CDIO IMPLEMENTATION AT VNU-HCM:
From Pilot to Widespread Implementation

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Vietnam is integrating into global economy, it faces a grand

   challenge of transforming a very young population into

a skilled labor force

BUT   education system has not kept up with society needs and demand for global integration

This transformation requires
curriculum reform
for entire education system

VNU-HCM plays a pioneer role in the reform process

VNU-HCM

- **Largest and most prestigious University System in Vietnam**
- **System with 6 member Universities**

- **6,000 Staffs**
- **55,000 Undergraduate Students**
- **10,000 Graduate Students**

CDIO – An Innovative Education Initiative
Conceive-Design-Implement-Operate

build **model framework**
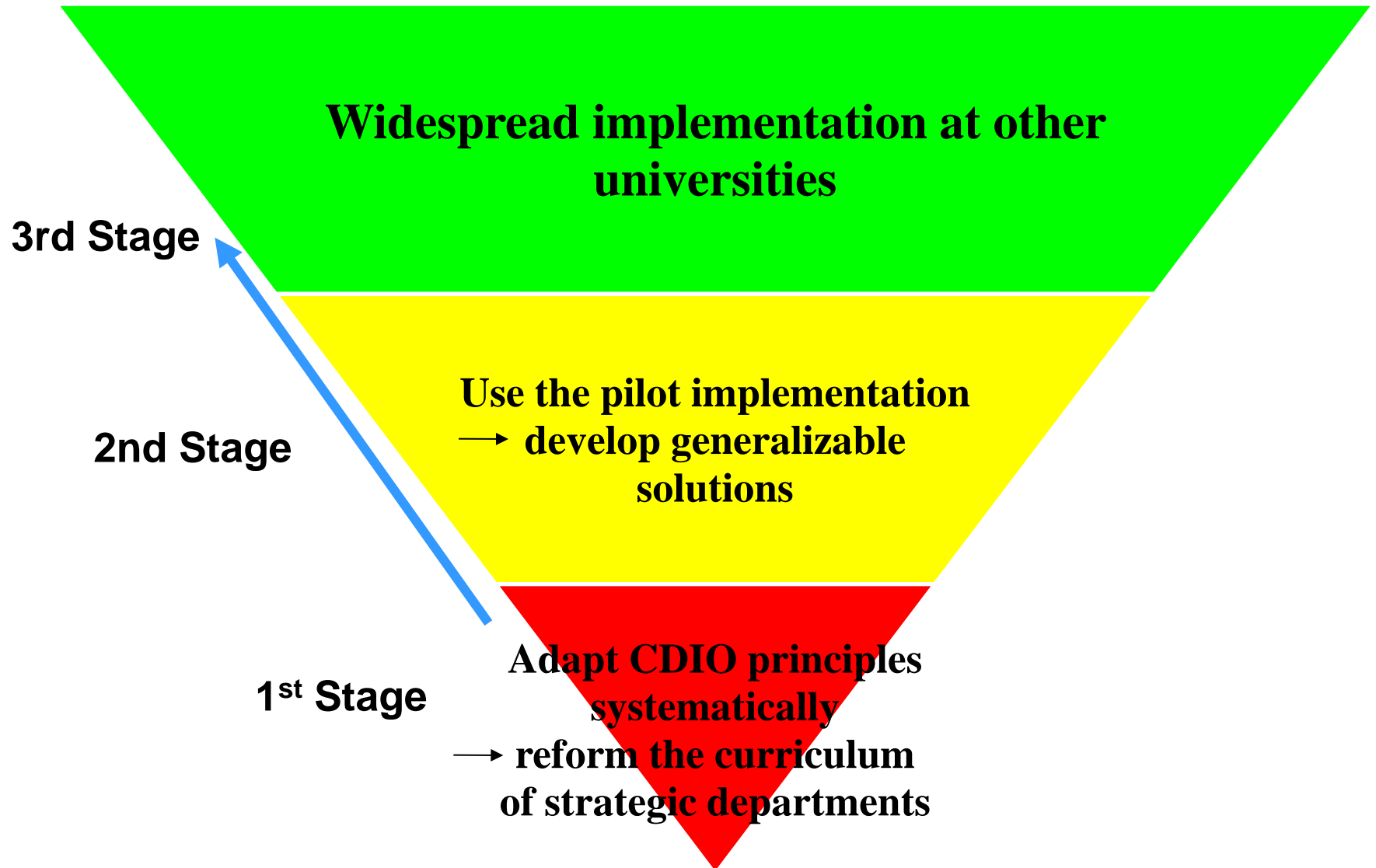
widespread implementation

develop **seven-year plan** to nucleate implementation
of the framework at strategic departments (2010-2017*)

