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MALAYSIA
MINISTRY OF INTERNATIONAL TRADE AND INDUSTRY

The Industry 4.0 Seminar with Government Officials

The Development of Holistic Manpower for Industry 4.0 Readiness: The German-Malaysian Institute Perspective

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Training for Advanced Technology

Presentation Outline

- Situation Analysis 1-Industry 4.0: Where are we?
- Situation Analysis 2 – Why Empowering Learning
- Student Centered Learning
- The German-Malaysian Institute
  - Training Philosophy and Approach
  - Problem-Project-Production Based Learning
  - Learning Environment
  - Outcome Based Education – The Final Year Project
- Industry 4.0 Linkages
  - iFactory Innovation Center
  - Vision System
  - Modular Production System
  - Mini iFactory

Situation Analysis 1

Industry 4.0: Where are we?

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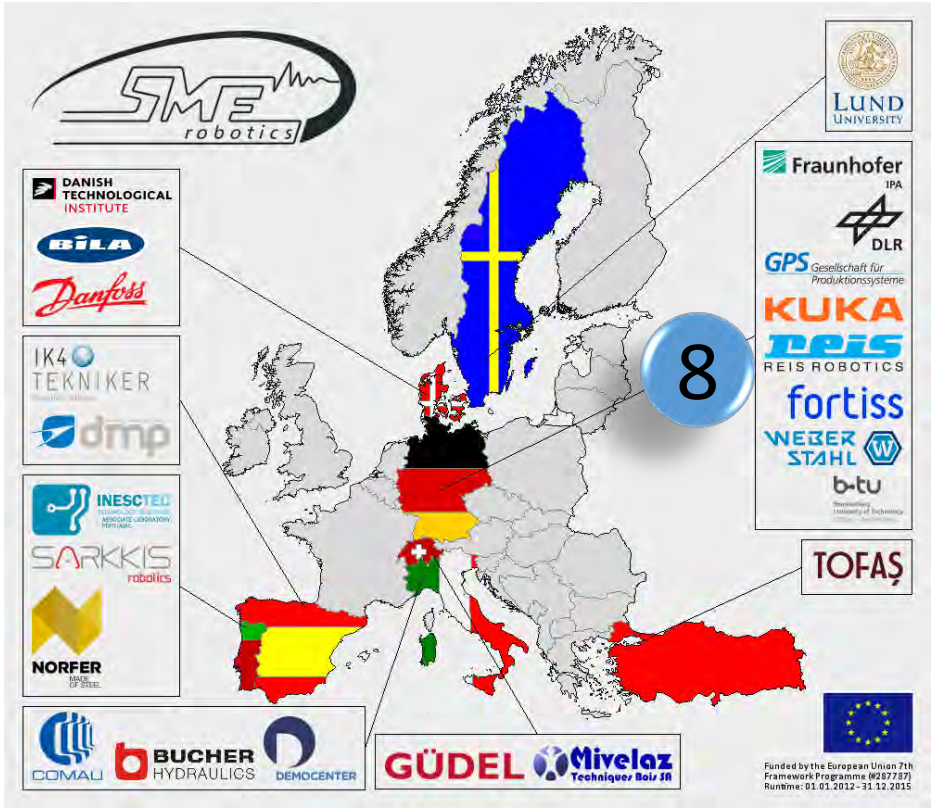
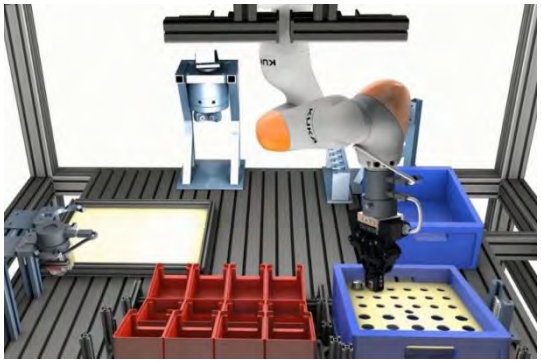
smerobotics.org



AUTOMATICA
OPTIMIZE YOUR PRODUCTION

Cognitive welding robot assistant for small lot sizes



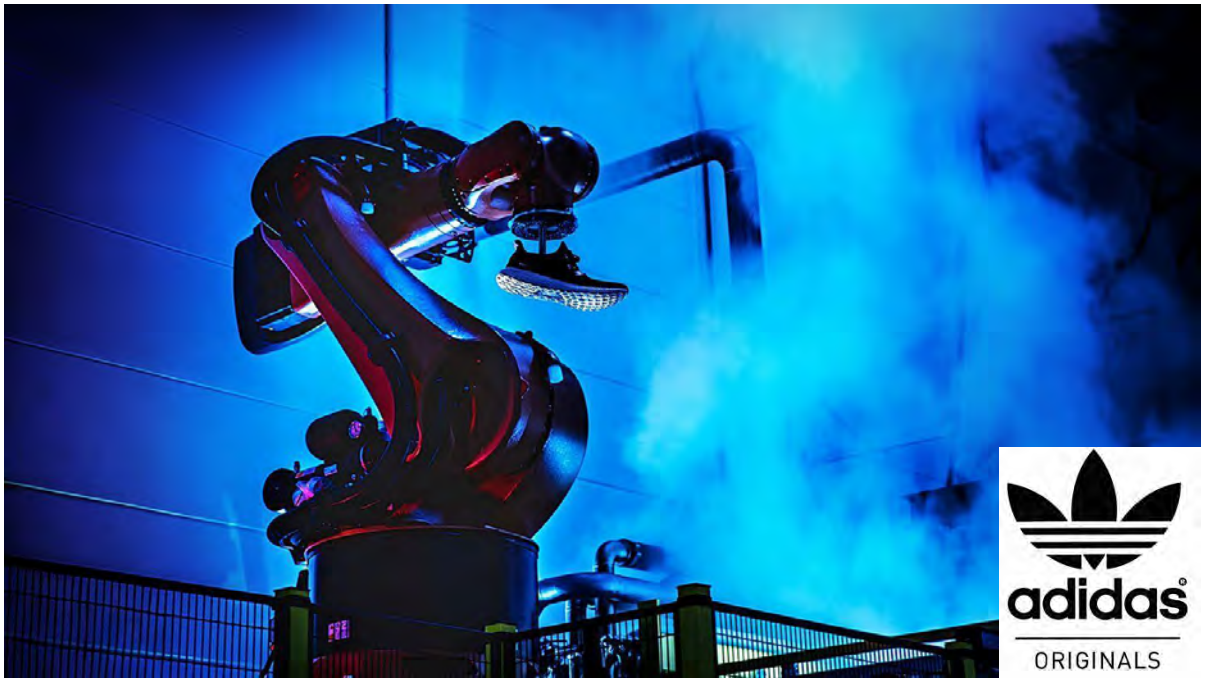
Automated and Precise Assembly for varying products

Mobile and Multipurpose CoWorker

Runtime: 01.01.2012-30.06.2016

Adidas to make shoes in Germany again – but using robots to make shoes instead of humans in Asia

- 300 million shoes per year (mostly produced with hands)
- 15% more productivity and faster
- 3,000 Adidas Stores in the next 4 years in China



The Increasing Complexity at the Workplace

The Total Number of Pages of the Repair Manuals of Opel Cars

1933 202 pages

1951 255 pages

1966 1,175 pages

1983 4,526 pages

COMPACT disc CD-ROM

1998 13,866 pages

2012 # pages?

Navigating the next industrial revolution

Revolution	Year	
1	1784	Steam, water, mechanical production equipment
2	1870	Division of labour, electricity, mass production
3	1969	Electronics, IT, automated production
4	?	Cyber-physical systems

Humans As Robots

Humans As Innovators

We are HERE

Source: World Economic Forum 2015

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telenor group

an average of 63% of youths said that mobile/internet technology will be 'important' in their career by 2020

