

COURAGE: Consortium of Universities for Research & Graduate Studies

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Universities in Transition

- Mission- **“facilitation of learning”**.
- Learning Tools: Make available all the tools necessary for learning to the learner and the teacher (books, journals, laboratories)
- Meeting Place of Ideas: Provide a stimulating and safe environment for the quest for new ideas. It fosters dialogue based on intellectual merit and free from all other prejudice and fear (academic freedom).
- The above is the only known **formal institutional means** to harvest human knowledge

ICT and Universities



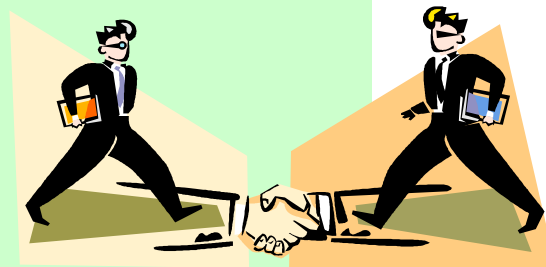
- ICT used to be an auxiliary service for universities in the 1990's.
- In 2000's it became an essential limb.
- In 2005 it is becoming the central artery in the running of modern universities.
- The concept is marching further forward. A mega REN alliances is now emerging with a vision of creating a world community of universities- **a grand kiosk of higher education and scholarship.**

Technology & User



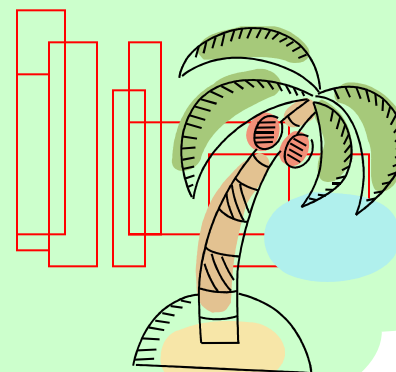
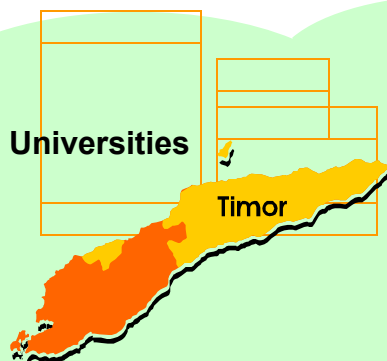
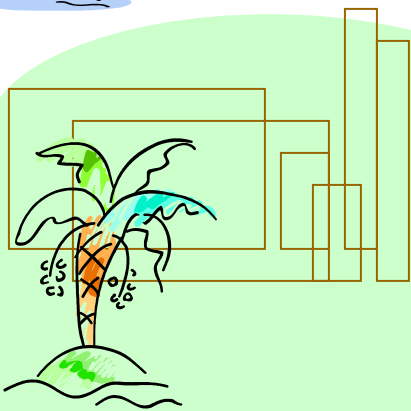
Internet 4 ?

- Research Projects (GRID)?
- Network Experiments (GENI)?
- But where is the **Real Education**?
- Academic Programs?



Applications, Collaboration Systems, Virtual Labs, Access to Resources, Digital Libraries

Technology Network (RENs)



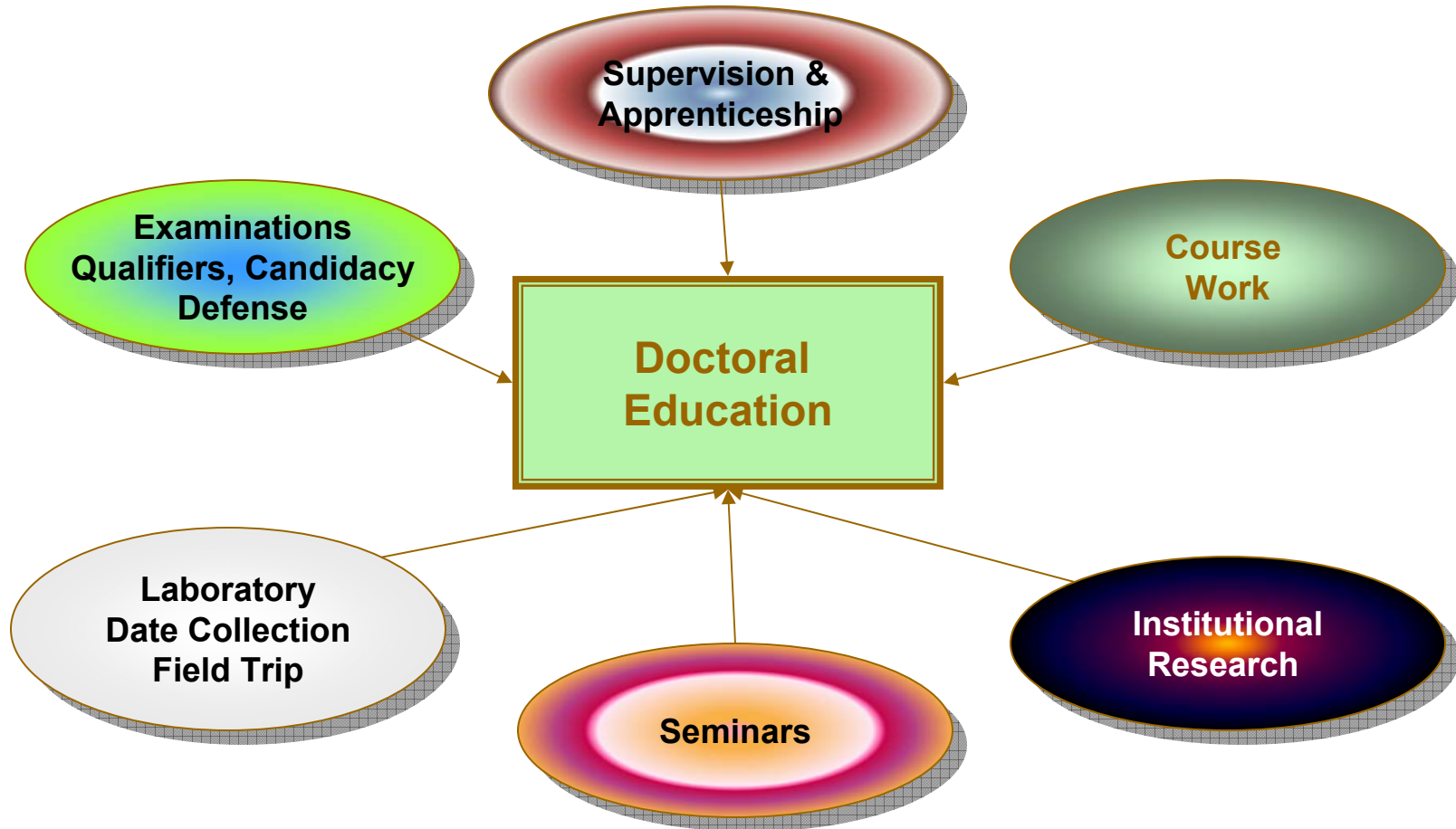
Doctoral Education

Indoctrination into the community of scholar..

