International Workshop on
"Organizational and Personnel Development for the Improvement
of Value Chains in the Agricultural Sector and the Food Industry"

The change in Vietnamese higher education meets the labor market

Case of Hanoi University of Science and Technology

Bui Ngoc Son, HUST - Vietnam

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Introduction

❑ Industry 4.0 has impacted on all sectors of economy, labor market, the education system, especially higher education, vocational training;

❑ Enterprises in all production sectors need appropriate development strategies -> high qualified human resources

❑ Comprehensive changes in Training institutions (higher/vocational education)
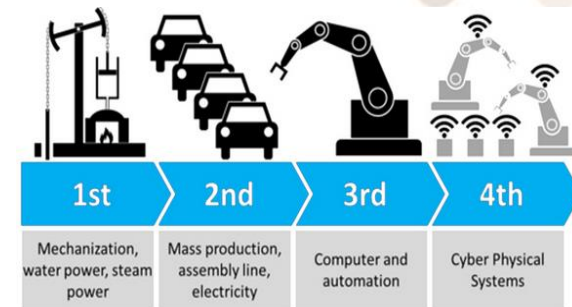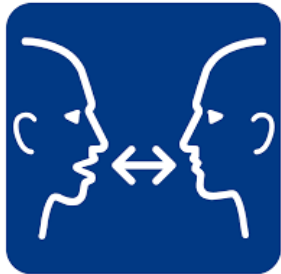
Essential skills in the 21ˢᵗ century

Critical thinking
- Information & Discovery
- Interpretation & Analysis
- Reasoning
- Constructing Arguments
- Problem solving
- Systems Thinking

Collaboration
- Leadership & Initiative
- Cooperation, Flexibility
- Responsibility & Productivity
- Collaborate using Digital Media
- Responsiveness & Constructive Feedback

Communication
- Effective Listening
- Delivering Oral Presentations
- Communicate using Digital Media
- Engaging in Conversations & Discussions

Creativity
- Idea generation
- Idea design & Refinement
- Work creatively with others
- Creative Production & Innovation

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Fig 1: The Model of 4Cs for 21ˢᵗ Century
(source: 21ˢᵗ Century Skills Assessment and Teaching Organization-AT21CS)

Essential skills in the 21st century

Top 10 skills

in 2020
1. Complex Problem Solving
2. Critical Thinking
3. Creativity
4. People Management
5. Coordinating with Others
6. Emotional Intelligence
7. Judgment and Decision Making
8. Service Orientation
9. Negotiation
10. Cognitive Flexibility

in 2015
1. Complex Problem Solving
2. Coordinating with Others
3. People Management
4. Critical Thinking
5. Negotiation
6. Quality Control
7. Service Orientation
8. Judgment and Decision Making
9. Active Listening
10. Creativity

Source: Future of Jobs Report, World Economic Forum

Fig 2: The change of core competencies in the 21st century

The current trends of higher education

1. Diversify school model and training methods

- ❑ Improving the quality of public universities;

- ❑ Developing the system of non-public training institutions

- ❑ Further expand distance learning systems based on ICT technology

- ❑ University system between countries (eg: Bologna process)

2. Promote the combination of Training – Research – Production

3. Internationalization of higher education

4. Mergers and Alliances in higher education

Higher education in the context of Industry 4.0

Features	Prior to 1980 Education 1.0	1980s Education 2.0	1990s to early of 2000s Education 3.0	Today Education 4.0
Focus	Education	Employment	Knowledge generation	Innovation and values creation
Curriculum	Single-disciplinary	Interdisciplinary	Multi-disciplinary	"Varied disciplinary"
Technologies in use	Paper & handwriting	Computer	Internet & Mobile phones	Internet of Things
Teaching methodology	One-dimension	Two-dimension	Multi-dimension	Borderless
Place of teaching	Indoor class	Indoor & outdoor	Network, online classes	Ecosystem
Outcomes	Skilled labors	Knowledgeable labors	Knowledge generators	Innovators and business starters

