, it is also necessary to develop **the capacity of respective TVET institutions** to enhance industry engagement.
- Therefore, **the approach to improving the ‘framework’ of the TVET system needs to be complemented by an approach to enhancing ‘ingredients,’ such as key institutions, of the system** (Ohno 2013; Yanagihara 1998).

# JICA Support to Hanoi University of Industry (HaUI)



# Overview of Hanoi University of Industry (HaUI)

- HaUI, which belongs to the Ministry of Industry and Trade, has a history of over 110 year since 1898. It was originally established based on Hanoi Vocational School and Hai Phong Vocational School, and promoted to a college in 1999 and a university in 2005.
- HaUI has 2 campuses in Hanoi (each 5ha) and 1 in Ha Nam Province (38.5ha). As of 2012, HaUI has about 55,000 students, of which over 30,000 students of university and professional college courses, and provides about 10,000 – 15,000 high quality graduates every year. It has about 1,400 lecturers and 300 staff.
- **HaUI provides both higher education and TVET courses.**



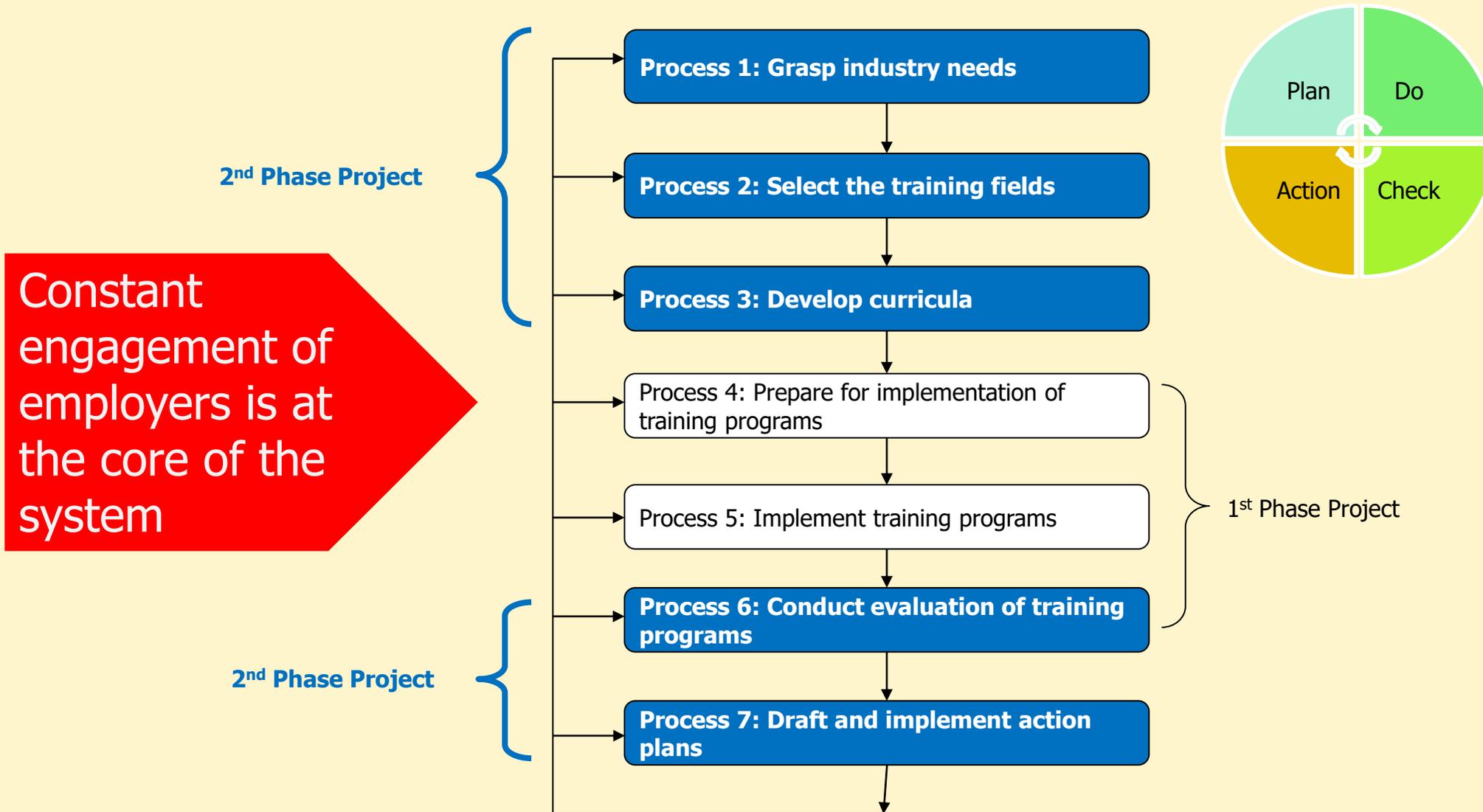
## 2<sup>nd</sup> Technical Assistance Project Between JICA and HaUI

# The Project for Human Resource Development of Technicians at the Hanoi University of Industry (HaUI-JICA Project) (2010-2013)

- **Objective:** To assist HaUI to develop the management system to upgrade its training and educational programs based on industry needs.
- **Input:** Long-term and short-term experts; training equipment such as tools for machinery maintenances, parts for simulators, machining centers, etc.
- **Outputs:**
  1. Development of the **training process management system** to implement courses and curriculum based on industry needs.
  2. Implementation of pilot skill tests.
  3. Development of the employment support system.



# HaUI has developed training process management system with two JICA projects



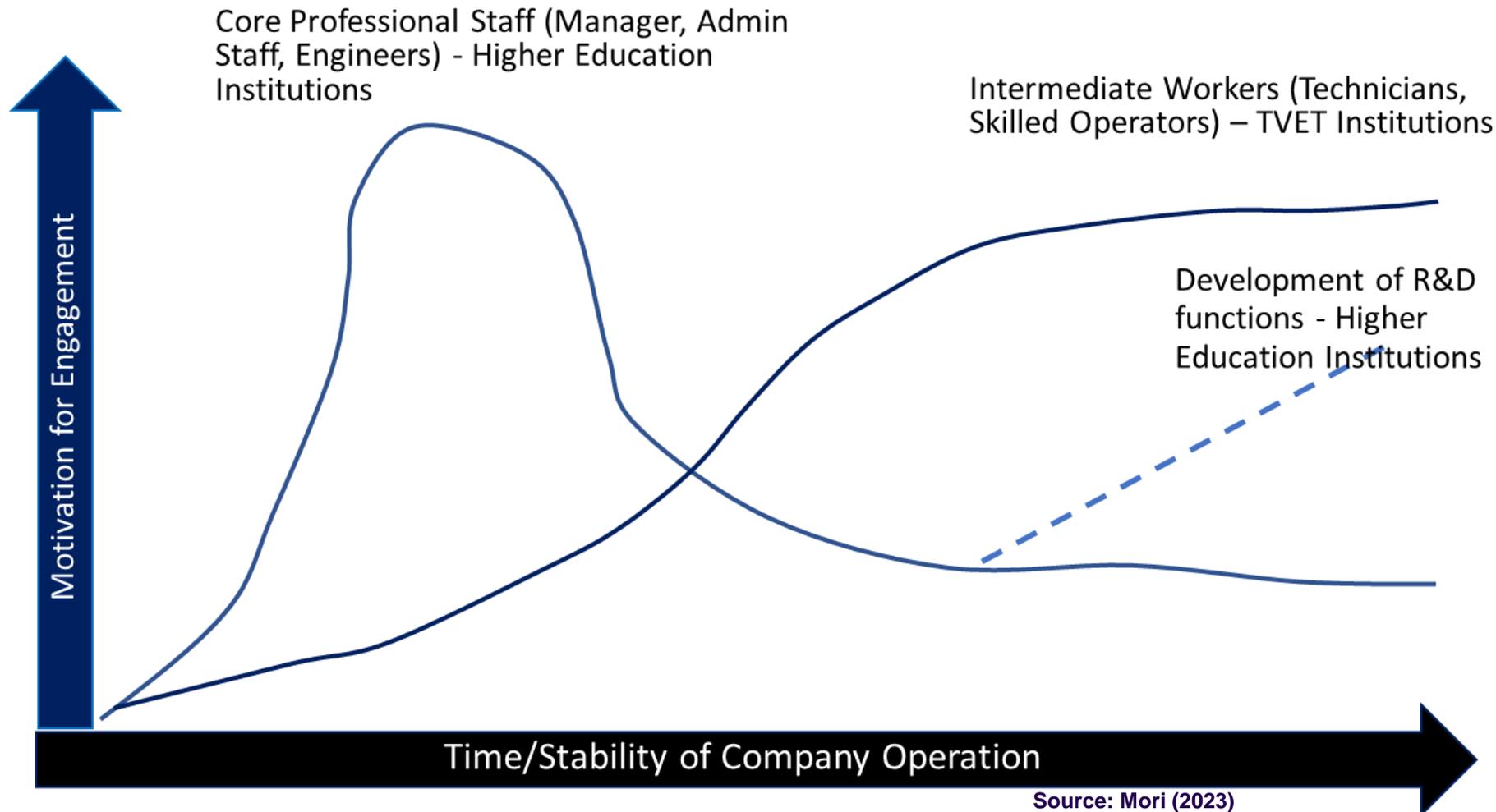
# Industry Skill Needs Survey

- Visited 97 enterprises in 2010, 68 in 2011, and 68 in 2012.
- In particular, conducted the intensive survey on evaluation of HaUI graduates for 32 enterprises in 2010. Analyzing their needs, HaUI developed action plans. Most of our completed or on-going activities are based on those action plans.
- In 2012, HaUI has taken the full initiative to conduct another industry needs survey.



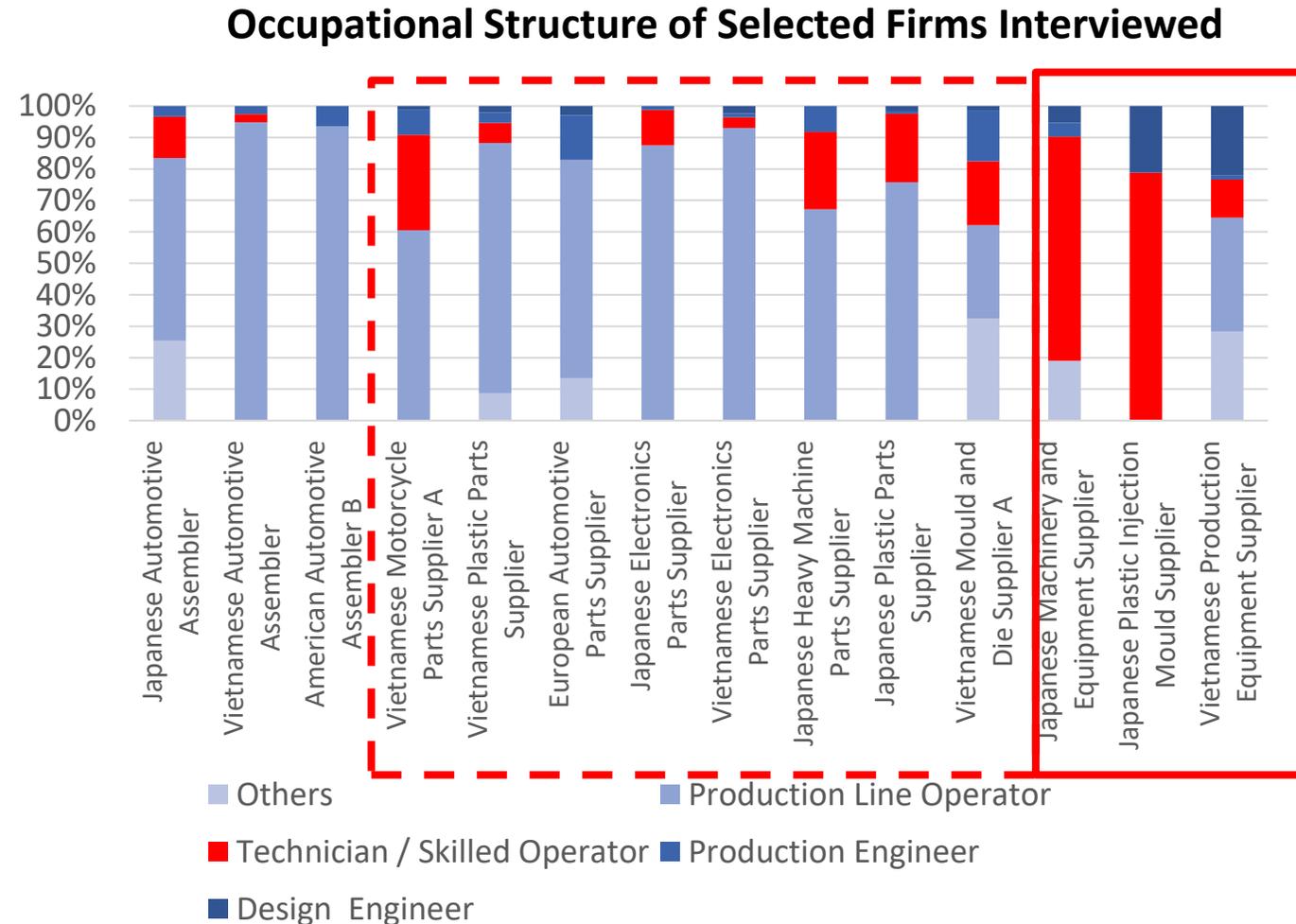
# Understanding when companies are likely to be interested in cooperating with HaUI.