Source: http://www.humanresourcesonline.net 27/09/2016

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Situation Analysis 2

Empowering Learning

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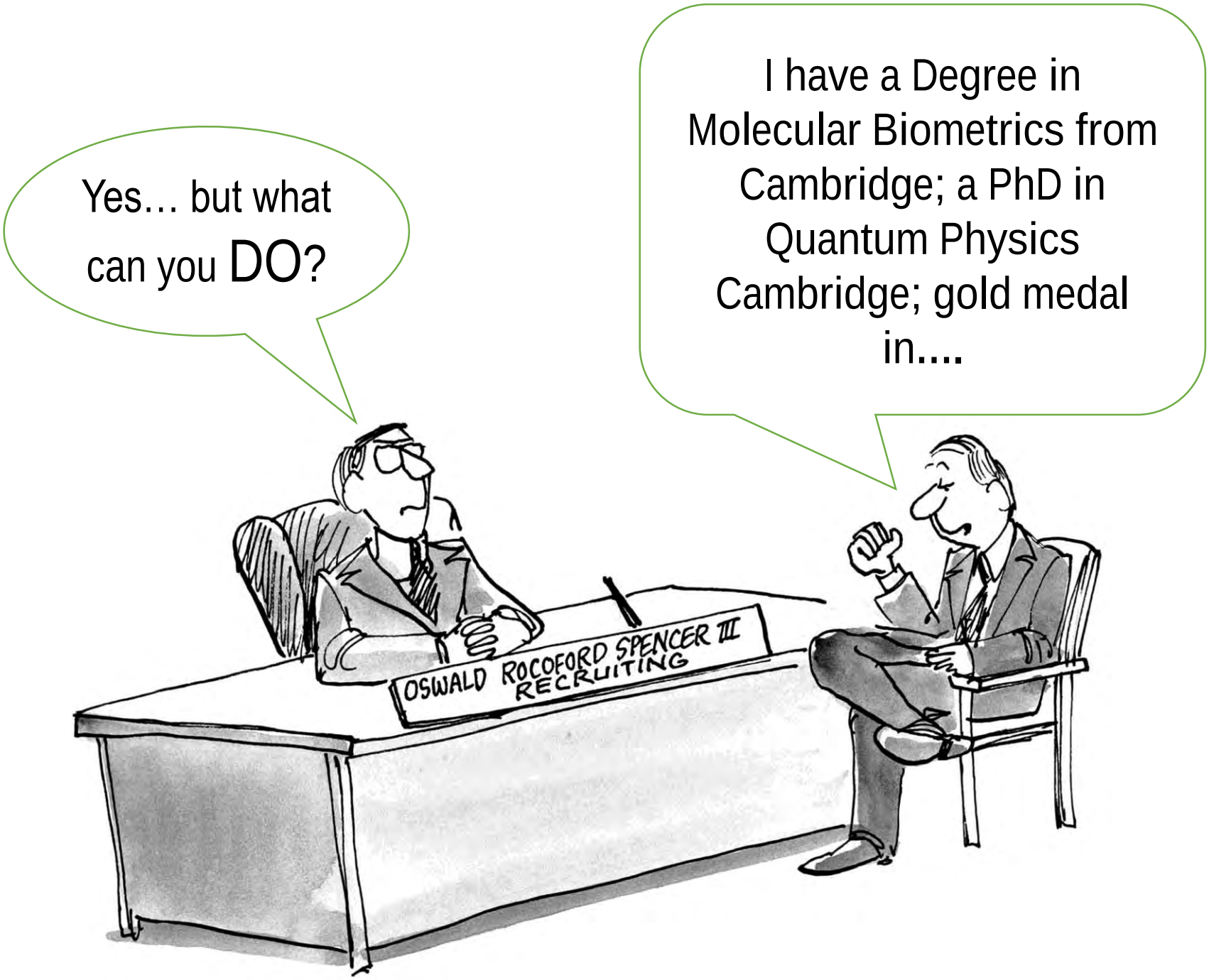
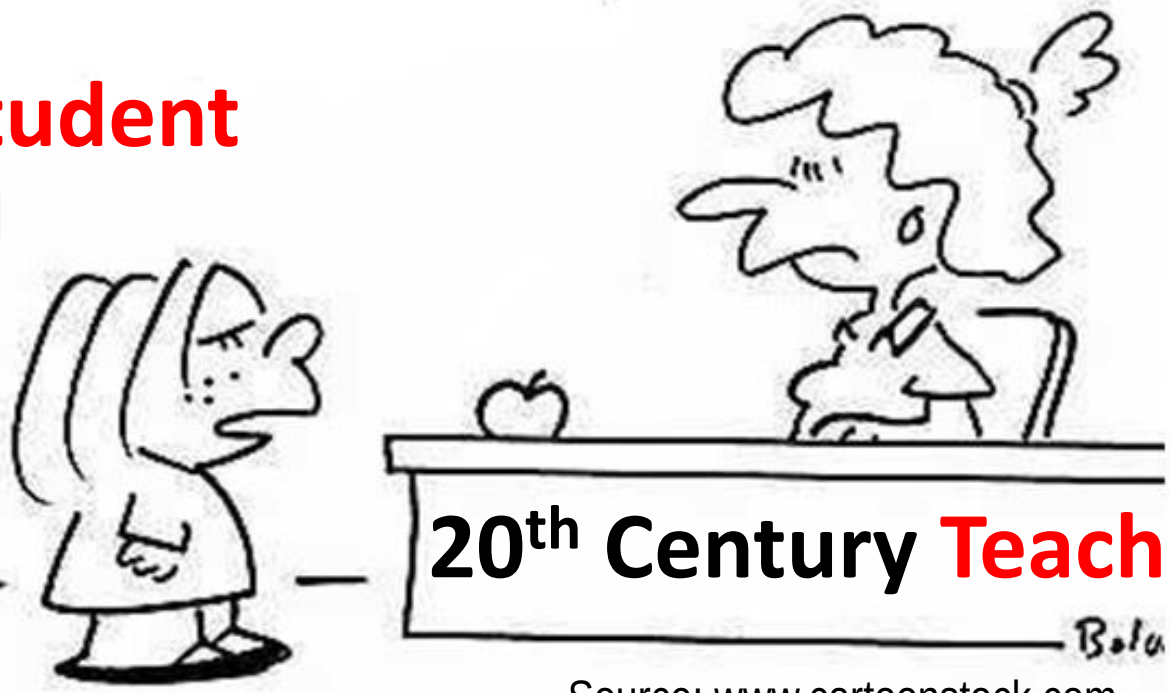

I have a Degree in Molecular Biometrics from Cambridge; a PhD in Quantum Physics Cambridge; gold medal in....
Yes… but what can you DO?
OSWALD ROCOFORD SPENCER III
RECRUITING

21st Century Student

"How do you know I have a **learning** disability?

- May be you have a **teaching** disability"



20th Century Teacher

Source: www.cartoonstock.com

19th Century Classroom

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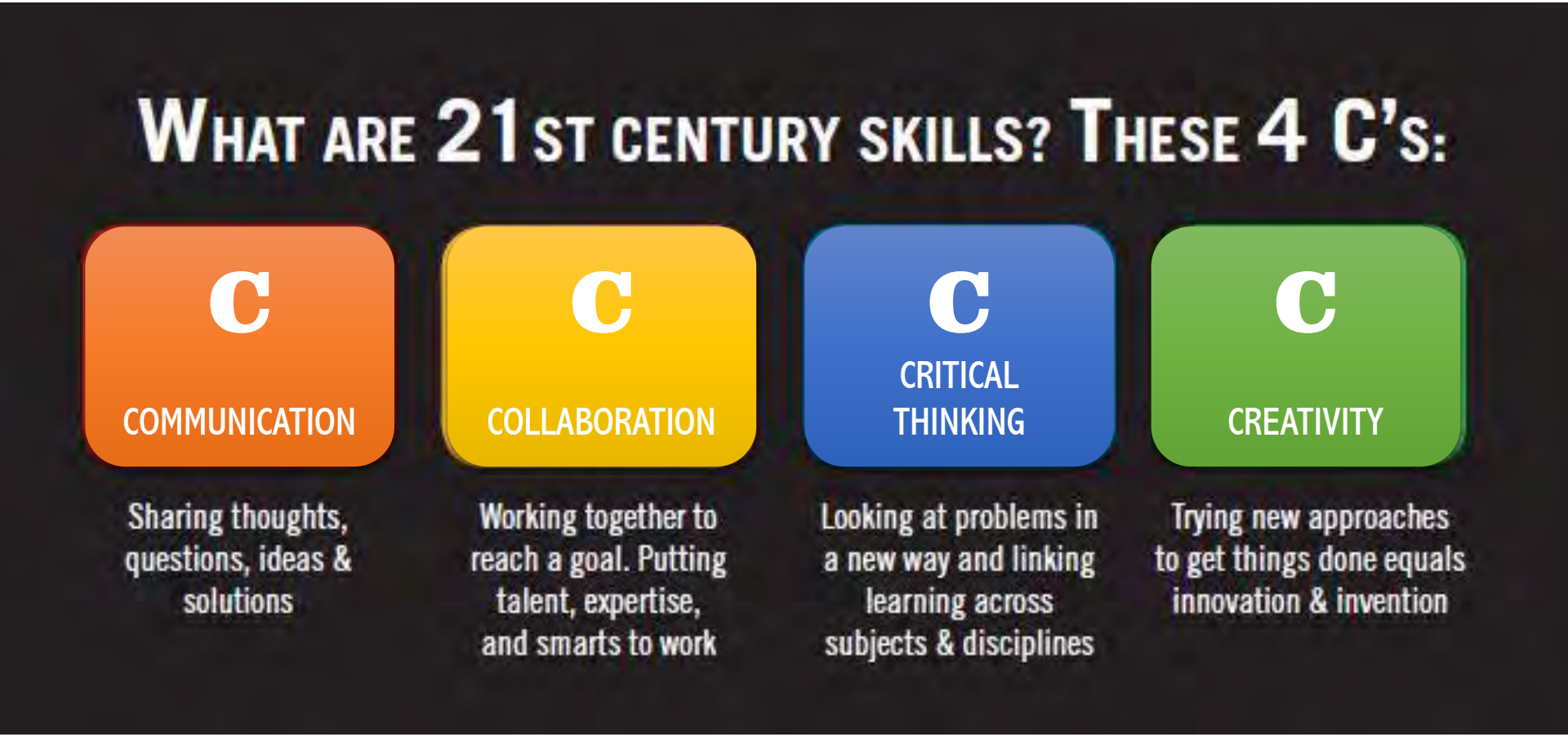
Attributes **employers seek on a candidate's resume (2015)**

