

EDUCATION & SKILLS

FINDINGS & RECOMMENDATIONS



FICCI ALLIANCE FOR
RE-IMAGINING SCHOOL EDUCATION

AMERICAN EDUCATION

- Primary
- Secondary
- Higher Ed

CASE:

BROOKLYN TECH HIGH SCHOOL

- Brooklyn Technical High School is the nation's largest specialized public high school for science, technology, engineering and mathematics
- Students interested in attending Brooklyn Tech must take the Specialized High Schools Admissions Test (SHSAT) administered by the New York City Department of Education
- Brooklyn Tech is an example of the Junior High School system of America that provides flexibility in the system for Grades 9-12 to pay Technical Vocational focus on STEM

POLICY FOCUS ON STE(A)M EDUCATION

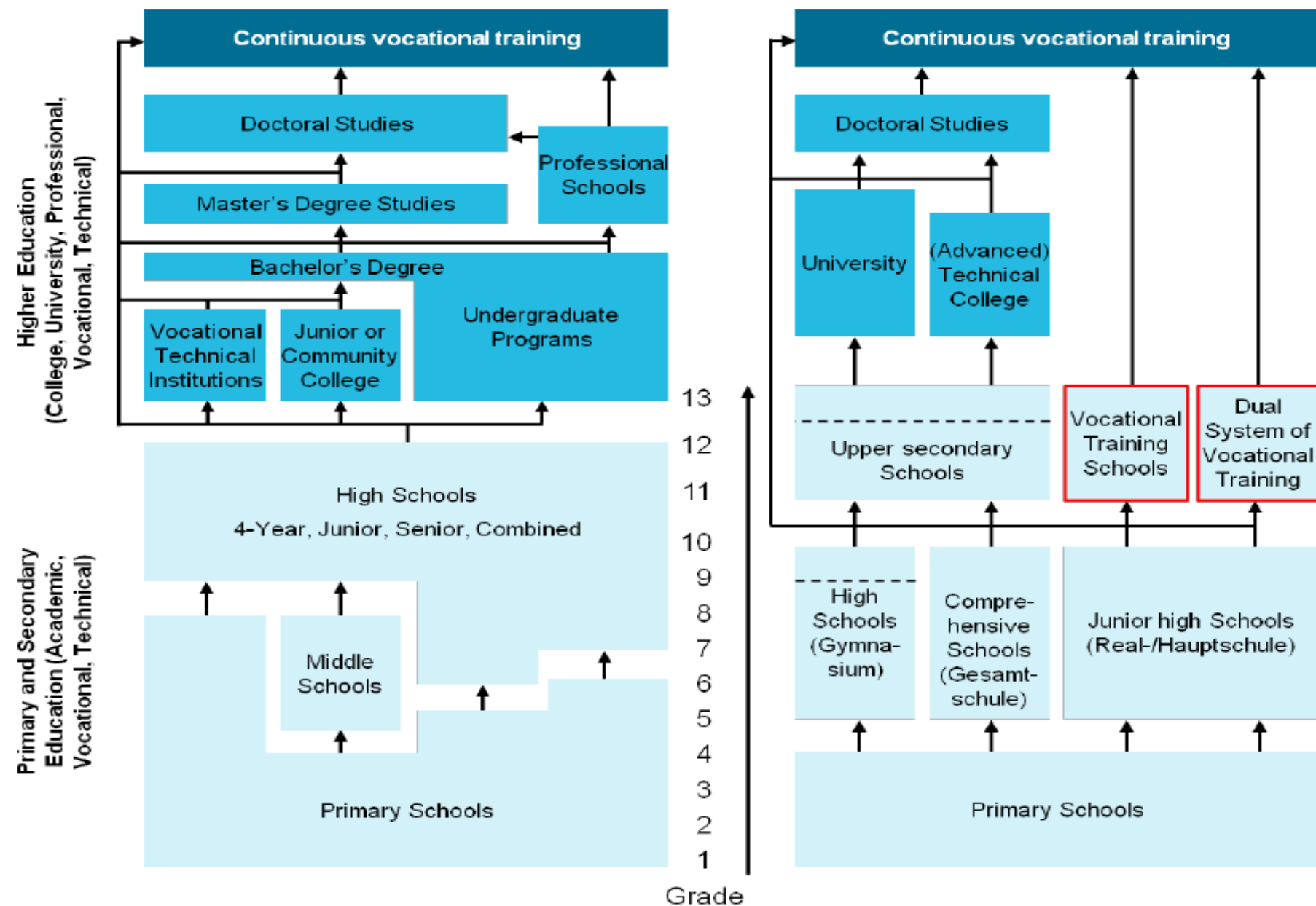
- Brooklyn Tech offers hands on training on the following subjects:

1. HEALTH & SAFETY
2. BIOLOGY
3. CHEMISTRY
4. COMPUTER SCIENCE & ENGINEERING
5. ENGLISH
6. PHYSICAL EDUCATION
7. OTHER LANGUAGES
8. MATHEMATICS
9. MUSIC
10. LAW



American Educational System

German Educational System



THE GERMAN DUAL EDUCATION MODEL



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German dual system of vocational education and training

