Innovation Eco-system and Value Creation

Broadening the perspective: tying the local to the global in the knowledge-based economy

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Innovation and the Roles of Higher Education

Knowledge Cycle

Disseminating knowledge

Creating new knowledge

Application of knowledge

Moving toward a services economy

Top ten nations by labor force size (about 50% of world labor in just 10 nations)

A = Agriculture, G = Goods, S = Services

<table>
<thead>
<tr>
<th>Nation</th>
<th>% WW Labor</th>
<th>% A</th>
<th>% G</th>
<th>% S</th>
<th>2004</th>
<th>25 yr</th>
<th>delta</th>
</tr>
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<tbody>
<tr>
<td>China</td>
<td>21.0</td>
<td>50</td>
<td>15</td>
<td>35</td>
<td>191</td>
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<td></td>
</tr>
<tr>
<td>India</td>
<td>17.0</td>
<td>60</td>
<td>17</td>
<td>23</td>
<td>28</td>
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<td>U.S.</td>
<td>4.8</td>
<td>3</td>
<td>27</td>
<td>76</td>
<td>25</td>
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<tr>
<td>Indonesia</td>
<td>3.9</td>
<td>45</td>
<td>16</td>
<td>39</td>
<td>35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brazil</td>
<td>3.0</td>
<td>23</td>
<td>24</td>
<td>53</td>
<td>29</td>
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<td></td>
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<tr>
<td>Russia</td>
<td>2.5</td>
<td>12</td>
<td>23</td>
<td>59</td>
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<td>Japan</td>
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<td>5</td>
<td>25</td>
<td>70</td>
<td>40</td>
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</tr>
<tr>
<td>Nigeria</td>
<td>2.2</td>
<td>70</td>
<td>20</td>
<td>28</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bangladesh</td>
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<td>63</td>
<td>11</td>
<td>28</td>
<td>30</td>
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</tr>
<tr>
<td>Germany</td>
<td>1.4</td>
<td>3</td>
<td>33</td>
<td>64</td>
<td>44</td>
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</tbody>
</table>

>50% (S) services, >33% (S) services

2004

United States

2004

The largest labor force migration in human history is underway, driven by urbanization, global communications, low-cost labor, business growth and technology innovation

Services Science and Engineering: Value Creation

HOW VALUES ARE CREATED

Services focus on creating Utility Value or Perceived Value for a product/asset. They are in contrast with Engineering which focuses on Cost and Quality

Engineering

Cost

Utility

Quality

Perception

Services Science

Value from enhancing the capabilities of things (customizing, distributing, etc.) and interactions between things

Product /Asset Values

Intrinsic

perceived

Client

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Innovation Ecosystem

Challenges:
- Society
- Business

Market

Constraints:
- Processes
- Infrastructures
- Human Capacity
- Funding
- Resources

Operations

Achievable goals:
- Innovation
- Research outputs

Products

Services

Stakeholders:
- Government
- Industry/Businesses
- Universities

Governance

Integrity

Business

Example: Fresh on demand, action against fresh food wastage

Total wastage: € 3 billion
Total wastage: € 27+ billion

Logistics
Retailers
Out of home

Production & Wholesale

flora holland
syngenta
Unilever
intergreen

Knowledge Cycle

New Technologies / Knowledge

Acquire
Assimilate
Create
Discover

Understand business challenges
Develop values

Innovations

Multi-disciplined and Collaborative
Global Ambition starts at Home

Competitiveness cluster - Q@LI-MEDiterranée example

Grand Saint-Charles
Un espace logistique, industriel et commercial de pointe et de poids

Four development axis:
- Varietal improvement of Mediterranean cultivated plants
- Sanitary security - Traceability of fresh and transformed products
- Food, Nutrition & Health - Regulation compliance, design of innovative products and new, nutritionally-optimized “health foods”
- Agri-Food marketing

Challenge: How to generate Innovation by a pro-active collaboration?

Innovation in Higher Education

Faculty perspectives:
- Standing out among the out-standingings
  - Patents
  - Publications
- Pushing the frontier of innovation and relevancy
  - Government/industry
  - Partnership
  - practicality
  - alignment with government/industry strategic objectives
- Committing to change
  - Continual learning

Student Perspectives:
- Hitting the ground running
  - Employability
    - Knowledge
    - Experiences
    - Insight
  - Project based approach
- Preparing for innovation
  - Versatility: wider spectrum
  - Major
  - Minor
- Expecting the unexpected
  - Adaptability
    - Methodology
    - Framework
About the speaker: Dr Diem Ho is Manager of University Relations for IBM Europe, Middle East and Africa (EMEA).

His mission is to build and manage relationships of mutual value for IBM and the academic community.

Diem's past research interests covered many disciplines in Science, Technology and Finance/Economics.

He has published widely in physics, mathematics, image processing, remote sensing, engineering, optimization and finance. He co-edited with Prof. Tom Schneeweis of the University of Massachusetts a book on Applications in Finance, Investments, and Banking published by Kluwer. This year he co-edited/authored a special issue of the Computational Economics on Stochastic Process and Data Analysis published by Springer.

He is an associate editor of the journal of Computational Economics (Springer) and is a member of the IBM Academy of Technology.

Before assuming his current position, he was the EMEA practice leader of the IBM Management Technologies Consulting Group, specialized in using Technologies to address Business Challenges in Banking and Finance sector.

Before joining IBM, Diem was an university professor and he continues to supervise PhD thesis to-date.

Diem obtained two Master degrees and a PhD in Magnetospheric Physics at Stanford University, California.