Source: *Job Outlook 2015*, National Association of Colleges and Employers

4 C's

- Ability to work in a team
- Communication skills
- Problem Solving Skills
- Creativity

The 4 C's Education Outcomes



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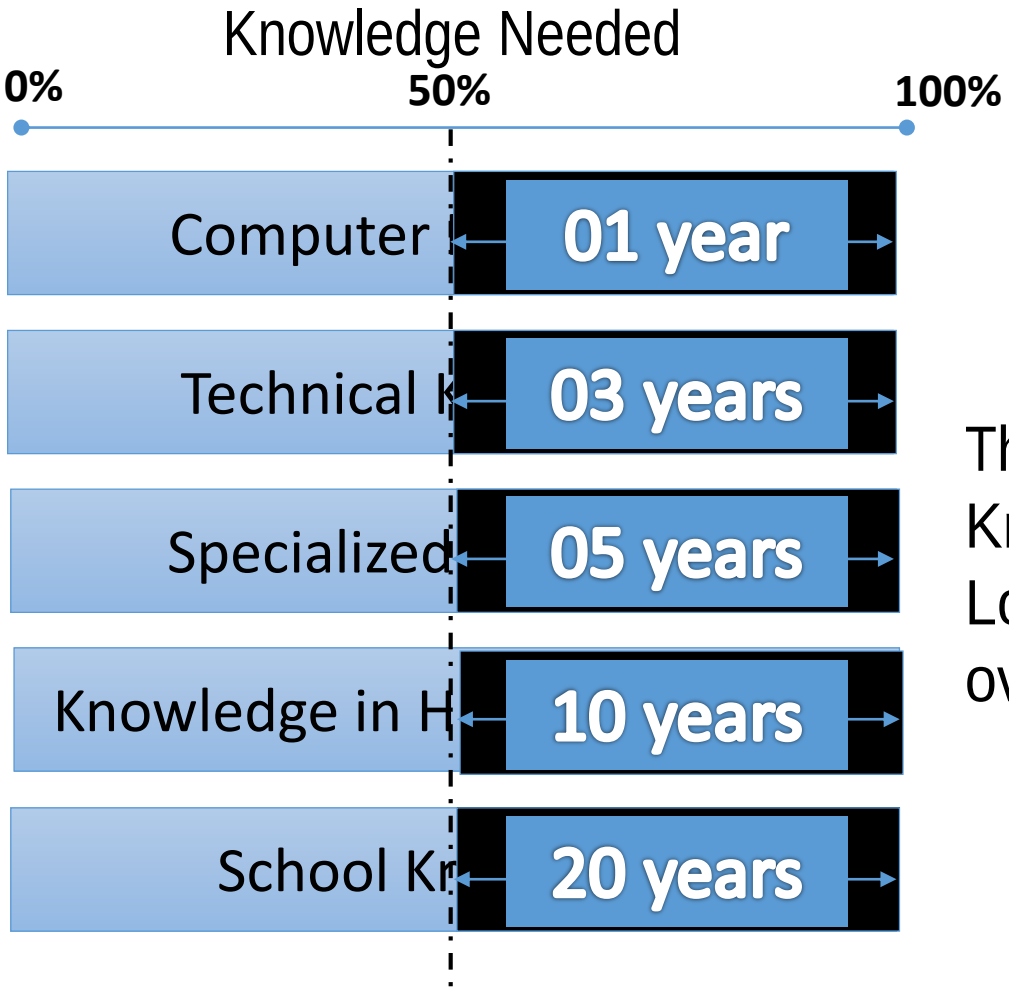
The Excessive Pace of Technological Change



The Half Life of Knowledge: The Loss of Relevance over Time

Source: IBM, 1994

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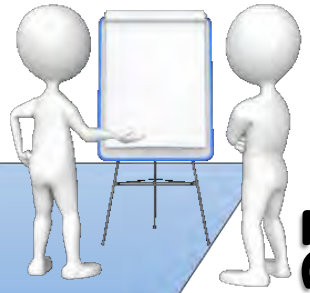

	Learning Retention Rate
Teach others/Immediate use of learning	90%
Practice by doing	75%
Discussion group	50%
Demonstration	30%
Audio Visual	20%
Reading	10%
Lecture	05%

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Competency Based Training

Most Dominant?

Knowledge

Attitude

Reflection

Teacher Centred Learning

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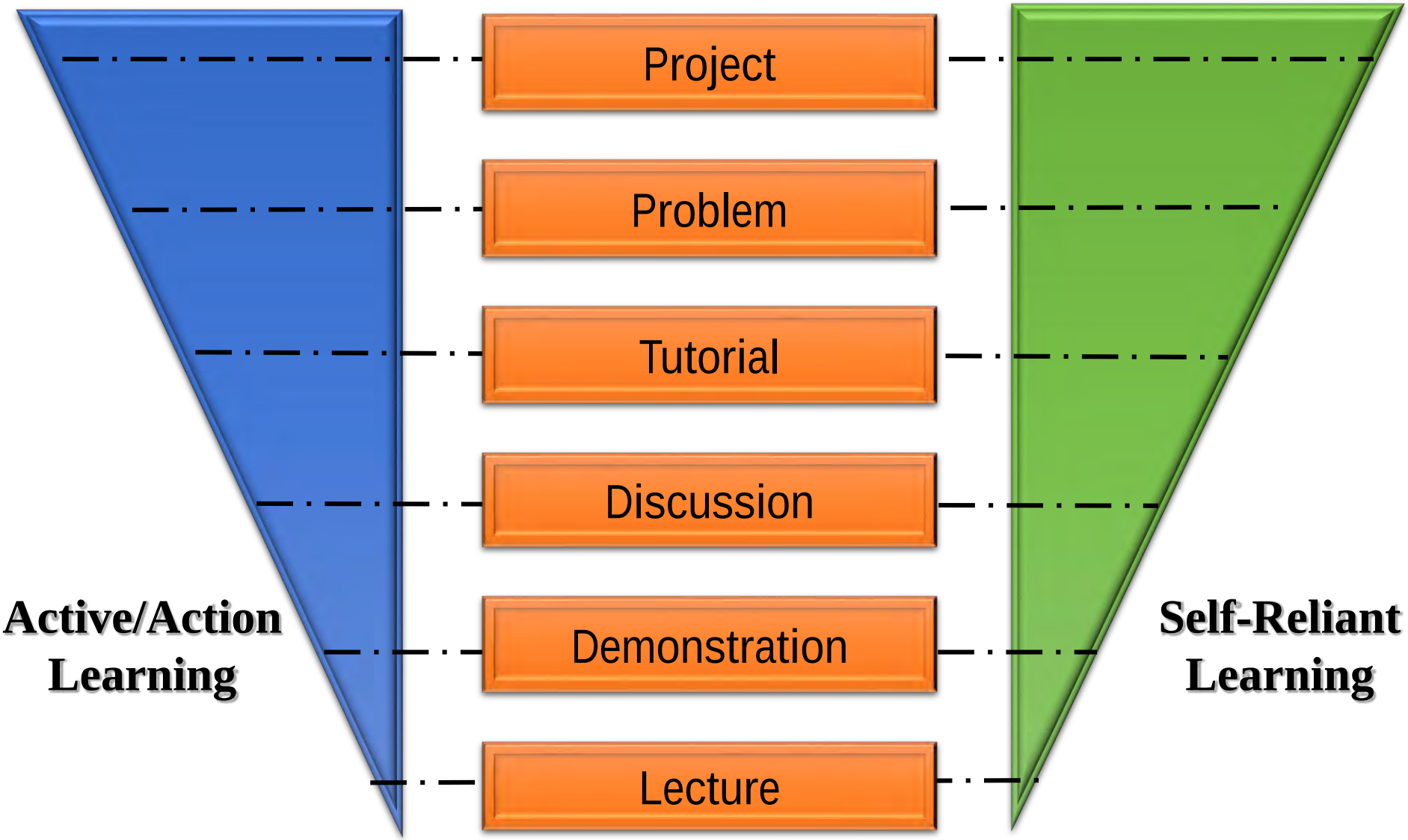
Yawn!

