Skills for Economic Growth in South East Europe (SEE)

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Economic Background: examples

%GDP %Labor	Bulgaria	Croatia	FYR Macedonia	Romania	Turkey (2005)
Agriculture	9 10	6 16	11 17	8 32	12 34
Industry	31 33	27 30	26 33	31 31	27 23
Services	60 57	67 54	63 50	61 37	61 43
Population (million)	7.72	4.44	2.04	21.61	72.52
Unemployment rate %	9.0	11.1	35.9	7.3	8.4

Sources: *Manfred Wannöffel, Josef Le and Julia Kramer,* Economic structures in south-eastern Europe and Turkey: a view from the metalworking industry, South-East Europe Review, pp.7 – 32, Feb 2007 (2006 data)

Higher Education Background

-Economy is service and manufacturing dominant

-Higher Education

- -Modest or insufficient funding
- -Significantly state ownership
- -Understaffing
- -Lack of EU quality harmonization
- -Mismatch: graduate profiles with respect to the economy needs

⇨ •Foreign Direct Investment

⇩

⇨
- • Curriculum modernization
- • Governance reform
- • University-industry-government partnership

Higher Education vs Economy

Economic Growth means Value Creation!

Value Creation

How to do it?

- through **Innovation**

to do things better:

- more efficient in processes
- more relevant in contents
- more effective in outcomes

⇒ **Smarter Planet.**

Need **Market Valued Skills**

Market Valued Skills Opportunities in 2009

Potential - Longer Term Outlook Areas (2009 through 2014)

Application

SOA

Systems Software

Software Engineer

RFID

Operating Systems

Security

Antivirus Protection

Networking and Internetworking

Network Systems

Security

Wireless/Mobile

Identity Management

Web/eCommerce

Web Services

Services

Change Management

Service Management (ITIL)