Essence of Doctoral Education

- The highest degree offered by the HE. Its Goal is to create “**stewards of the discipline**” [1] into an aspiring scholar.
- The supervision process in doctoral education is quite distinctive from any other part of formal education. It requires intensive and long-term scholarly communication between the candidate and a committee of scholars led by a faculty supervisor.
- **Creativity** and **critical thinking** are the very essence of this learning process. The broader learning activity occurs around a central research topic, and a significant goal of this process is the indoctrination into research methodology.

Elements



Learning Objectives in Doctoral Education

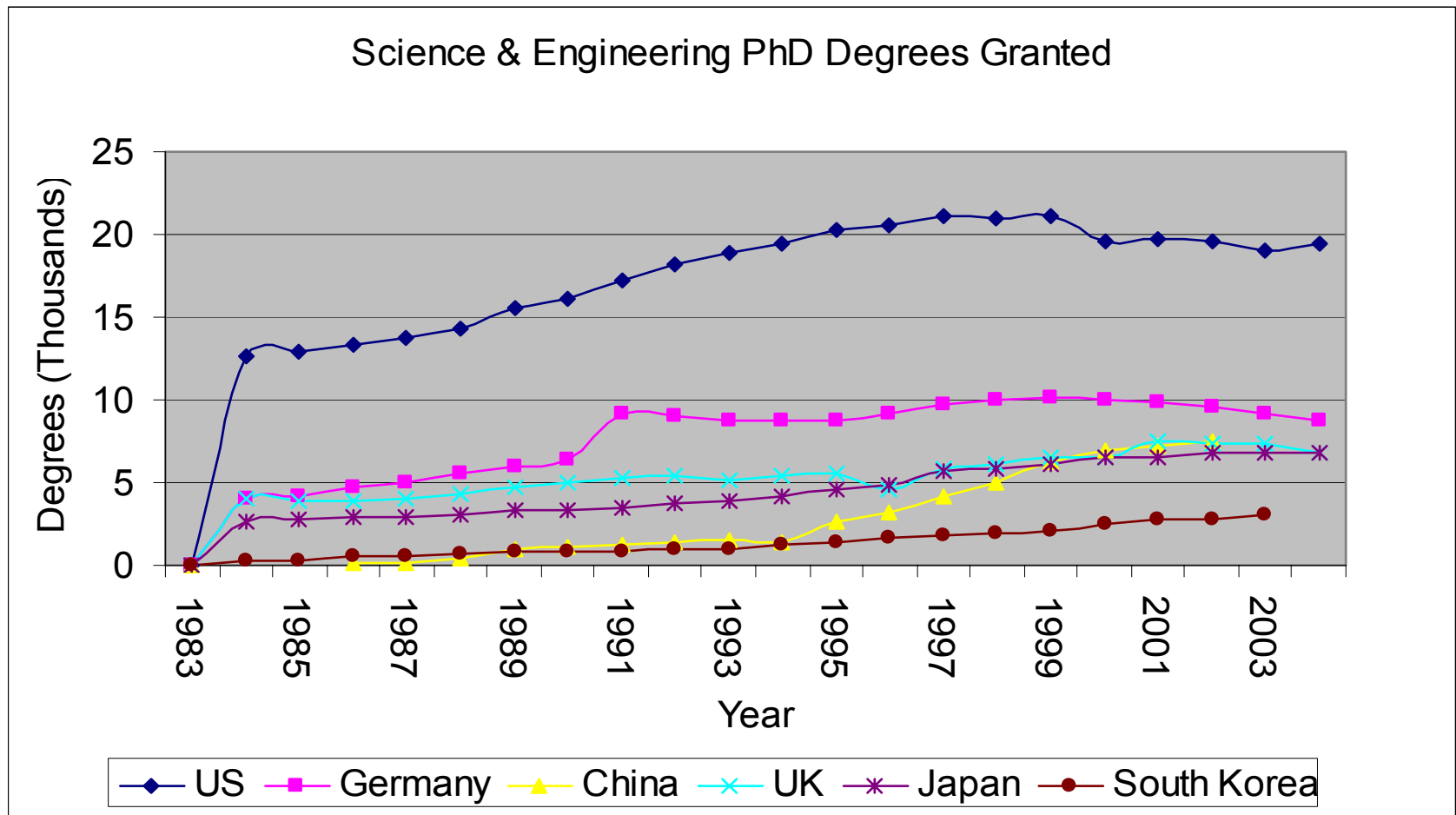
- The aim of education here is not only to learn the **skill** of a particular subject area, but also to develop two other lasting meta-learning goals. The first is the **scholarship of application:**
 - doctoral students learn to apply their skills in real-life and non-trivial problem solving.
 - Secondly, doctoral students learn meta-skills that enable them to critically observe their environment and formulate and ask new questions.
- Most systems particularly emphasizes on the development of these meta-capabilities [2], generally achieved via a long-term, focused, and intensive multi-level interaction. The activities involve extensive reading, observation, experimentation, and critical analysis, wherein the doctoral 'apprentice' and an advising committee all participate.
- The actual format and emphasis of these steps varies between disciplines.