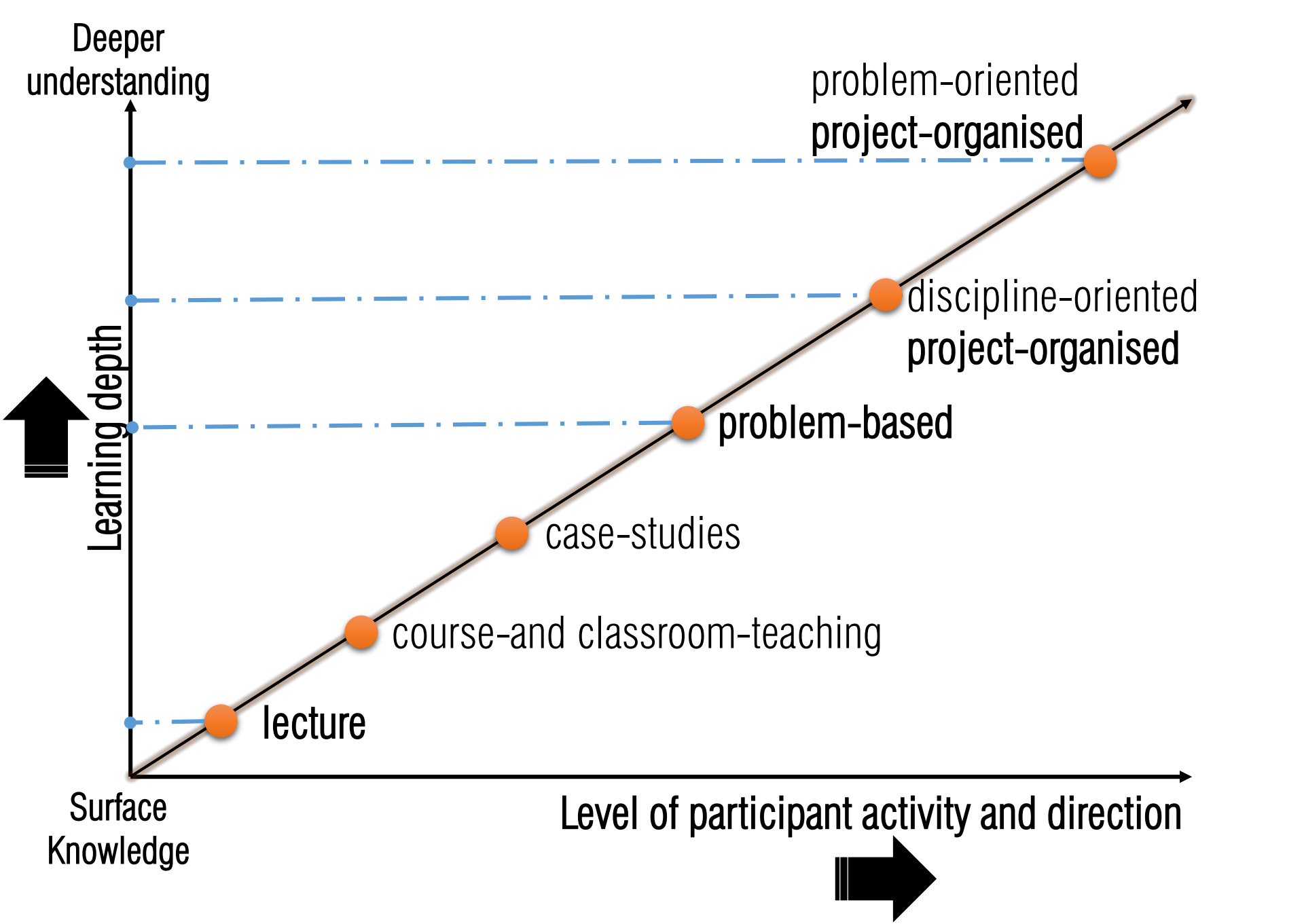
These kids look bored... and you have to blame the method of teaching

Student Centred Approach



Teacher Centered Approach

Source: NDTS, Ngan & Koch, 2004



Source: University of Aalborg, Denmark

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The Experience of Self Reliant Learning



The Learning never stops…

Instinct

Inquisitive

Independent

Driven,
to finish work

The Gen Z

1996-2012

Gen Z

Committed and Focused

Pragmatic

Independent

Self-educators

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"Learning Comes First, Teaching Comes Second"

"Stop Memorizing and Start Thinking,"

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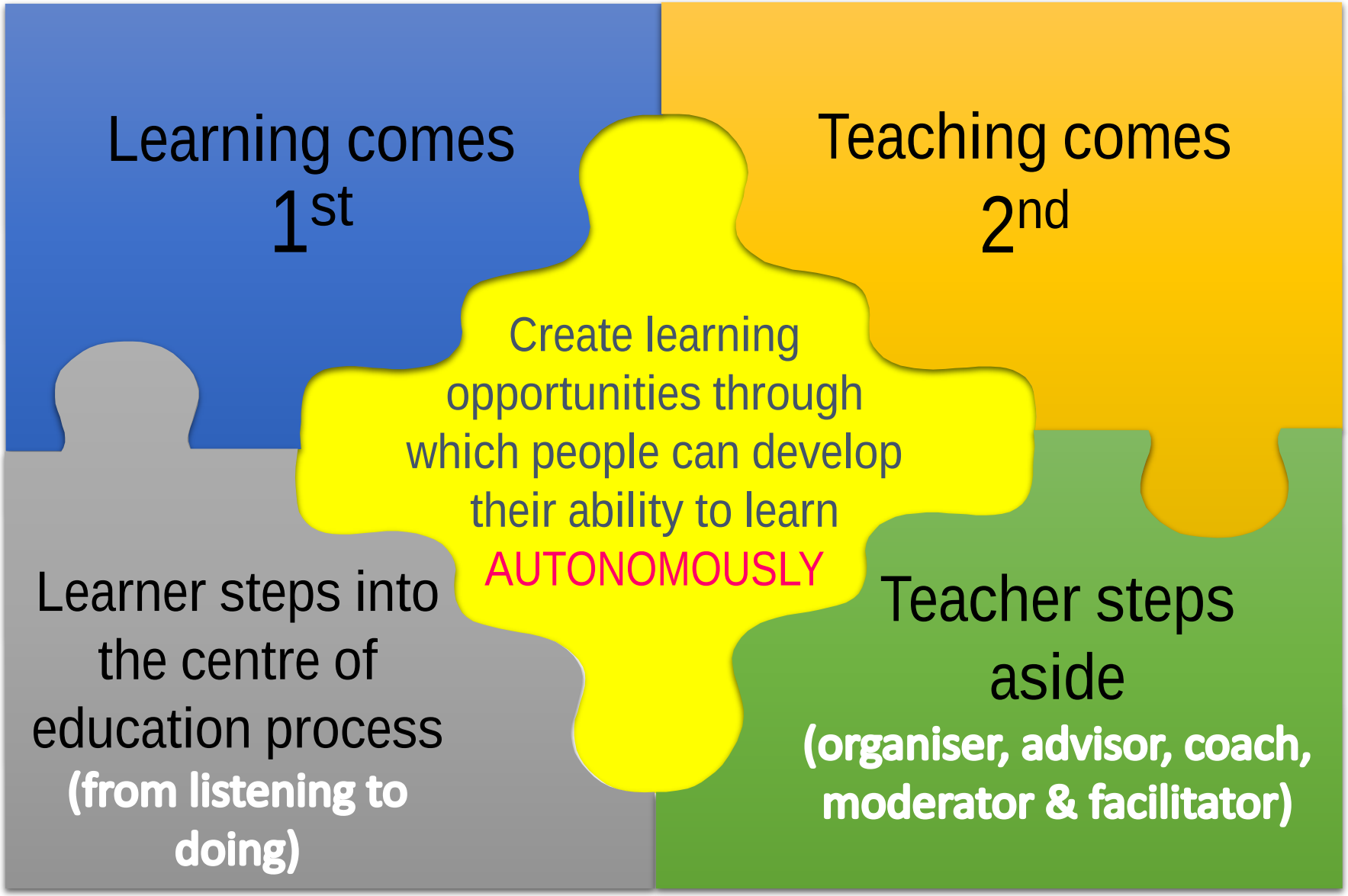

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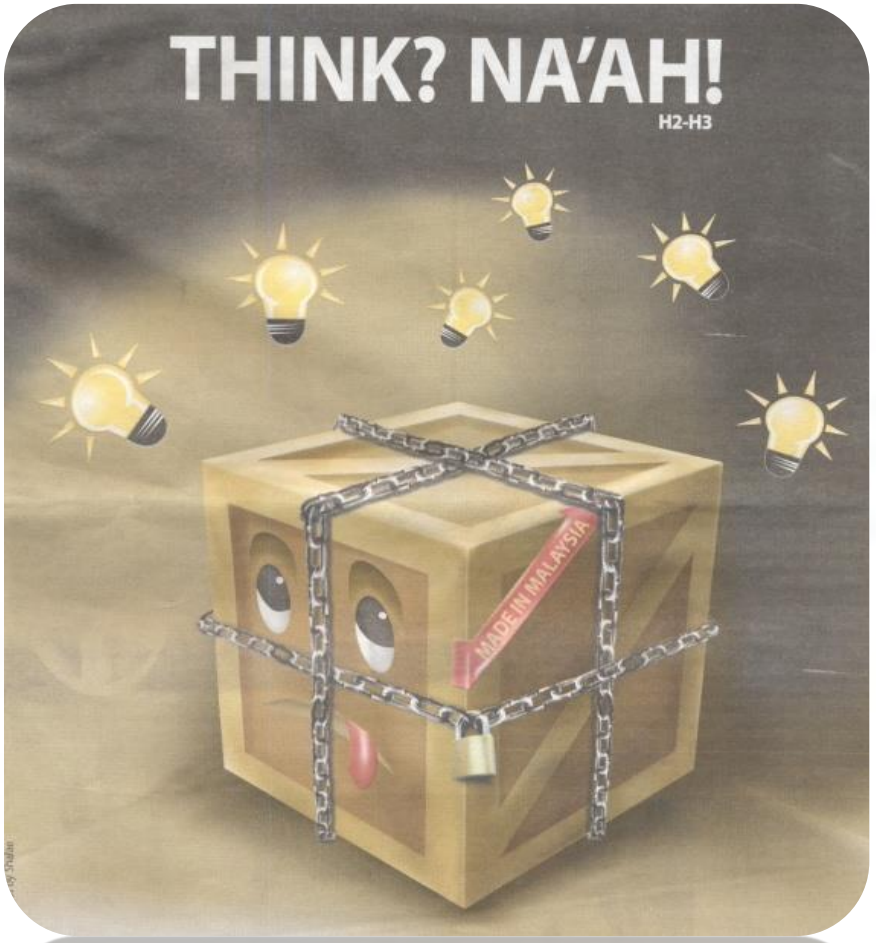