Risk Management

Vendor Management

Enterprise Application Suites

Systems Analyst

Security

Disaster Recovery

Database

Database Administrator

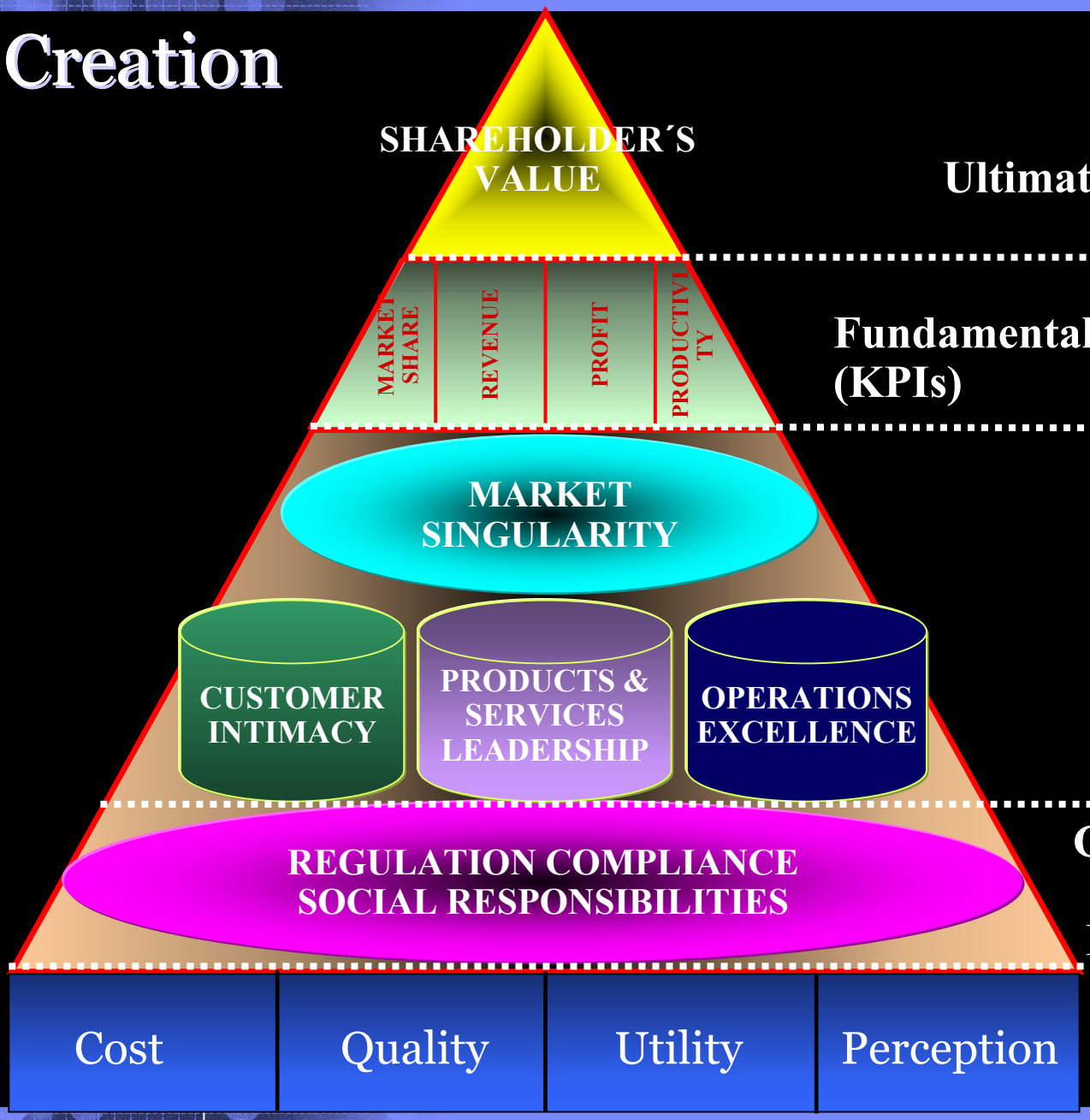
Business Intelligence

Data Management

Project Management

Project Management

Value Creation



Ultimate Objective

Fundamental Indicators (KPIs)

Business Expectation

Government /Society Expectation

Innovation: Value Creation Matrix

Value / Challenges	Market Share	Revenue	Profit	Productivity /Utility
Customers	Mass Customization			
Products & Services	Facilitation, Simplification, Integration, Standardization, Differentiation			
Market & Competitors	Globalization, Market Singularization			
Operations/ Processes/ Resources	Optimization, Automation, Integration, Securitization			
Governance & Business Integrity	Regulation Compliance Optimization			

Examples of Skills Required for Service Science

MARKET & COMPETITORS

- Leadership
- Entrepreneurship
- Strategy
- Critical Thinking/Analysis
- Macroeconomics

PRODUCTS & SERVICES

- BI/Data warehousing
- Product/Service Management
- Product/Service Marketing
- R&D Management
- Microeconomics
- Pricing
- Innovation

OPERATIONS/PROCESSES/RESOURCES

- Infrastructure
  - -IT Architecture
  - -IT for Services
  - -IT Management
- Processes
  - e-Commerce
  - SOA/BPM/ERP/ISC
  - Quality Management
- Project Mgt/Consultancy
- Human Capacity Mgt
- Financial Management
- Knowledge Mgt

CUSTOMERS

- BI//Data warehousing
- Behaviour Science
- Business Analytics
- Optimization
- CRM, Marketing
- Sales
- Innovation

GOVERNANCE BUSINESS INTEGRITY

- Social Responsibilities
- Ethics and Values
- Business Law/Reg. Compliances
- IT based Risk Management

BI: Business Intelligence
SOA: Service Oriented Architecture

ERP: Enterprise Resource Plannng
ISC: Integrated Supply Chain

How to make the planet smarter

Academic Initiative helps develop skills for a smarter planet

Smart Work

Skills to develop flexible and dynamic processes modeled for the new way people buy, live & work.

New Intelligence

Skills to take advantage of the wealth of information available in real time from a multitude of sources to make more intelligent choices.

Green & Beyond

Skills to reduce energy costs, drive greater efficiencies, respond more quickly by taking action now on energy, the environment, and sustainability, and develop new portfolio of green services and products.

Dynamic Infrastructure

Skills to create intelligent infrastructure that drives down cost, is secure, and is just as dynamic as today's business climate

Skill Development

What does IBM do to contribute and to help

in developing the skills for the 21st century?