Doctoral Supervision Committee

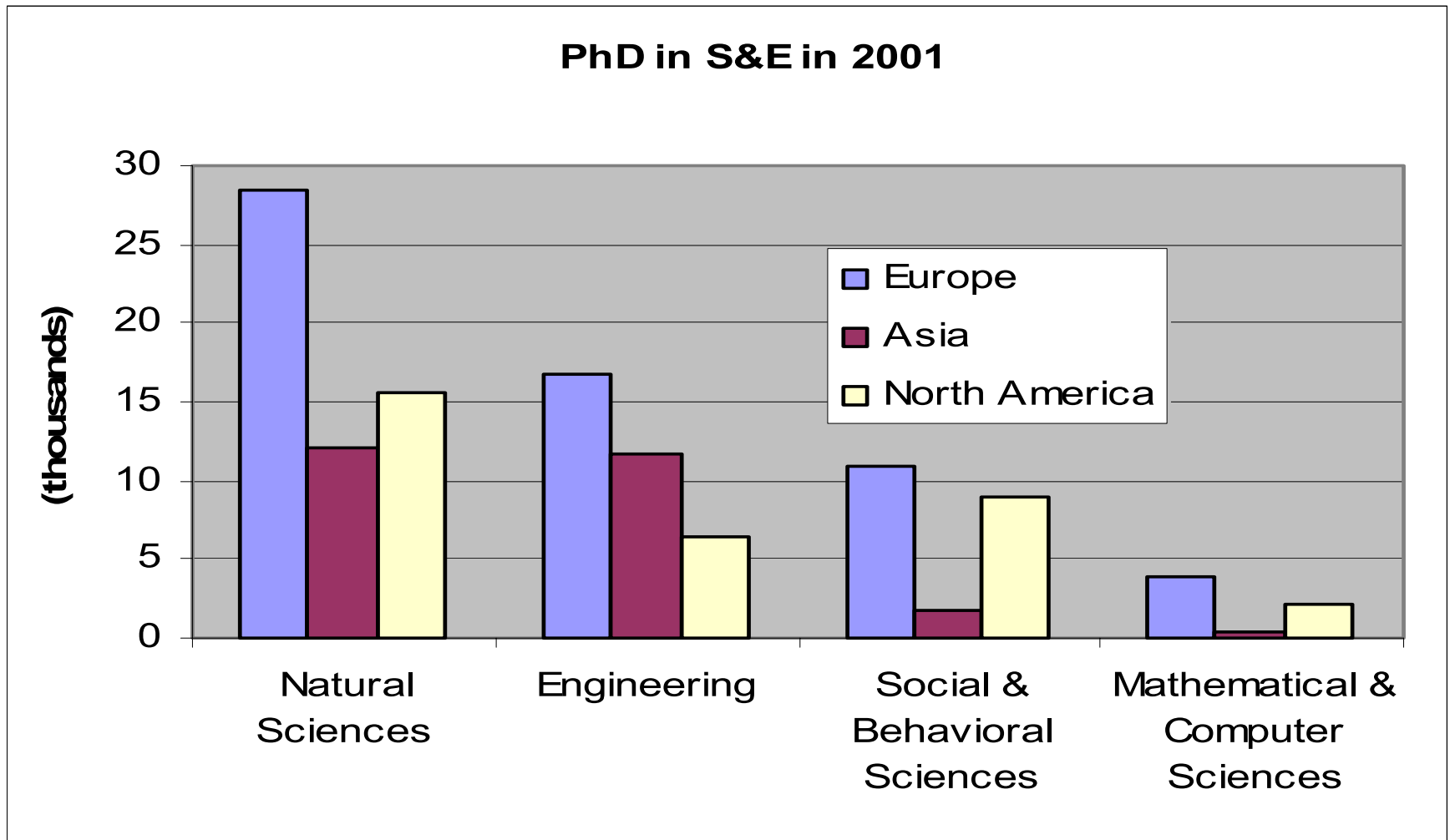
- One of the most important components is the **doctoral supervision committee (DSC)**.
- A committee is generally formed with the intention of incorporating **experts** in the field. The members are expected to provide **plurality of viewpoints** into the topic, and through them the doctoral student learns the value of perspectives in the pursuit of academic objectivity.
- Most doctoral programs allow committee members to be selected from the outside; however, this very rarely occurs in practice: less than 8% of dissertations take advantage of the provision of adding outside members.
- For practical reasons, most of the time the committee is limited to members within the same institution. Thus, current practices in the selection of a DSC seem to have inherently lost a great opportunity for the foundation of collaboration in research - an added value which could be potentially very enriching, productive, and long-lasting.