**Vocational school and the company providing training
 fulfill a joint educational remit**

1-2 days/ week

**Vocational
 School**

Teaches

- ✓ vocational and
- ✓ general educational content

Trains

- ✓ specialist competence and
- ✓ general skills

Enables pupils/students to understand
 and reflect the theoretical fundament
 of their vocation

4 days/ week

**Training
 Company**

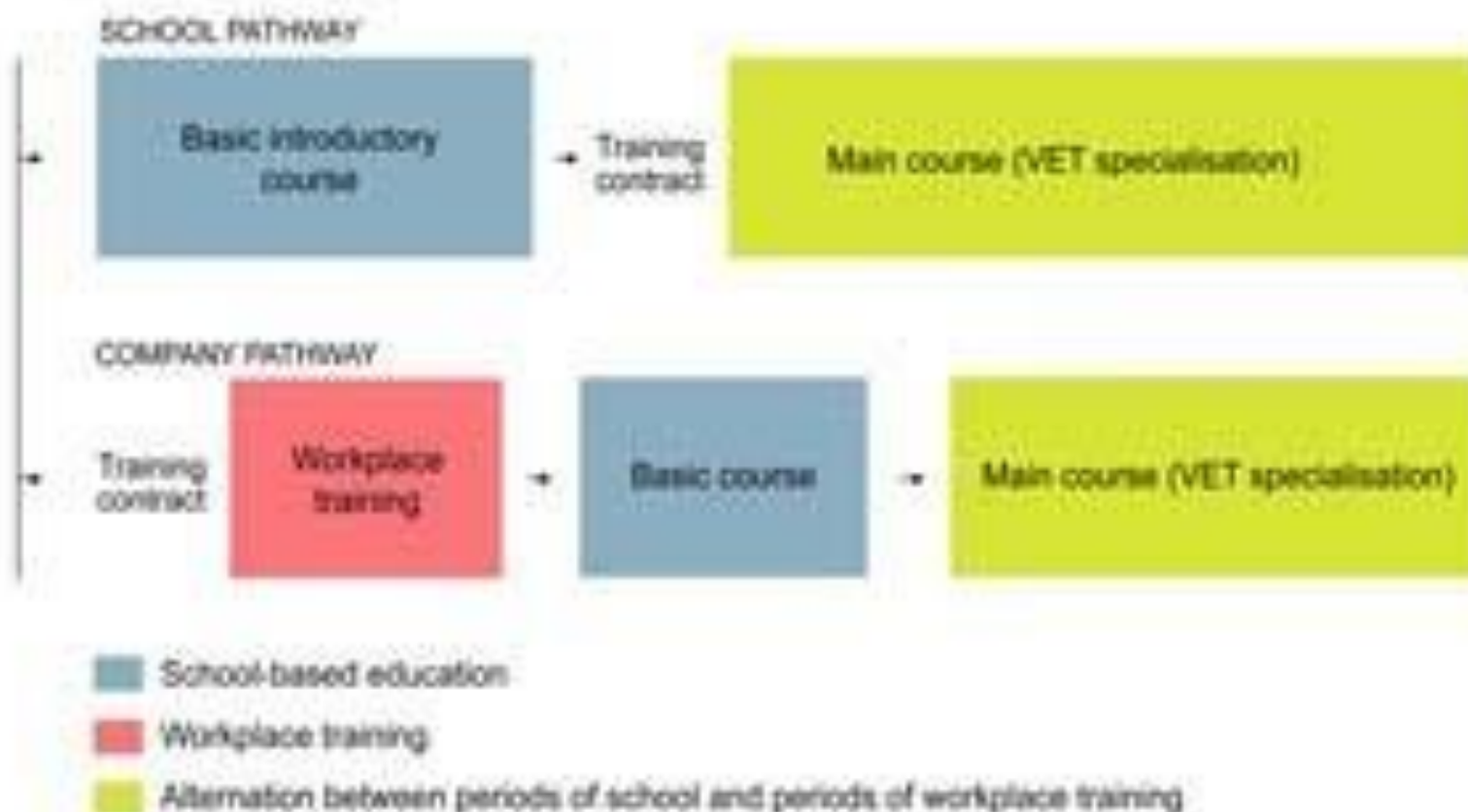
Provides opportunities for learning by

- ✓ integrating the apprentices in real
 work processes
- ✓ applying the domain specific
 contents learned at school in
 practice

Enables apprentices to acquire the
 ability to perform professionally on
 their own

THE DUAL TRAINING SYSTEM

- IVET programmes alternate between school-based education and workplace training



THE AUSTRALIAN MODEL



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AUSTRALIAN EDUCATION

- Primary
- Secondary
- Tertiary

1.University | 2.TAFE | 3.VET



PREFER VET QUALIFICATIONS

Diploma or higher 244 600 (13.0%)

Certificate III 281 100 (15.0%)