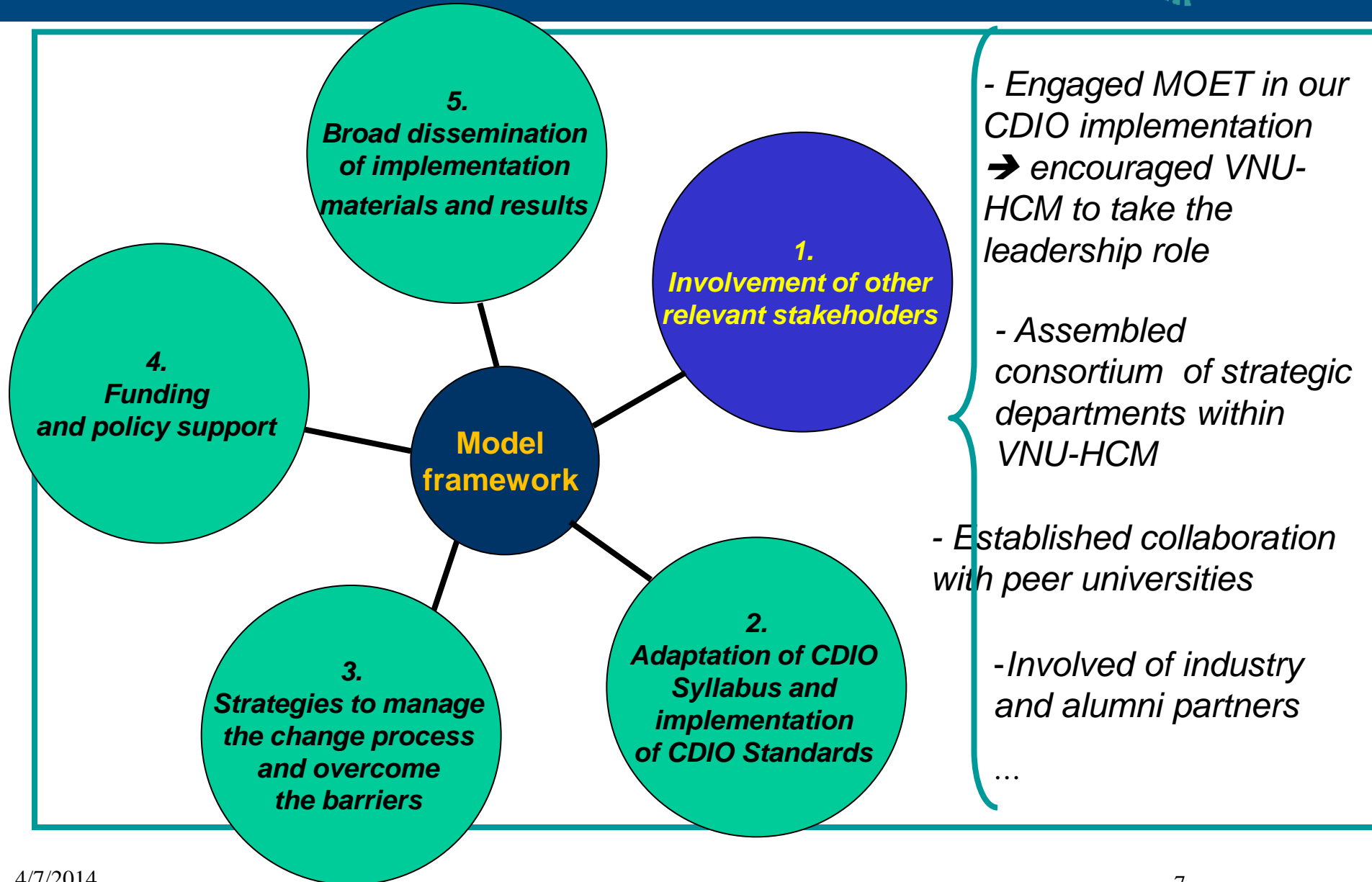**3rd Stage**

Widespread implementation at other universities

2nd Stage

Use the pilot implementation → develop generalizable solutions

1st Stage

Adapt CDIO principles systematically → reform the curriculum of strategic departments

5.
Broad dissemination of implementation materials and results

1.
Involvement of other relevant stakeholders

4.
Funding and policy support

Model framework

3.
Strategies to manage the change process and overcome the barriers

2.
Adaptation of CDIO Syllabus and implementation of CDIO Standards

- *Engaged MOET in our CDIO implementation* ➔ *encouraged VNU-HCM to take the leadership role*