Fig 3: The stages of education change
(source: Johnson O. C. – NUS)

Characteristics of 4.0 higher education

❑ Meet the needs of the industry 4.0;

❑ Harnessing the full potential of core technologies such as digital technology, artificial intelligence (AI), Big data, IoT, VR/AR.. for training process;

❑ Personalized Learning ("Tailor made" learning process);

❑ Project-based Learning;

❑ The school is considered a "learning ecosystem";

Hanoi University of Science and Technology - Overview

❏ Established: 15/10/1956

❏ A multidisciplinary university of technology

❏ One of the leading technical universities of Vietnamese education

❏ More than 60% of lecturers have doctorate or higher degree

❏ Professor: 21

❏ Associate Professor: 222

❏ Doctor: 775

Hanoi University of Science and Technology - Overview

Publication	2016-2017	2017-2018	2018-2019
ISI Paper	361	300	333
SCOPUS Paper	31	59	190
International Papers (not Scopus, ISI)	63	76	81
Paper in Domestic Journals	688	565	575
Paper in International Workshops	314	370	170
Paper in Domestic Workshops	408	349	179
Total	1865	1719	1528

Intellectual Property	2017-2018		2018-2019	
	Patent	Useful Solution	Patent	Useful Solution
Number of Registration	11	4	11	10
Number accepted	3	3	11	4

Source: HUST's report of school year 2018-2019, www.hust.edu.vn

1. **Diversifying training programs**

Fig 4: Model of regular higher education at HUST
(since 2017)

Innovation in training at Hanoi University of Science and Technology

1. Diversifying training programs

- ❑ 31 standard training programs, designed according to CDIO standards

- ❑ 23 EliTECH training programs;

- ❑ 11 international training programs

International Training programs	
Joint Training University	**Programs**
Nagaoka University (Japan)	Mechatronic
Griffith University (Australia)	Mechanical Engineering
Leibniz Hannover University (Germany)	Mechatronics; Electronics and Telecommunication
La Trobe University (Australia)	Informatics
Victoria Wellington University (New Zealand)	Informatics; Business Administration
Grenoble University (France)	Information system
Troy University (USA)	Computer science; Business Administration
Northampton University (England)	Business Administration,- Logistic