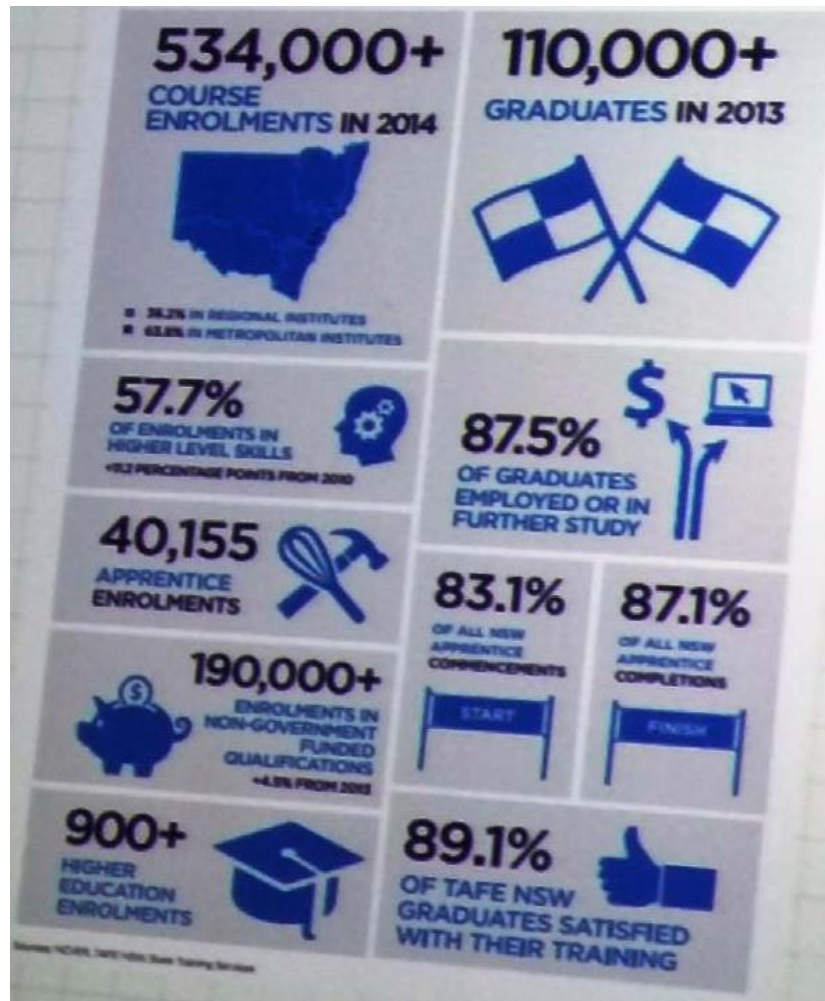
Certificate I 101 000 (5.4%)

Non - AQF qualifications 277 600 (14.8%)

Certificate III 657 200 (35.0%)

Certificate IV 316 000 (16.8%)

TAFE NSW AT A GLANCE



School Sector Qualifications	Vocational Education and Training Sector Qualifications	Higher Education Sector Qualifications
		Doctoral Degree (1.10)
		Masters Degree (1.9)
	Graduate Certificate (1.8)	Graduate Diploma (8)
	Bachelor Degree (1.7)	
	Advanced Diploma (1.6)	Associate Degree (1.6)
	Diploma (1.5)	
	Certificate IV (1.4)	
Higher School Certificate	Certificate III (1.3)	
Certificate II (1.2)		
Certificate I (1.1)		
	Statement of Attainment	