Global University Programs - Today

Four Pillars	Programs & Initiatives
Talent - Research ***Collaboration in areas of mutual interest & value***	❑ **Shared University Research Awards (SUR)** ❑ **Faculty Awards** ❑ **Open Collaborative Research Awards (OCR)** ❑ **Centers for Advanced Study (CAS)** ❑ **World Community Grid (with CC&CA)**
Talent - Skills ***Building the pipeline***	❑ **Academic Initiative Program (led by SWG)** ❑ **SSME/Smarter Planet Skills for 21st Century** ❑ **LA Grid Initiative (Hispanic Focus)** ❑ **Student Contests / Competitions (e.g., ACM)** ❑ **Innovation Centers and Developer Relations** ❑ **Volunteerism/Corp Citizenship (with CC&CA)**
Talent - Recruiting ***Acquiring top talent***	❑ **PhD Fellowship Program** ❑ **Global Recruitment Campaign** ❑ **Global University Sourcing** ❑ **Extreme Blue Internship Program**
Infrastructure Projects ***Value creation, sales, and revenue generation***	❑ **Partnership Executive Program (PEP)** ❑ **Client Executives S&D** ❑ **Public Private Partnerships in Research** ❑ **Industry-Academic IP Collaboration**

The IBM Academic Initiative

Our goal: Skills for the 21st Century

Our mission

- Partnering with schools, colleges and universities to drive open standards, open sources and IBM technology
- Better educate millions of students for a more competitive IT workforce

Our offerings

- No Charge access to IBM technology & tools
- Course materials and curriculum
- Education: faculty, IT staff and students
- Certifications and Qualifications

Over the past year we have worked with *thousands of faculty members and institutions, teaching over 8,000 courses to over 800,000 students worldwide, supported by thousands of IBM volunteers*

http://www.ibm.com/developerworks/university/academicinitiative

Collaboration with IBM

PhD Fellowships

- University of Cambridge
- University of Oxford
- Liverpool John Moores University
- University of Bristol
- Technical University of Munich
- University Politehnica of Bucharest
- Hebrew University
- National and Kapodistrian University of Athens

Shared University Research

- Universität Karlsruhe
- Universität Stuttgart
- Meraka Institute, SA
- New University of Lisbon
- Universidad Carlos III de Madrid
- University of Toulouse 3
- University Polytechnic of Turino
- Koc University, Turkey
- University Polytechnic of Timisoara
- Ozyegin University, Turkey

Faculty Awards

- Technical University of Cluj Napoca
- Cambridge
- Moscow State Institute of Electronics and Mathematics
- Makerere University
- Erasmus University of Rotterdam
- University Polytechnic of Bucharest
- University of Stuttgart
- Royal Institute of Technology, Stockholm
- Bocconi. Italy
- Istanbul Bilgi, Bilkent, Koc, METU, Ozyegin

http://www-304.ibm.com/jct09002c/university/scholars/ur/awards/index.html

IBM-University Collaborations in the SEE

Internship current situations

- Croatia, Slovenia and Bulgaria have internships within the respective brands and are handled 'ad-hoc ' with HR support, fulfilling the business demand 'on demand'
- Serbia, started last year.
- Bosnia, Herzegovina, Macedonia, Albania and Kosova: none for now
- Turkey and Romania: regular programs