Innovation in training at Hanoi University of Science and Technology

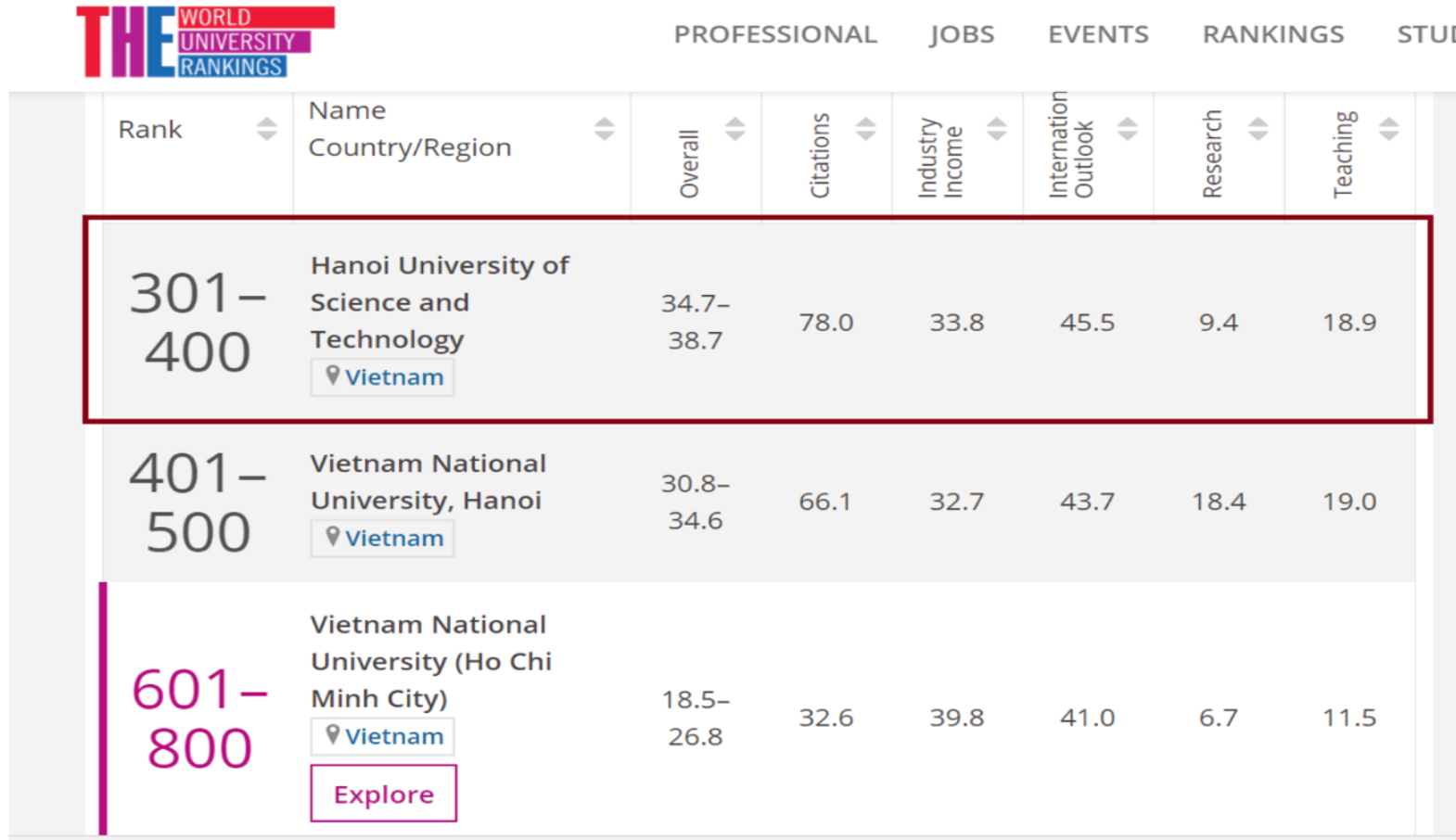**2. Increase internationalization in teaching and research**

❑ Cooperate in developing international training programs at

   higher education level;

❑ International cooperation in training high qualified human resources;

❑ International cooperation in scientific research;

❑ Implement international accreditation activities for the institution

   and the training programs;

Innovation in training at Hanoi University of Science and Technology

Results from international accreditation activities

❑ One of the first four schools of Vietnam to reach international quality accreditation standards according to European standards;

❑ 1st place among Vietnamese universities in Scimago's rankings from 2015-2018;

❑ 03 groups of Engineering and Technology fields are ranked in the top 400 - 550 in the world (according to QS World University Rankings by Subject);

❑ ranked in the top 801-1000 best universities in the world (according to Times Higher Education)

❑ ranked in the top 400 universities in the world in the field of Engineering and Technology according to "THE WUR by Subject 2020" ranking

Innovation in training at Hanoi University of Science and Technology

Fig. HUST is ranked 301-400 in the world in the field of engineering and technology
(https://www.timeshighereducation.com/world-university-rankings)