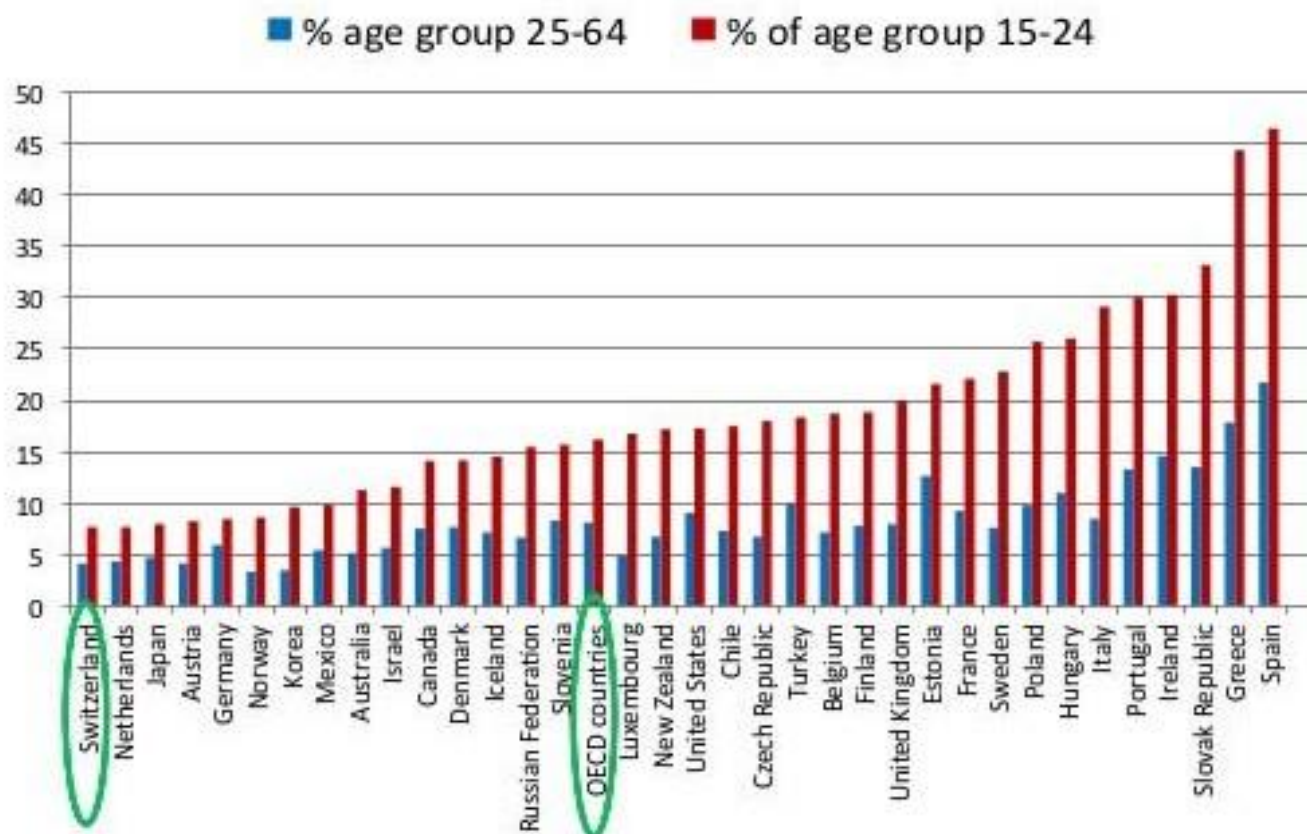
THE SWISS VET MODEL



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VET in Switzerland – Low (youth) unemployment





What drives the system ?

Companies
Apprenticeships

Companies:

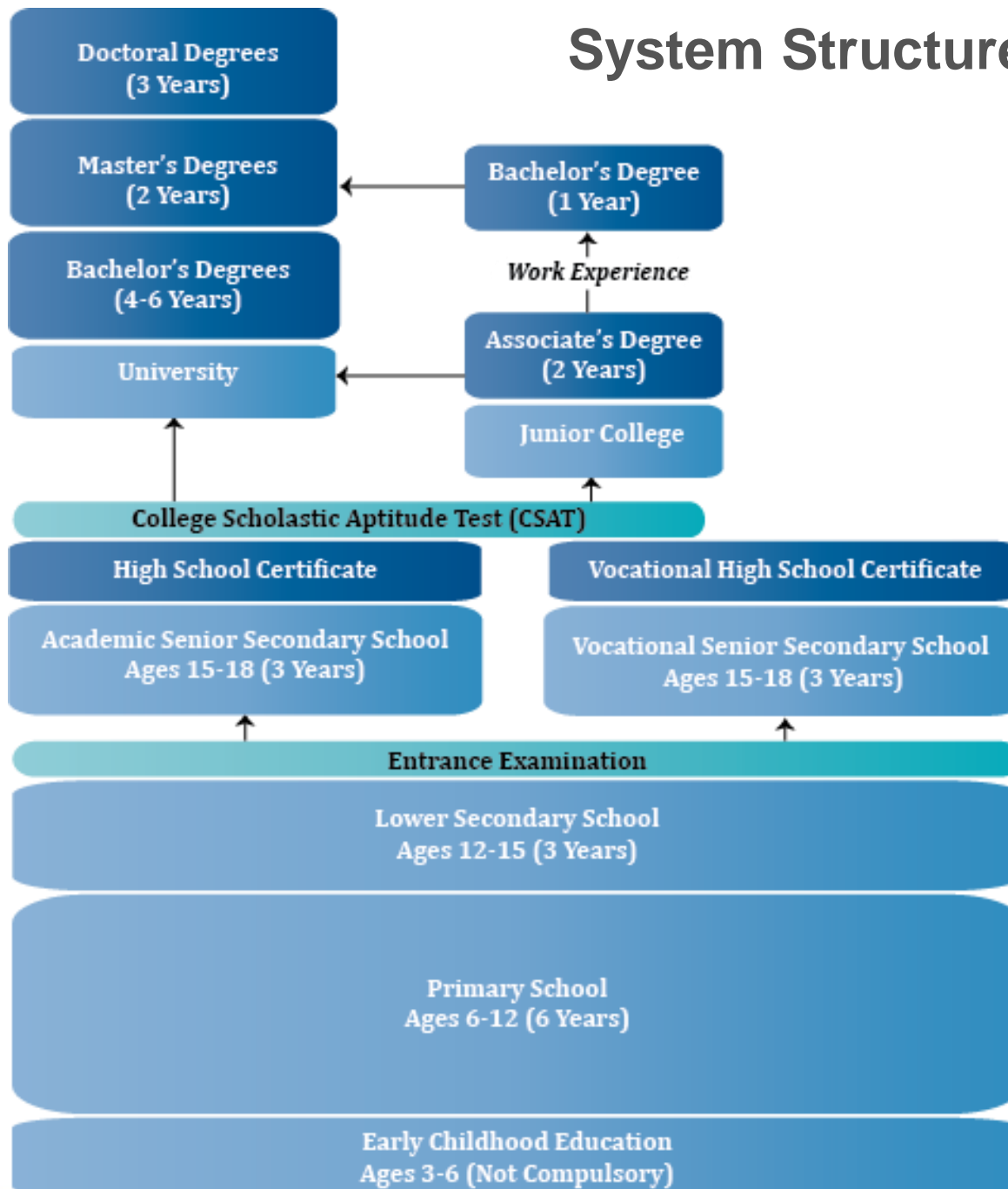
- 30-40% of Swiss companies offer apprenticeships
- Large companies and SMEs
- Almost all companies hire staff with apprenticeships