## Transition of Firms' Motivation to Engage Education and Training Institutions – Timing matters



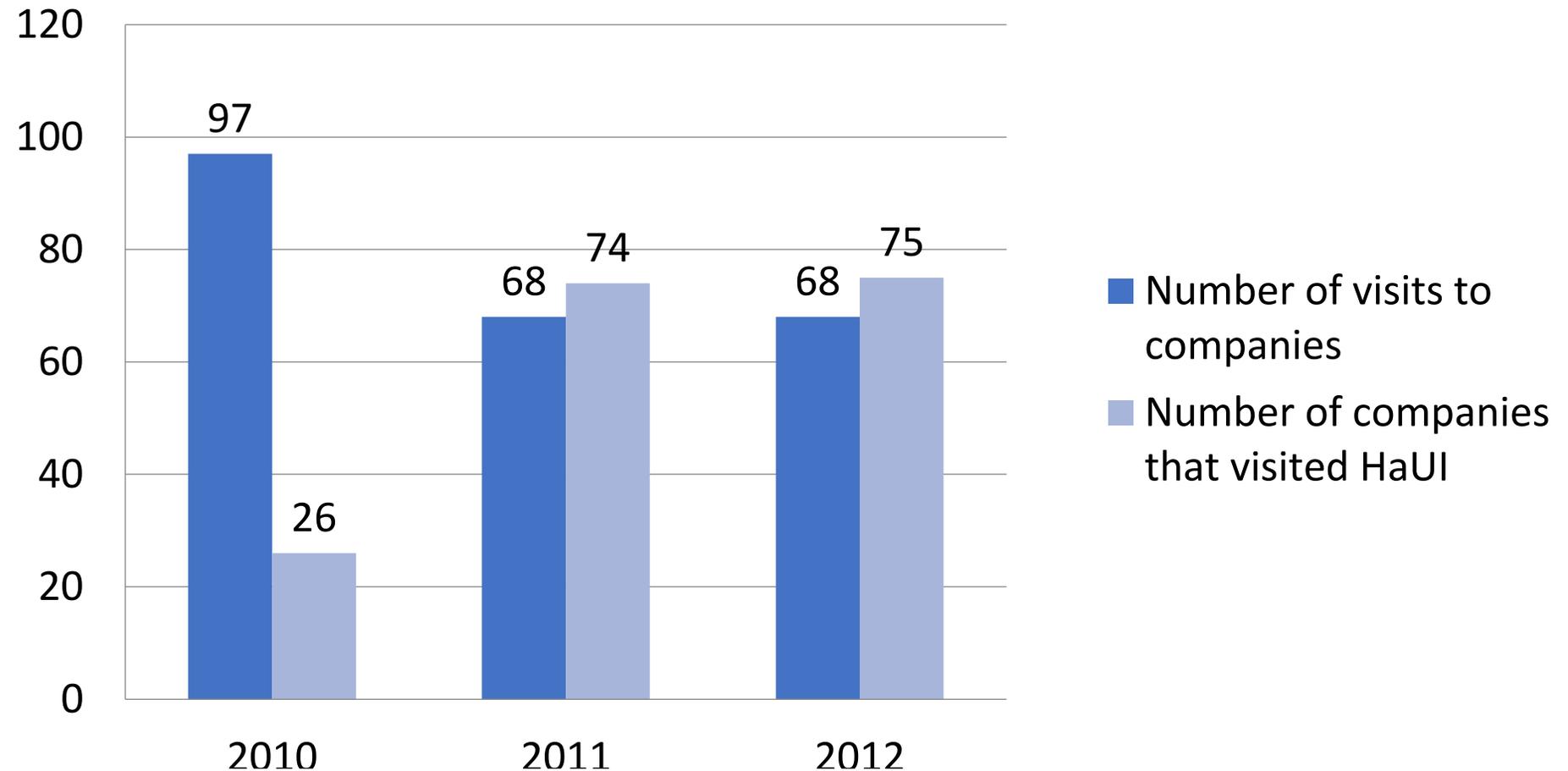
# Understanding what types of companies are likely to be interested in cooperating with HaUI

- Suppliers, especially those producing small-lot goods in non-routine process pay higher attention to intermediate workers than assemblers (Mori 2021).



# Development of Two-Way Interaction

- HaUI visited many companies, while they also started visiting HaUI.



# Institutional mechanism

- The first step was the promotion of **information sharing** on inquiries from industry across faculties and centers.
- HaUI established an **Industry Partnership Board** under the Training Department in 2012.
- After the completion of the HaUI-JICA Project, HaUI established the **Center for Enterprise Partnership (CPA)** in 2014,
  - The CPA played an important coordination role in the subsequent JICA project, the Project for Strengthening Training of Trainers (TOT) Functions at Hanoi University of Industry (the HaUI-JICA Phase III Project), launched in June 2013.
  - This project aimed to transfer HaUI's knowledge and experience acquired through the previous two projects to other TVET institutions, focusing on the fields of machining, electric control, and electronics (Vu et al. 2017).

## Confidence with the Accumulation of Small Success

- Small successes of daily operations, **starting from the acceptance of meeting appointments and positive feedback on internships or short-term training courses**, gave HaUI staff confidence to deal with more firms.
- In the process of creating a chain of small successes, HaUI has been simultaneously developing the capacity required for engagement.
  - Interviewed HaUI staff stated that they were able to achieve these small successes, taking advantage of the hands-on development cooperation provided by JICA, which basically supports **'learning by doing'**.

# Progress After the HaUI-JICA Project



## Changes after the HaUI-JICA Project

Status of Employer Engagement Activities			
Step*	No	Item	Status
1	1	Recruitment Coordination	Maintained
	2	Job Fair	Scaling-up
2	3	Company Study Tour	Maintained
	4	Employment Situation Suvey	Maintained
3	5	Internship	Maintained
	6	Sending Univ. Students to Japan	New
4	7	In-Company Training for Lecturers	Discontinued
	8	Company Visit	Declining
	9	Curriculum Improvement	No significant results
5	10	Short-Term Training Courses for Company Employees	Scaling-up
	11	National Skills Tests	Scaling-up
6	12	Joint Research	Not much progress

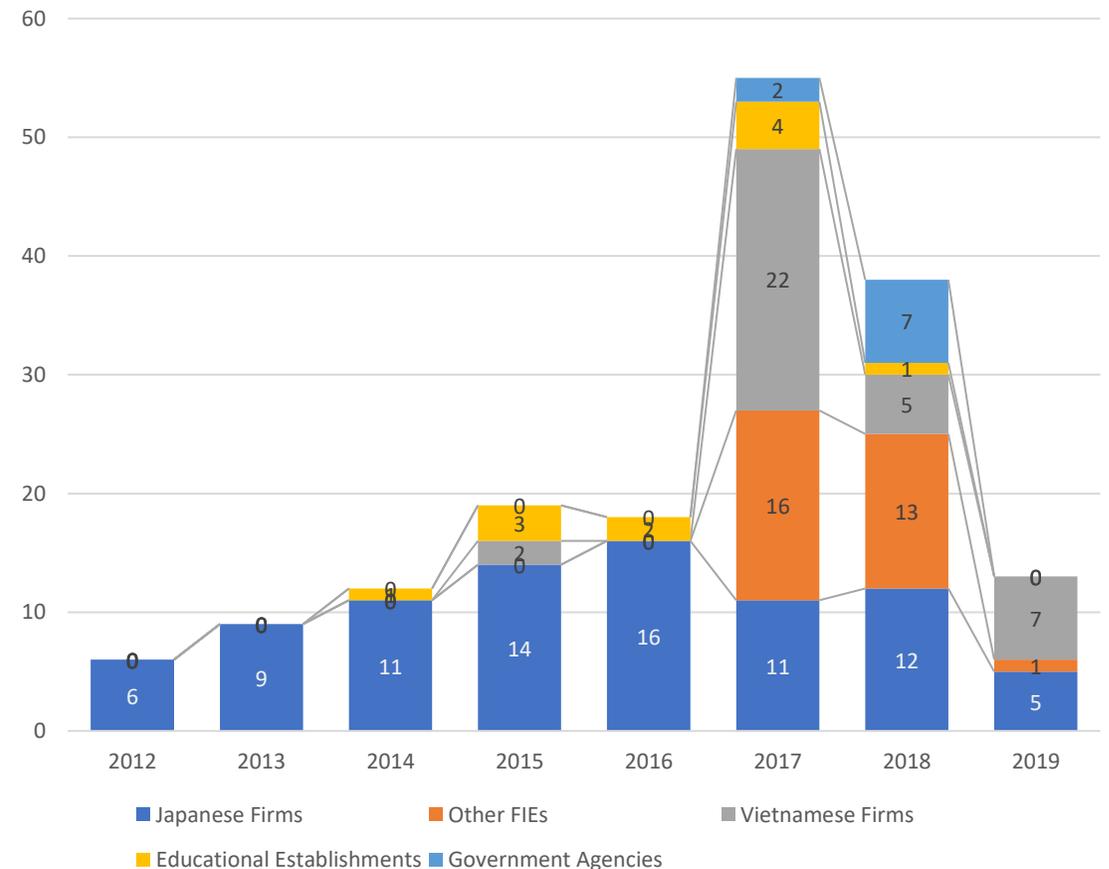
## Case of Adaptation 1: Learning Industry Skills Needs through Partnership Activities

- Instead of industry skills needs surveys, some HaUI staff are trying to collect skill needs information **through partnership activities with firms, such as internships or networking with alumni.**
- HaUI apparently does not continue to visit as many companies as it did during the HaUI-JICA Project, although many companies appear to keep visiting HaUI instead.
  - They consider it more effective to directly collect industry skills needs information and update curricula periodically than to organize job and task analysis workshops, which they have difficulty convincing experts from companies to join.

# Short-term courses as another option to learn industry skills needs

- HaUI has been providing an increasing number of short-term training courses customized for client firms and other organizations (Step 5 of the figure in p.9).
- The formulation and implementation of short-term training courses for firms also provide HaUI with a great opportunity to learn industry skills needs, including up-to-date technologies and challenges.
- HaUI has found **new clients, such as non-Japanese foreign-invested enterprises (FIEs).**

HaUI's Short-Term Training Courses (by Type of Client)



## Case of Adaptation 2: Institutionalizing Industry Engagement

- In order to expand industry engagement activities, HaUI has **strengthened the CPA's capacity** by assigning 12 full-time staff.
- HaUI has been strengthening the **coordination mechanism between the CPA and faculties**.
  - Even after the establishment of the CPA, faculties continue to directly receive inquiries from some firms. Thus, the top management of HaUI issues **internal rules and policies that recognize the CPA as a focal point for industry engagement and require all faculties and centers to cooperate with the CPA**.
  - Some faculties have **recognized the benefit of sharing the information with the CPA**, which consolidates and analyzes the information.
- HaUI is still **in the process of improving the institutional mechanism** for industry engagement.
  - For instance, while the CPA is expanding its role internally, it has not yet started playing a significant role in involving industry partners in improving curricula of regular and long-term training courses.

# Challenges in Disseminating the HaUI Model

- Although HaUI has become increasingly recognized as a good partner by industry, it has made limited progress in disseminating its industry engagement system, or the HaUI model, to other TVET institutions in Vietnam.
  - HaUI has been disseminating other results of the HaUI-JICA Project, such as the national skill tests on basic machining center operation and 5S, which is based on the Japanese production management system (also see JILPT 2019; Mori 2013).
  - However, its industry engagement practice has not been systematically disseminated as much as these activities.
- Possible reasons
  - Difference in Capacity with Other TVET Institutions
    - The ability to coordinate industry engagement but also the technical ability and the hard infrastructure.
  - Lack of Government Support
    - Insufficient inter-ministerial coordination
    - It would be too late to approach the government when the model has already been adopted or developed. Simply, they would consider it another organization's model.