Innovation in training at Hanoi University of Science and Technology
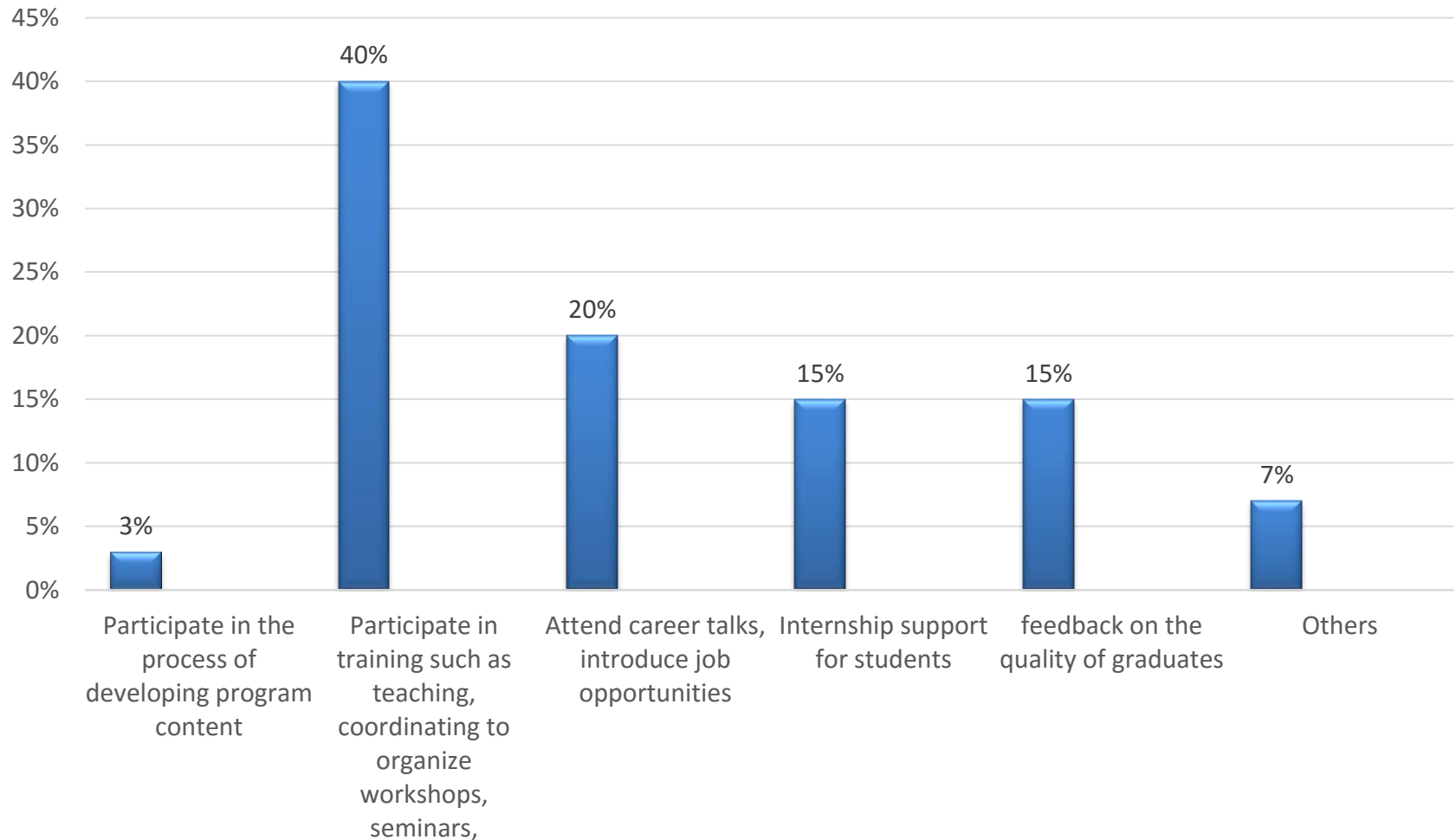
3. Strengthen cooperation with businesses and partner organizations