THE SOUTH KOREAN MODEL



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System Structure



Efforts towards Mainstreaming Vocational Education

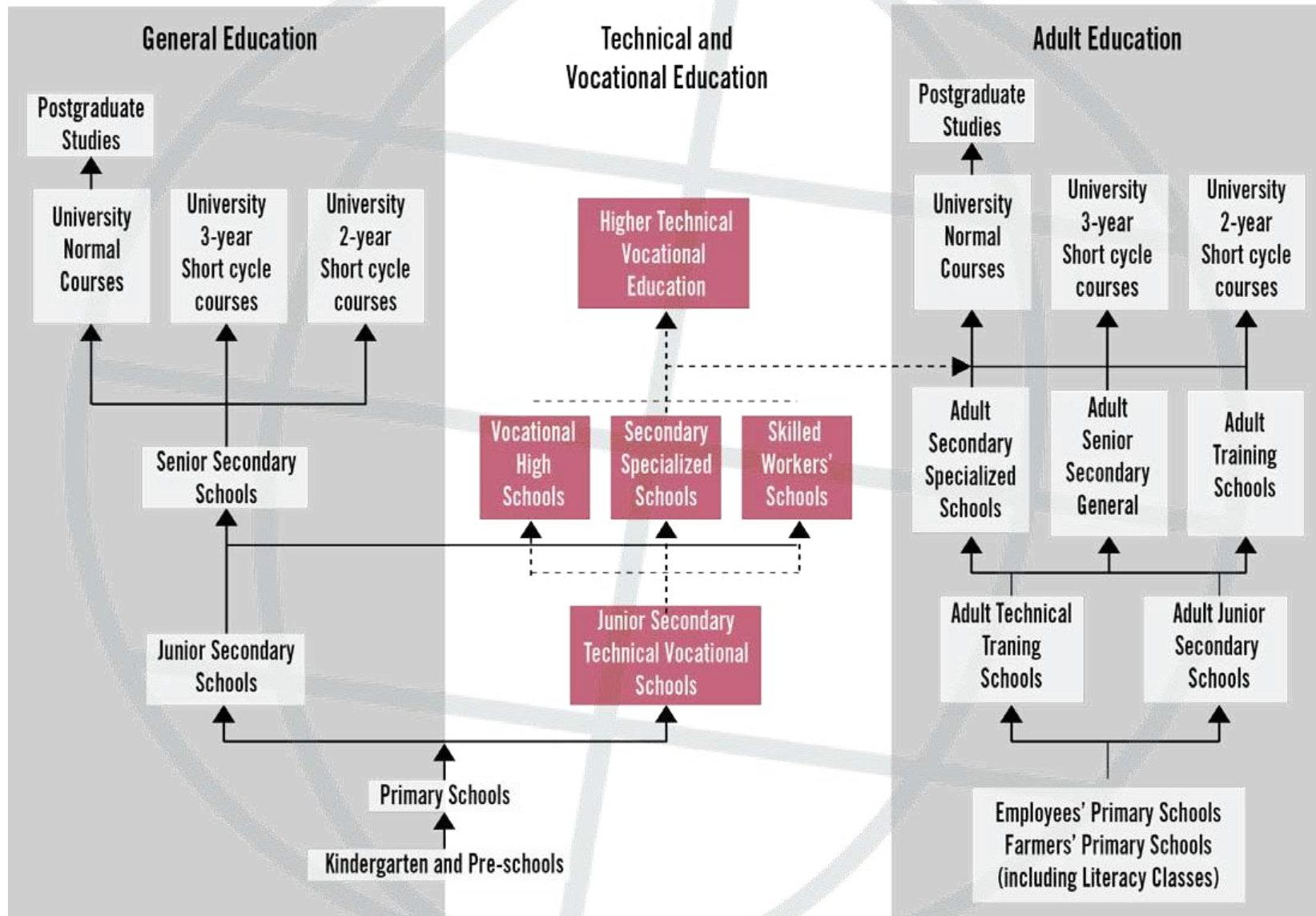
- Students first enter VET in upper secondary school. After graduating from upper secondary VET, they can either go directly to work or apply to two- to three-year vocational programs at junior colleges or polytechnic colleges or apply to University
- Developed National Competency Standards (NCS) in 16 broad industry areas and are now developing a National Qualifications Framework for all secondary and post-secondary vocational programs
- Introduced *Meister* secondary schools, which are modelled on the Germany Dual System. *Meister* schools have competitive entrance requirements, waive tuition fees for students, guarantee employment to their graduates, focus on specific industries, such as banking, shipbuilding or semiconductor manufacturing and develop their own curriculum with industry partners
- Pilot “work and study” program within the specialized vocational schools, which was expanded to 60 schools in 2015
- Lowering the cost to companies of apprenticeships and on building coordination between specialized vocational upper secondary schools and junior colleges so that students have clear pathways to continue their training within specific industry areas.
- The number of students choosing to gain work experience before continuing to further education almost doubled from 2013 to 2016

