Linking Skills Analysis to E & T

Prof. Shyamal Majumdar, Ph.D.

Head, UNESCO-UNEVOC International Centre, Bonn, Germany

Former Director General, Colombo Plan Staff College , Manila, Phil.

We are not living in an

***era of change*,**

but in a *change of eras*

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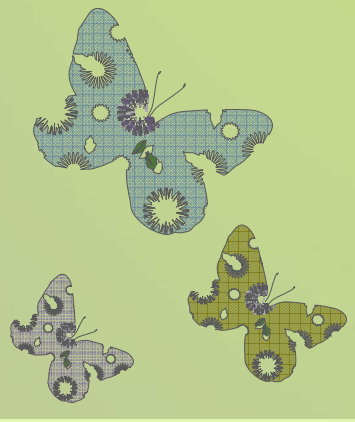
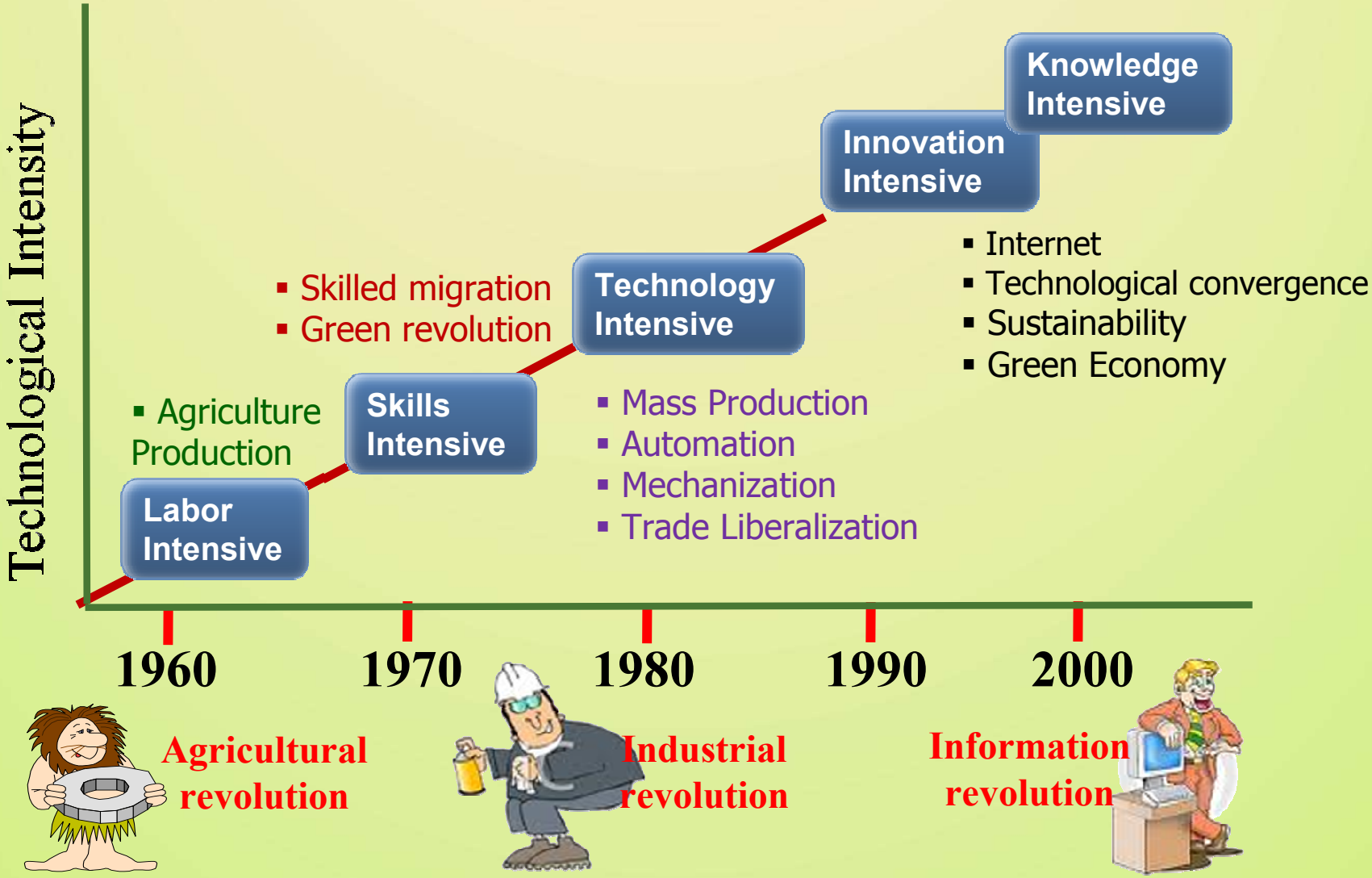