## Concluding Remarks

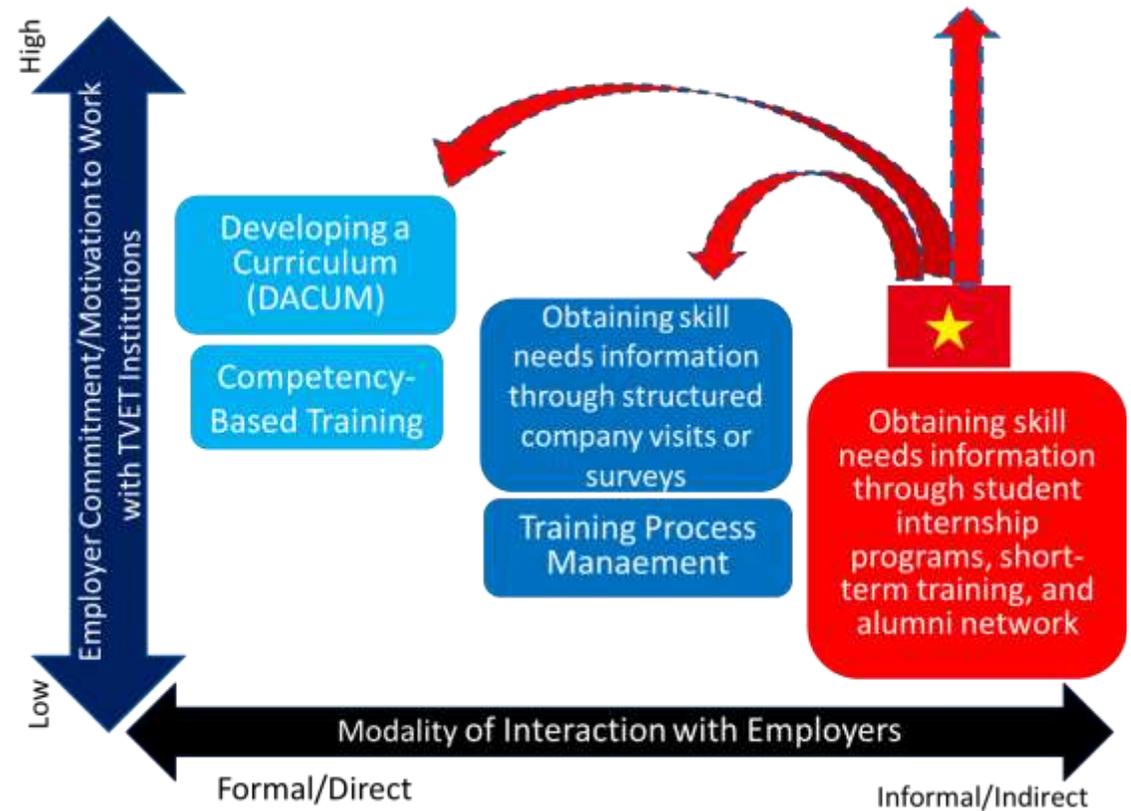
- **HaUI selected the Japanese training process management system** for the improvement of TVET programs and has been attempting to localize it, taking into account their current capacities and the extent of support they receive from industry.
- Even after the completion of the HaUI-JICA Project, HaUI has **continued to customize the Japanese model** with confidence enhanced by capacity building and pragmatism.
  - The accumulation of small successes, which HaUI achieved with hands-on assistance from JICA, increased their confidence.
- They **enhanced 'ingredients' of industry engagement and then started developing an institutional 'framework.'**
- On the other hand, HaUI has not been able to widely disseminate their model due to lack of government recognition and support, which is attributed to weak involvement of government during the early stage of project activities.

## HaUI initiatives supported by pragmatism and persistence, including continuous self-learning

- Their pragmatism means that in developing countries, **implementing solutions suitable for each development stage** is required, rather than trying to implement unfeasible international best practices (Ishikawa 1998).
- Their persistence with continuous learning implies that their industry engagement system has not yet reached a complete form and is still in a dynamic process of development.

# Translative adaptation as dynamic process

- It is predicted that HaUI will continue to adapt the current model. There are **various possibilities** for the future transformation of HaUI's industry engagement system.
- In short, translative adaptation is not a static but dynamic process, as far as the recipients of foreign models keep developing their absorptive capacity through learning by doing processes and maintaining a sense of strong ownership.





# Thank you

---

Thank you for listening! Your questions are welcome!

Full chapter with the list of references are available at:

[https://link.springer.com/chapter/10.1007/978-981-99-4238-1\\_6#citeas](https://link.springer.com/chapter/10.1007/978-981-99-4238-1_6#citeas)

**Junichi Mori**

junmori0707@gmail.com

## References for further reading

- ILO. 2023. *The ILO strategy on skills and lifelong learning 2030*. Geneva: International Labour Organization (ILO).
- ILO. 2023. R208 - Quality Apprenticeships Recommendation, 2023 edited by International Labour Organization (ILO). Geneva: International Labour Organization (ILO).
- Mori, Junichi. 2019. "Dynamic Skill Formation in Vietnam: Beyond a 'Skill Mismatch' Paradigm." Doctor of Philosophy, School of Social Sciences, Cardiff University.
- Mori, Junichi. 2021. "Revisiting employer perceptions of skill mismatch: the case of the machine manufacturing industry in Vietnam." *Journal of Education and Work* 34 (2):199-216. doi: 10.1080/13639080.2021.1897547.
- Mori, Junichi, and Dean Stroud. 2022. "Education, Vocational Training, and Labor Markets in Vietnam: Mutual Distrust and the Supply-Side Approach." In *International Handbook on Education Development in Asia-Pacific*, edited by Wing On Lee, Phillip Brown, A. Lin Goodwin and Andy Green, 1-25. Singapore: Springer Nature Singapore.

# Annex

- Presentation on the overview of the HaUI-JICA project.



The Project for Human Resource Development of  
Technicians at Hanoi University of Industry  
HaUI-JICA Project for Industrial Human Resource Development



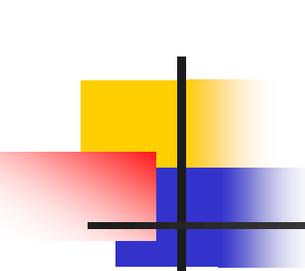
# Development of High Skilled Industrial Human Resources in Partnerships with Enterprises



Junichi Mori

Industry-University Partnership Expert

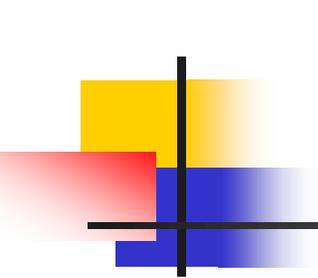
January 2013



# Who am I

---

- **1996-2002:** Worked for AIWA Co., Ltd., including four-and-half years in AIWA Malaysia as Manager of FG/SFG Logistics Dept.
- **2004-2006:** Worked as a researcher of the National Graduate Institute of Policy Studies (GRIPS) / Vietnam Development Forum
- **2006-2010:** Worked as Industrial Development Officer of United Nations Industrial Development Organization (UNIDO) Vietnam Office
- **2010-2013:** Industry-Partnership Expert, the HaUI-JICA Project for Industrial Human Resource Development.



# Today's Agenda

---

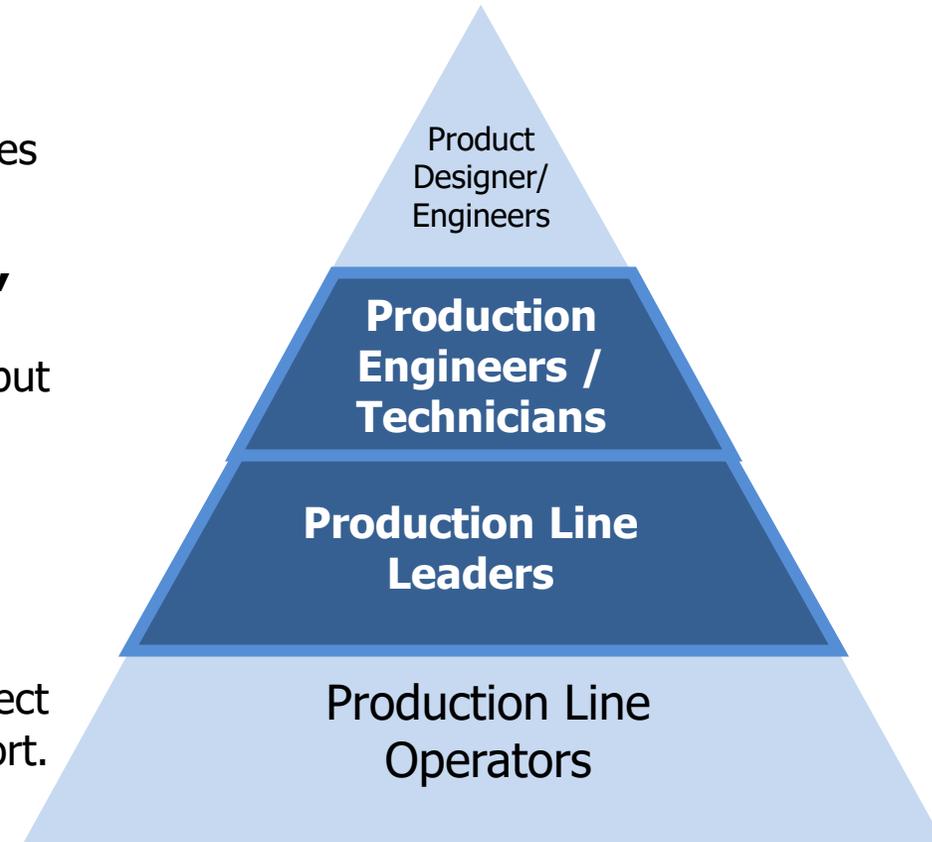
- Overview of Demand and Supply of Industrial Human Resources in Vietnam.
- Overview of HaUI-JICA Project for Industrial Human Resource Development
- Good Practices of Partnerships with Enterprises
- Proposals for Further Development of Partnerships between TVET Institutions and Industry.

# Overview of Demand and Supply of Industrial Human Resources



# Demand and Supply of Industrial Human Resources

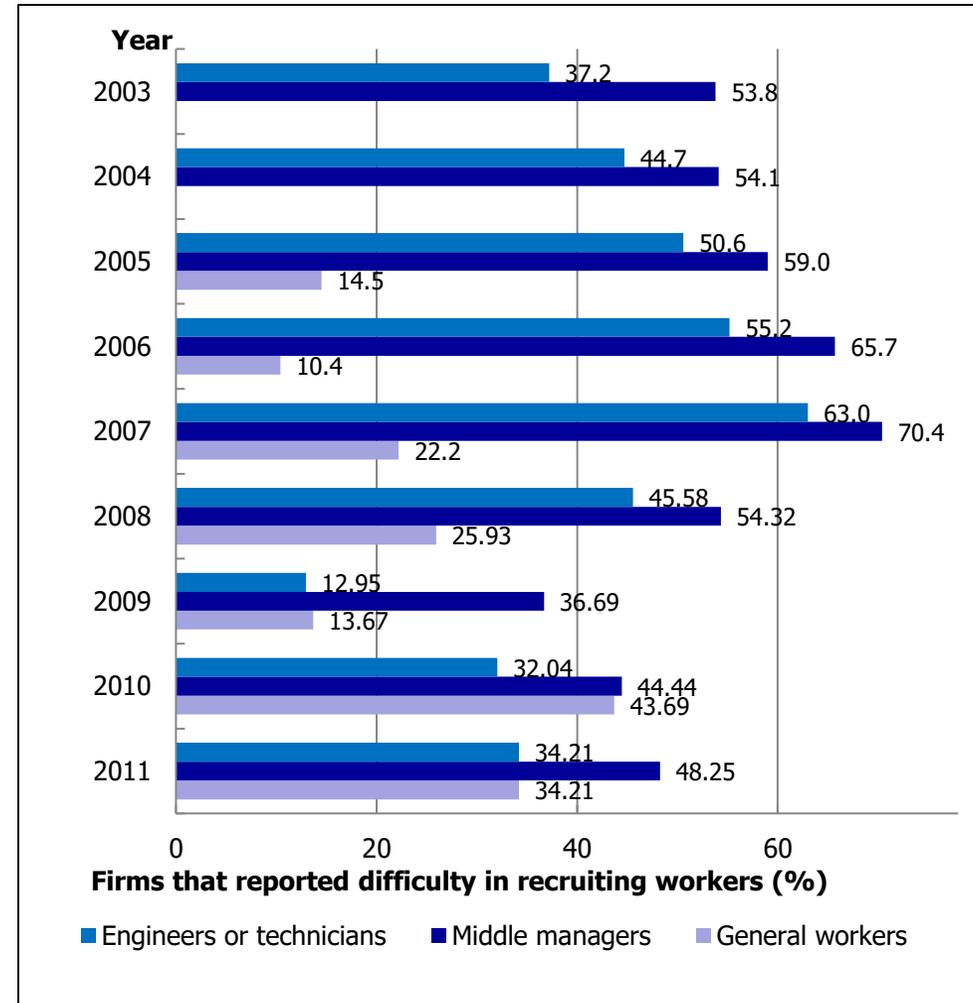
- **Product Designers / Engineers:**  
Demand is gradually increasing but not so large, while the supply of university graduates may exceed the demand.
- **Production Engineers, Technicians, Production Line Leaders:** Demand is increasing as industrialization goes further, but the supply is not sufficient. The vocational training courses, primary sources of technicians, seem to become less popular among high school students.
- **Production Line Operators:** Demand becomes higher as foreign and domestic direct investment increase, but the supply is in short. It is getting difficult to secure the sufficient volume.