THE CHINA MODEL



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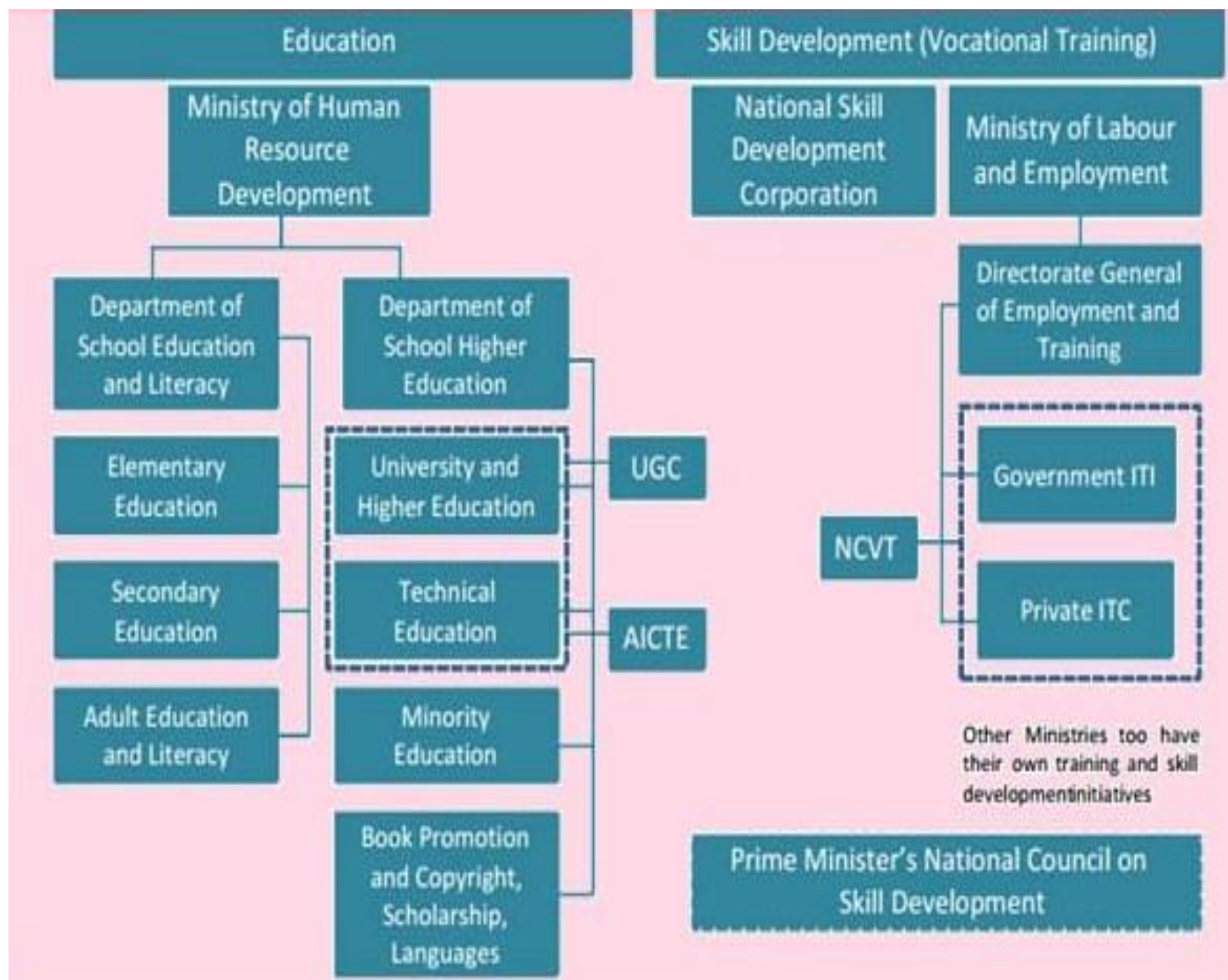
The Contemporary Structure of Education in China