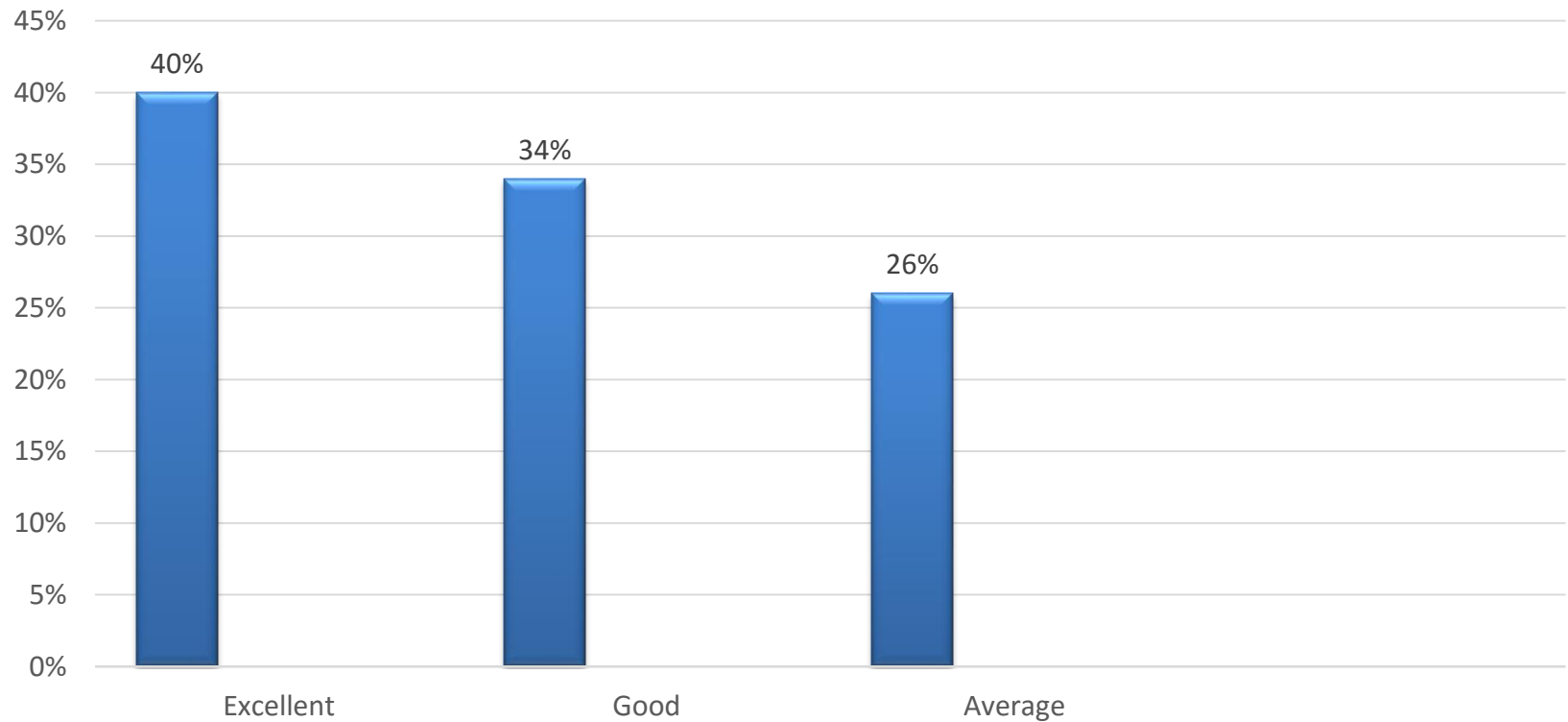# Innovation in training at Hanoi University of Science and Technology

