

# Green, Resilient and Sustainable TVETs in China

By Alex Luo

Shanghai University of Engineering Science

2023.12.04

开展高水平研究，提升世界技能大赛办赛水平，促进技能传播。



世界技能大赛中国(上海)研究中心  
WorldSkills Research Center (Shanghai, China)

# Alex Shengqiang LUO



PhD. In Economics



Associate Professor



Visiting Scholar in Graubuenden Applied University, Switzerland



Workshop Sector Manger Coordinator in WSS2022



Speaker in Worldskills Conference 2021



# Contents



**An introduction to TVETs in China**



**GRS TVETs in China: A Case Study**



**Suggestions to Build GRS TVETs**



**Q&A**

# Contents



An introduction to TVETs in China



GRS TVETs in China: A Case Study



Suggestions to Build GRS TVETs




Q&A



# History





## Starts in Late Qing Dynasty

 Long history of professionals training: labor division – specialization – training within family、enterprise or through private teaching



# History

## Starts in Late Qing Dynasty

-  Long history of professionals training: labor division – specialization – training within family、enterprise or through private teaching
-  Industrialization introduced by importing of machines or industrial equipment
-  Skilled personnels / talents worth much more than labors
-  Professional schools showed up with curriculum borrowed from west (83 schools by 1911, the one owned by the state enrolled 5600+ students)

# History



Fujian Shipping School



Shen Baozhen

# History



Hubei Crafts School




Zhang Zhidong



# History

## Struggling before the establishment of PRC China

 Importance were realized because of the need in developing domestic military industry and also producing industrial goods (learn from Japan)

 Technician schools or training centers became popular (400+ schools with 35 116 students in Shanghai in 1935 )

 Theories in developing TVETs appeared and were put into practice

 The TVETs struggled since there is no peace and economic development during the whole period

# History



中华职业学校学生在铁工教室实习



中华职业学校珐琅科学生在实习车间实习



中华职业学校学生在木工教室实习



Huang Yanpei

# History



Tao and the students



Tao Xingzhi

# History

## Developing steadily after the establishment of PRC China

 Guided by independent and self-sufficient policy

 Followed Soviet Union mode: rules and regulations are issued

 A lot of technician schools are built and a lot of students are enrolled

 Teaching were directly connected with producing

 Graduates enjoyed high salary and social status

# History

 Developing slowly but steadily after the establishment of PRC China

Year	Number of			
	schools	enrolment s	graduates	Students at school
1951	12	4500	1700	6400
1952	22	11500	2900	15000
1953	35	15000	6500	23500
1954	65	34419	12000	43919
1955	78	34095	29919	48095
1956	212	91272	29500	113867
1957	144	14616	69000	66583
1958	417	141000	38000	168803

# History

## Quick development after Reform and Opening in China



In 2000, 3470 schools with 1 400 000+ students.



Training became part of the TVETs system besides the school teaching



Special government departments were established to guide and monitoring the development of TVETs



Occupational skills testing authorities were established in 1993, skills competitions were also introduced



Privately owned TVETs appeared

# History

## High quality development after 2000



Joining in WTO meant a lot



International cooperation: different modes, different partners, different practices



In 2017, 2490 schools with 33 820 000 students, with most are highly skilled technicians