- *Assembled consortium of strategic departments within VNU-HCM*

- *Established collaboration with peer universities*

- *Involved of industry and alumni partners*
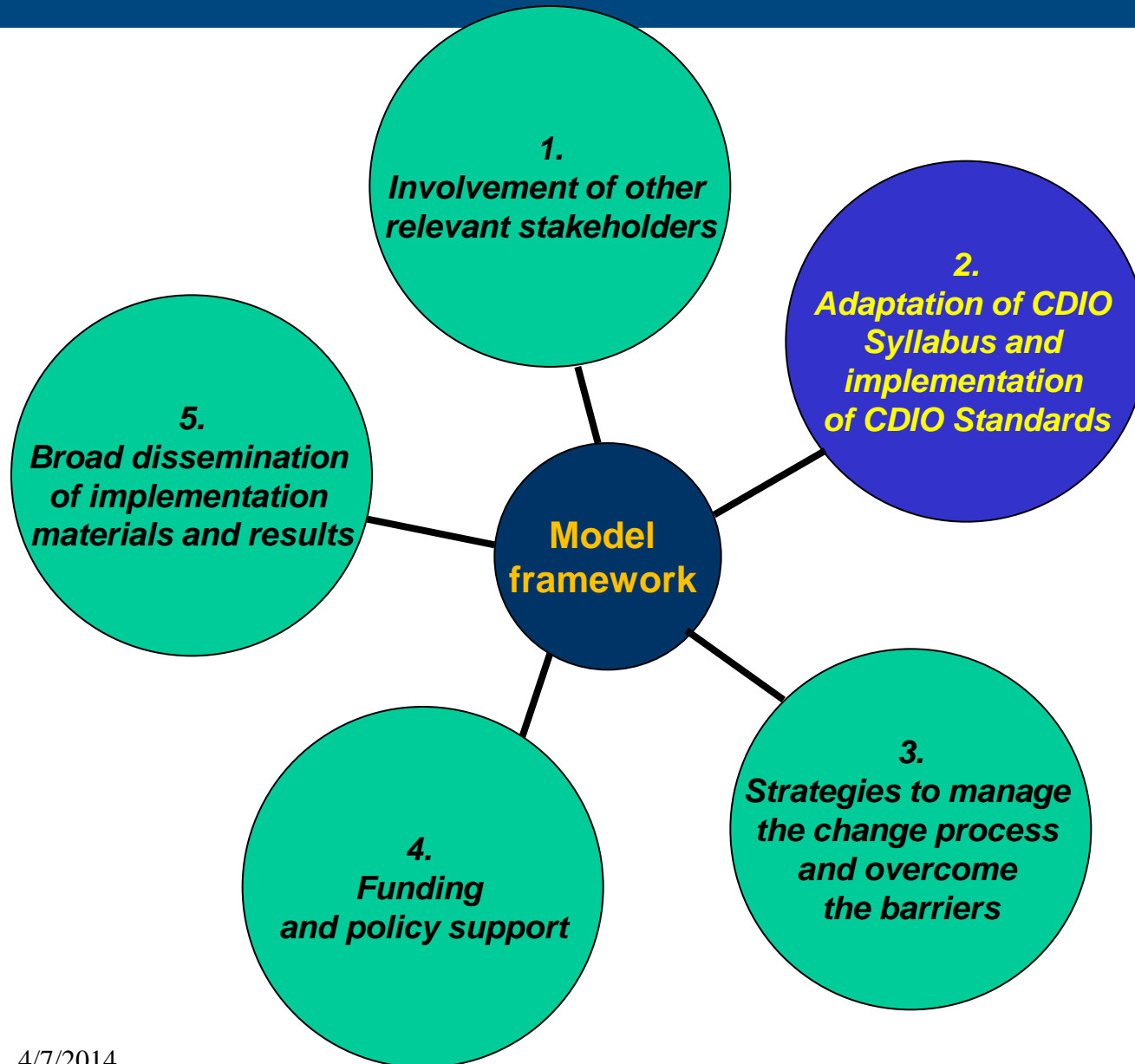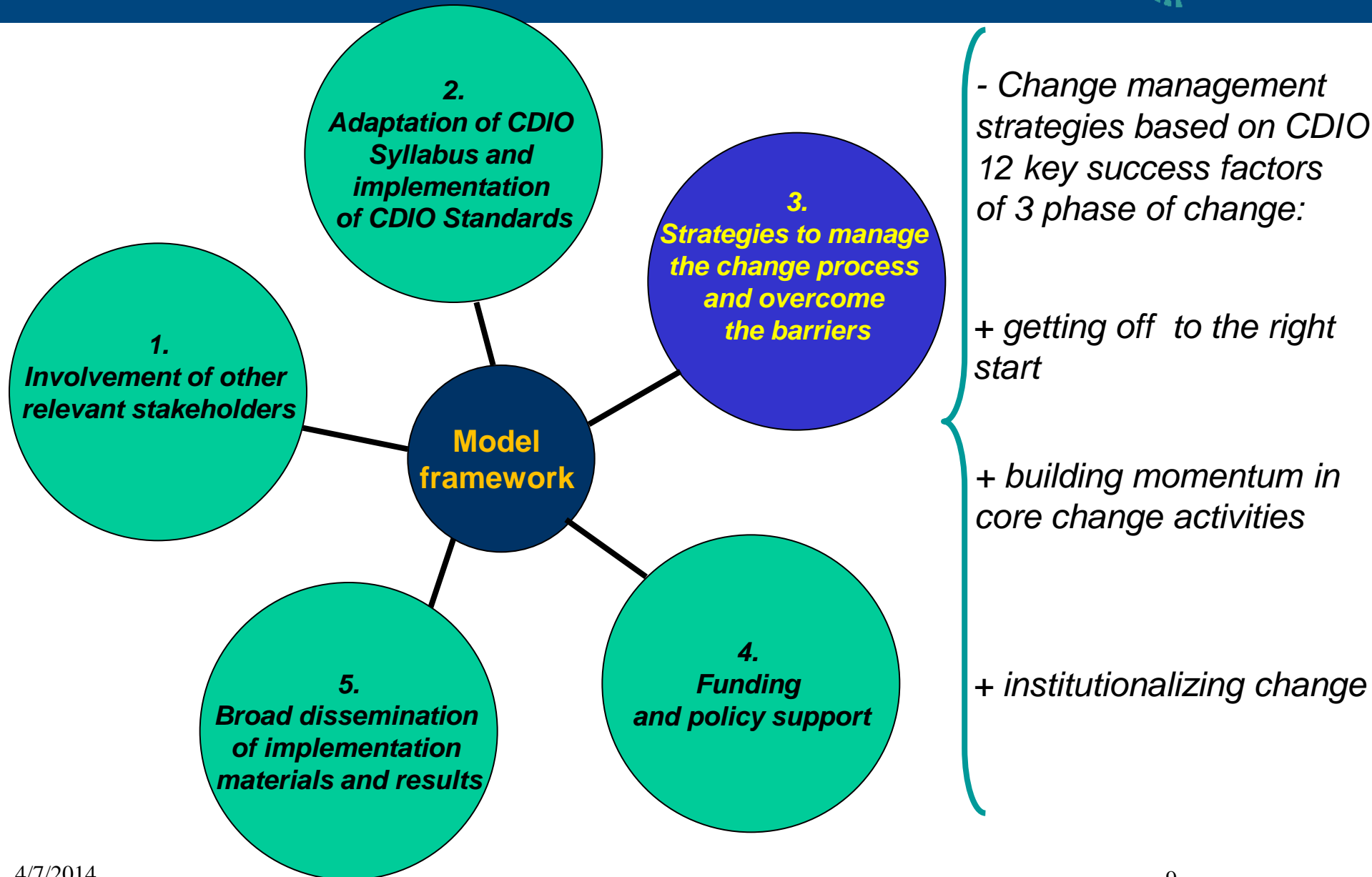
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1. A model framework