Vietnam has high potential to supply high quality industrial human resources , but the increasing gap between demand and supply is concerned.

# Demand of Industrial Human Resources: Views of Japanese Enterprises

- In general Japanese enterprises may feel the supply of human resources was slightly improved, but still difficult to find middle managers and more difficult to find workers (probably including technicians).
- In the 2011 survey, 83.3% of respondents replied that the rapid increase of wage is a big challenge.
- Job hopping is increasing.



Source: JETRO (2004-2012) "Japanese affiliated manufacturers in Asia".

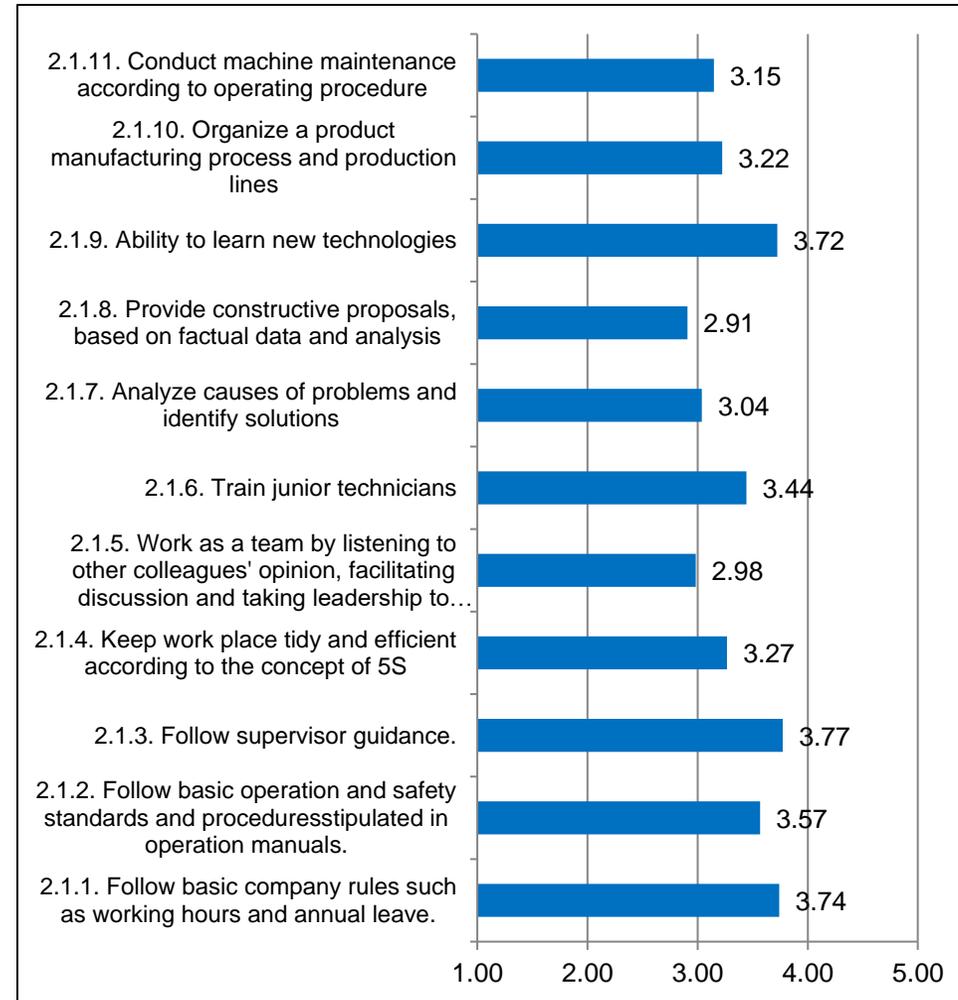
# Industry's Perception of HaUI graduates: Work Behavior and Work Place Ability

## ■ Strength

- Follow basic company rules and supervisor's advice.
- Can quickly absorb new technologies.

## ■ Weakness

- Insufficient teamwork ability and leadership.
- Insufficient ability of problem solving.
- Insufficient ability of 5S implementation.
- Insufficient ability on reporting and consultation skills.



HaUI-JICA Project (2012)

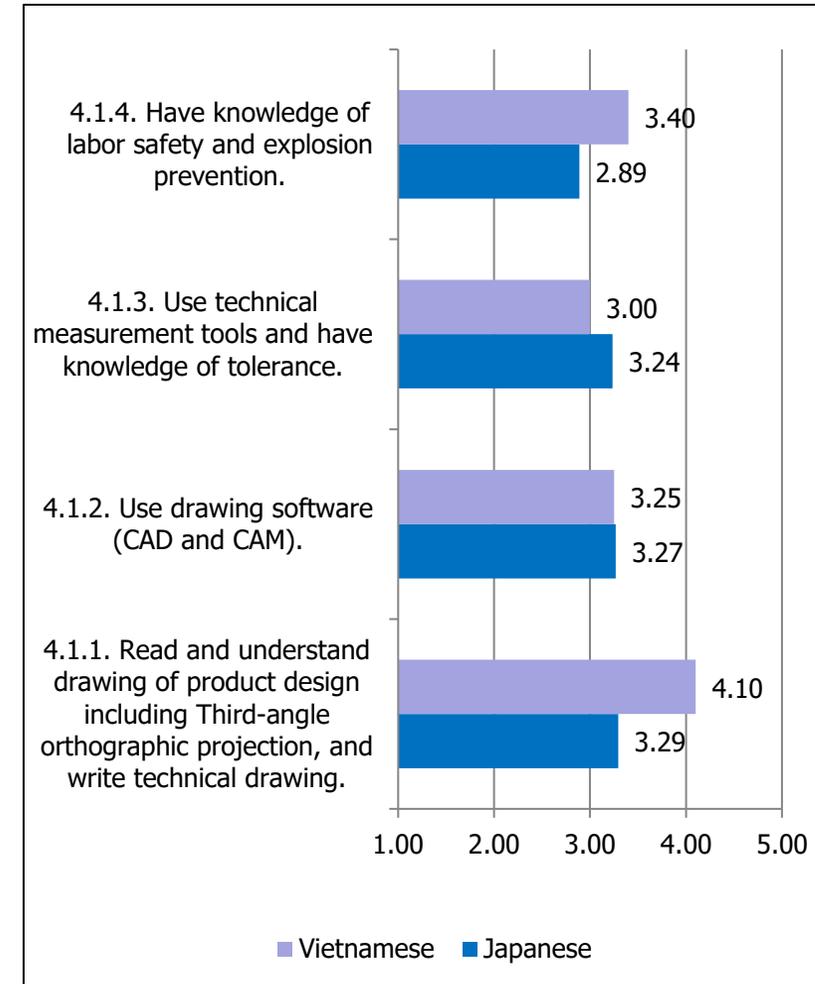
# Industry's Perception of HaUI Graduates: Mechanical Engineering

## ■ Strength

- Quickly learn the operation of new machines.
- Quickly learn the operation of CAD.

## ■ Weakness

- Do not know mechanical drawings in third-angle projection.
- Insufficient knowledge on labor safety.
- Less awareness of high precision and tolerance.



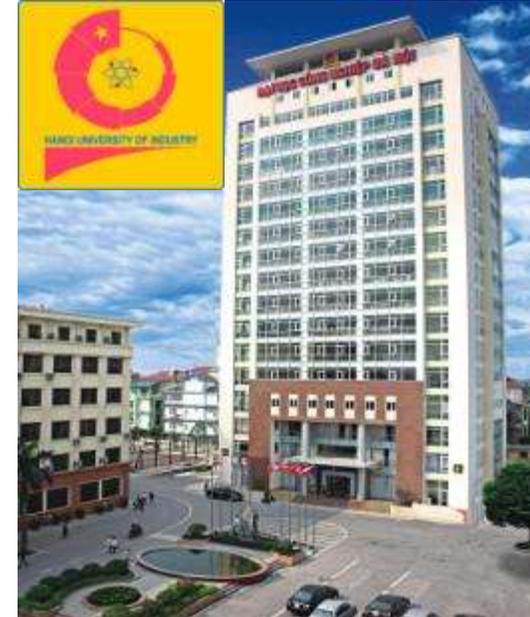
Source: HaUI-JICA Project (2012)

# Overview of HaUI-JICA Project for Development of Industrial Human Resources



# Overview of Hanoi University of Industry (HaUI)

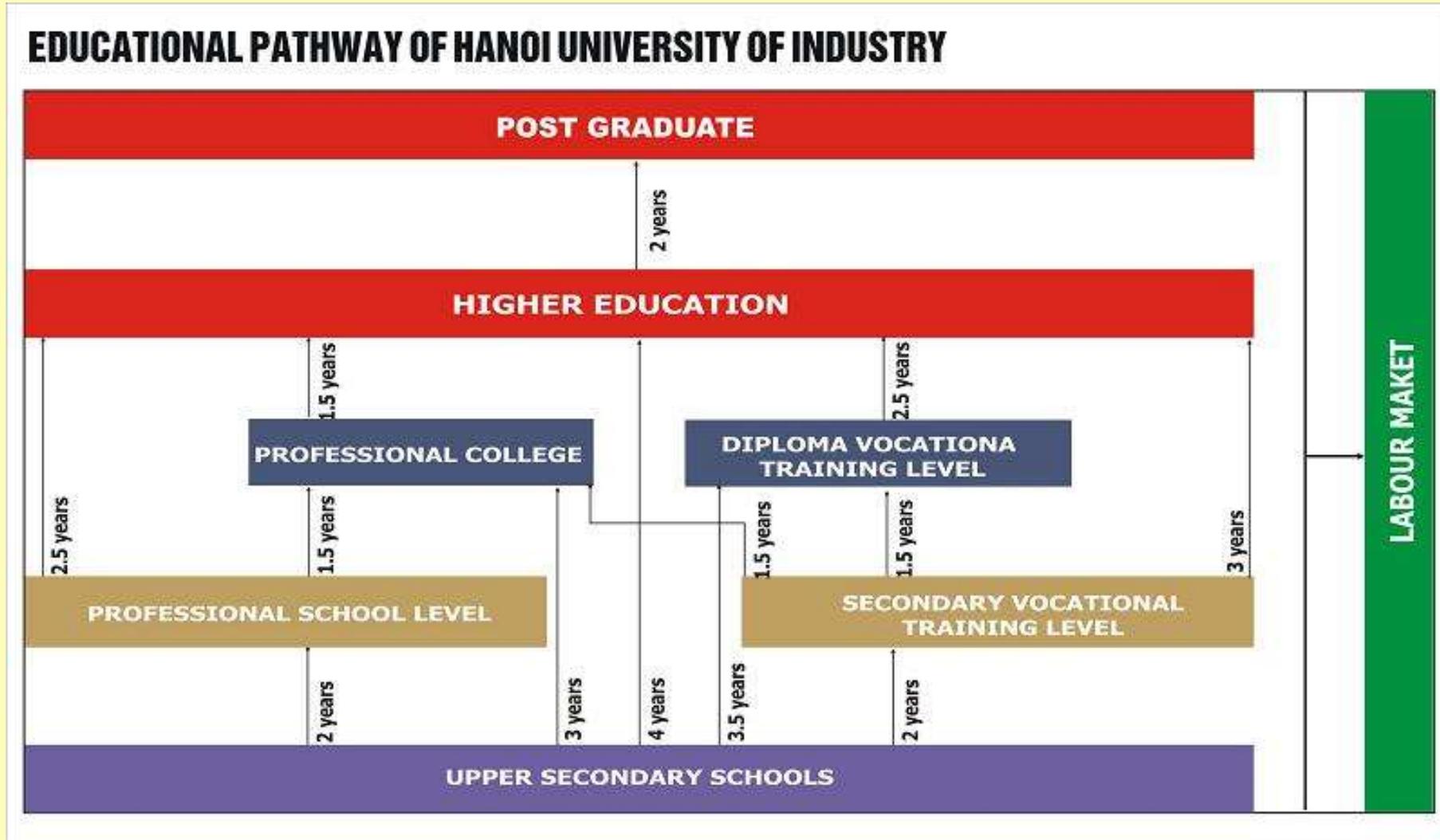
- HaUI, which belongs to the Ministry of Industry and Trade, has a history of over 110 year since 1898. It was originally established based on Hanoi Vocational School and Hai Phong Vocational School, and promoted to a college in 1999 and a university in 2005.
- HaUI has 2 campuses in Hanoi (each 5ha) and 1 in Ha Nam Province (38.5ha). As of 2012, HaUI has about 55,000 students, of which over 30,000 students of university and professional college courses, and provides about 10,000 – 15,000 high quality graduates every year. It has about 1,400 lecturers and 300 staff.