The Rising Tide in Higher Education

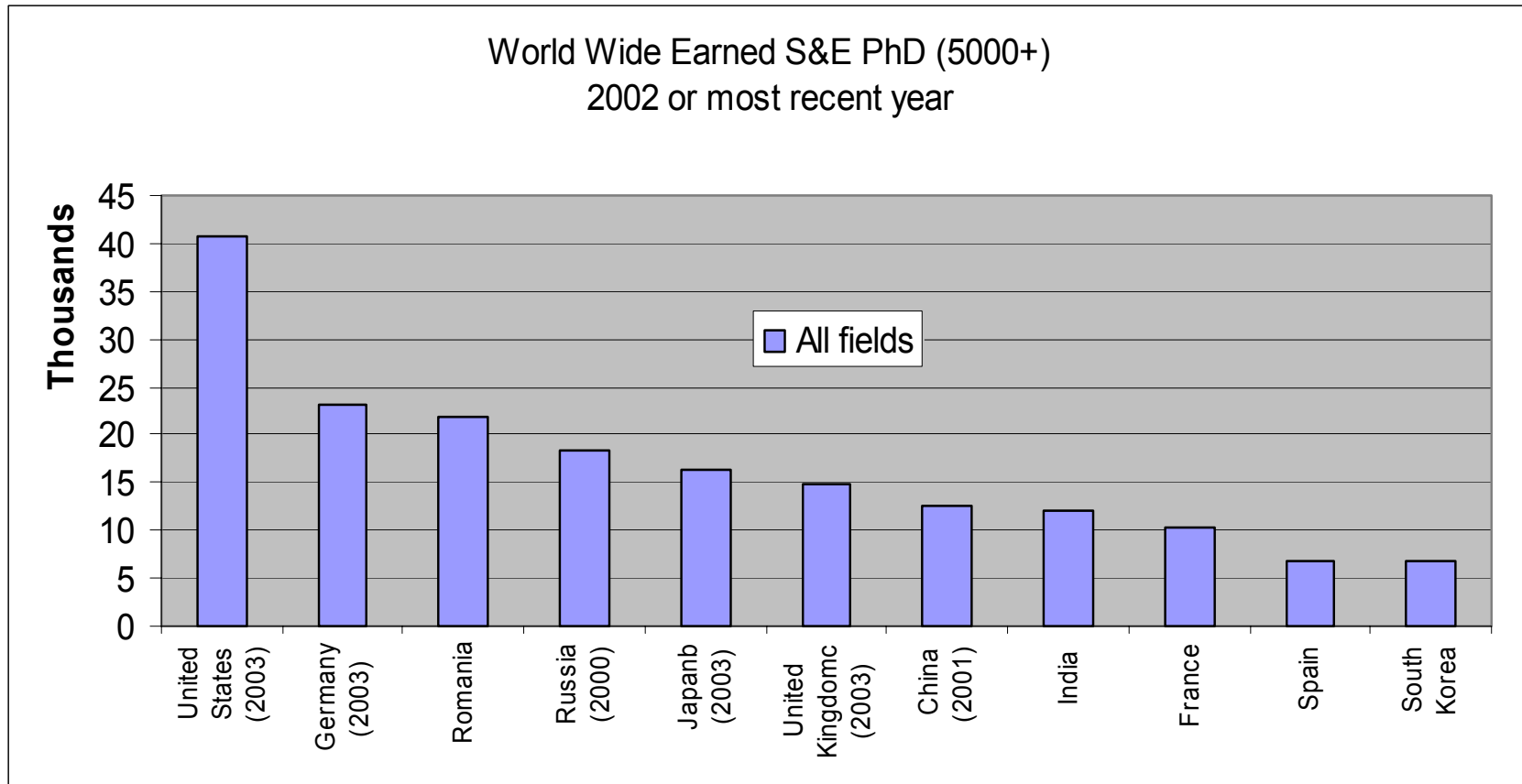
Growth in PhD in S&E [NSF study]



PhD Granted by Area [3]

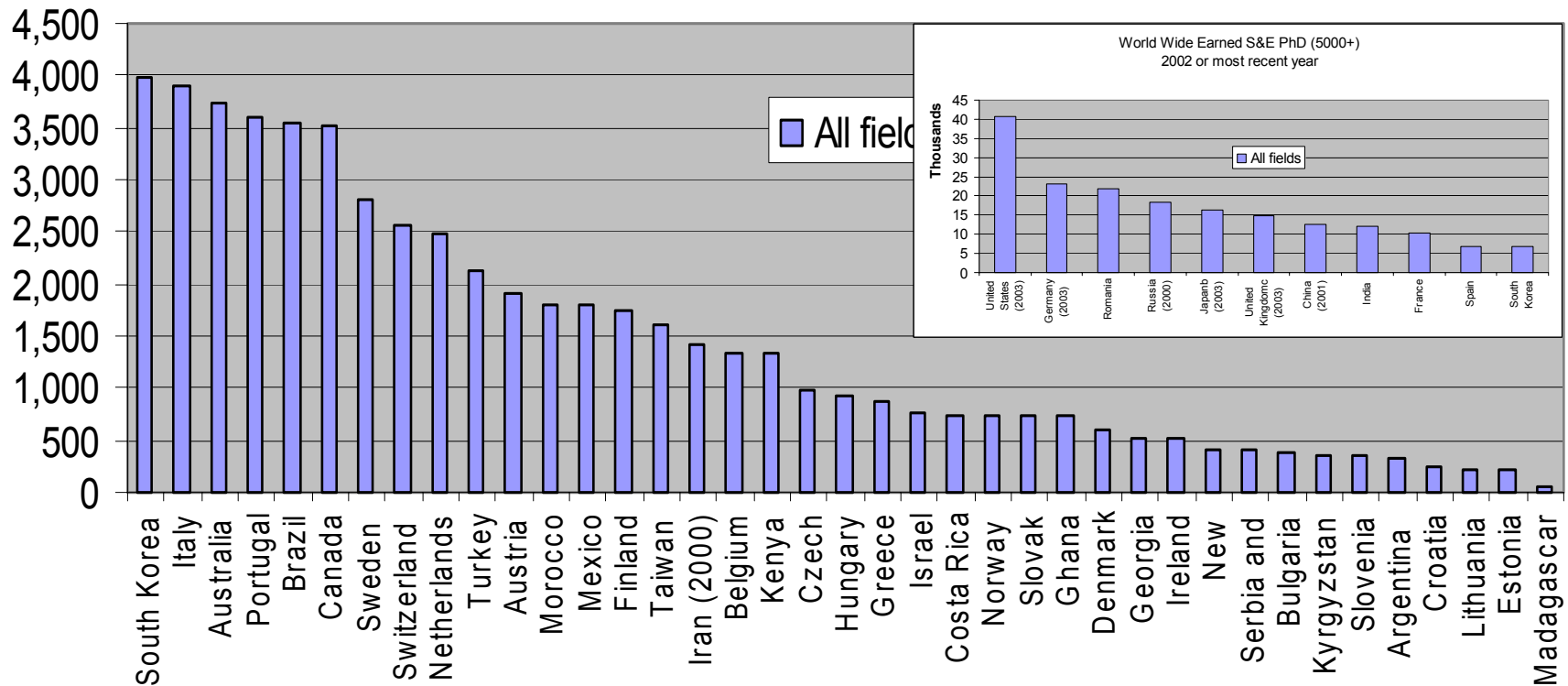


PhD Granted by Country (5000+)