3. Strengthen cooperation with businesses and partner organizations

Quality of HUST' students
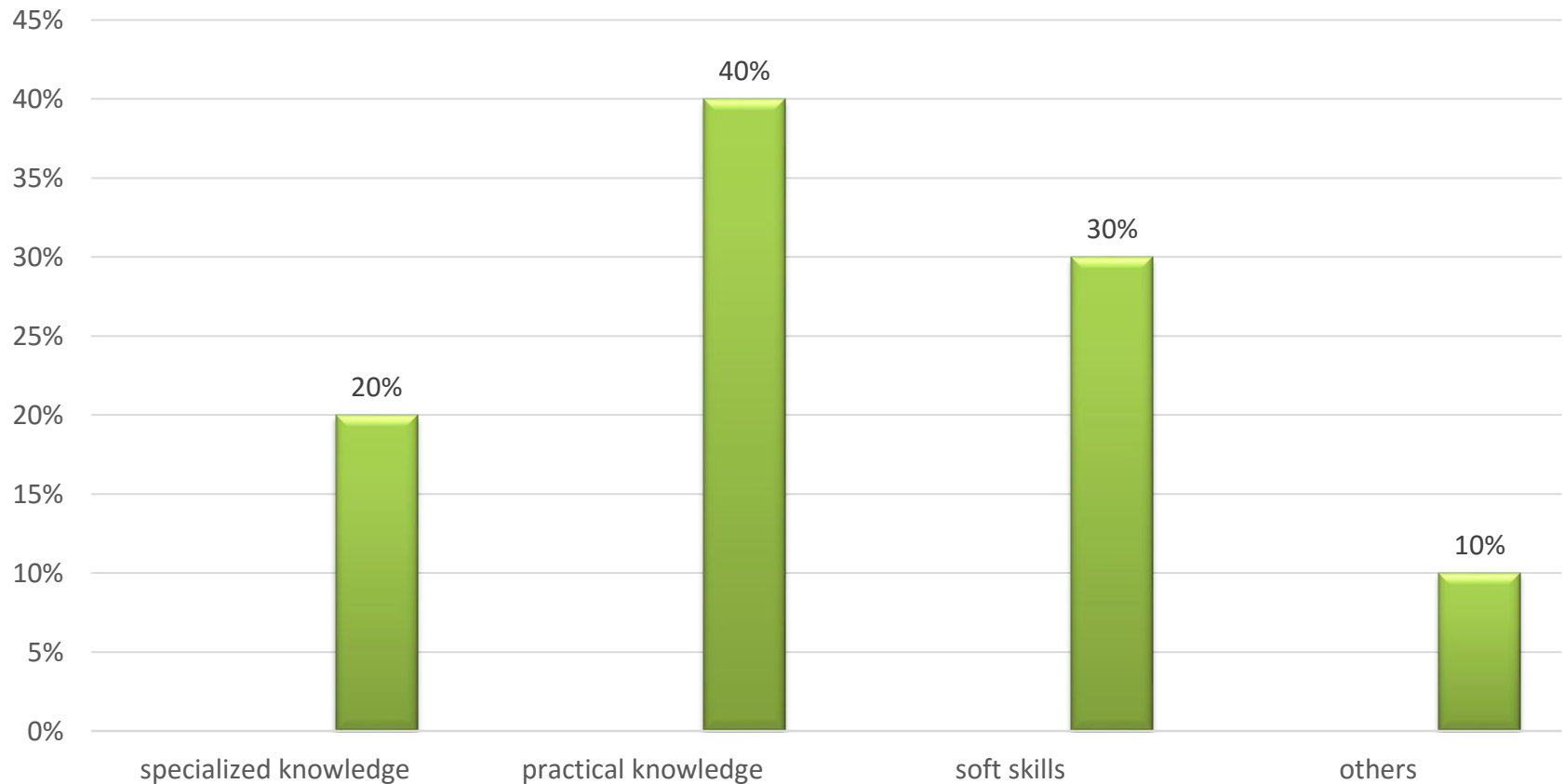### (Assessed through working process at Business)

Source: HUST's report of school year 2018-2019, www.hust.edu.vn

3. Strengthen cooperation with businesses and partner organizations

Knowledge HUST's students need further training

Source: HUST's report of school year 2018-2019, www.hust.edu.vn

THANK YOU FOR YOUR ATTENTION!