# HaUI's Educational and Training Fields

MASTER DEGREE	HIGHER EDUCATION	PROFESSIONAL COLLEGE	PROFESSIONAL SCHOOL LEVEL	DIPLOMA VOCATIONNAL TRAINING LEVEL	SECONDARY VOCATIONNAL TRAINING LEVEL
01 field	19 field	19 field	12 field	12 trades	14 trades
<b>1. Mechanical Engineering</b>	<b>1. Mechanical Engineering</b> <b>2. Mechatronics Engineering</b> <b>3. Automobile Engineering</b> <b>4. Electrical and Electronics Engineering</b> <b>5. Automation and Control Engineering Technology</b> <b>6. Telecommunications - Electronics Technology</b> <b>7. Computer Science</b> <b>8. Software Technology</b> <b>9. Information Systems</b> <b>10. Accounting</b> <b>11. Banking and Finance</b> <b>12. Business Management</b> <b>13. Business Administration in Tourism and Hotel</b> <b>14. Vietnamese Studies</b> <b>15. Thermal Engineering</b> <b>16. Garment Technology</b> <b>17. Fashion Design</b> <b>18. Chemistry Engineering</b> <b>19. English Studies</b>	<b>1. Machinery Manufacturing Technology</b> <b>2. Electric-Mechanical</b> <b>3. Electrical Engineering Technology</b> <b>4. Automobile Machinery Engineering Technology</b> <b>5. Chemistry Engineering</b> <b>6. Garment Cutting Technology</b> <b>7. Informatics</b> <b>8. Information Technology</b> <b>9. Electrical, Electronic Engineering Technology</b> <b>10. Thermal Engineering Technology</b> <b>11. Telecommunications - Electronic Technology</b> <b>12. Accounting</b> <b>13. Business Administration</b> <b>14. English studies</b> <b>15. Software Development (Vietnam-Australia College Level)</b> <b>16. International Business Administration (Vietnam-Australia College Level )</b> <b>17. Automation Engineering Technology</b> <b>18. Banking and Finance</b> <b>19. Vietnamese Studies</b>	<b>1. Tool Mechanical Manufacturing</b> <b>2. Automobile/ Motorbike Repairing</b> <b>3. Inorganic Chemistry</b> <b>4. Organic Chemistry</b> <b>5. Analytic Chemistry</b> <b>6. Garment Technical Technology</b> <b>7. Informatics</b> <b>8. Industrial &amp; Civil Electricity</b> <b>9. Thermal Engineering</b> <b>10. Electronics</b> <b>11. Accounting</b> <b>12. Repairing, Operating Mechanic Equipments</b>	<b>1. Metal Cutting</b> <b>2. Industrial Electricity</b> <b>3. Refrigerating Machinery Technology and Air Conditioning</b> <b>4. Industrial Electronics</b> <b>5. Automotive Technology</b> <b>6. Machine tool repairing</b> <b>7. Tool manufacturing</b> <b>8. Enterprise Accounting</b> <b>9. Computer Programming</b> <b>10. Welding</b> <b>11. Fashion Garment</b> <b>12. Drawing and Designing on the computer</b>	<b>1. Metal cutting</b> <b>2. Industrial Electricity</b> <b>3. Refrigerating Machinery Technology and Air Conditioning</b> <b>4. Industrial Electronics</b> <b>5. Automotive Technology</b> <b>6. Machinery Tools Repairing</b> <b>7. Tools Manufacturing</b> <b>8. Enterprise Accounting</b> <b>9. Computer Programming</b> <b>10. Welding</b> <b>11. Fashion Garment</b> <b>12. Metal Sheet Processing (Japanese technology)</b> <b>13. Electrical Equipment Controls Repairing (Japanese Technology)</b> <b>14. Drawing and Designing on the Computer</b>

# Level of Training HaUI Provides



# Active Participation in National and International Competitions

- HaUI has been participating in Robot Contents for 10 years. It got the first prize once and the second prize for three times.
- HaUI has been sending students to national, ASEAN and world skill competitions. Students from the HaUI won 4 gold medals in ASEAN Skill Competition (1 from the Faculty of Mechanical Engineering and 3 from Faculty of Electronic Engineering).



# 1<sup>st</sup> Technical Assistance Project between JICA and HaUI HIC-JICA Project (2000-2005)

- **Objective:** To establish vocational secondary courses in the field of machinery processing, electric control and sheet-metal processing in reference to the vocational training programs in Japan.
- **Input:** Long-term and short-term experts; training equipment such as milling machines, turning machines, a machining center, many others for electric control and sheet-metal processing.
- **Results:** HIC-JICA courses has continued as the Vietnam Japan Center (VJC) after the Project. Many VJC graduates are working in Japanese and Vietnamese enterprises with good reputation.

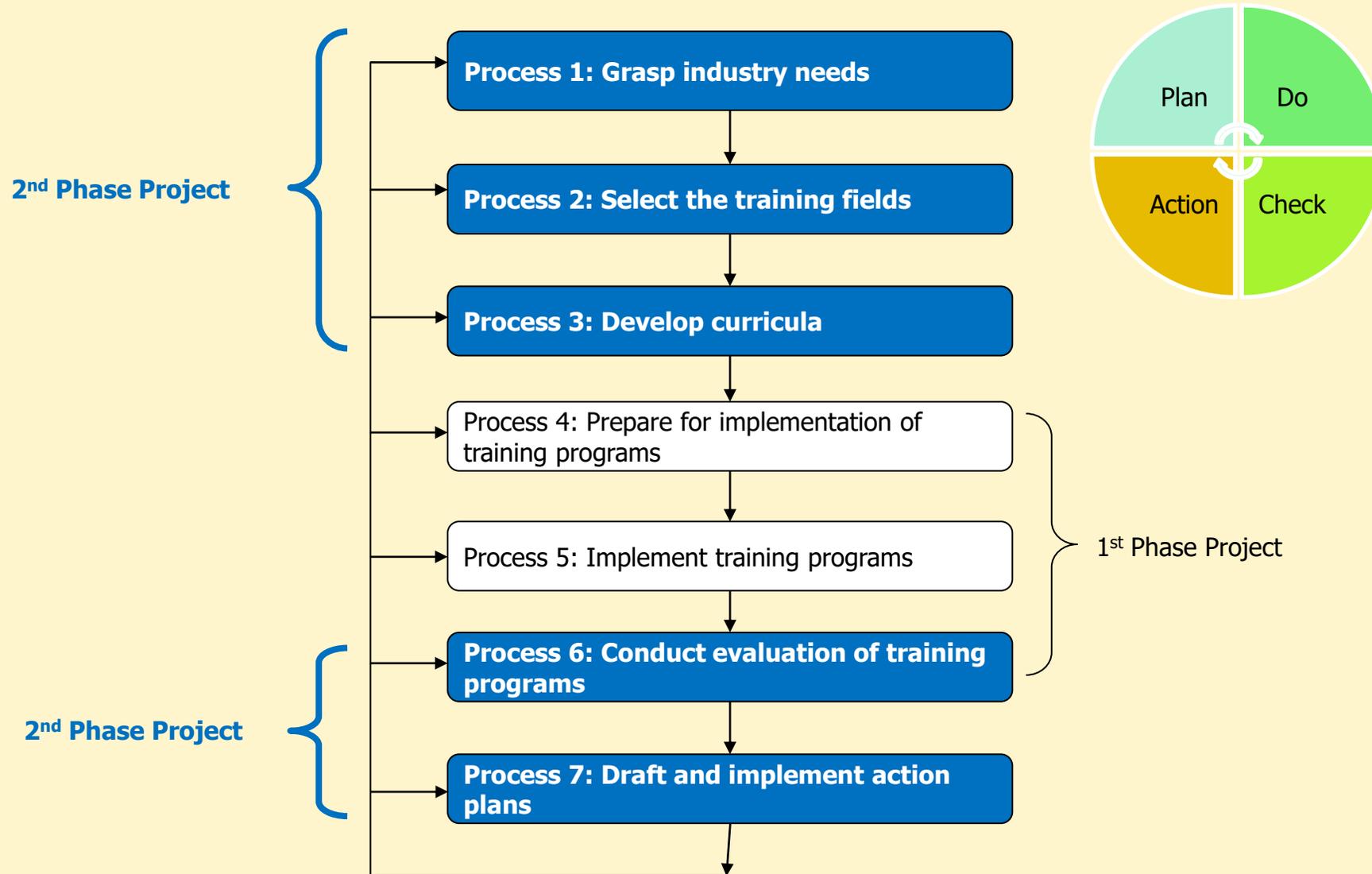


## 2<sup>nd</sup> Technical Assistance Project Between JICA and HaUI HaUI-JICA Project (2010-2013)

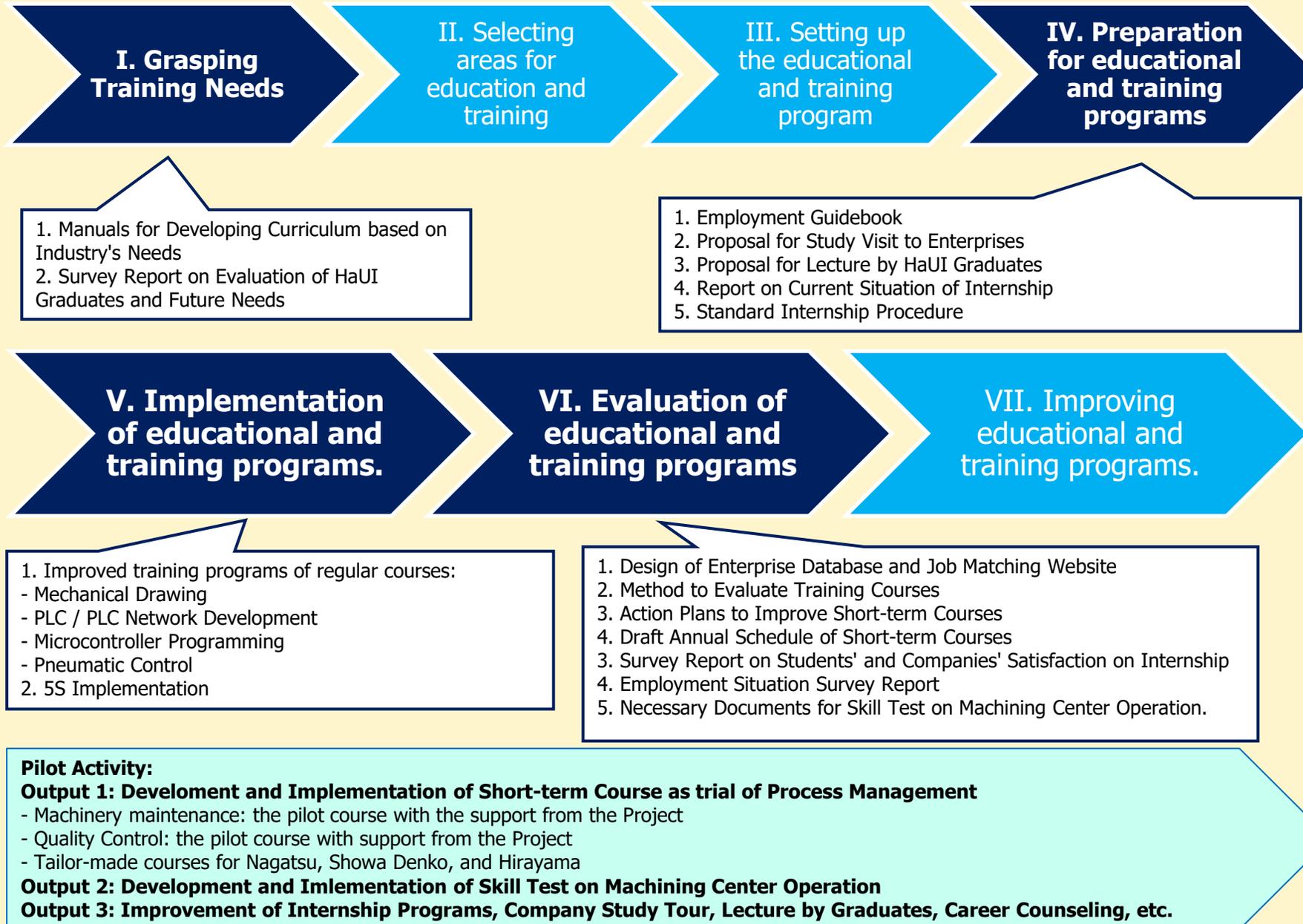
- **Objective:** To assist HaUI to develop the management system to upgrade its training and educational programs based on industry needs.
- **Input:** Long-term and short-term experts; training equipment such as tools for machinery maintenances, parts for simulators, machining centers, etc.
- **Outputs:** (i) develop the training process management system to implement courses and curriculum based on industry needs; (ii) implement pilot skill testing system; and (iii) develop the employment support system.