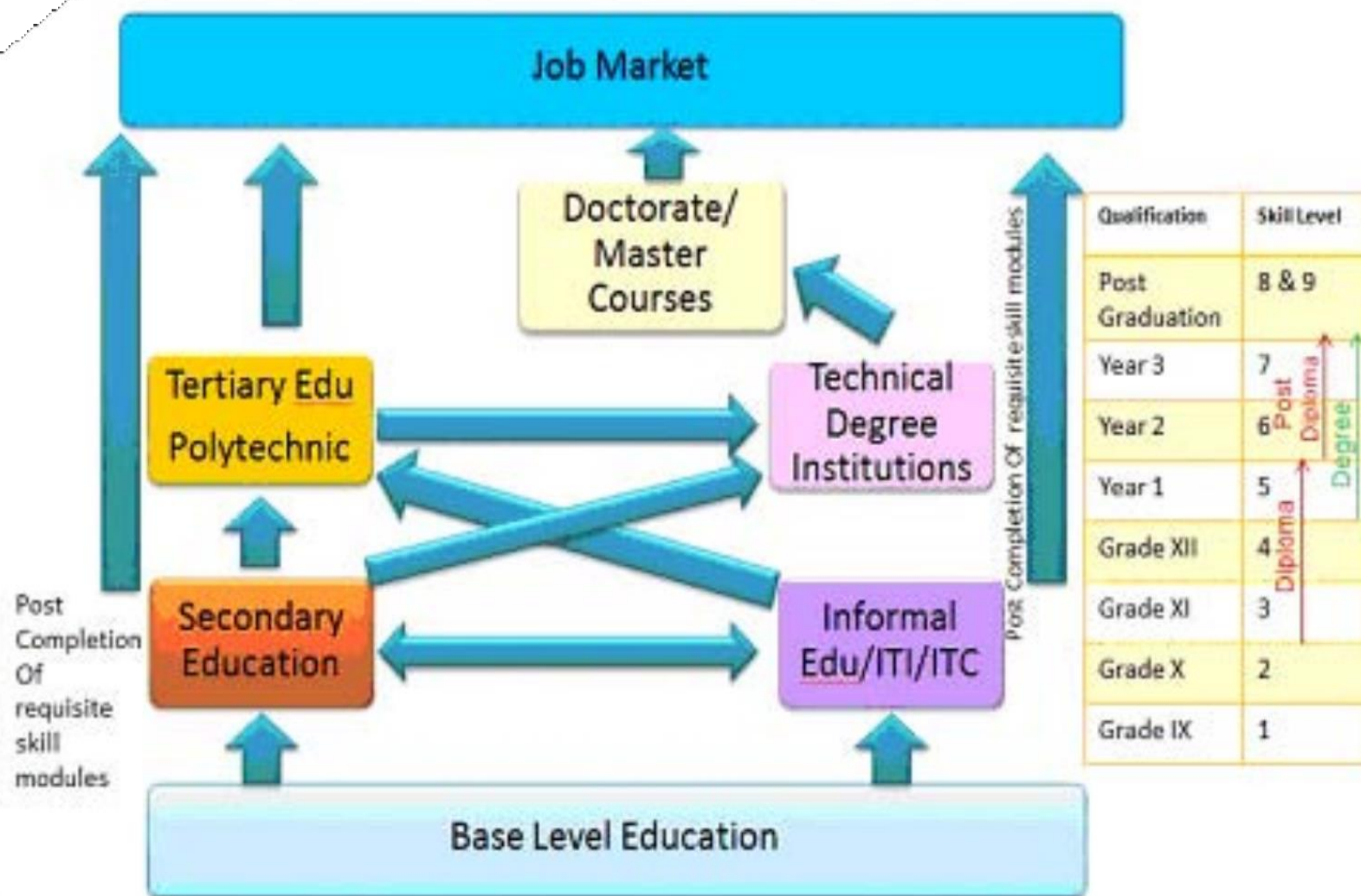
THE INDIA SKILL FRAMEWORK



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Pathways in NSQF



GAPS TO BE FILLED FOR INDIA

- Develop a Implementation Framwork for Vocational Courses starting at Grade 9 level aka the Dual Curriculum Switzerland & Germany Model
- Time Bound Adoption plan for NSQF Framework across States
- Credit transfers /Learning pathways to be well defined
- Industry engagements needs to be strengthened for better forecast
- Show case successful vocational entrpreneurs as Role Models to create aspirations

FORECASTING OF FUTURE JOBS

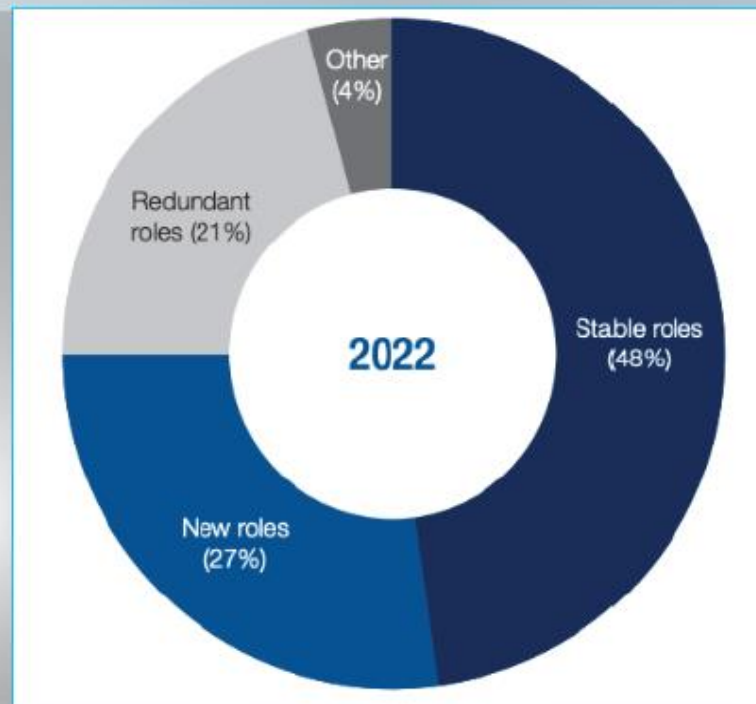
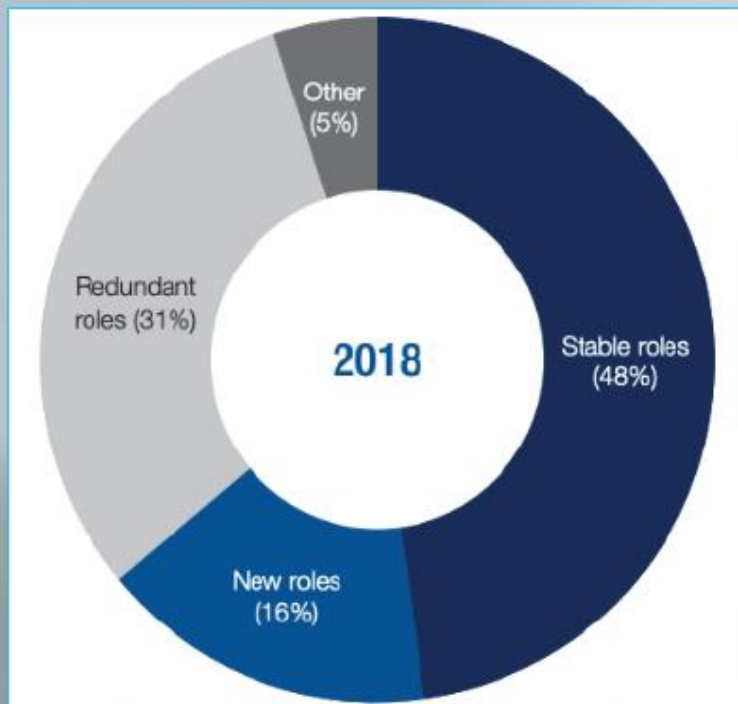
- LMIs [Labour Market Information System] data forecast needs strghtening.
- Skill ecosystem needs to be predictive about Labour Intensive areas
- Data sources such as NSSO is throwing up wrong data for data analytics