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Training for Advanced Technology

The German Malaysian Institute
Sep 1992- July 2008

Date Incorporated : 1 Sep 1992

Land Size: 6,000 m^2

Built-up area: 12,000 m^2

Capacity: 1,200 max

Staff: 210 - 230

No 119 Jalan 7/91,
Taman Shamelin Perkasa
56100 Kuala Lumpur, Malaysia

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The German Malaysian Institute 2008

Land Size: 75 acres or 303,514 m^2

Built-up area: 181,000 m^2

Students Capacity: 6,000

Staff: 750 - 1000

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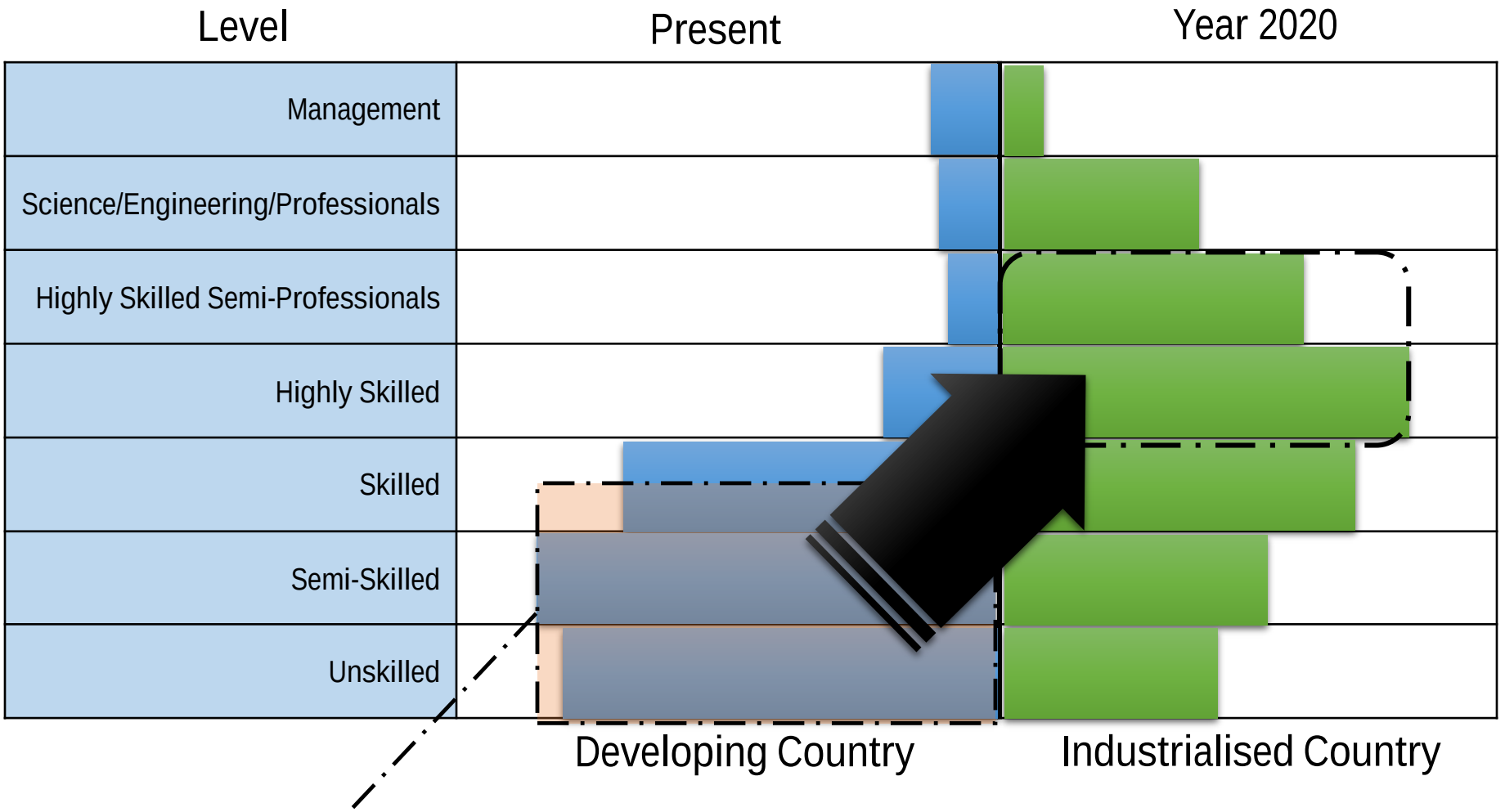
Talent Development in Malaysia



…task or work activity that
will be automated

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Learning & Training Approach