# HaUI is Developing Training Process Management System with two JICA Projects



# Output Map



# Approach

- The Project adopted the participatory approach, respecting the ownership of counter part.
- All pilot activities should lead to development of institutionalized mechanism.



- Develop the solid foundation of project implementation.
- Make the vision of project clearer
- Develop the concrete work plan.

- Conduct more focused activities for producing outputs.

- Deliver results
- Complete the exit strategy to ensure the sustainability.

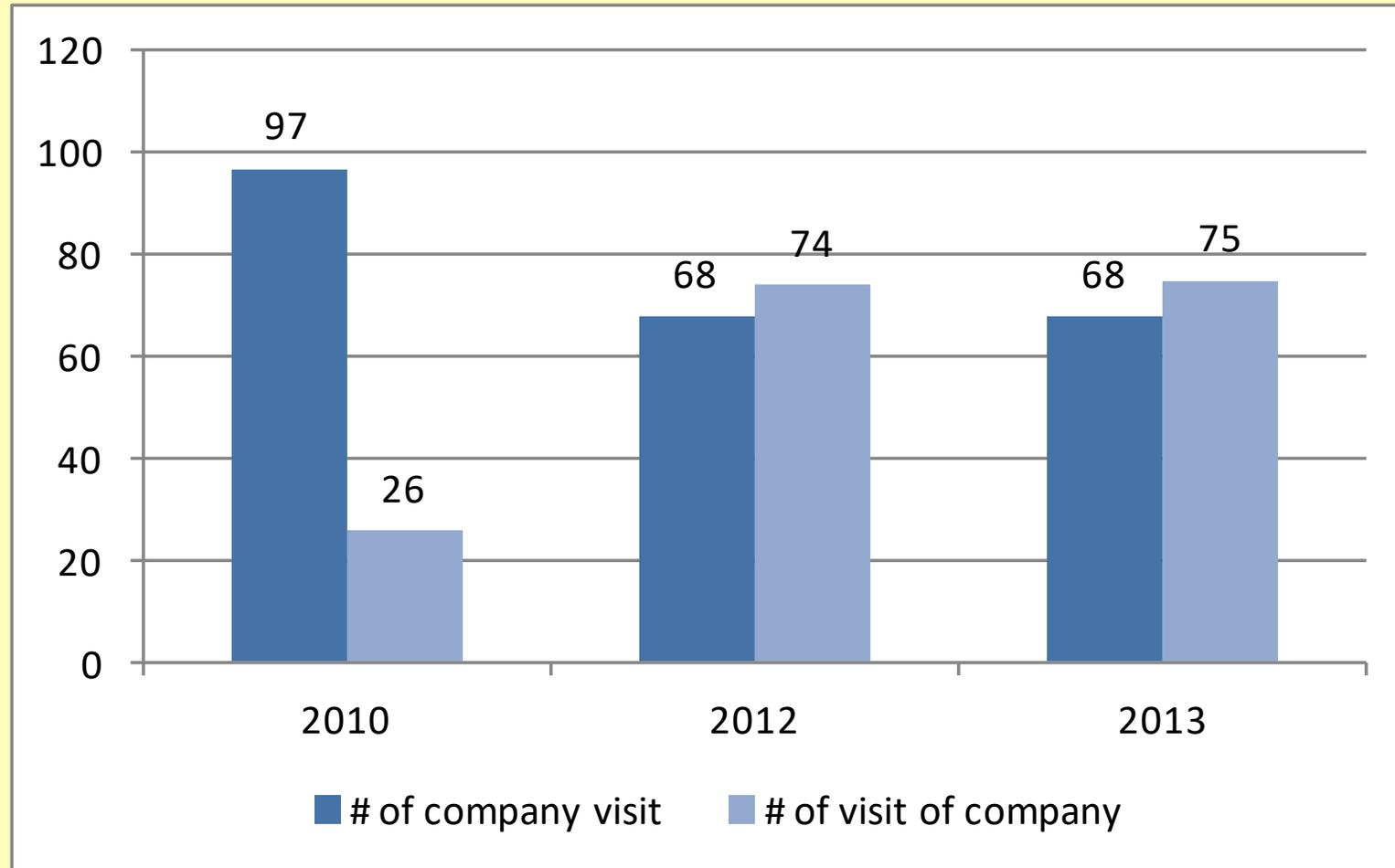
# Industry Needs Survey

- We visited 97 enterprises in 2010, 68 in 2011, and 68 in 2012.
- In particular, we conducted the intensive survey on evaluation of HaUI graduates for 32 enterprises in 2010. Analyzing their needs, we developed action plans. Most of our completed or on-going activities are based on those action plans.
- In 2012, HaUI has taken the full initiative to conduct another industry needs survey.



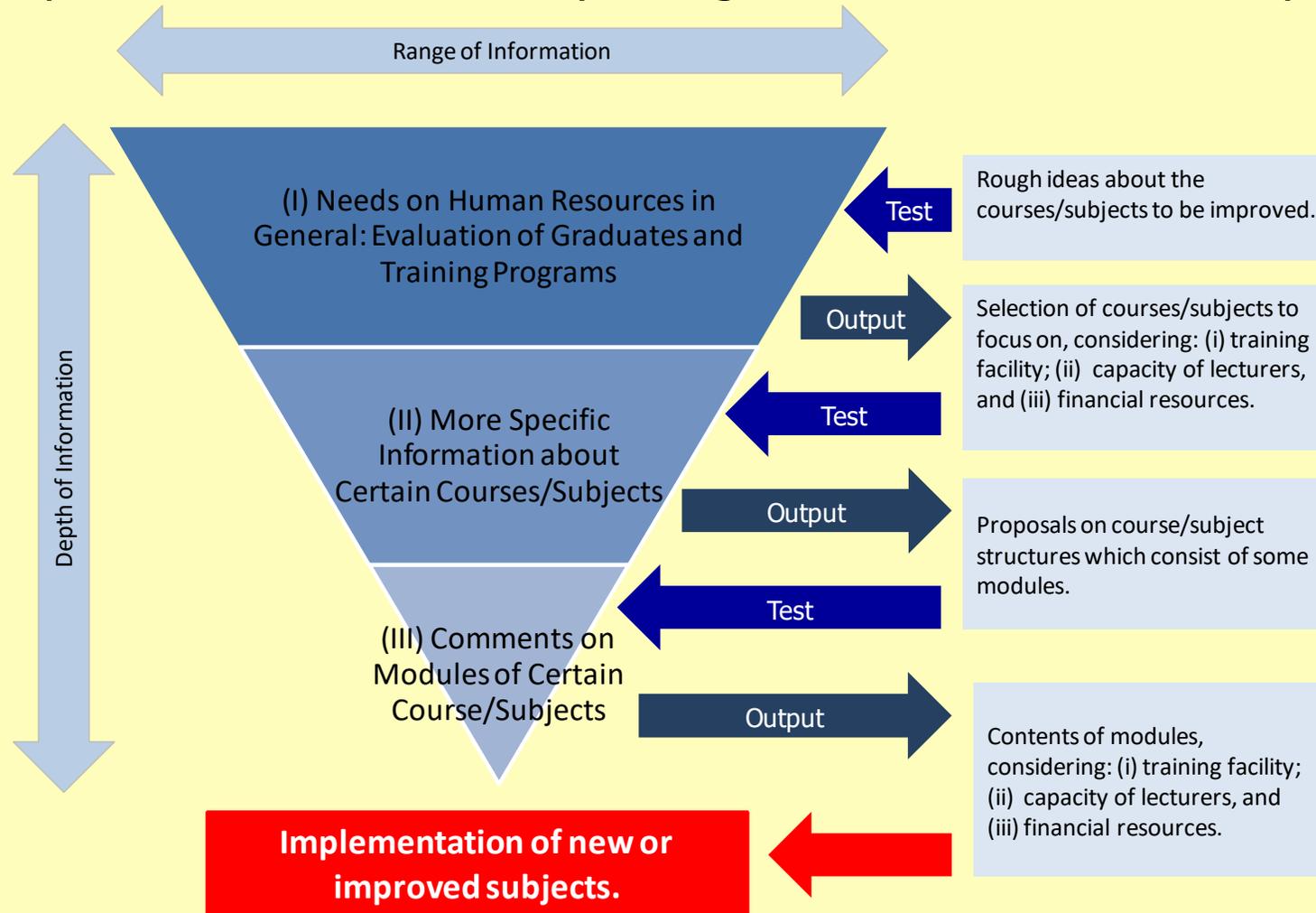
# Industry Needs Survey (Contd.)

- We visited many companies, while they also started visiting us.



# Industry Needs Survey (Contd.)

- In order to obtain necessary information for curriculum improvement, it is necessary to organize more focused survey.



# 5S Implementation in HaUI



- 5S (Seiri, Seiton, Seiso, Seiketsu, Sitsuke) is the widely recognized and utilized in enterprises, as a useful means to improve productivity and work environment.
- HaUI established 5S committee and 4 trial workshops in 2010.
- HaUI has been organizing Monthly 5S Day and expanded 5S to all faculties, centers and departments. since May 2011.
- HaUI organized four "5S Weeks" in Apr. and Oct. 2011 and Apr. and Oct. 2012, inviting guests from enterprises and schools. Student's Union is becoming more active.
- HaUI has started providing 5S training for all new students since 2012.
- HaUI will try to promote 5S in other schools through 5S seminars.



# Output 1 Upgrading Training Program Based on Industry Needs

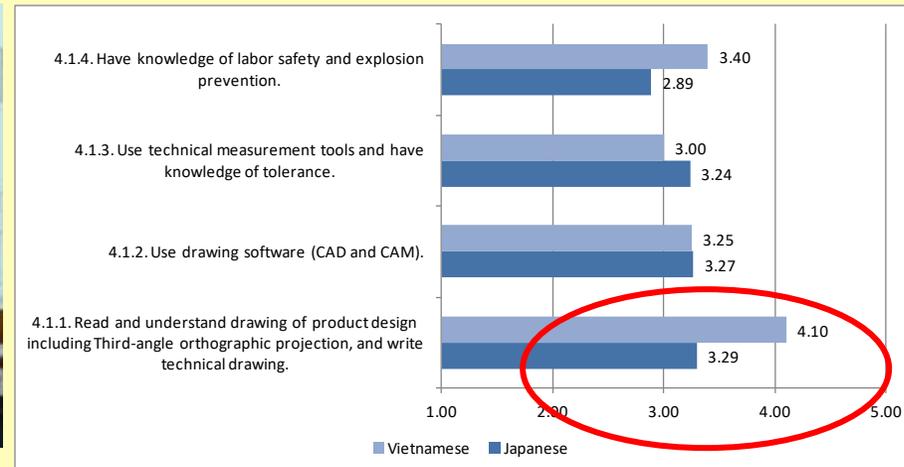
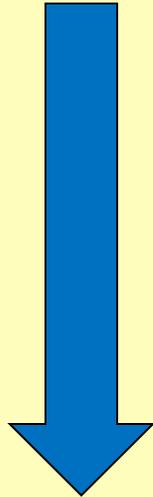
## Improvement of Training Courses

	#	Subject	Plan	Do	Check	Action	
Short-term	1	Mechanical Maintenance					
	2	Electric Maintenance					
	3	Quality Control					
	4	Basic Machining Cener Operation for Nagatsu					
	5	Machinery Maitenance for Showa Denko					
	6	Basic Machining for Hirayama					
Regular	1	Mechanical Drawing					
	2	PLC Network Development					
	3	PLC (Practical Lesson)					
	4	Microcontroller Programming					
	5	Pneumatic Control					

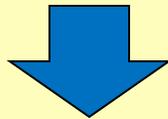
# Output 1 Upgrading Training Program Based on Industry Needs

## Improvement of Mechanical Drawing Courses

In the industry needs survey in 2010, we found that there was a gap between Japanese and Vietnamese enterprises regarding the evaluation on skills to read and write mechanical drawings.