Key Emerging Job Roles

China	India
Software and Applications Developers	Cyber Security Experts
Sales and Marketing Professionals	Marketing and Sales Professionals
Managing Directors and Chief Executives	Data Architect and Analysts
Data Analysts and Data Scientists	Coding Professionals/Application Developers
Operations Managers	General and Operational Managers
Human Resource Specialists	Human Resource Experts
Assembly and Factory Workers	Financial and Risk Analysts
Investment Advisors	Robot Programmers
Database and Networking Professionals	PLC Maintenance Experts*

Stable, New and Redundant Job Roles

Global



PARADOX

- Graduate degrees have no value in Employment market
- Nearly 400m middle class may not be job ready
- Decline of women in workforce : contrary to the prediction of Industrial 4:0 predicts that women will be better equipped
- Lack of Aspiration in Vocational Learning

Emerging Skill-Sets

In 2015	In 2020
Complex Problem Solving	Complex Problem Solving
Coordinating with others	Critical Thinking
People Management	Creativity
Critical Thinking	People Management
Negotiation	Coordinating with others
Quality Control	Emotional Intelligence
Service Orientation	Judgment & Decision Making
Judgment & Decision Making	Service Orientation
Active Listening	Negotiation
Creativity	Cognitive Flexibility

CBSE : VOCATIONALISATION OF SCHOOL EDUCATION

10 POINT ACTION PLAN

1. ENHANCE THE SKILL BASED PROGRAMS THROUGH PARENTS SEMINARS AND PRINCIPAL WALK THROUGH SESSIONS
2. GRADE 9&10 : LAB BASED SKILL PROGRAMS
3. GRADE 11 & 12 : INDUSTRY BASED APPRENTICE PROGRAMS
[LABOUR LAWS AGE 16 EMPLOYMENT WILL BE PROTECTED]
4. LOCALISE CONTENT WHICH IS GLOBALLY HARMONISED SO THAT STUDENTS DO NOT HAVE TO MIGRATE TO METROS FOR BASIC JOB ROLES

5. CBSE TO CONNECT WITH SECTOR SKILL COUNCIL SO THAT COURSES BEING OFFERED ARE MAPPED TO INDUSTRY NEEDS

6. TIME BOUND NATIONAL SKILL QUALIFICATION FRAMEWORK ADOPTION PLAN TO BE ROLLED OUT

7. UNIVERSITY PATHWAYS AND CREDIT POINTS FOR SCHOOL PROGRAMS TO BE FRAMED

8. INDUSTRY PARTNERSHIPS TO BE ENHANCED FOR TAILORED RELEVANT PROGRAMS [ESP WITH MSMEs]

9. 6TH SUBJECT BEING OFFERED IN SCHOOLS SHOULD BE VOCATION BASED AND MANDATORY

10. FUTURE SKILL FORECAST BY AGENCIES LIKE WORLD ECONOMIC FORUM AND FICCI SHOULD BE CONSIDERED WHILE FRAMING COURSES

THANK YOU

Prepared by :

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Version 1.0 : For VIBRANT GUJARAT 2016

Version 2.0 : For FICCI ARISE USA DELEGATION 2018

Version 3.0 : For CBSE BETT-Learnit Delegation London 2019

Jointly with Ms Shobha Mishra Ghosh, Asst Secretary General FICCI



FICCI Alliance for Re-Imagining School Education is a collegium of stakeholders who represent different facets of School Education.

Members include several high quality and reputed independent schools from across the country, eminent educators, foundations, civil society representatives, think tanks and technical experts.

Fundamental vision of FICCI ARISE is to become a catalyst in government and private efforts for raising the quality of learning outcomes across schools and to ensure that no child is left behind.

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