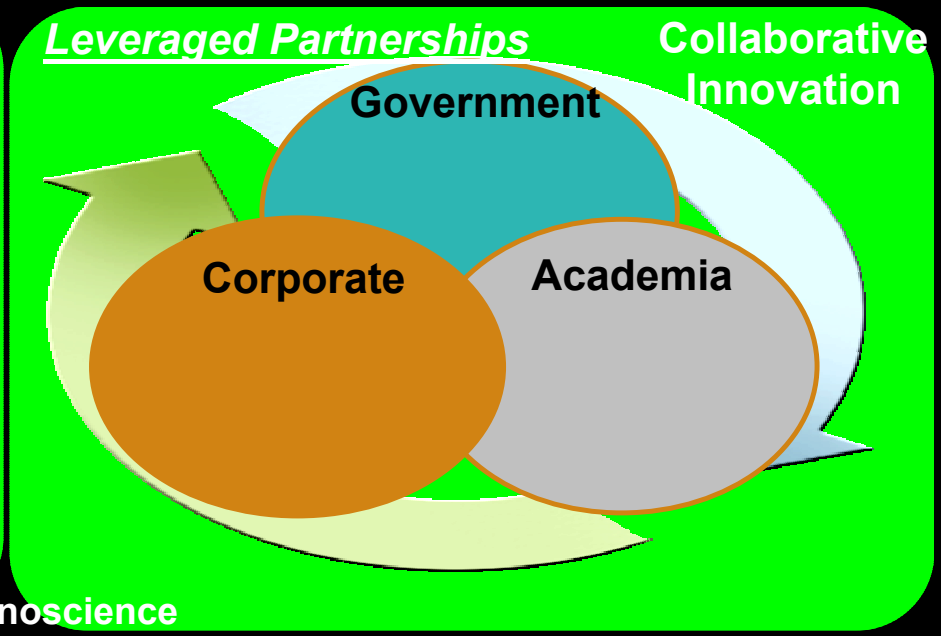
Certifications/Qualifications

•Recently for **Bulgaria**: Sofia University, Varna Free University, University of Ruse, Technical University of Sofia. **Serbia:** Belgrade University, Singidunum University. **Croatia**: Faculty of Humanities and Social Sciences, Faculty of Computing and Engineering, Faculty of Organization and Informatics, Academy for applied computing, Faculty for traffic sciences, **Turkey**: Bahcesehir University, Baskent University, and Dokuz Eylul University

Recent University-IBM Partnerships

Serbia: Institute of Physics Belgrade, Faculty of Mathematics – University of Belgrade, Faculty of Informatics and Management – Singidunum University **Romania**: Transylvania University of Brasov, Academy of Economic Studies (ASE), TU in Cluj-Napoca, Politehnica University of Timisoara, **Croatia**: Computer College, **Slovenia**: Maribor,…

Bulgaria – A Government-University-IBM Collaboration



IBM and Bulgarian Government in Partnership in Nanoscience

IBM Helps Create First Nanotechnology Center in Central and Eastern Europe

SOFIA, Bulgaria - 22 May 2009: IBM (NYSE: IBM) and the Bulgarian government today officially announced their cooperation in the area of nanoscience and a deal for IBM to support the creation of what will be the first Bulgarian nanotechnology center.

•The General Framework Agreement signed today defines the scope of cooperation between IBM and the Bulgarian government and ways to encourage industry, universities and the Bulgarian Academy of Science to work together in the emerging field of nanoscience. The government's three-year program is aimed at creating different nanoproducts, micromachines and microsystems. http://www-03.ibm.com/press/us/en/pressrelease/27571.wss

So how do we develop skills and competences in SEE? - a comprehensive strategy for effectiveness

Market singularity

- Specialization

Quality Leadership

- Product: Contents
- Service: Faculty

Delivery and Pedagogical Excellence

- Infrastructure: Cloud computing
  - computing on demand, applications on demand
  - Bandwidth, jitter, reliability, availability
- Tools
  - Ubiquitous, participatory, collaboratory