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Training Philosophy

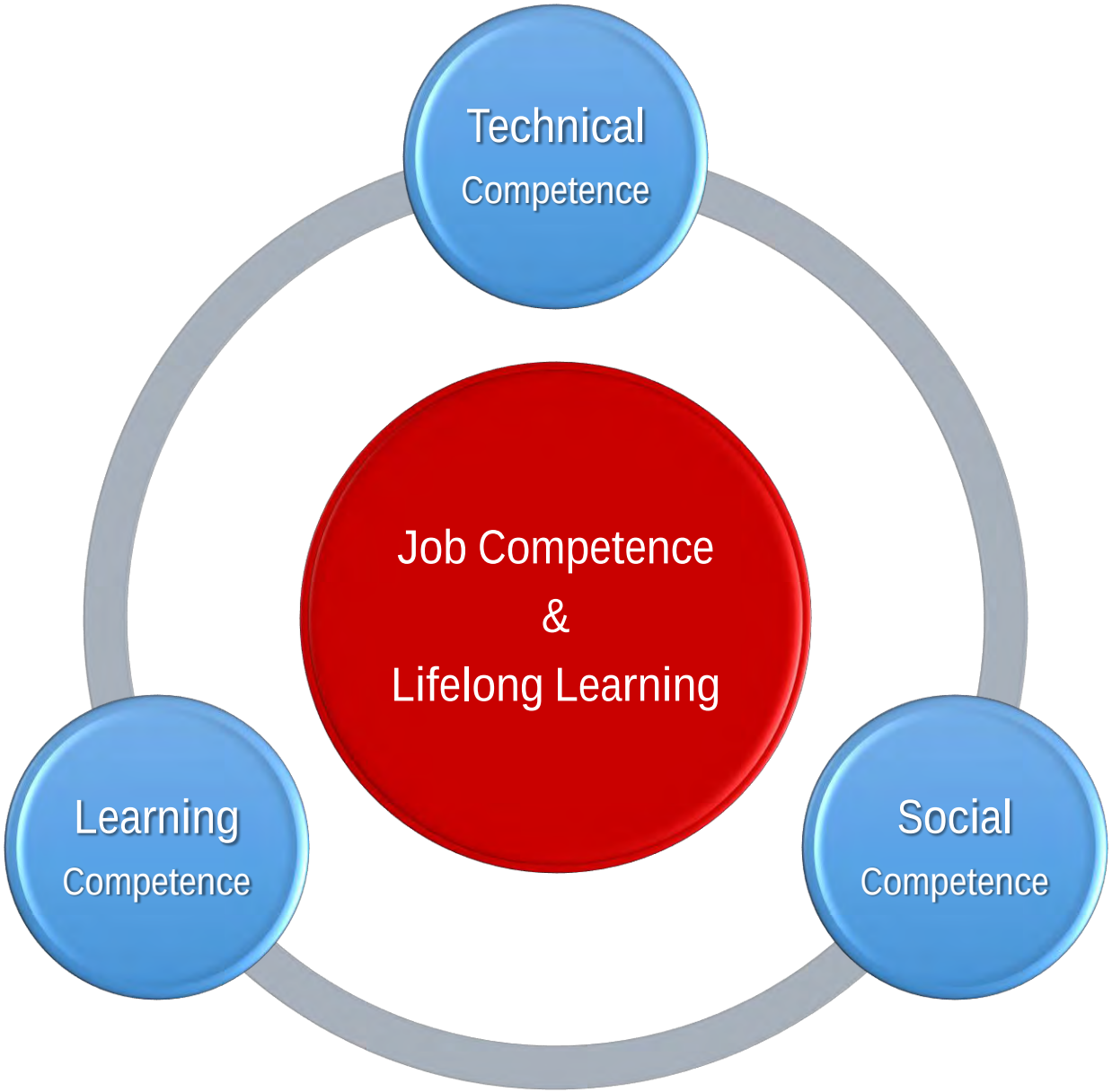
Theory
30 - 40%

+

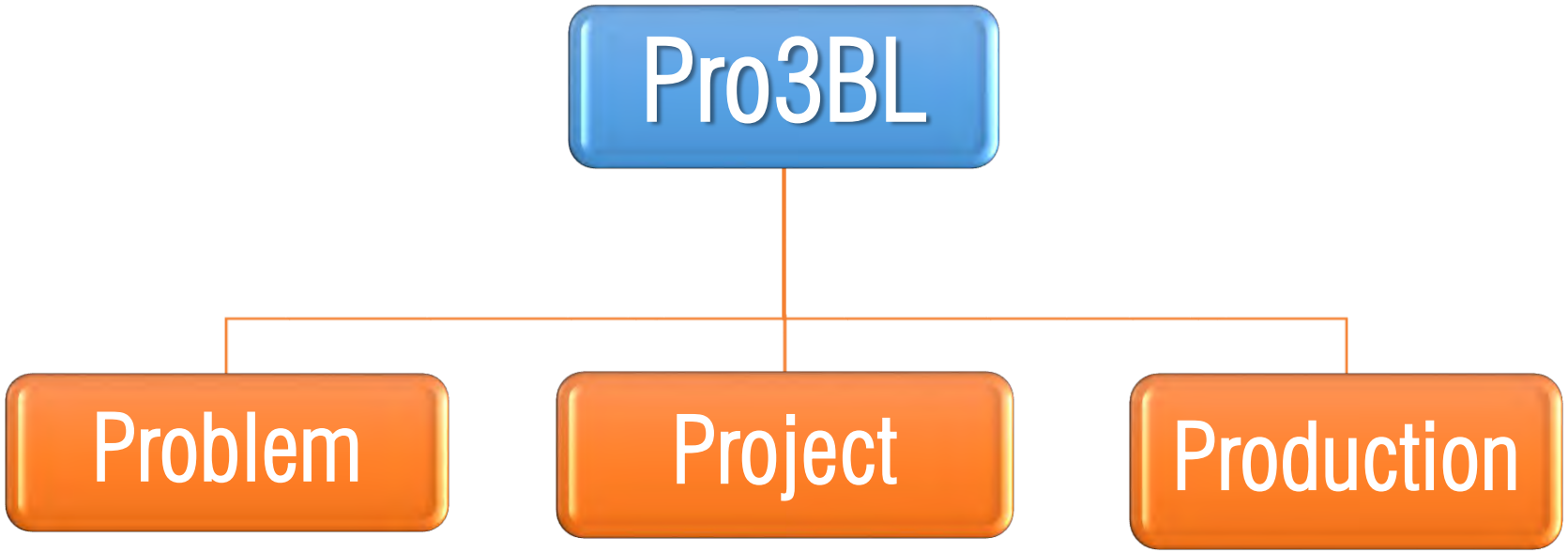
Practical
60 - 70%

Training Concept

Student Centered Learning



Problem-Project-Production Based Learning



Exploring the scenarios to acquire and enhance knowledge, skills and attitude

Applying range of knowledge, skills and attitude to solve problems through project

Experiencing real life industrial activities using multi disciplinary knowledge skills and attitude

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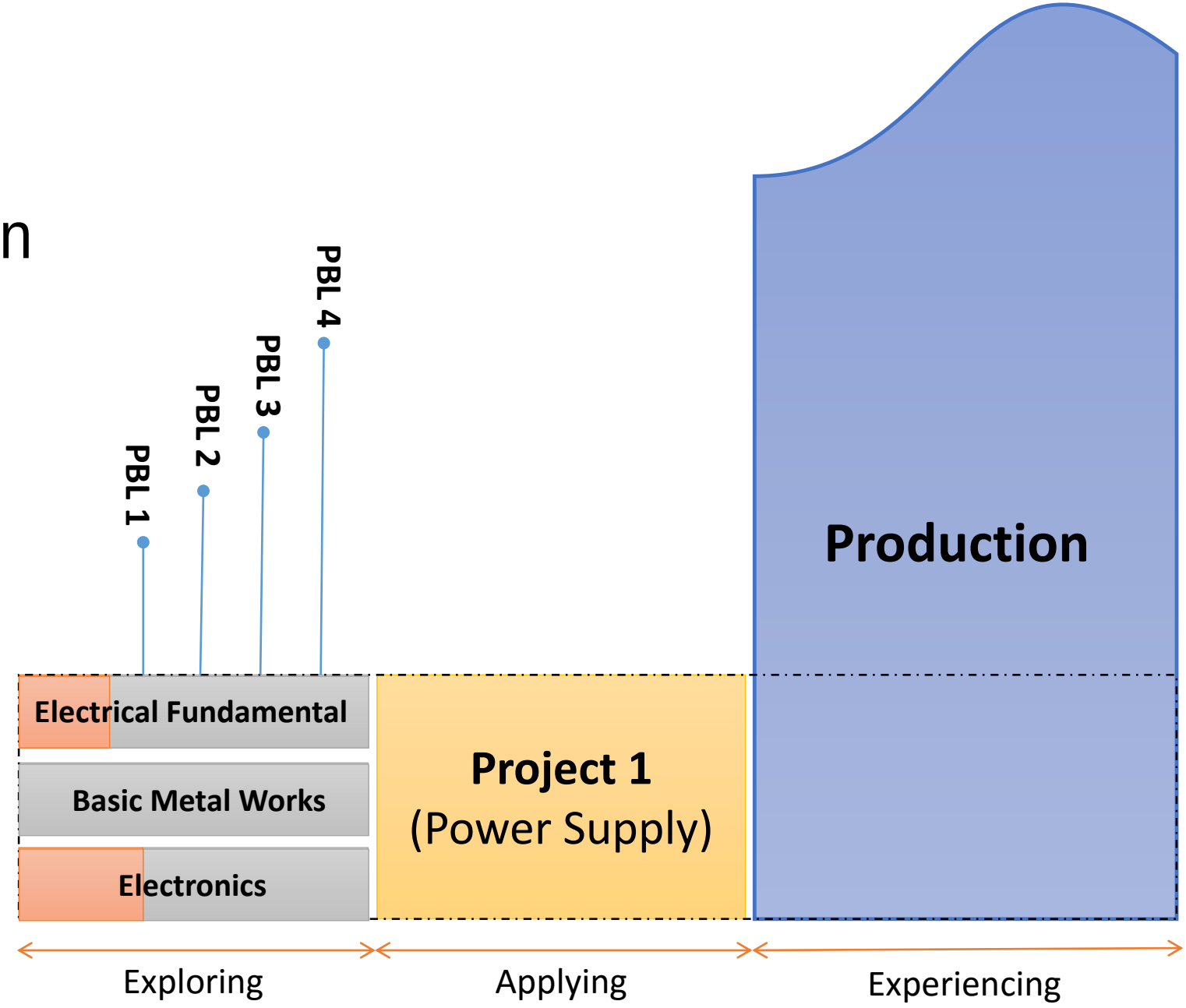
Problem Project Production Based Learning



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Problem Based Learning

1st Year

Project Based Learning

2nd Year

3rd Year

Production Based Learning (OBE)

Learning Environment

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Learning Environment – Industrial Electronics