Close cooperation with industries





Dual certificate requirements



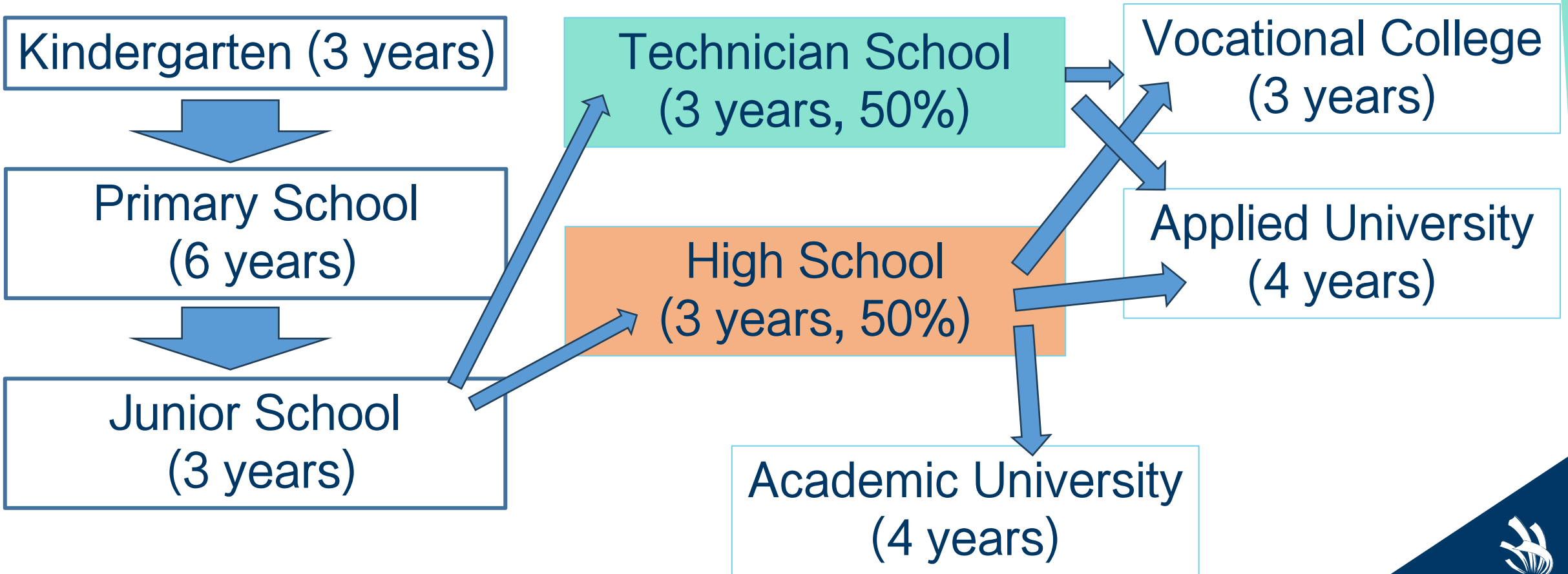
Skills competitions

# Statistics (2022)

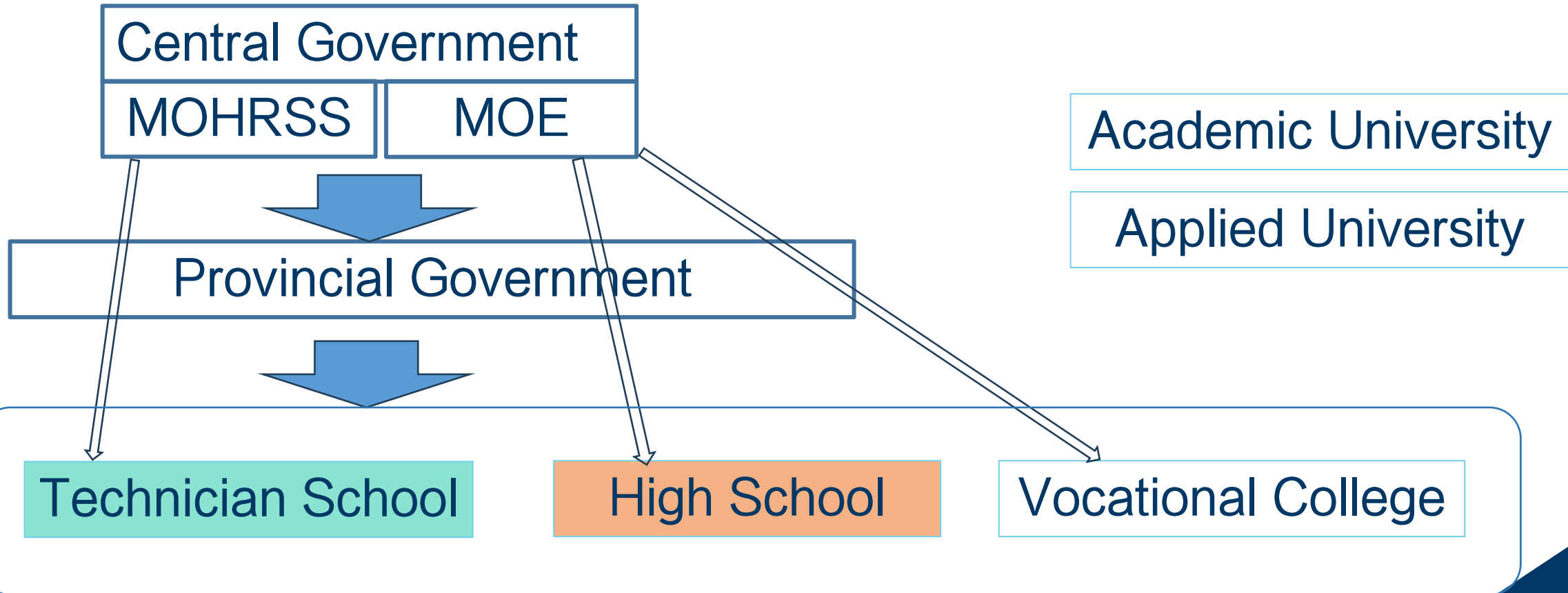
 MOE: 7201 Vocational schools with 4 847 800 enrollments; 1489 Advanced vocational college with 5 389 800 enrollments; 32 Applied University with 7 6300 enrollments

 MOHRSS: 2551 Technician schools with 1 660 000 enrollments and 6 160 000 trainings; 623 public and 31765 private skills training centers with 22 280 000 trainings.