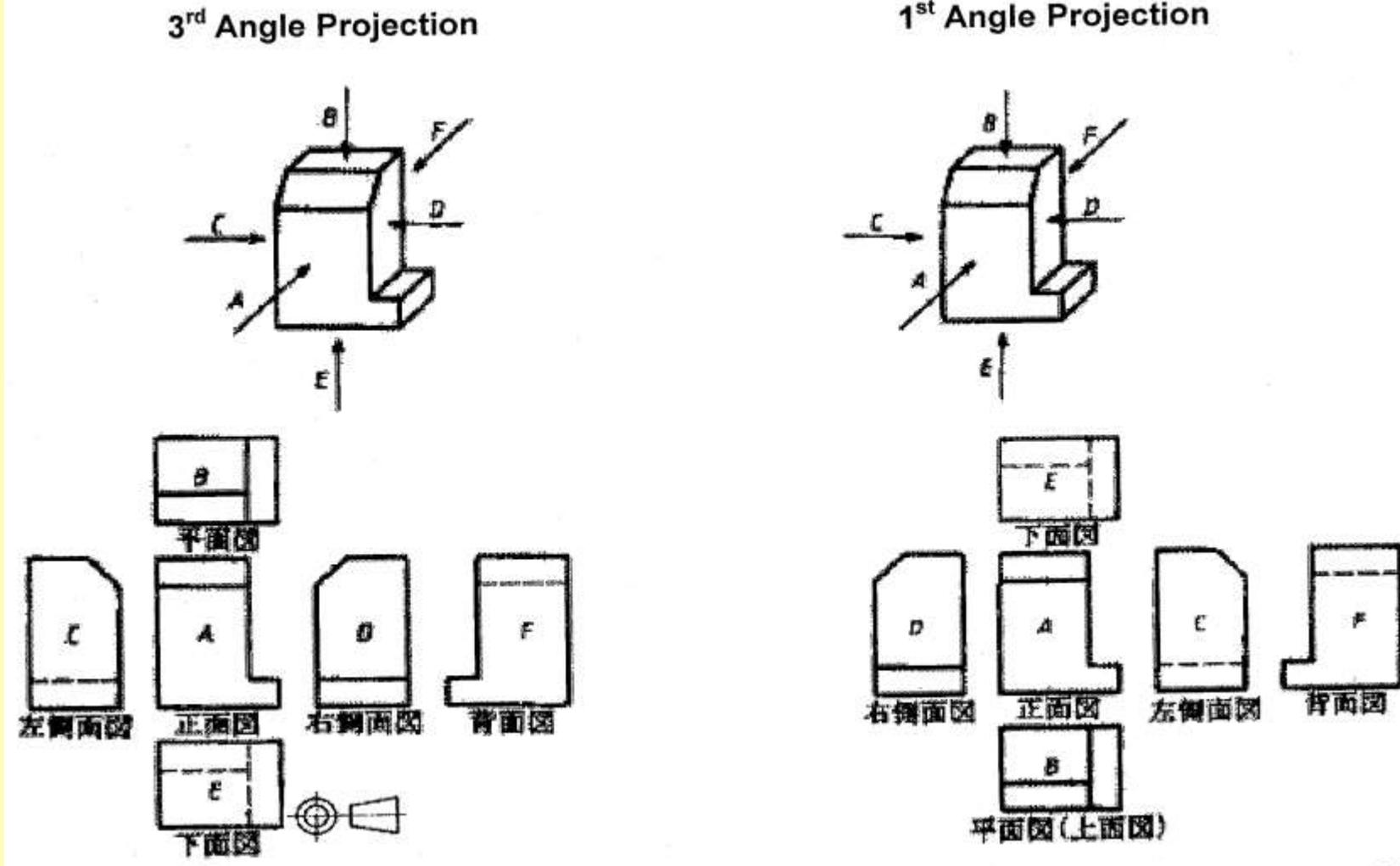
We identified lack of knowledge of third angle projection through follow-up interviews to some enterprises.



VJC, Mechanical Center, the Faculty of Mechanical Engineering revised their curricula and teaching materials to introduce third angle projection.

# Output 1 Upgrading Training Program Based on Industry Needs Improvement of Mechanical Drawing Courses (Contd.)

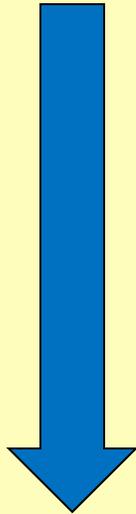
Difference between third angle project and first angle projection.



# Output 1: Upgrading Training Program Based on Industry Needs

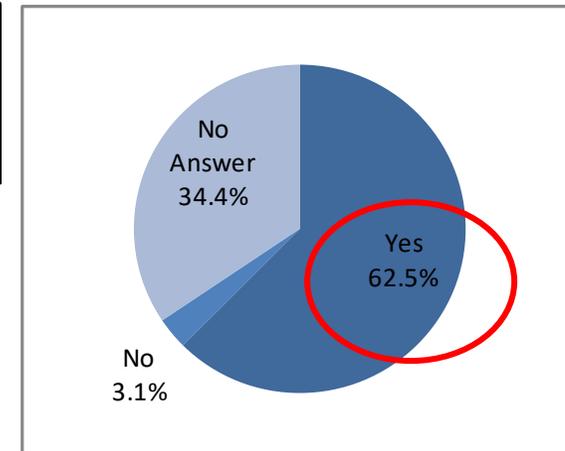
## Machinery Maintenance Short-term Course

The results of industry needs survey 2010 indicated the demand for training on basic machinery maintenance.



6.2. New subjects which HaUI should introduce - A. Machine Maintenance

Answer	Frequency	Percent
Yes	20	62.5%
No	1	3.1%
No Answer	11	34.4%
Total	32	100.0%



We developed the curricula and teaching materials, hearing comments from some enterprises. 2 HaUI lecturers participated in the training for accuracy adjustment in Etsuki, the top share maker of conventional milling machine in Japan.



We organized 4 machinery maintenance courses targeting entry-level maintenance staff of enterprises in March and April 2012.



# Short-term Courses on Basic Mechanical and Electric Maintenance of Conventional Machines

76 people from 17 enterprises participated in 4 courses.

**Companies:** Honda Vietnam, Vietnam Stanley Electric, Brother Industries ( Vietnam) , PENTAX Vietnam, Asahi Intecc Hanoi, EBA Machinery, EDH, Fujikin Vietnam, Tohoku Pioneer Vietnam, Muto Technology Hanoi, Nissei Technology Vietnam, Canon Vietnam, Cosmos Industrial, Thang Long Industrial Park Corporation , Toho Vietnam, CNC Vina, Tien Phat.

## Mechanical Maintenance

1. Preventive Maintenance
2. Mechanical Drawing
3. Machine Elements
4. Fault Finding and Adjustment of Accuracy
1. Lubricant Management



## Electrical Maintenance

1. Electrical Safety
2. Electrical Measurement
3. Electrical instruments
4. Motor
5. Sensor
6. Air-compressing Systems
7. Maintenance and Repair of Electric System of Conventional Machines

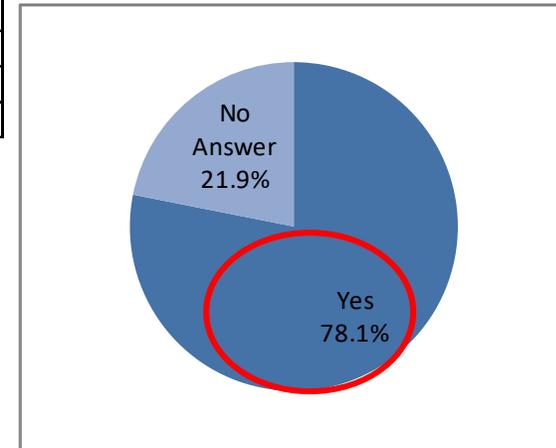


# Output 1: Upgrading Training Program Based on Industry Needs

## Short-term Course on Basic Quality Control

The results of industry needs survey 2010 indicated the demand for training on quality control.

	Frequency	Percent
Yes	25	78.1%
No Answer	7	21.9%
Total	32	100.0%



The sub working group members are currently developing the curriculum and teaching materials

We organized the short-term course on basic QC 7 tools for HaUi students on 12-28 November 2012.



# Short-term Courses on Basics of Quality Control and Application of QC 7 Tools

24 students from the Faculty of Automotive Technology and the Faculty of Business Management participated in the Course

**Partnership Company:** Toyota Motors Vietnam, 4P Company

## **Curriculum**

1. Basic Concept of Quality Control
  - Paper airplane workshop
2. Characteristics of QC and Implementation Process
  - Paper airplane workshop
3. Basics and Application of QC 7 Tools
  - Check sheet, Pareto Chart, Histogram, Control Chart, Cause-and-Effect Diagram, Cause-and-Effect Diagram, Scatter Diagram, Various Graphs
4. Group Assignment for Application of QC 7 Tools
  - Usage of library, 5S in common places, Traffic Safety
5. Company Study tour
  - 4P Company
6. Group Presentation
  - Guest speakers from Toyota Motors Vietnam



# Output 2: Development of Pilot Skill Test on Machining Center Operation

- On 21-22 August 2012, the Project organized the pilot skill test on machining center operation at Level 2 of 5 levels, as the first-ever skill test in the CNC fields in Vietnam. 10 selected students of VJC's machinery processing course participated in two-day skill test. 9 of 10 students passed the skill test and received the certificates issued by HaUI.
- Through the pilot skill test, HaUI generated the following outputs:
  - Theory test questions
  - Written test question of practical test
  - Practice test question
  - Implementation guideline
  - Assessment criteria for practical test
  - 7 trained assessors
  - HaUI was accredited as a national skill test center in CNC operation by GDVT.



# Output 2: National Skill Test on Machining Center Operation

- On 15-16 December 2012, HaUI organized the national skill test on machining center operation (Level 2), utilizing outputs from the pilot skill tests organized by the Project in August 2012.
- HaUI received the certification of the national skill test center on CNC machining from GDVT in November 2012, based on the results of pilot skill test. PENTAX Vietnam sent 10 of their staff as examinees to this national skill test.
- Prior to the skill test, HaUI organized one and half day preparatory training on 9 and 12 December. In this training, examinees brushed up their theoretical knowledge on CNC machining and were familiarized with machining centers for the skill test.



# Output 3: Development of Employment Support System

To help students find suitable jobs and enterprises find suitable candidates

- HaUI launched the **Employment Support Committee** in June 2011.
- Improvement of Internship Program
  - Improve the program contents together with enterprises; Implementation of student's reports and internship monitoring.
- Pilot Career Counseling
  - Career counseling for students in the beginning of courses and before and after internship.
- Study Tour to Enterprises
  - As an opportunity to know professional working behaviors and skills required by enterprises.
- Special Lectures by HaUI graduates
  - As an opportunity to know what kind of jobs HaUI graduates are doing and think about own careers.
- Employment Situation Survey
  - To precisely understand employment rate and companies where HaUI students get jobs.
- Development of Employment Guidebook



# Output 3: Overview of Employment Support System

To help students find suitable jobs and enterprises find suitable candidates

- **Employment Support Activities are all linked and interacted.**



# Output 3: Improvement of Internship Program

- Developed the standard procedures and necessary documents to ensure the quality of internship programs.

Activity	Document
1. Search enterprises which can provide internship programs beneficial for students, enterprise, and schools through industry needs surveys and other company visits.	Standard internship proposal
2. Organize study tours to enterprises which showed interest in receiving interns.	Proposal for study tour
3. Develop the internship programs together with enterprises.	Proposal for Internship Program
4. Select suitable students for internship and draft the list of students.	List of students
5. Draft the internship contract	Internship Contract
6. Organize briefing for students	Internship Preparation Check List Internship Assignment sheet
7. Implement internship programs.	Weekly Internship Report
8. Conduct monitoring visits / Organize interim evaluation meeting.	Internship Monitoring Report
9. Complete internship programs.	Internship completion report
	Questionnaire on internship
	Questionnaire on internship
	Evaluation of students
10. Summarize the evaluation results.	Internship liquidation
	Report on students' satisfaction of internship Report on enterprises' satisfaction of internship
11. Improve the internship proposal.	Proposal for internship program

# Output 3: Improvement of Internship Program

## Internship Program in Toho Vietnam Co., Ltd.

Item	Contents
<b>1. Orientation (1 day)</b>	<ul style="list-style-type: none"> <li>● Company overviews</li> <li>● Company policy and rules</li> <li>● Internal education system</li> </ul>
<b>2. Lecture (General) (2 days)</b>	<ul style="list-style-type: none"> <li>● Kaizen activities</li> <li>● Labor safety</li> <li>● 5S(Seiri, Seiton, Seiso, Seiketsu, Shitsuke)</li> <li>● HO/REN/SO (Reporting, Notification, and Consultation)</li> <li>● How to write report</li> <li>● Basic QC knowledge</li> </ul>
<b>3. Lecture (Technical) (3 week)</b>	<ul style="list-style-type: none"> <li>● Basics of moulds</li> <li>● Process of making moulds</li> <li>● Machines to make moulds</li> <li>● Materials to make moulds</li> <li>● Operation procedure to assemble moulds</li> <li>● Operation procedure on measurement</li> <li>● How to read mechanical drawing of company's products</li> <li>● Test on basic engineering knowledge and skills to identify suitable tasks for interns.</li> </ul>
<b>4. On-the Job Training (6 weeks)</b>	<ul style="list-style-type: none"> <li>● Observe the operation on conventional machines, machining centers, EDM and wire-cut machines.</li> <li>● Operate the above machines with instruction from supervisors.</li> <li>● Learn how to conduct the daily maintenance.</li> <li>● Learn how to deal with machine troubles.</li> <li>● Short test in the end of every week.</li> </ul>
<b>5. Evaluation (2 day)</b>	<ul style="list-style-type: none"> <li>● Supervisors evaluate the performance of students.</li> <li>● Students write the internship report.</li> <li>● HaUI lecturers discuss with supervisors about the actual programs and student's performance, in reference to supervisor's feedback and student's report.</li> </ul>