Learning Environment – Industrial Electronics

Learning Environment – Industrial Electronics

Learning Environment – Production Technology

Learning Environment – Production Technology

Learning Environment – Production Technology

Outcome Based Education
Final Year Project

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Technical Competence

Social Competence

Learning Competence

Final Year Project

21st Century Skills

C COMMUNICATION

C COLLABORATION

C CRITICAL THINKING

C CREATIVITY

Final Year Project

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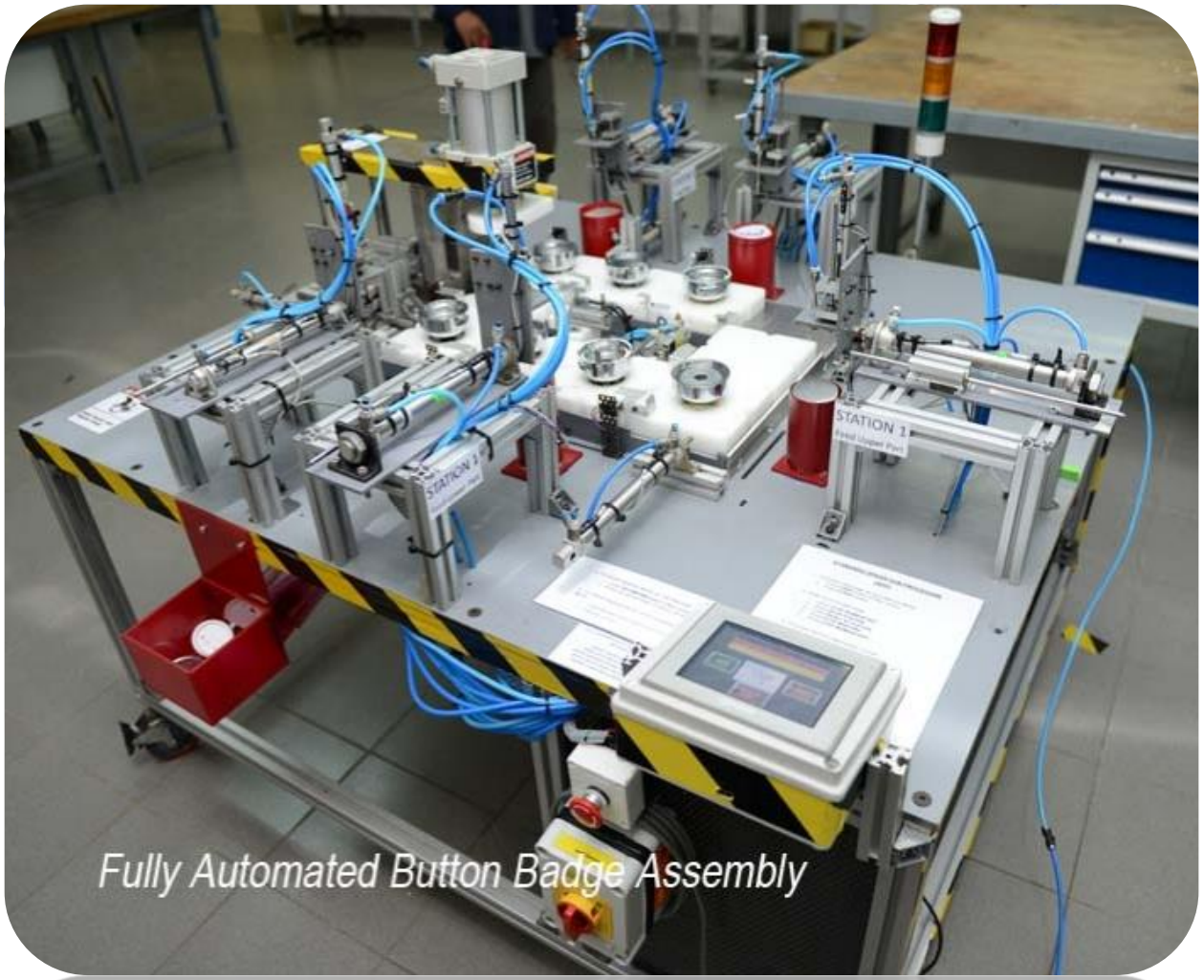
Final Year Project



Fully Automated Button Badge Assembly

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Industry 4.0 Linkages

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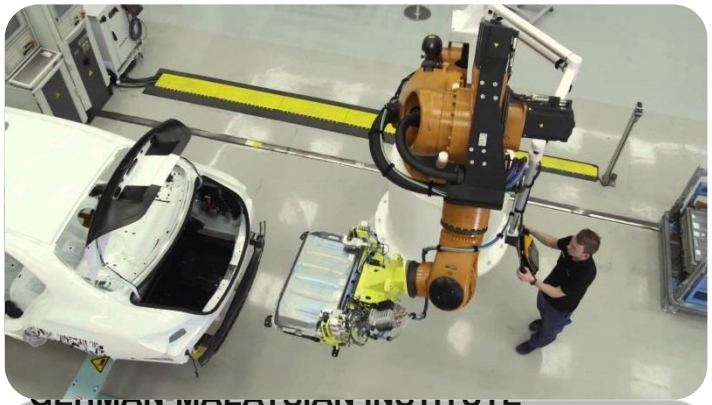
LEARNING 4.0 ready

INDUSTRY 4.0 ready

A project where

Learning meets Industry

Industry



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ifactory 4.0 Innovation Centre

The Leading Learning Factory

schulungszentrum
für spritzgießtechnik

ifactory 4.0®
powered by i4.0sg

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iFactory Innovation Center

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SmartData

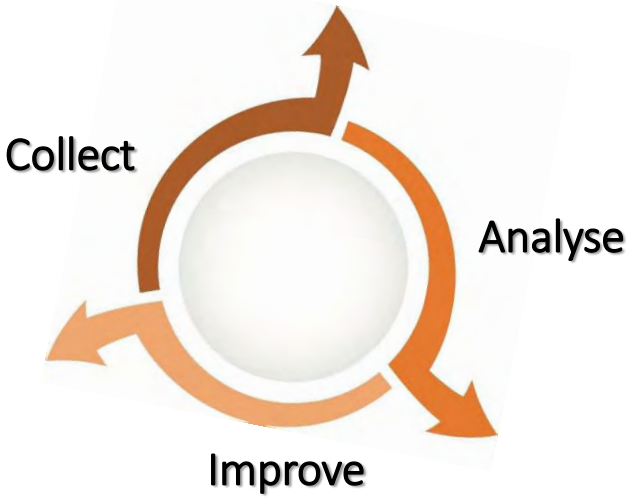
SmartData
Operator Tools

SmartData
Office Tools

SmartData
Mobile

Machine

Assembly line



SmartData
Info Screen

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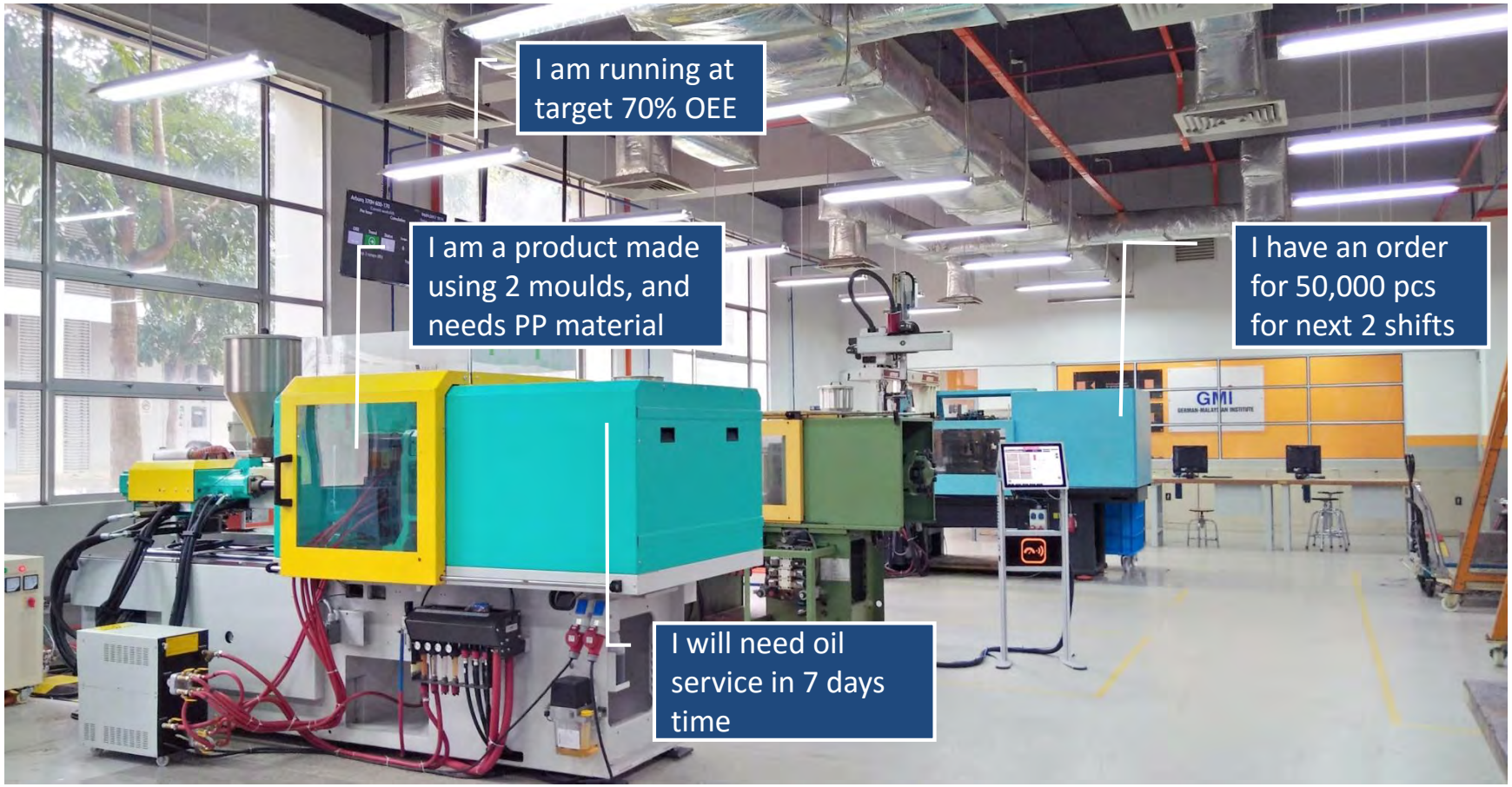
Smart Manufacturing



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Production Control Tower

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- iPlast4.0 *Learning Factory* 1
- iPlast4.0 *Learning Factory* 2
- iPlast4.0 *Learning Factory* 3