Learner Centricity

- Relevance
- Impact

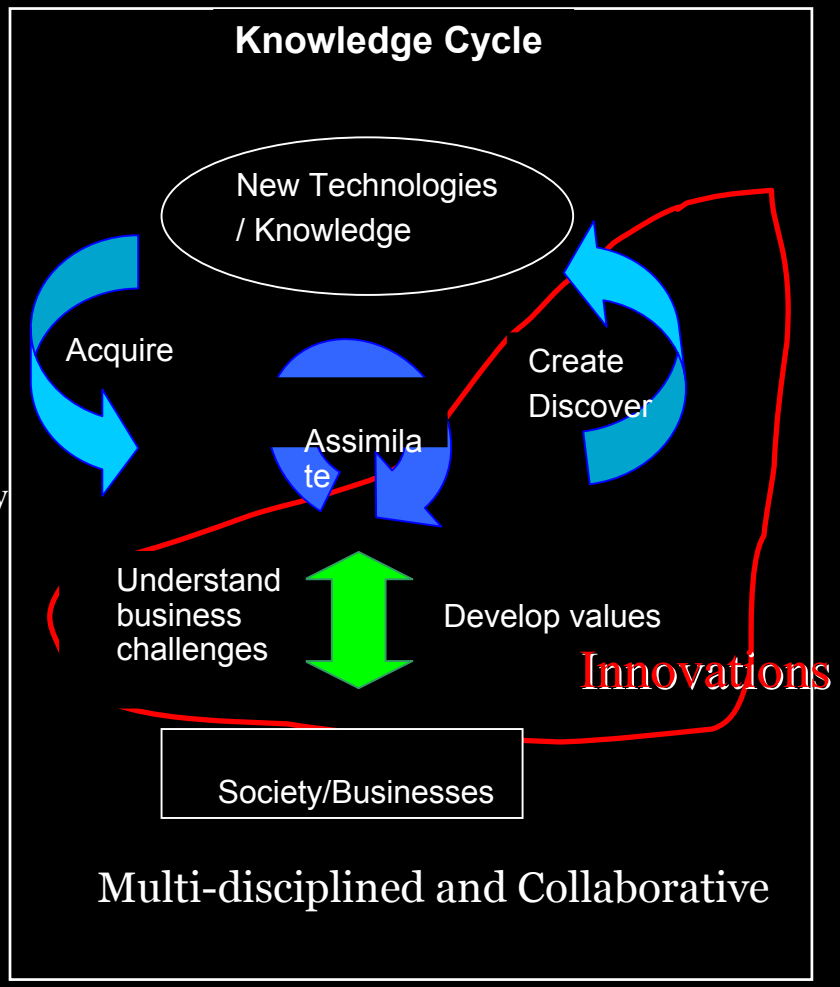
Governance Challenges

- Accreditation
- Certifications

Value Creation in Higher Education

Faculty perspectives:

- **Standing out among the out -standings**
  - **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**

- **Better student pre-university orientation; common trans-disciplined 1st year courses**
- **Quarter system**
- **Two year program (like foundation degree, UK; or DUT, France)**

Value Creation: Entrepreneurship spirit

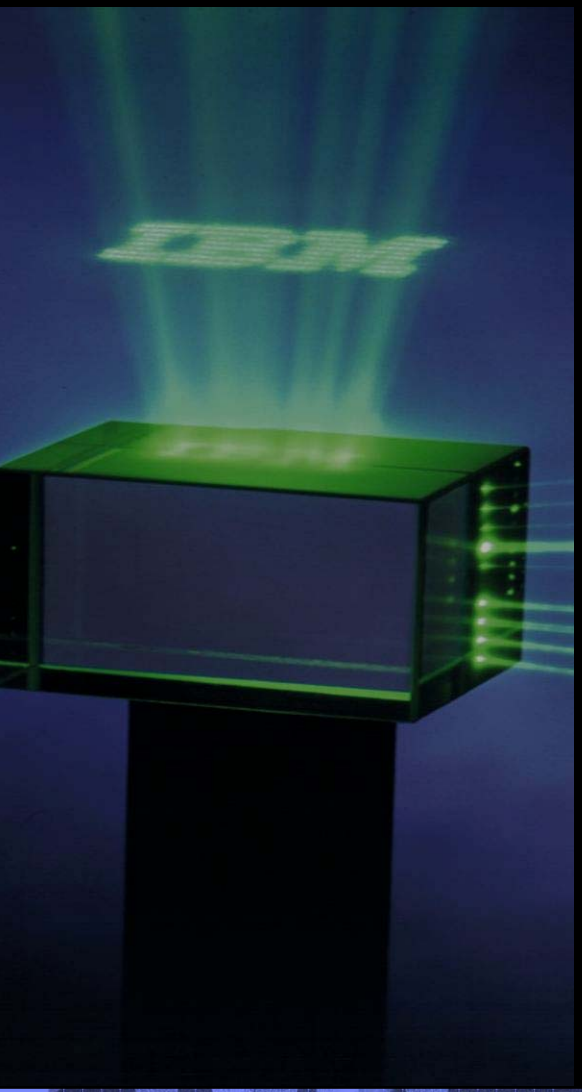
The skills needed for services innovation are in short supply; science and engineering education does not seek to develop skills required for innovation and entrepreneurship

- Depth
- Breadth
- Practical Experience
- Communications
- Teaming
- Management
- People Management
- Strategic Planning
- Problem solving via informatics
- Problem solving via social networks
- Flexible, adaptive and entrepreneurial
- On demand

Professional Perspectives:

- Challenging the Conventional Wisdom
  - That's it?
- Creativity
  - Can I do better?
- Passion
  - Am I excited?
- Perseverance
  - Yes, I can!