- Customizing CDIO Syllabus➔ learning outcomes meet highest international standards while still satisfying the specialized requirements of Vietnam

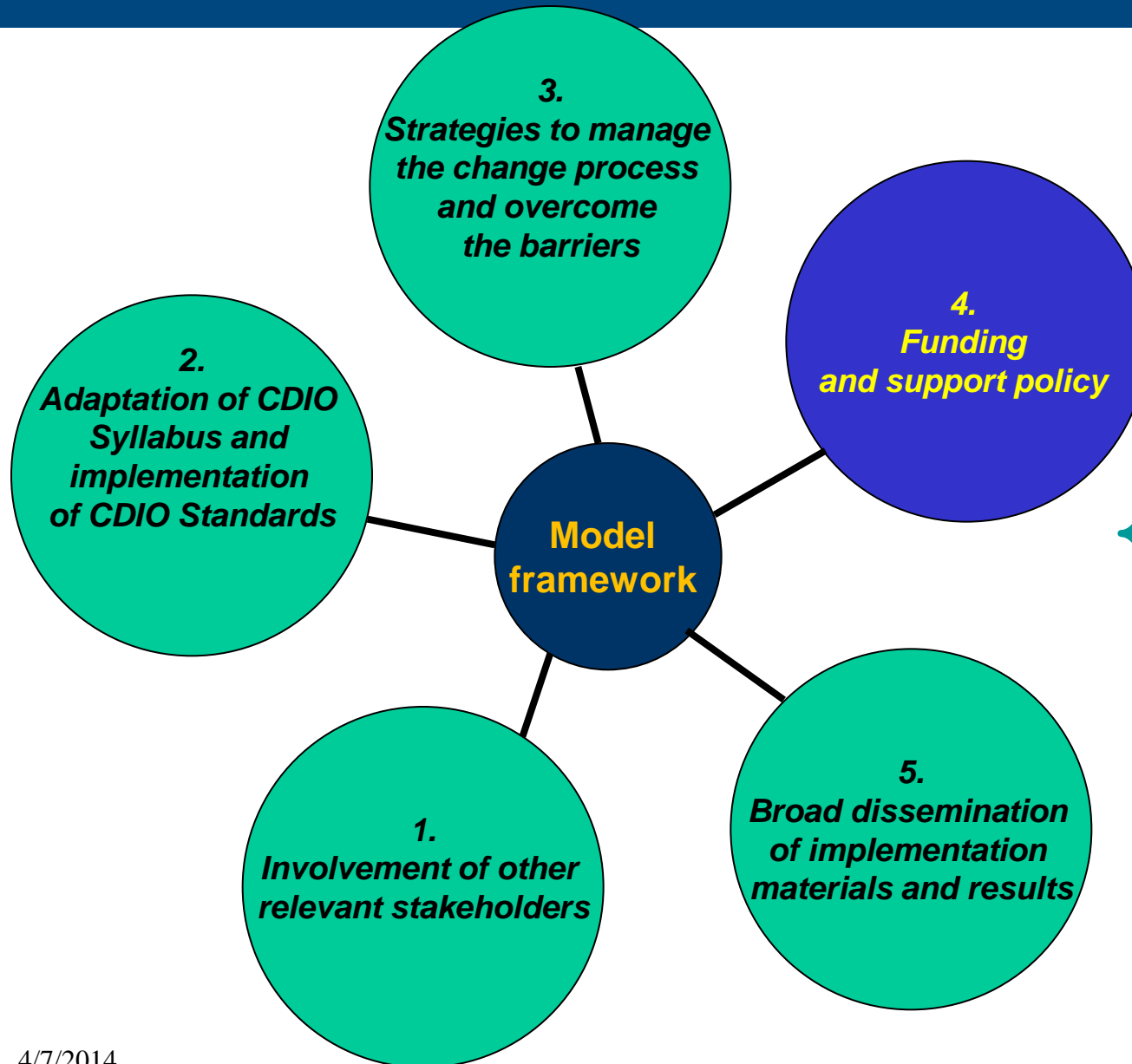-Integrating the CDIO Standards into our program evaluation process ➔ evaluate the extent of CDIO implementation

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1. A model framework

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Model framework

3.
Strategies to manage the change process and overcome the barriers

2.
Adaptation of CDIO Syllabus and implementation of CDIO Standards

4.
Funding and support policy

1.
Involvement of other relevant stakeholders

5.
Broad dissemination of implementation materials and results

- Allocated funding to support activities at the VNU-HCM System, university, and department levels:

* + for common activities that are important to participating universities*

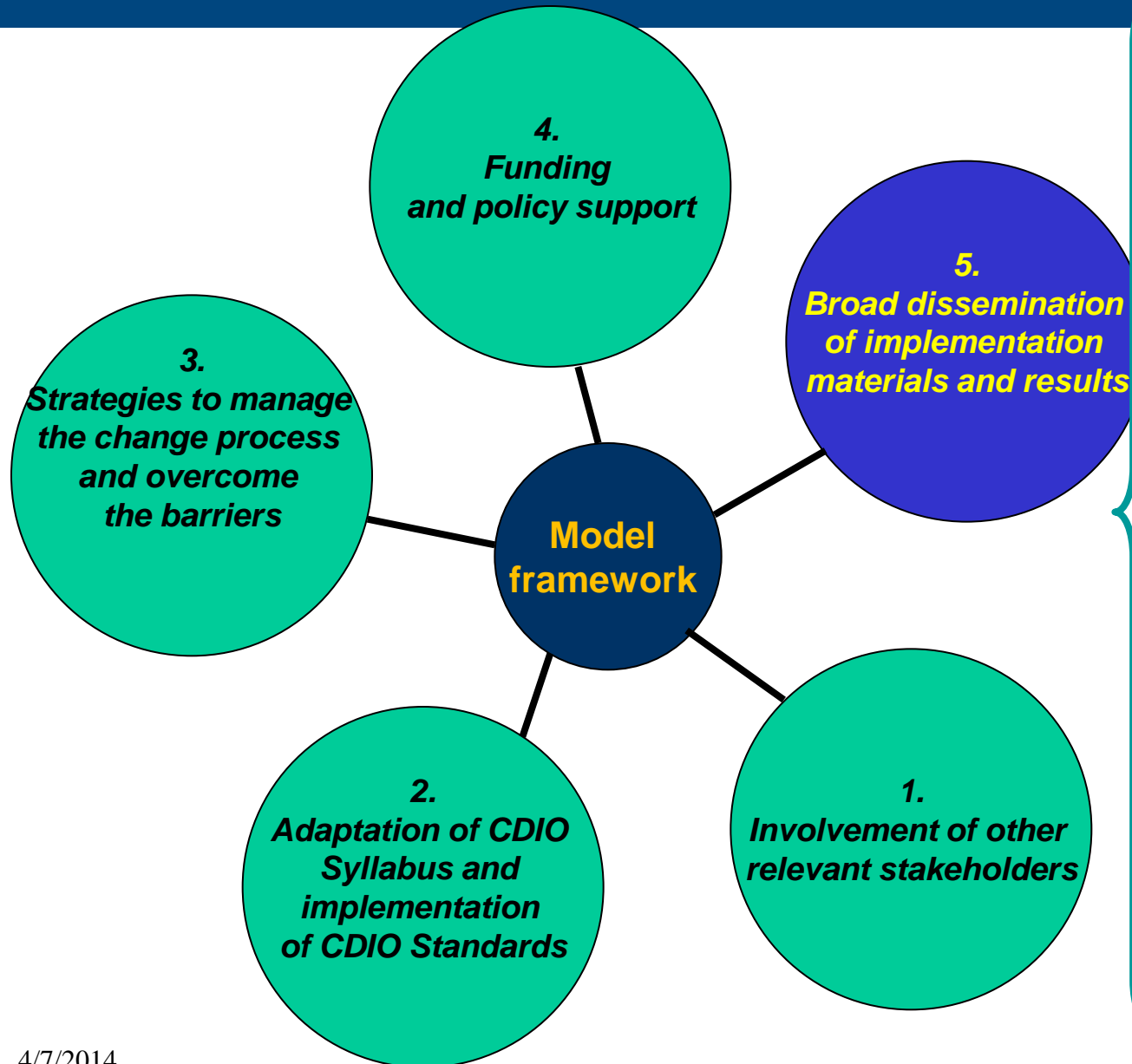* + for participating faculty members time and conduct activities*

- Invited CDIO experts to serve as our advisor and to teach workshops

-Conduct yearly review to evaluate the progress and achievements

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1. A model framework

Model framework

4.
Funding and policy support

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Broad dissemination of implementation materials and results

3.
Strategies to manage the change process and overcome the barriers

2.
Adaptation of CDIO Syllabus and implementation of CDIO Standards

1.
Involvement of other relevant stakeholders

- Translated CDIO book into Vietnamese and gave it for free to universities attending the workshops to promote CDIO in Vietnam