# Administrative Structure



# Administrative Structure



# Contents



An introduction to TVETs in China



GRS TVETs in China: A Case Study



Suggestions to Build GRS TVETs



Q&A

01

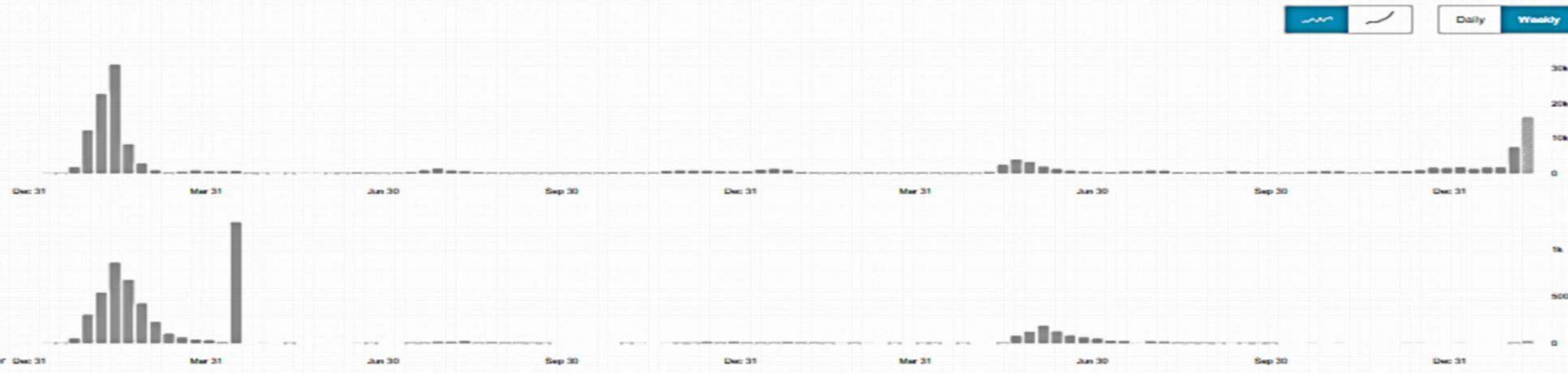
# Country context

In China, from 3 January 2020 to 5:20pm CET, 18 February 2022, there have been **164,322 confirmed cases** of COVID-19 with **5,726 deaths**, reported to WHO. As of 4 February 2022, a total of **3,016,698,519 vaccine doses** have been administered.

## China Situation

**164,322**  
confirmed cases

**5,726**  
deaths



- Nearly two and half years
- A lot of measures have been taken with some of the effects observed
- Policies after the outbreak

# Methodology

## A. GRID framework

- i. A framework by WB for policy assessment
- ii. Green: sustainability – environmental friendly, forward-looking (new)
- iii. Resilient: Adjustability to different situation – recover, quality assurance
- iv. Inclusive: Integration of all – special care to disadvantaged groups

## B. Literature review & Interview

# Methodology

## C. Sampling

GRID	Central government	Provincial government			School (college)		
		Guangdong	Jiangsu	Shanghai	GTC	CVITG	STS
Inclusive	4	2	5	3	2	0	0
Resilient	5	2	3	2	3	2	2
Green	4	1	3	2	0	1	1
sum	13	5	11	7	5	3	3

GTC: Guangdong Technician College; CVITG: Changzhou Vocational Institute of Textile and Garment; STS: Shanghai Technician School

**p1**



# Central Government Policies

## (1) Inclusive policies (4)

### Free access to Online skill training

- 6million user registration
- 14 million hours
- 20 thousand registered companies

### Special care to disadvantaged

- 240 billion RMB support
- 90% + employment rate
- Very few students drop out

### More access to TVETs

- 4.2 million more students
- Higher employments
- More skilled labor

# Central Government Policies

## (2) Resilient policies (5)

- i. Instructions on organizing the teaching and learning in TVETs under COVID-19 situation:  
Most TVET institutions kept running during the pandemic and came back to normal when the situation became not so serious.
- ii. The first National Skills Competition of P.R.C. :  
For the first time, the TVETs are put on so high a level which may encourage the whole society to invest more, participate more, and also encourage all the technicians, skilled labor.



# Central Government Policies

## (3) Green policies (3)

Promotion of new skills, new occupations

National skill competition on new skills

- 43 new occupations released
- 20+ new skills are promoted
- Widely spread of green skills such as renewable energy, internet + skills

# Central Government Policies

## (4) Conclusions

- i. These policies are timely and effective
- ii. These policies focus on recovery of TVET system and strengthen the inclusivity of TVET system
- iii. These policies have taken sustainability into consideration, but are not directly related with green skills.