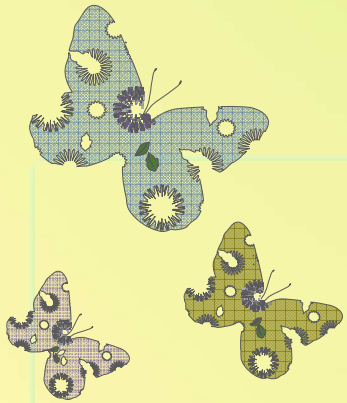
Technology Trends & Skills Formation

Evolution of Technological Intensity

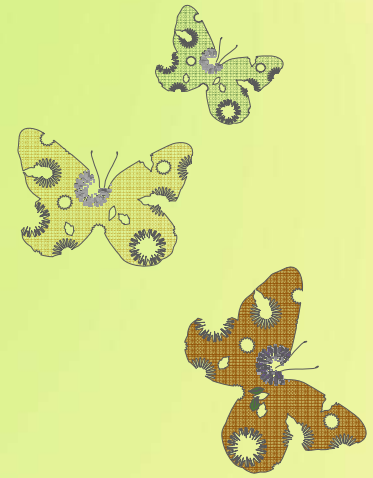


Major Technological Trends

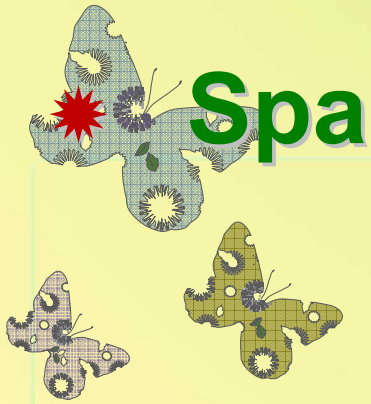
Moving From	Moving To
o Petroleum-Based	o Bio-Based
o Divergent	o Convergent



Convergent Technology & Emerging Occupation



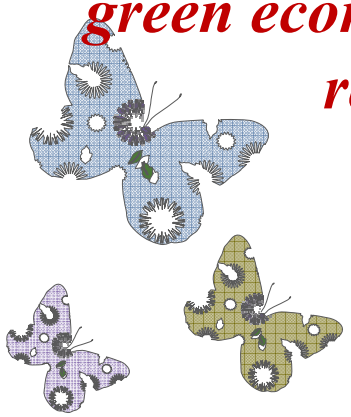
- **Mechatronics**
- **Bio-technology**
- **Nano technology**
- **Information & Communication**
- **Space Technology**



Green Economy and Occupations

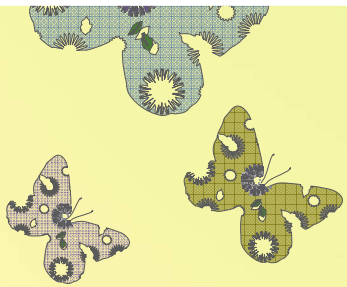
- **Green Increased Demand Occupations (GIDO)**
- **Green Enhanced Skills Occupations (GESO)**
- **Green New and Emerging Occupations(GENO)**

US National Centre for O*NET Development investigated the impact of green economy on occupational requirements.



Emerging Occupation & Skills

"Occupational patterns are changing; new jobs and job titles, and new flexible work arrangements are emerging. Employment demands are shifting towards HOT Skills & Green Skills."



Education & Training Responses

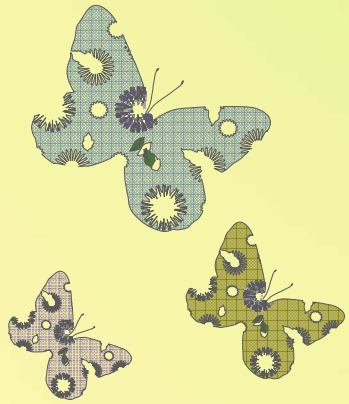
Degree of Skill Change	Occupational Change	Typical Skills response	Few Examples
None	None or only quantitative	None or increased training in existing occupation	Bus driver in CNG driven buses; forester
Low	Changing occupation	On-the-job learning or short training courses	Welder in wind turbine production; Organic farmer
Medium	Changing or emerging occupation	Short courses or longer continuous training	Energy consultant in building; car mechanic for electric cars or CNG cars
High	Emerging occupation	Initial training, university degree or longer continuous training	Solar energy technician; eco-designer; bio-fuels technician

Key Questions:

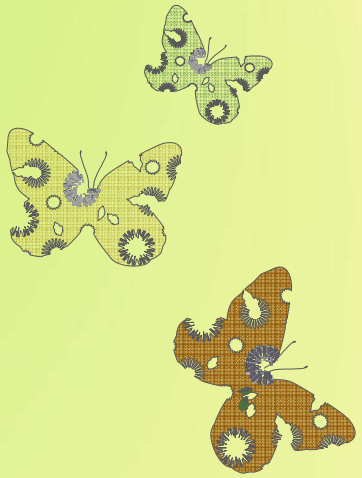
1. How E & T will response in these transition?