PhD Granted by Country

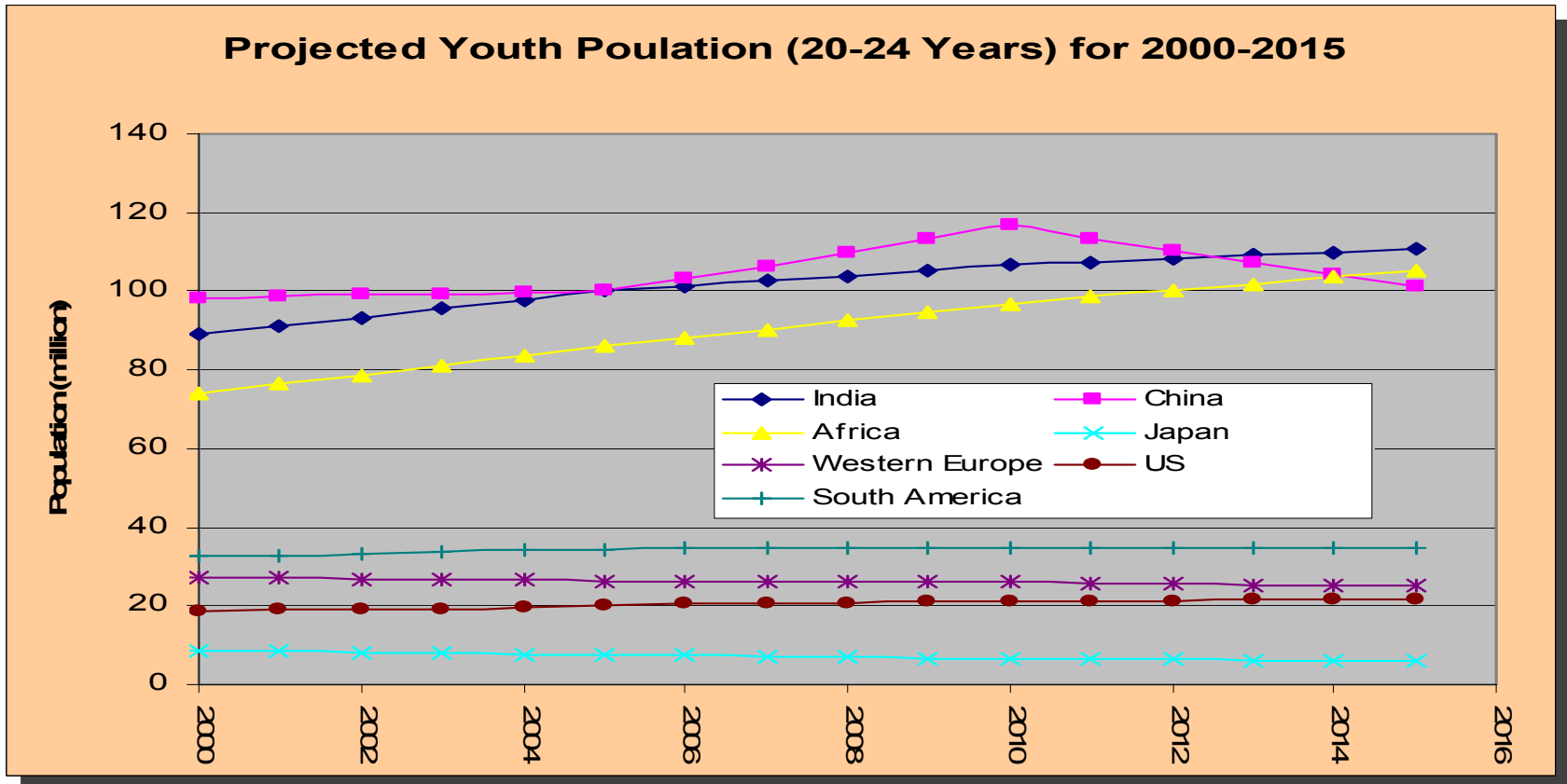
World Wide Earned S&E PhD (>5000)
2002 or most recent year



PhD Granted by Region

Location	All fields	All S&E fields
All regions	239,759	125,011
Asia ^a	49,592	25,866
Middle East ^a	6,855	2,791
Sub-Saharan Africa	2,277	804
European Union	76,514	40,776
Central/Eastern Europe	45,740	17,737
North/Central America-US	6,106	30,656
United States (2003)	40,710	26,891
South America	4,005	2,461
Oceania	4,420	2,474

The Asian Tsunami..



- By 2015 The 20-24 years age group population will rise by 40-50% in many of the Asian belt countries.

High Education System Stress

Country	%2025 Growth	2025 Stress	2015 Stress
Afghanistan	120%	*****	***
Bhutan	79%	***	**
Pakistan	53%	***	**
Malaysia	48%	***	**
Nepal	58%	***	**
Philippines	35%	**	*
India	28%	***	*
Egypt	29%	**	*
South Africa			*
Vietnam			*
China			*
Bangladesh	43%	***	*
Singapore			
Indonesia	5%	*	
Sri Lanka			
Burma			
Thailand			
Romania			
Turkey			
Ukraine			

COURAGE

**Strengthening Doctoral Programs by
Peer-to-Peer Model of Collaboration
Using Emerging Networking Technology**

JDS: Joint Doctoral Supervision

- A sponsored young faculty (or bright undergrad/ MS) from one institution would like to pursue a doctoral degree in another institution with established doctoral degree program.
- A student in the doctoral program in one institution would like to receive formal mentorship from another scholar/mentor in another institution.

JDS: Decoupling Research and Course

- The main supervisor and candidate are to be co-located for the research part of the degree.
- Partners will provide mechanism to further receive mentorship from co-advisors from other COURAGE institutions to increase the quality and diversity of the supervision committee. At least one of the members of the committee is to be from home institution.
- The student must spend research time with the main advisor and may spend additional time with the home co-advisor.
- Partners will develop mechanism to decouple required course work part- to increase the quality of the degree.
- The candidate may take pre-requisite courses at home institution- including cross-listed courses. The degree granting institution will accommodate transfer of qualifying credits.

JDS: Standards & Procedures

- The student must fulfill all the requirements of the **degree granting institution**.
- All the admission standards, procedures, examination, and policies, and degree granting institution will be followed to confer the degree.
- The main supervisor's institution is referred to as the degree granting institution. (however, this can change*)

JDS: Connectivity & Technology

- Any member of the supervising committee will be able to communicate audio-visually and share scientific communiqué (such as math) anytime anywhere with the doctoral student and with main supervisor chairman instantly and vice versa from their office, laboratory, or home or mobile field (where applicable) environment.
- The full committee will be able to gather audio-visually within 24 hours notice for research meeting, candidacy, qualifier, final defense from faculty office and departmental meeting room environment.
- A process flow technology supported portal with a Communication Archive Environment to support such long term (4-7 years) such intensive collaboration between the members and the student.