# Good Practices of Partnerships with Enterprises



# Types of Partnerships and Requirements

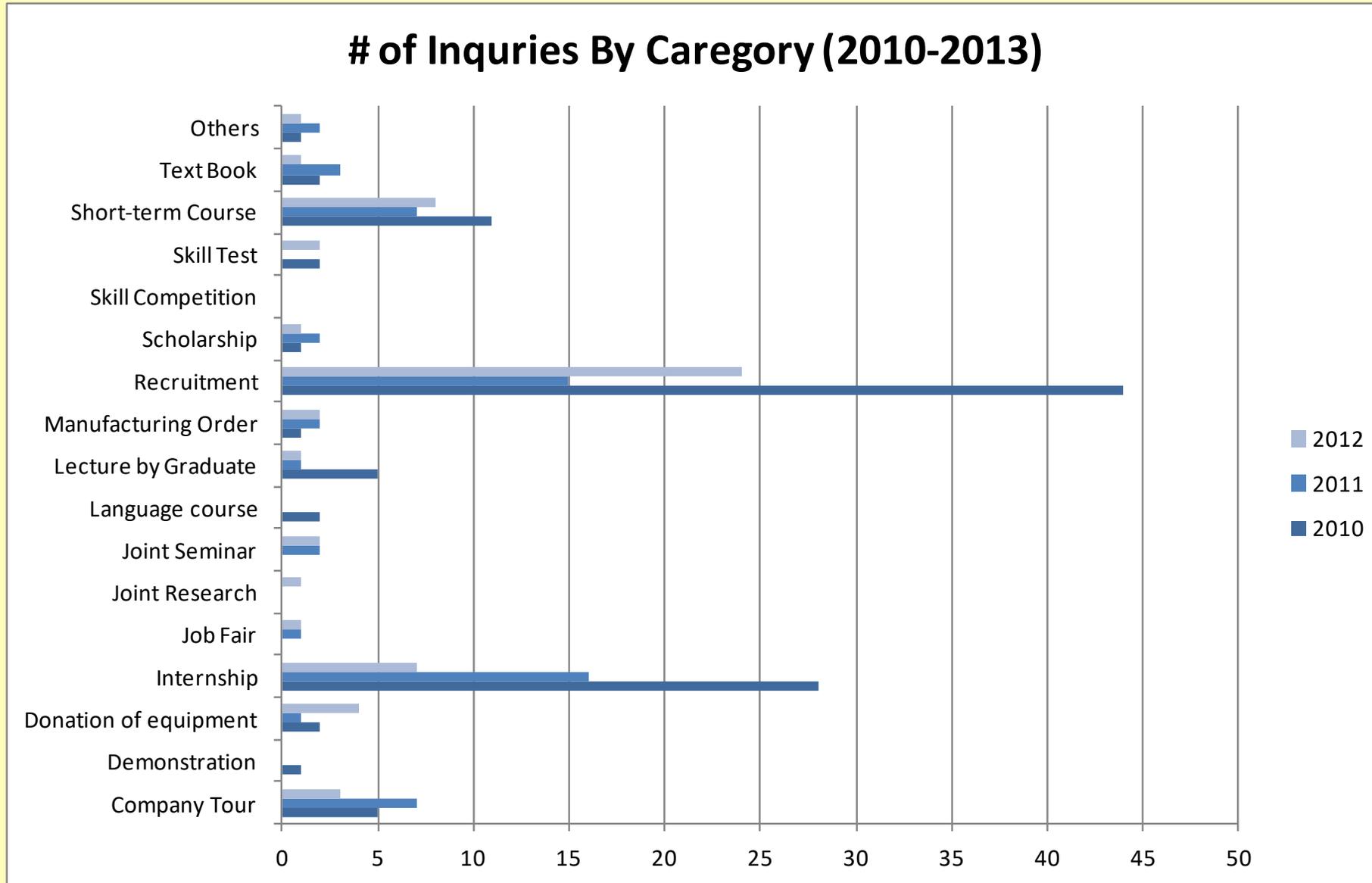
Type	Requirement	
	TVET Institutions	Enterprises
<b>Recruitment</b>	Introduction of appropriate students (Lecturers should have good relationships with students through career counseling and others); Organization of Job Fairs.	Provision of sufficient information on vacant position (job descriptions, conditions, etc.)
<b>Internship</b>	Introduction of appropriate students; Clear idea on contents of internship programs; Accident insurance; Initial briefing and counseling after internship to students; Monitoring visits to enterprises.	Provision of appropriate programs; safe working environment; assignment of supervisors; evaluation system; provision of potential recruitment information.
<b>Short-term Training Courses</b>	Qualified lecturers; Appropriate training facilities, equipment and teaching materials; Evaluation systems.	Concrete requests to course contents; careful review on training programs; selection of appropriate staff; cooperation for course evaluation.
<b>Collaborative Training</b>	Certain volume of appropriate students; Qualified lecturers; Appropriate teaching facilities, equipment and teaching materials; Evaluation systems.	Internal experts for technology transfer; provision of necessary training equipment and teaching materials.
<b>Joint Research</b>	Qualified lecturers and students; appropriate research facilities; Protection of intellectual property rights.	Provision of research seeds; Assignment of persons in charge; Provision of necessary research equipment or materials.

# HaUI's Partnerships with Enterprises

## Aiming for Win-Win Partnerships

- Below are HaUI's basic options for partnerships with enterprises.
  - Industry needs survey
  - Provide short-term training courses for company employees.
  - Receive manufacturing orders of production equipment or products.
  - Promote internship in enterprises.
  - Implement pilot skill tests.
  - Conduct joint researches and graduation projects.
- HaUI launched **Industry Partnership Board** in May 2012 to develop further partnerships!

# Current Situations of Partnerships between HaUI and Industry



Total Number of Inquiries in 2010-2012: 222 cases

## ■ **Main Options**

- Steady: Recruitment
- Improving: Internship
- Gradually developing: Short-term Courses.

## ■ **Future Direction**

- Want to increase: (i) short-term courses for enterprises; (ii) joint researches by utilizing student's graduation projects.

## Partnership with Enterprises: Collaborative Training

# Toyota Motors Vietnam (TMV)

- TMV has a factory in Vinh Phuc and dealers with maintenance service centers nation-wide. The Toyota Technical Education Program for Body Repair and Painting (T-TEP) was launched in 2006 with technical assistances from TMV in HaUI, aiming is to increase automotive mechanics who can work in service centers.
- The Program started recruiting students in 2007. The T-TEP program has provided 6-month practical training for the students who studied automotive technologies. The T-TEP has trained about 297 technicians in 6 courses in 6 years. They are working in maintenance service centers of TMV or others.
- HaUI is also cooperating with TMV for supplying better human resources in factories. TMV provided 2-day training on Quality Control Circle for 20 HaUI lecturers in Dec. 2010 an Jan. 2011. They should contribute to development of the QC short-term course in HaUI, which should be organized in Oct. 2012.



# Partnership with Enterprises: Training for HaUI Lecturers and Students

## Panasonic Institute of Manufacturing

- Panasonic Institute of Manufacturing (PIM) provides comprehensive training programs for team leaders or upper level staff in Panasonic's group companies in Vietnam. The course includes training for professional working behaviors, QC, IE, and electric circuit board assembly.
- PIM sometimes opens its courses for employees of suppliers or lecturers and students from vocational training institutions. It received 2 HaUI lecturers in Aug.-Sept. 2010, and 31 students from VJC and the Faculty of Electronic Engineering in 4 courses organized from Dec. 2011 to Jan. 2013.
- PIM also helps HaUI implement 5S, by sending their management staff to HaUI's 5S Weeks as a key note speaker or guest assessors.



# Partnership with Enterprise: Joint Seminar EBARA Corporation

- EBARA Corp., who is a Japanese leading manufacturer of pumps and compressors, provide training in developing countries as a part of their Corporate Social Responsibility (CSR) activities.
- In Sept. 2011, EBARA's experts provided the one-day seminar on operation and maintenance of pump which includes the basic structure of pump, failure analysis and preventive maintenance. About 100 students and lecturers joined the event. In particular, the seminar was useful for the sub working group members of machinery maintenance course.
- EBARA and HaUI organized the second seminar on "Failure Diagnosis of Water Pump: Up-to-date Methods of Vibration and Noise Analysis" in Sept. 2012.



## Partnership with Enterprises: Internship for Recruitment

# Toho Vietnam Co., Ltd.

- Toho Vietnam is a Japanese leading mold manufacturer. They has a factory in Thang Long Industrial Park and supplies molds to their customers such as Canon, Brother and Honda. Toho has regularly recruited graduates from the Vietnam-Japan Center (VJC) of HaUI. As of February 2012, 57 VJC/HaUI graduates are working in production and design departments (About 48% of 120 employees).
- Toho receives about 20- 30 interns from VJC every year. Through the comprehensive internship program which consists of classroom lecture and structured on-the job training, VJC students learn professional working behaviors and required skills and knowledge, while Toho can identify suitable candidates for their future staff.
- VJC and Toho are discussing further cooperation for increasing female technicians and development of basic mold designing course.



Partnerships with Enterprises: Internship for Recruitment

# Takagi Vietnam Co., Ltd.

- Takagi Vietnam is a Japanese manufacturer of industrial plastic products and injection molds, located in Thang Long Industrial Park in Hung Yen.
- Takagi came to recruit engineers and technicians for their upcoming mold factory. In order to select appropriate candidates, they accepted 4 interns from VJC who are from Hung Yen and surrounding provinces and provided the comprehensive internship program which consist of classroom lecturers and practical training such as how to use measurement tools, operation of conventional machines, operation of cranes, and finishing in their workshop.
- They recruited 3 of 4 interns and hope those staff will be core members of their new mold factory.



## Partnership with Enterprises: Tailor Made Training

# Nagatsu Vietnam Co., Ltd.

- Nagatsu Vietnam, located in Thang Long Industrial Park I, is a Japanese manufacturer for machining parts for construction machine manufacturers such as Komatsu. They recruited graduates from VJC/HaUI.
- Nagatsu asked HaUI's support for training of their new staff. The group of lecturers who are from VJC and the Faculty of Mechanical Engineering provided two entry-level technicians with 60 hours (3 weeks) on site training on basic operation of machining centers in April 2012. The course included how to use measurement tools, mechanical drawing, setting work pieces and jigs, tools length compensation, setting the reference point, etc.
- Nagatsu hopes VJC/HaUI continue to provide this kind of training for their new staff.



Partnership with Enterprises: tailor made Training

## Showa Denko Rare-Earth Vietnam Co., Ltd.

- Showa Denko Rare-Earth Vietnam (SRV) has a factory for rare-earth metals in Ha Nam. In order to increase productivity, SRV asked VJC/HaUI to provide mechanical and electric system maintenance courses for their technicians.



- In July 2012, the group of lecturers from VJC, the Faculty of Mechanical Engineering, the Faculty of Electric Engineering and the Faculty of Electronic Engineering conducted the two-week (80 hours) courses for the mechanical and electric system maintenance respectively. The courses included lectures and practice in HaUI and on-site training in SRV. 40 maintenance technicians (20 for each course) of SRV actively participated in the courses.

# Fujiya Co., Ltd.

- On 2 October 2012, HaUI organized the presentation ceremony of high quality cutting tools donated by Fujiya Co., Ltd. Fujiya is a leading manufacturer of high quality nippers and pliers with around 40% of market share in Japan.



- In the ceremony, Mr. Yasunobu Nozaki, President of Fujiya said that they donated 8 kinds of their products to HaUI, because they wanted HaUI lecturers and students to experience benefits from using high quality and long lasting cutting tools. He hopes that this would contribute to industrialization of Vietnam. Mr. Ha Xuan Quang, Vice Rector of HaUI appreciated contribution of Fujiya and promised that HaUI would fully utilize the donated tools not only for training in HaUI but also for training for lecturers from other training institutions.

# Thank You Very Much for Listening!



**Contact:**

**e-mail: [junmori0707@gmail.com](mailto:junmori0707@gmail.com)**

**Tel: +84-(0)4-3765-5407 (ext. 103)**