# Provincial Government Policies

## (1) Inclusive policies (Guangdong 2+Jiangsu 5+Shanghai 3)

- i. Supporting the smooth running of TVETs (financial support) **Very few students dropped out because of the pandemic.**
- ii. Special support to graduates **The overall employment rate are not heavily reduced by the pandemic.**
- iii. Special care to certain strategic programs: Cantonese Cuisine Chef, Guangdong Housekeeper, Guangdong Technicians, Jiangsu Healthcare, Shanghai internet +  
**Guandong over 4million; Jiangsu 4.5 million; Shanghai 1million labors got specialized training and better employment opportunities.**



# Provincial Government Policies

## (2) Resilient policies (Guangdong 2 + Jiangsu 3+Shanghai 2 )

- i. Detailed instructions to the running of TVETs
- ii. Detailed support to TVETs programs

Most TVETs institutions kept running during the pandemic and came back to normal when the situation became not so serious



# Provincial Government Policies

## (3) Green policies (Guangdong 1 + Jiangsu 3+Shanghai 1 )

- Detailed instructions to the promotion of new skills, especially the internet + skills
- Integration of green skills or new skills into future plan of TVETs
- National skill competition on new skills
- Organizing the trial competition and select the competitors for the national competition of new skills

- Trial Competition of New Skills held in every province with more than 1000 competitors
- More green skills are identified, and integrated

# Provincial Government Policies

## (4) Conclusions

- i. These policies are usually detailed policies of central government policies, but are still guidelines
- ii. These policies are usually combinations of central government policies and their own development strategy, eg. strategic industry
- iii. These policies usually balance the need of pandemic prevention and the running of the TVETs basing on the pandemic situation in the province

# School-Level Government Policies

## (1) Inclusive policies (GTC 2)

Special designed program for those students from other poor provinces (province partnership in the National Poverty Alleviation Strategy) **These students are well supported by the program and they can contribute back to their hometowns.**



Xiangxi Class (53)



Qiannan Class (251)



Guangfu Class(490)

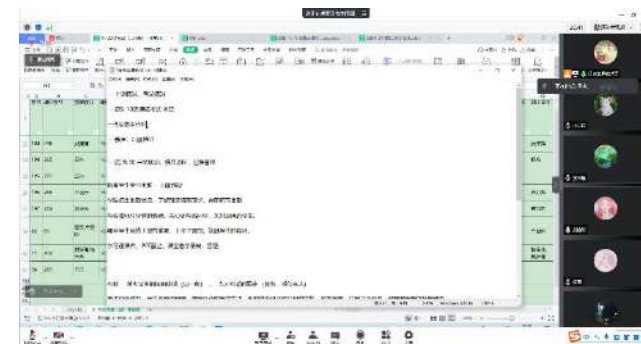


worldskills  
China

# School-Level Government Policies

## (2) Resilient policies (GTS 3 + CVITG2 + STS 2)

Detailed, comprehensive plan for the teaching and related campus management.  
Three institutions kept running during the pandemic and came back to normal when the situation became not so serious (Most classes put online; New healthcare major started; Pilot programs on Online teaching and training).



# School-Level Government Policies

## (3) Green policies (CVITG1 + STS 1)

- Close cooperation with green industries or green companies **Win-win situation for CVITG and ... ( over 2500 students apprenticeship )**
- Participation in green skills and involve as many students as possible **Green skills are identified, aware of, and integrated into TVETs in STS (about 1000 participants in 40 skills)**



# School-Level Government Policies

## (4) Conclusions

- i. These policies are detailed measures of central government or provincial policies. They are not many but very effective.
- ii. These policies mainly focus on resilient and inclusive policies.
- iii. These policies are made according to the present pandemic situation and their development strategy.

# Contents



An introduction to TVETs in China



GRS TVETs in China: A Case Study







Suggestions to Build GRS TVETs



Q&A



# Establish a policy system

-  A more careful GRID analysis of the present policies
-  Synergize policies from different administrative departments
-  A careful check of the relationship between TVETs system and the industries
-  More space should be given to technician schools and vocational colleges



Being open means more opportunities with more challenges



Differences are where opportunities hide







To learn more, to involve more



Make the most out of the international bodies such as UNESCO,  
ILO, Worldbank, Worldskills



# Embrace the IT development

-  Virtual but real, flexible, effective
-  Lower transaction cost means more labor division and more specialization
-  Not always expensive to start, but pay back a lot
-  Resources should be collected, reproduced, packed and then released



Thank you for your time!

Thank you for your constructive suggestions!