JDS Mechanics: Admission

- Recommendation for an admission must come from the academic point of contact (APOC) of the home institution to COURAGE. The candidate is expected to know the program, broad research area before applying.
- The candidate may receive an early feedback on admissibility and suitability of program from the COURAGE coordinator of the potential degree granting program.
- The candidate then applies via usual admission procedure. At the end of first semester – or before the candidate must outline a complete degree completion plan in consultation with the main advisor and the plan will be shared with APOC in both home and granting institution.

JDS Mechanics: Exams & Courses

- The student must meet all the usual exams, course requirements, and standards of the degree granting institutions.
- The student may take cross-listed courses conducted either at home institution or degree granting institution and apply it towards the degree.
- The student may transfer-credit for sufficiently close courses previously taken at home institution or that enhance the quality of dissertation upon approval of the degree granting institution.
- The student must prepare a degree plan for all exams, courses towards the fulfillment of the degree requirements in consultation with main advisor in six month after joining the program.

JDS Mechanics: Dissertation Research

- At the end of first year the candidate in consultation with the advisor declare a dissertation area/topic and a committee will be formed as per the regulation of the degree granting institution.
- The committee will have at least one faculty from the sponsoring home institution within or above the minimum required members.
- The student may spend any 2-3 months with the home advisor to develop an international, home country specific or alternate perspective on his research.
- The candidate should seek active mentoring from all committee members in conducting the research.

Graduate Course Exchange

- Conferral of doctoral degree requires substantial institutional capability to offer highly specialized advanced courses by the research faculty who are actively engaged in research in the area.
- GCE component enables specialized and high-value advanced doctoral courses offered by a faculty in one institution to be made available to the graduate students in another institution to strengthen each others graduate program.
- Two courses (one in Malaysia, another in Pakistan) are now being planned each on 2-site model. In next we will attempt multi-site course model.

GCE: Mechanisms

- Principal Faculty Visit: Principal faculty visits host institution and offers modules in person.
- Shadowing: A young faculty from the host institution joins the principal faculty as a team. The host faculty may participate at different levels from organization help, to teaching a subset of modules, conducting examination, and/or student advising, etc.
- Projection: Principal faculty may use remote projection to teach subset of modules.
- A particular course may use any one or combination of the above formats based on the courses, semester timing at the institution, and faculty time availability.

GCE: Rationale to Home

- Principal Institution
 - A recruitment vehicle for attracting high quality graduate students.
 - International exposure and strong presence
 - If value is proven- potential worldwide market for its educational products course, faculty research, expertise.
 - Collaboration with international institutions in multiple countries.
- Principal Faculty
 - International exposure of scholarship.
 - New research collaboration opportunities.
 - Prospective graduate students.
 - Competitive advantage in grant which traditionally favors collaboration and international network.
 - Additional efforts compensated by a foreign institution.
 - Honorary faculty position in the host institution.

GCE: Rationale to Hosts

- Host Institution
 - Enables it to offer advanced courses conducted by top experts/scholars in the area who has active ongoing research.
 - Complements acute shortages in graduate faculty pool.
 - Helps to build up research strength in strategic areas of choice.
 - Helps in training younger faculty and confidence building.
 - Collaboration with international institutions in multiple countries.
- Host Faculty
 - Academic mentoring from a career researcher/scholar/scientists.
 - Access to network and resource of the mentor.
 - Prepares him to undertake similar effort and offer it perhaps in home and other institutions.
 - Equivalent credit to a course he/she would be teaching otherwise.

SE: Seminar Exchange

- A form of academic instruction, that has the function of bringing together small groups for recurring meetings, focusing each time on some particular subject, in which everyone present is requested to actively participate. This is often accomplished through an ongoing Socratic dialogue with a seminar leader or instructor, or through a more formal presentation of research.
- Courage Seminar Exchange will enable all consortium members automatically remote-participate into the seminars organized by other consortium members.

Other Components

- **Post-Doctoral and Faculty Research Exchanges**
 - COURAGE research faculty, doctoral students and post doctoral scholars may visit each other. Such visits should be encouraged and facilitated as a routine component between the member institutions. Funding such opportunities will be determined on a case-by-case basis.
- **Joint Grant Activity**
 - Faculty of the member institutions are encouraged to submit research grants to attract extramural funding from national and international funding agencies using the combined strength derived from this consortium.