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Empowering future talents

SmartData

SmartMaintenance

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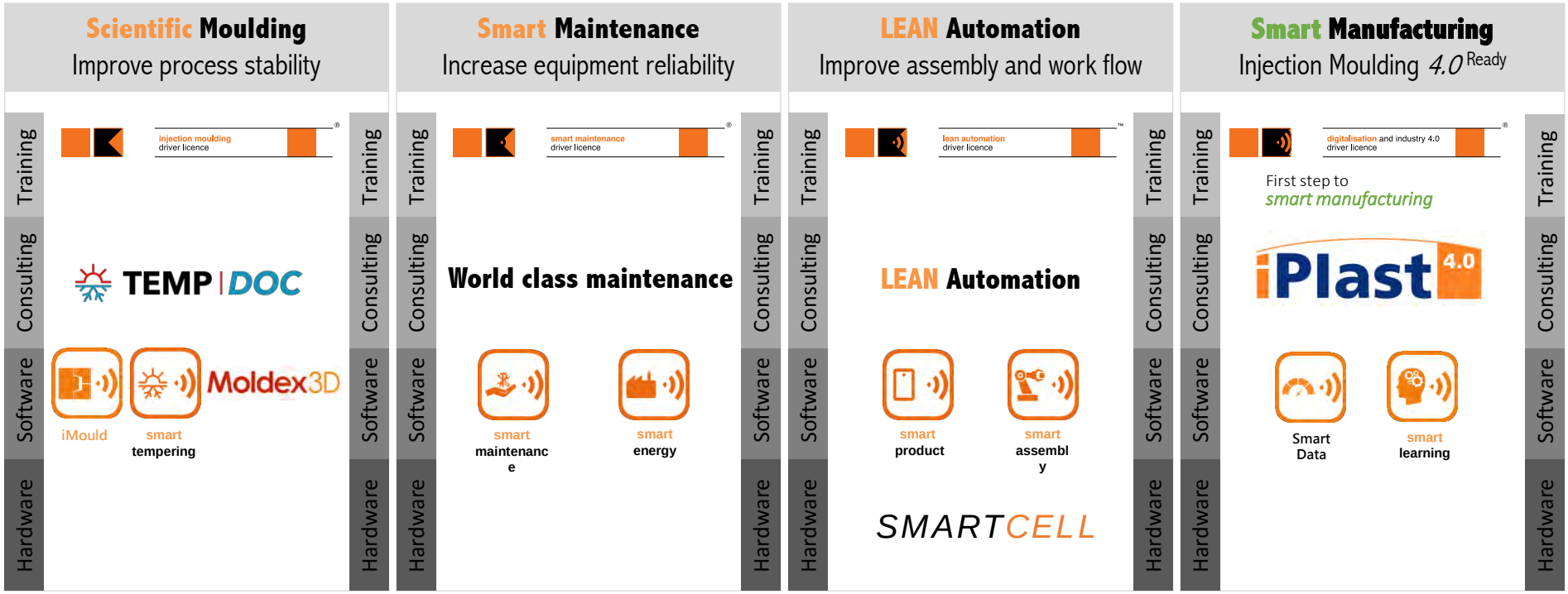
Our products and services

To implement smart manufacturing for the many companies



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Integrated Learning

Industrial Electronics

- Mechatronics
- Industrial Communication
- Network Security
- Creative Multimedia

Production Technology

- Manufacturing System
- Mould Technology
- Industrial Design

Integration

- Industry Personnel Upskilling/Upgrading
- Final Year Project
- Internship
- Train-The-Trainer Program

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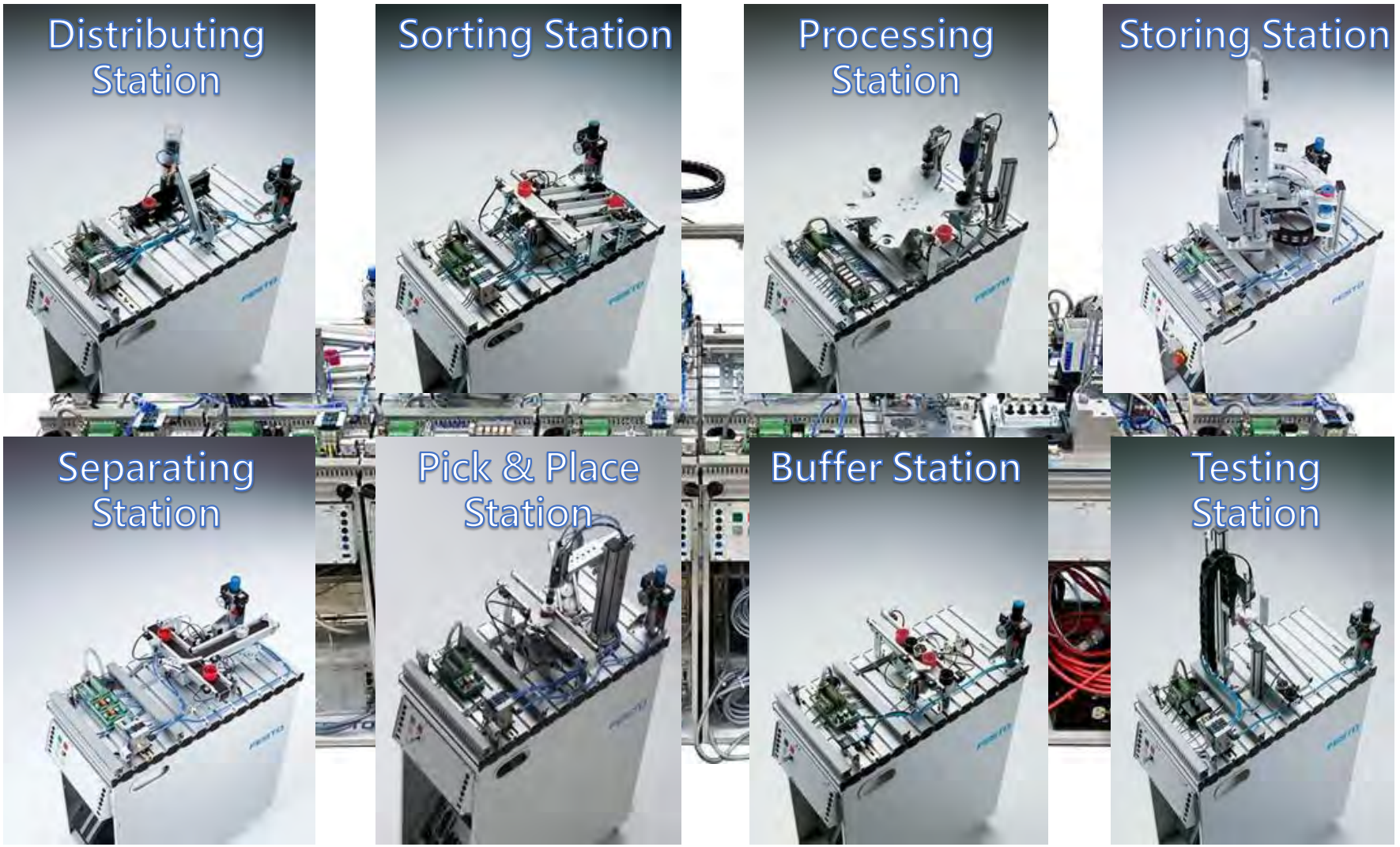
Modular Production System



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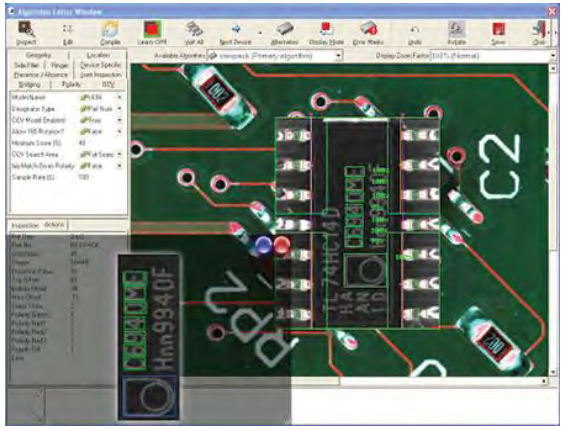
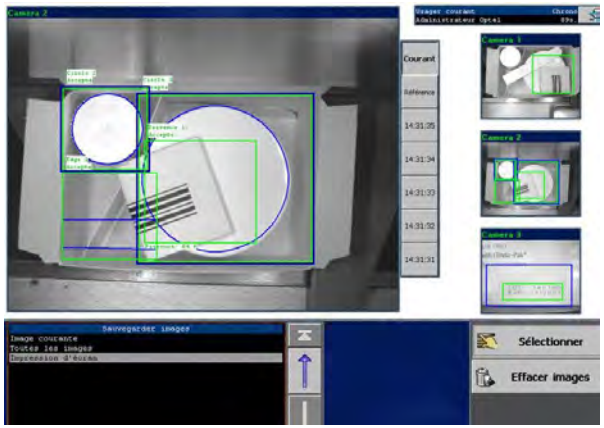
Inspection System





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Smart Manufacturing

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Terima Kasih . Thank you . Danke

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