- Hosting CDIO website makes available in Vietnamese the Syllabus, Standards, lessons learned and solutions to common implementation problems
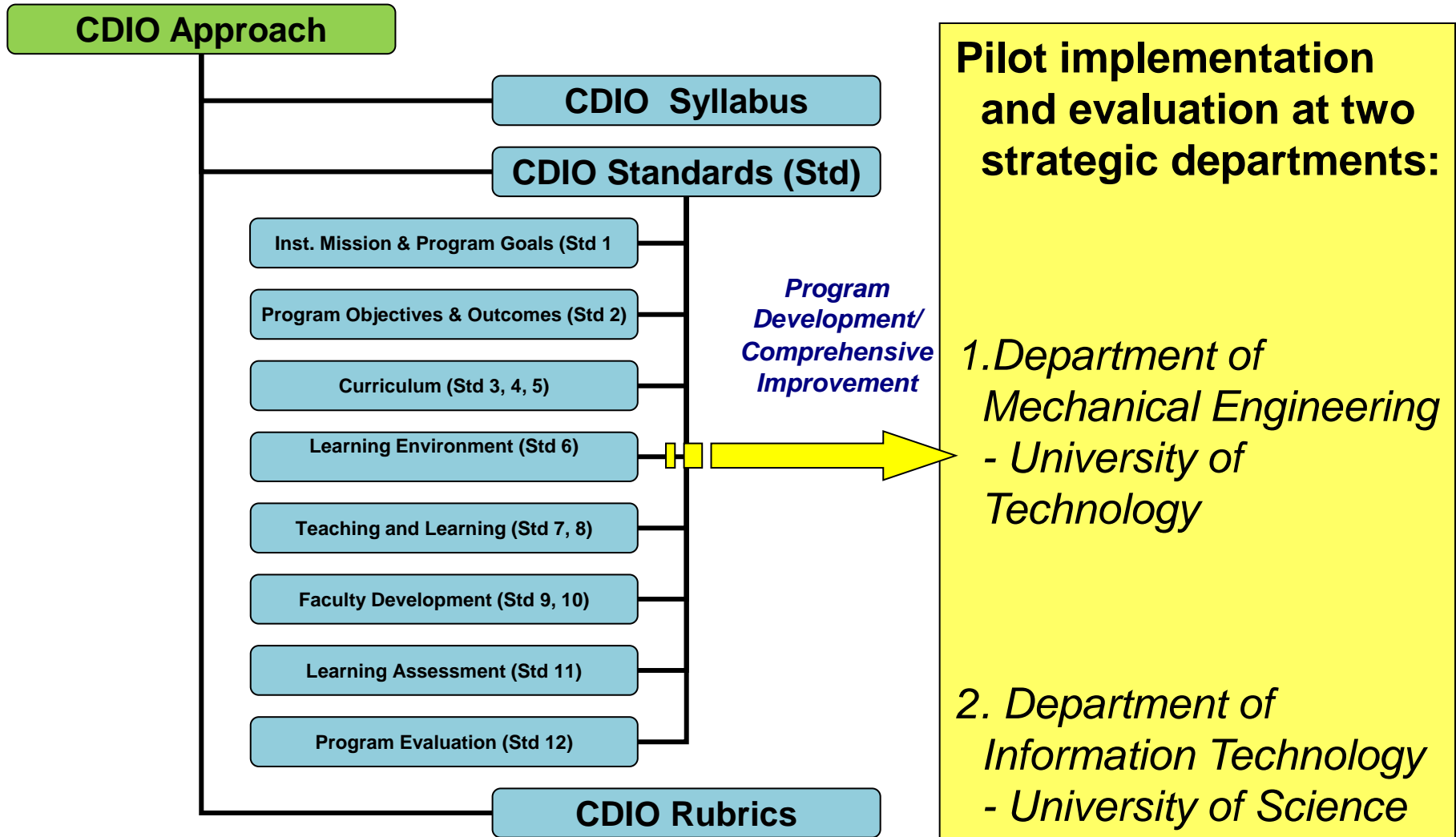
-Committed resources to "train the trainers"

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2008-2009	2010	2011	2012	2013	2014	2015	…2017
Preparation for implementation	Pilot implementation at two strategic departments						
			Development of generalizable solutions				
				Widespread implementation			

CDIO Approach

CDIO Syllabus

CDIO Standards (Std)

Inst. Mission & Program Goals (Std 1

Program Objectives & Outcomes (Std 2)

Curriculum (Std 3, 4, 5)

Learning Environment (Std 6)

Teaching and Learning (Std 7, 8)

Faculty Development (Std 9, 10)

Learning Assessment (Std 11)

Program Evaluation (Std 12)

CDIO Rubrics

Program Development/ Comprehensive Improvement

Pilot implementation and evaluation at two strategic departments:

1. *Department of Mechanical Engineering - University of Technology*

2. *Department of Information Technology - University of Science*

3. The CDIO pilot implementation and results

Standars	At University Department Level	At VNU-HCM System, and National Level
Std 1-2	**new program LOs & integrated curricula**	●**CDIO Book translated, published**
Std 3		
Std 4	**new introductory courses**	●**CDIO implementation materials published**
Std 5	**new Design-Implement courses**	
Std 6	**retasked and new CDIO workspaces**	
Std 7-8	**active learning (AL) and experiential learning applied**	●**National CDIO Workshops 2010 (sponsor)**
Std 9-10	**faculty members trained on using Constructive Alignment Principles to design, develop, and assess AL in large classes**	●**National CDIO Conference 2012 (hosted)**
Std 11-12	**- students assessed on CDIO skills** **- self-evaluated programs**	

4. The generalized common frameworks

Standars	At University Department Level	At VNU-HCM, and National Level
Std 1-2	•**CDIO Syllabus customized for MechE programs** •**CDIO Syllabus customized for CS, CE, and IT programs**	•Guidelines for <u>CDIO-Based</u> Program and Course Design and Development •Guidelines for <u>Outcome-Based</u> Program and Course Design and Development •The Syllabus Framework for Introductory Course •<u>Faculty Training Courses</u>: Using Constructive Alignment Principles to design, develop, and assess AL in large classes
Std 3		
Std 4	•**Intro. Course to Engineering** •**Intro. Course to CS, CE, and IT**	
Std 5	**D-I courses for MechE program**	
Std 6	**CDIO workspaces for MechE Department**	
Std 7-8		
Std 9-10		
Std 11-12	**Guidelines for LOs Assessment for MechE programs**	