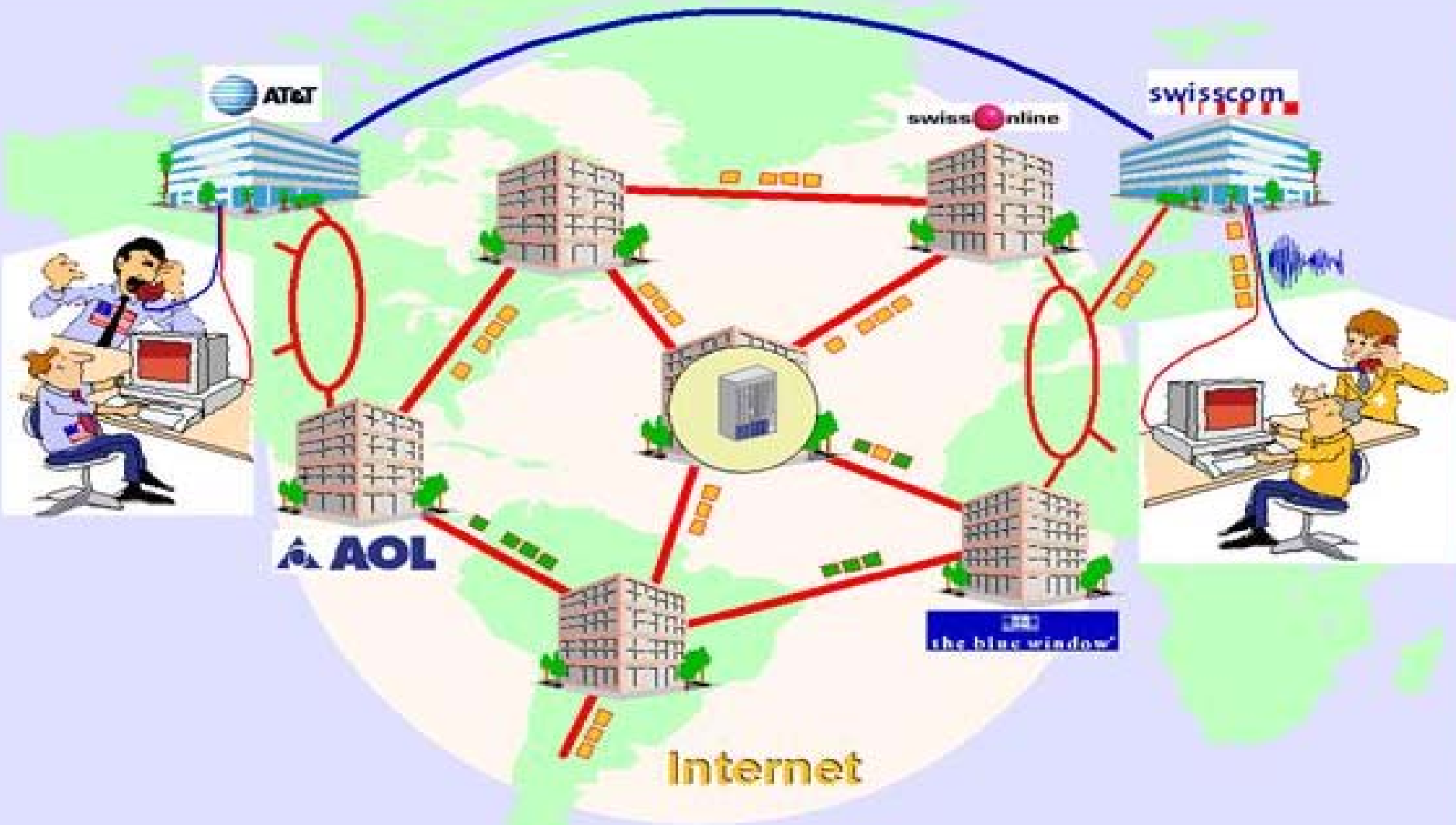
Other Components

- **Access to Research Laboratory, Digital Library, and Facilities**
 - Member institutions will gradually make some of their research facilities and various online resources accessible to the faculty and doctoral students of other COURAGE institutions.
- **Facilitation of Inter-Country and Inter-Institutional Research Projects**
 - COURAGE will facilitate research which is broad, global, multi-national, and multi-ethnic in scope. Member institutions may extend as much logistics support as feasible to facilitate research activities (such as data collection, student-help, data analysis, etc.). It will also encourage the flow of benefits of the research into the countries and communities represented by its members.

The Big Picture

Emergence of a Networked Society

Emergence of Networked Society



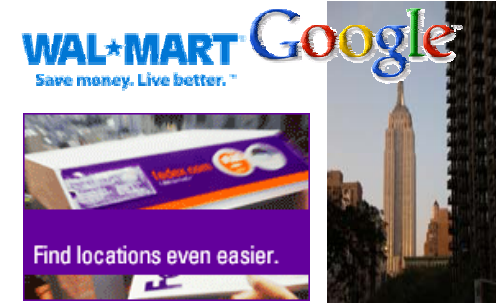
Laws Governing Information Growth

- Glider's Law: Bandwidth grows at least three times faster than computing power
- Moore's Law: Computing capacity doubles every 18 months
- Metcalfe and Grossman's Law--multiple factors combine in the information environment to accelerate rates of information growth and transmission--leading to greater benefits from network membership