Conclusion: to meet the SE Europe challenges,



Higher Education Reform for

- Market Valued Skills for the 21st Century
- Innovation for the Economy

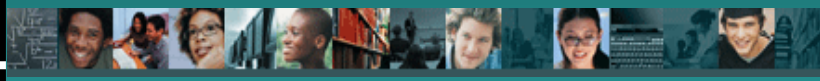
through

- Service Science/Smarter Planet in our University Curricula
- Value Creation by focussing on society's needs (client centricity)

Top Solutions for New Intelligence for Smarter Planet

Information Management	▪ Information on Demand ▪ Information Agenda ▪ Information Infrastructure
Predictive Capability	▪ Business Intelligence ▪ Business Event Processing ▪ Analytics Solutions ▪ Telelogic and Cognos
Engaging the Value Chain	▪ Industry Specific Assets (IA, MRO, Telelogic) ▪ CRM, SCM and HR Transformation ▪ Sensor and Actuator ▪ Information Integration
Business Optimization	▪ Business Optimization Solutions ▪ Business Process Management ▪ Smart SOA ▪ Information On Demand, Information Agend ▪ Information Infrastructure SW and Services

Academic Initiative
Related New Intelligence Courseware



- *Designing SOA Solutions with the IBM SOA Foundation*
- *Information Management Basics*
- *Architecting the Data Warehouse*
- *Relational Database Design*
- *Changing Business with Data Insight*
- *IBM Informix Dynamic Server Administration*
- *SQL & Database basics*
- *Teaching Business Process Management with Innov8*
- *Teaching Business Process Modeling*
- *Introduction to IBM DB2*
- *Advanced Data Warehouse Workshop: Multi-Dimensional Modeling*
- *DB2 for z/OS Fundamentals*
- *DB2 Family Fundamentals*
- *DB2 SQL Workshop*
- *Designing SOA Solutions with the IBM SOA Foundation*
- *Getting Started with SOA*
- *Implementation Technologies for Service Oriented Designs*
- *The Value of Service Oriented Architecture*
- *IBM WebSphere Business Modeler- Process Simulation and Analysis*
- *Using IBM WebSphere Business Modeler for BPM*

Top Solutions for Smart Work for Smarter Planet

Agile Business Model	▪ Industry business solutions and Industry framewor ▪ Business Model Innovation services (CBMSOMA ▪ SOA strategy services ▪ Smart SOA INsight series
Connected Customers	▪ Collaboration software and services ▪ RFID, sensors, actuators, consulting services ▪ Web 2.0 products and service ▪ Consulting services for CRM and SCM ▪ Collaborative Software Development ▪ WebSphere Commerce ▪ Mobility & Contact Center Solutions
Dynamic Business Processes	▪ Key Agility Indicators ▪ BPM Suite and consulting services ▪ WebSphere Business Events ▪ Component Business Modeling services – (KAIs) ▪ Enterprise Architecture products and services
Smart SOA	▪ Smart SOA and SOA solution services ▪ Application Infrastructure ▪ Connectivity and Integration ▪ SOA Sandbox

Academic Initiative
Related Smart Work Courseware

- *Designing SOA Solutions with the IBM SOA Foundation*
- *Assessment Assets for Service Oriented Architecture (SW707)*
- *Developing Applications with a Service-Oriented Architecture*
- *Getting Started with SOA*
- *Implementation Technologies for Service Oriented Designs*
- *Service Oriented Architecture Design Patterns*
- *The Value of Service Oriented Architecture*
- *Fundamentals of IBM Lotus Domino 8 Application Development*
- *Using IBM Lotus Notes 8 Mail, Calendar, and Contacts*
- *IBM WebSphere Portal v6.0: Administration 1&2*
- *IBM WebSphere Business Modeler- Process Simulation and Analysis*
- *IBM WebSphere Enterprise Service Bus Implementing an ESB*
- *Using IBM WebSphere Business Modeler, Monitor and Process Server for BPM*
- *IBM WebSphere Commerce V6.0 Hands-on Training for Developers*
- *Programming XML with Java 1.4*
- *Teaching Business Process Management with Innov8*
- *Developing Supply Chains to support Service Operations*
- *Introduction to XML and Related Technologies*
- *Teaching Business Process Modeling*