CDIO Adoption and Adaptation

- **Uni. of Technology**
- **Uni. of Science**
- **Uni. of IT**
- **Uni. of Economics and Laws**

MechE Department Since 2010

IT Department Since 2010

2 Departments since 2013

Int. Business Department since 2013

10 more departments Since 2013, 2014

ICT Department Since 2013

3 more Departments since 2014

Chemistry Department Since 2013
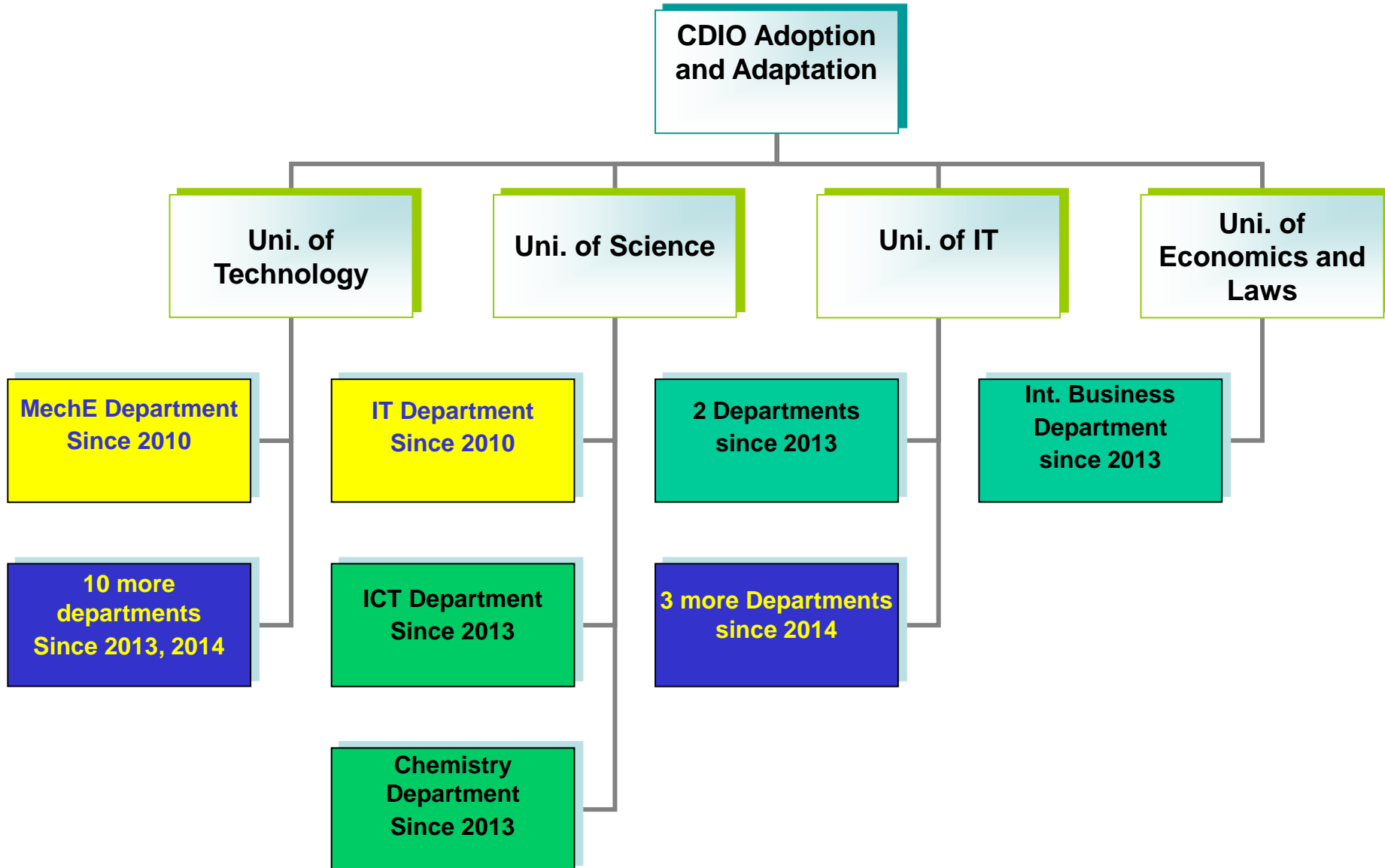
- **implementation of the framework**

- **piloting CDIO at two departments within VNU-HCM**

- **engaging MOET to promote CDIO in Vietnam**

- **disseminating implementation materials**

→

-**potential to facilitate parallel development and sharing of resources and ideas**

- **Make impact on national effort to accelerate curriculum reform through widespread implementation of CDIO**

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Meet the demand for Vietnam's integration into the global economy

Thank you!