2. How present and future skills gap will be met?

3. What are the specific implications to Curriculum Dev.?



Common Characteristics of the New Technologies



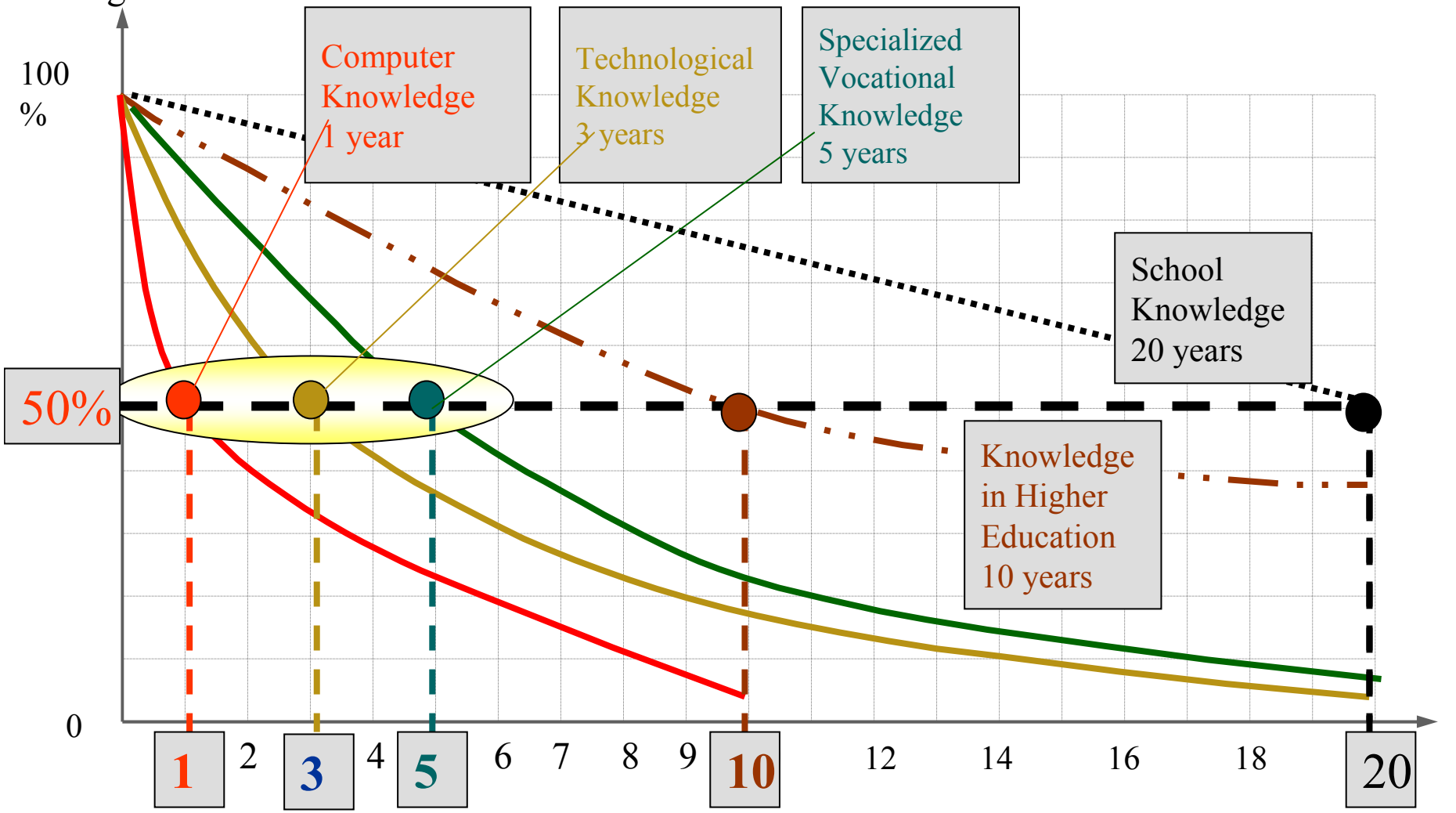
- Interdisciplinary
- Oriented to R&D
- Information Intensive
- Globalized & Green
- Short life cycle