Top Solutions for Dynamic Infrastructure for Smarter Planet

Reduce Cost

Improve Service

Manage Risk

- Cloud Computing
- Virtualization
- Energy Efficiency
- Information Infrastructure
- Service Management
- Asset Management
- Security Management
- Business Resiliency
- Express Mid-Market Offerings
- Strategic Outsourcing

Academic Initiative:
Related Dynamic Infrastructure Courseware

- *Foundations in IT Services I and II*
- *IBM Tivoli Netcool/Proviso 4.4.3 System Administration and Maintenance*
- *IBM Tivoli Asset Management for IT 7.1 Implementation*
- *IBM Tivoli Access Manager for Enterprise Single Sign-On Workshop*
- *IBM Tivoli Business Services Manager 4.1 for Implementers*
- *IBM Tivoli Composite Appl. Mgr for RTT 6.1 - Install Monitor Deploy*
- *IBM Tivoli Composite Application Manager for Response Time 6.2 Implement and Admin Workshop*
- *IBM Tivoli Federated Identity Manager 6.1 - Deployment and Administration*
- *IBM Tivoli Monitoring 6.2 for Implementers*
- *IBM Tivoli Netcool/Impact 4.0 - Administration and Implementation*
- *IBM Tivoli Netcool/OMNIbus 7.1 - User*
- *IBM Tivoli Netcool/Realtime Active Dashboards 3.0 Fundamentals*
- *IBM Tivoli Network Performance Reporting 3.X User*
- *IBM Tivoli Provisioning Manager 5.1 - Operations Management Workshop*
- *Service Desk Management Using IBM Maximo 6 for IT*
- *Work Management in IBM Maximo 6 for Enterprise Asset Management*
- *An Introduction to the Mainframe - Large Scale Commercial Computing*
- *An Introduction to the Mainframe - z/OS Basics*
- *Linux on System z*
- *Teaching Enterprise Systems*

Top Solutions for Green and Beyond for Smarter Planet

Finding the Value in Green	▪ Data Center Assessment and Design Services ▪ Green IT ▪ Software for a Greener World
Smart Systems	▪ Intelligent Utility Network and Metering ▪ Intelligent Transportation ▪ Consumer Driven Supply Chain ▪ Intelligent Oilfields, Manufacturing Productivity
Societal Shifts and Corporate Social Responsibility	▪ CSR and Sustainability ▪ Carbon Management ▪ Reputation Management Services ▪ Ethical Supply Chain Monitoring

Academic Initiative:
Related Green and Beyond Courseware & Assets

•An Introduction to Large Scale Commercial Computing
•An Introduction to the Mainframe - Networking
•An Introduction to the Mainframe - z/OS Basics

•IBM's Software for Greener World
•Lotus Quickr 8.1
•IBM Content Collector, Filenet
•Information Agenda for Energy & Utilities
•IBM Tivoli Usage and Accounting Manager, IBM Tivoli Monitoring for Energy Management Accounting
•Rational Test Lab Manager Managing
•Lotus Notes, Domino 8.5
•SmartSOA Sandbox Accelerating
•IBM FileNet Business Process Manager,
•IBM FileNet Content Manager
•Lotus Forms & Lotus Forms Turbo
•Telelogic System Architect

http://www.ibm.com/academicinitiative

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 recently co-edited/authored a special issue of the *Computational Economics* on Stochastic Process and Data Analysis published by Springer.

In recent years, he has lectured intensively on Higher Education Reform and is a member of the peer review teams for the EFMD-EQUIS and EPAS accreditation programs and a member of the EPAS committee.

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

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

Before joining IBM, Diem was a 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.