Implications on Manufacturing, Trade & Business

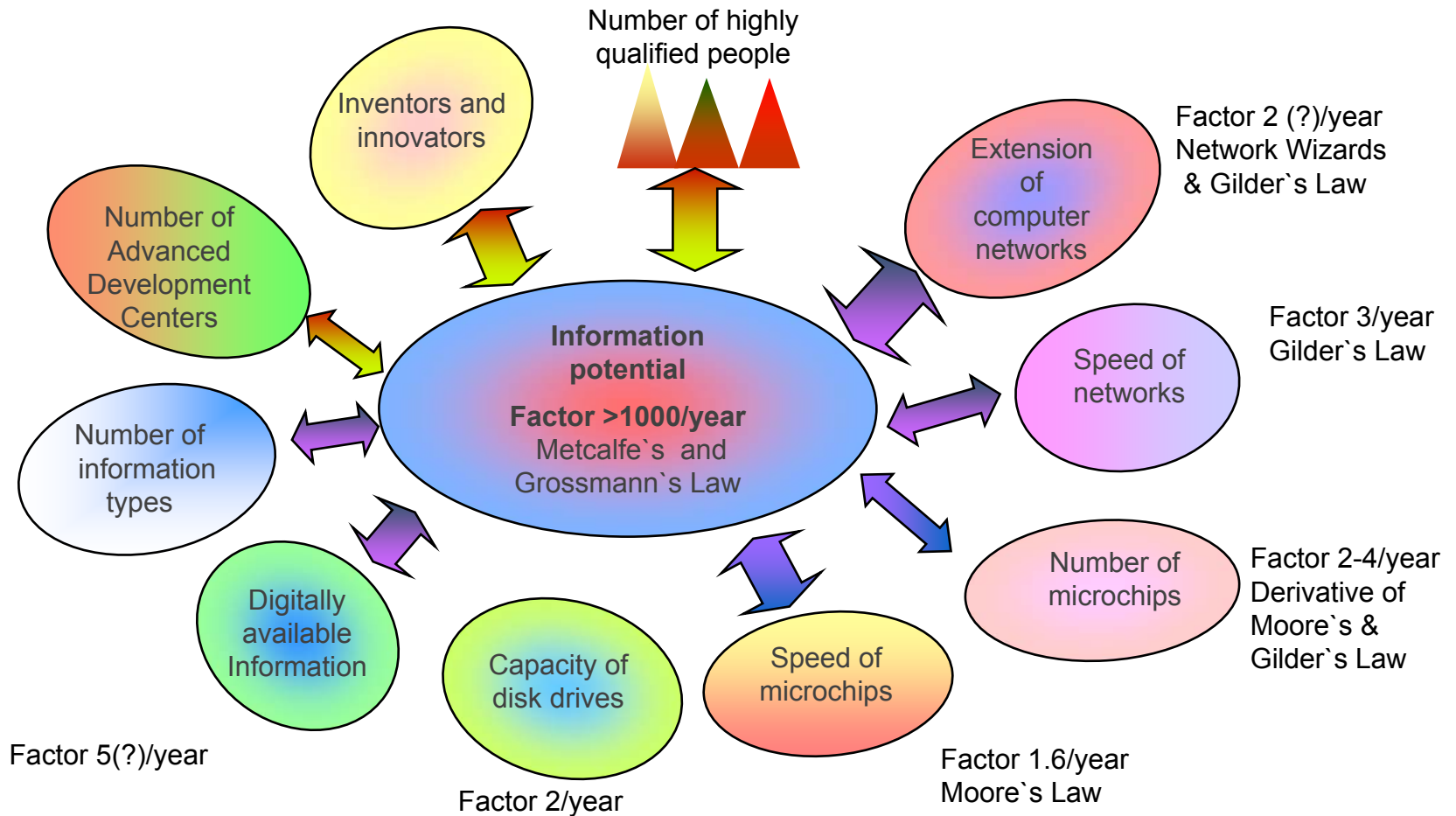


End of “Fordism” -
New models of labor and
business provisioning
-“Network Conduit?”



Old Paradigm: Fordism	New Paradigm: Flexible Production
Standardization and universalization—one size fits all, and a “unit” for every person	“Boutique adaptation”—design products for those who need and want them—tailor to individual needs
Education based on the acquisition of relatively constant elements of agree-upon knowledge.	Education addressed to rapidly increasing knowledge quotients (knowledge explosion).
Relatively rigid professional hierarchies	Flexible associations of capabilities brought together in networks
Ideology of formal education progress and development	World viewed as more complex—formal education one element among many; world a more contingent place
Concentrate productive capacity in vertically integrated hierarchies	Production distributed throughout world to maximize economies in factors of production
Primacy of manufacturing capital	Primacy of finance capital

Growth Domino in Networked Society [*2]



Implications of Global REN on Higher Education

- Huge demand for higher education.
- New Models
 - Private Universities
 - Corporate Universities
 - Online and Media based Universities.
 - Open Universities

GREN: Challenges & Pitfalls

- Public-private partnership?
 - Public sectors are weak yet private sectors may not be the answer in Asian countries in the face of acute geographical, social, and gender inequity.
- Curriculum alignment?
 - Educating students for jobs that don't yet exist that will be defined by technologies that don't yet exist.
- Narrowing of education?
 - What happens to HE if only teaching migrates without research?
 - What happens to HE if only high value courses (CS, MBA?) migrates without broadening of horizon?
- Globalization
 - Creation of new academic disciplines aligned more appropriately to the emergence of global problems.
 - Need/priority varies across countries "Sensor Technology" vs. "Tele-medicine"?

Educational Program Migration

- Shift from **student mobility** to **program** and **provider** mobility— numbers of students seeking education in foreign countries still increasing, but more emphasis placed on delivering quality academic courses and programs to students in home countries

Category	Forms and Conditions of Mobility		
	Development Cooperation	Educational Linkages	Commercial Trade
<p style="text-align: center;">People</p> <p style="text-align: center;">↓</p> Students Professors/scholars Researchers/ Experts/consultants	→	→	→
<p style="text-align: center;">Programs</p> <p style="text-align: center;">↓</p> Course, program sub-degree, degree, post graduate			Semester/year abroad Full degrees Field/research work Internships Sabbaticals Consulting
<p style="text-align: center;">Providers</p> <p style="text-align: center;">↓</p> Institutions Organizations Companies			Twinning Franchised Articulated/ Validated Joint/Double Award Online/Distance
<p style="text-align: center;">Projects</p> <p style="text-align: center;">↓</p> Academic projects Services			Branch Campus Virtual University Merger/Acquisition Independent Institutions
			Research Curriculum Capacity Building Educational services

COURAGE

- Currently organizers from 10 universities from 7 countries are brainstorming for programmatic details for effective model for cross-border doctoral education.
- **Open to all universities of the World** aspiring to be a quality doctoral degree granting institution in near future with limited resource.
- The help is two ways. Everyone is valuable-
 - Even one university in Bangladesh can provide access to top experiment group/field study/living laboratories in macroeconomics, poverty elimination research.
 - Mega university like AIOU can provide access to a pool of 400,000 undergrads- statistically speaking -a gold mine of talent.
- In Fall 2008 it expects to recruit its first batch of students.

COURAGE in context..

- The current approach of bi-lateral collaborative research (or ones arranged by personal initiative) is hard to sustain or scale. Most collaboration MoU signed by member institutions tends to remain inactive.
- Any study involving multiple countries becomes prohibitively expensive for most researchers (thus for funding agencies) and logistically nearly impossible, and risky.
- With increased globalization, US universities will see an increase in research topics which will be multi-lateral in scope.
- Frameworks such as COURAGE gives them access to international experts in the PhD research they produce.

COURAGE in context..

- With increased globalization, US universities will see an increase in research topics which will be multi-lateral in scope. Frameworks such as COURAGE gives them access to international experts in the PhD research they produce.
- Initiative like COURAGE (GREN) may influence the very essence of scholarship reflected in research.
- The choice of a research hypothesis is often centered from the viewpoint of the developed countries. This too will change. The diversity of the committee will be reflected in the systematic accommodation of plurality of viewpoints.

Acknowledgements

- Fulbright Senior Specialists Program sponsored several faculties involved in the germinating activities that culminated in COURAGE.
- References:
 - [1] Asia's Rising Science and Technology Strength: Comparative Indicators for Asia, the European Union, and the United States Special Report | NSF 07-319 | August 2007 | [Full Publication](#) (1,790K)NSF
 - [2] Deane Neubauer, Education as a Knowledge Enterprise, International Forum for Education 2020 September 2007, East West Center, Hawaii.
 - [3] US Census Data: www.census.gov.
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