Phenomenon

The Excessive Pace of Technological Change

The Half Life of Knowledge

The Loss of Relevance over Time



Source: IBM, 1994

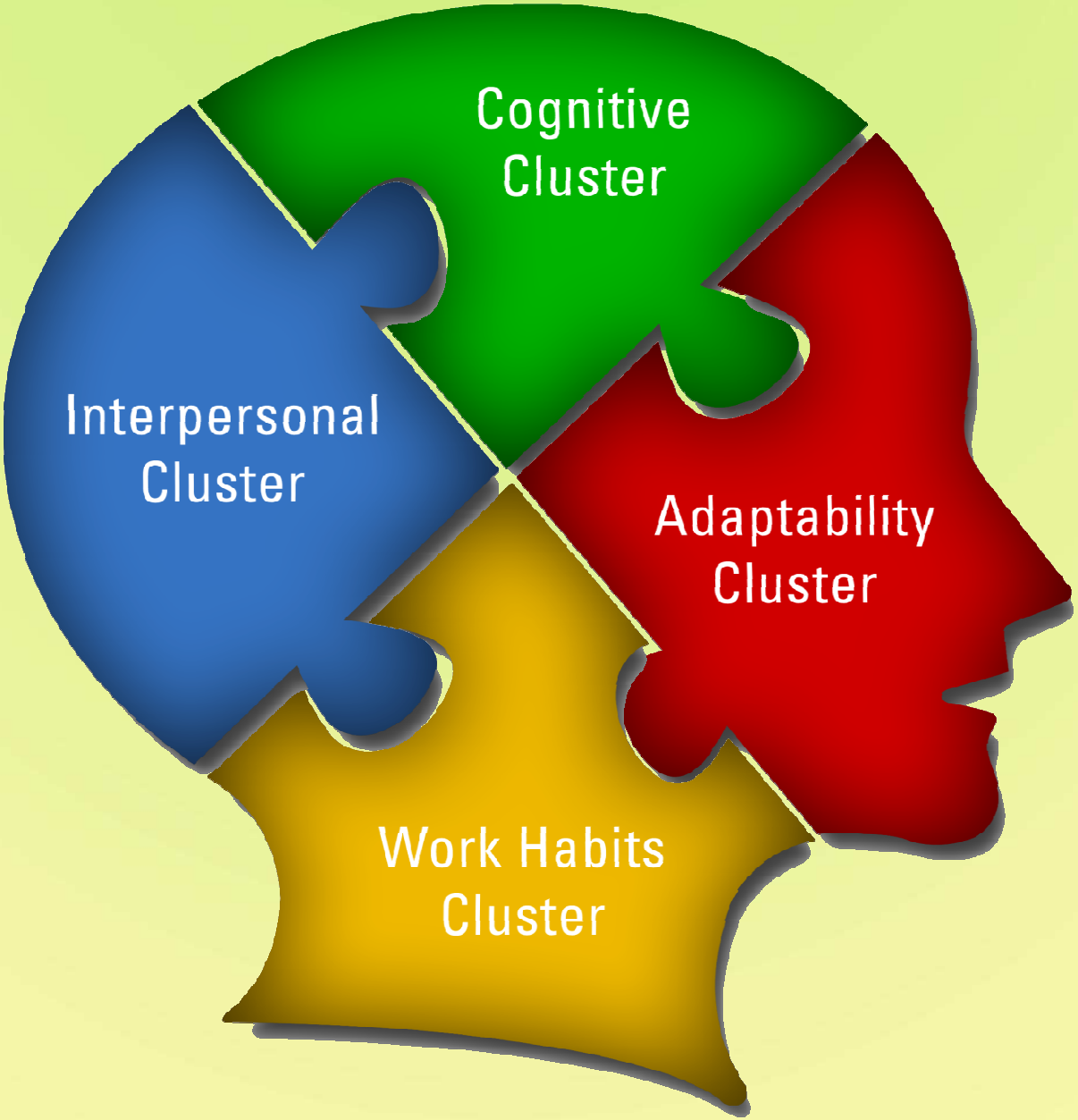
Fundamental Challenge of the present day E & T Organization is to prepare people for the jobs that:

- Do not yet exist
- Use Technology that not yet invented

How do we get there?

- In addition to Technical Skills in **CBC**, a **SET OF GENERIC AND SOFT SKILLS** is required to cope with rapid technological change.
- There is an increasing demand for **DOMAIN DEPENDENT & DOMAIN INDEPENDENT** generic skills
- **LEARNING TO LEARN AND ADAPTABILITY SKILLS** are central to building up the future skill profile of the people
- More than Curriculum updating approach

Generic Skills in the New Workplace



Domain Dependent Generic Skills?

- Identification of Proximity Skill Clusters
- Looking for Generic Architecture in the Clusters
- **PROJECTION AND FORE CASTING OF SKILLS**
- New approach to teaching and learning (PBL/HOTS)

Thank You for your kind attention