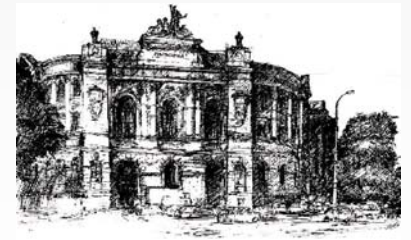


# Education and Training

Towards a constant knowledge transfer in  
global transportation



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## Outline

- **Modern education – global challenge**
- **Knowledge transfer – models**
- **Logistics education worldwide – key issues**
- **Educational institutions**
- **Educational activities**
  - **Academic courses (full-time and part-time)**
  - **Post-diploma courses (academic or commercial)**
  - **Short courses (academic or vocational)**
  - **Distant learning (e-learning, m-learning)**
- **Current status**
- **Recommendations**
- **Conclusions and future trends**

# International Research Team

- Contributors:

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# Modern Education - Global Challenges

- Education is a commodity
- Education is a merchandise
- Education – has no borders “the freedom of movement”
  - in Middle Ages ‘Wandering Scholars’,
  - now – Information Technology
- Education is overwhelming (towards university education for all)
- Education provides tools for self-development – is life-long experience
- Education is an insurance policy for the (uncertain) future
- Education is a serious economic issue !!!

## Education in Global Economy

- A 2002 **IBM** report forecasts a threefold (US\$4.5 trillion) jump in global education expenditure during the next 13 years.
- **The World Bank** expects the number of higher education students will more than double from 70 million to 160 million by 2025.
- **Gartner** predicted that corporate investment in e-learning will grow from US\$2.1 billion in 2001 to US\$33.4 billion in 2005.

## Modern world challenges

**Joseph Schumpeter (1934)**

**predicted that every 50 years or so,  
technological revolutions would  
cause**

**"gales of creative destruction"**

**in which old industries would be swept  
away and replaced by new ones.**

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## Technological challenges

- Steam Power - 1780s to the 1840s
- The Railways - 1840s to the 1890s
- Electric Power - 1890s to the 1930s
- The Motor Car - 1930s to the 1980s
- Information Technology - 1980s to ?

## Pace of changes

- 1. *Radio*:
  - 50 million users in 38 years
- 2. *Television*:
  - 50 million users in 13 years
- 3. *The Internet*:
  - 50 million users in 5 years

Now:

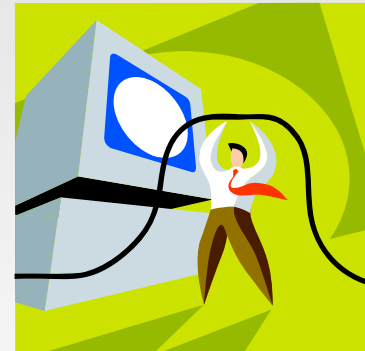
Over one billion users





## Internet population in mlns

|               |       |
|---------------|-------|
| • USA         | 165.7 |
| • Japan       | 56.1  |
| • China       | 45.8  |
| • UK          | 34.3  |
| • Germany     | 32.1  |
| • South Korea | 25.6  |
| • Brazil      | 13.9  |
| • Australia   | 10.6  |
| • Netherlands | 9.7   |
| • Sweden      | 6.1   |



Almost 600 mlns worldwide

Source: A C Nielsen, June 2003

## Knowledge transfer - models

- **Model 1** – same place, same time
  - Lectures F2F, labs, seminars, exams etc. **Classical university model**
- **Model 2** – same place, different time
  - Libraries, e-libraries, computer classes, education centres
- **Model 3** – different place, same time
  - Synchronuous net of education - radio, TV, CATV, Sat TV, audio- and video teleconferences, net meetings – **excellent for big companies, too expensive for individuals**
- **Model 4** – different place, different time
  - Self-education (books or multimedia CDs)
  - Asynchronuous net of education (Internet, e-mail) – **new tool for virtual universities**

## The Knowledge-based Economy

There are increasing signs that **our current paradigms for higher education**, the nature of our academic programs, the organization of our colleges and universities, and the way that we finance, conduct and distribute the services of higher education **may not be able to adapt to the demands of our time.**

*J J Duderstadt (2001)* Leading Higher Education In an Era of Rapid Change

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## **Research Outcomes**

### **Training and Qualification in Logistics**

- Results of the study of higher school educational programmes worldwide,
- Vocational training courses,
- Internet / Computer-based courses in transport, logistics and maritime applications.
- Structure of a modular course in transport logistics
- Recommendations

# Logistics education worldwide

**Research – an overview of logistics education in the world.**

## **Covers 20 countries:**

**EU: UK, Germany, France, Netherlands, Ireland, Scandinavia (Denmark, Sweden), Finland, Baltics (Latvia, Lithuania, Estonia), Mediterranean (Greece), Poland, Hungary,**  
**EEA: Norway, Switzerland,**  
**China**  
**USA and Canada**  
**Russia**



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## Logistics education worldwide

- Undergraduate and postgraduate level  
Universities, other HEIs
- Post-diploma level  
Universities, other HEIs, education companies
- Trainings and short courses also, vocational training  
Educational companies, organisations, HEIs
- Distant learning (e-learning)  
Educational companies, organisations, HEIs

## Public Education institutions providing education in logistics

Public HEIs (**not for profit**) usually have full academic rights – can grant bachelor, master and doctor degrees

HEI types recognised in most countries covered

- University – full plethora of courses, logistics usually part of engineering, economy or management  
e.g. U. Newcastle/Tyne, U. Bergen, Klaipeda U., U. Arkansas, U. Magdeburg
- University of Technology – main focus on engineering, but some economy, management and social sciences  
e.g. Chalmers UT, Eindhoven UT, Riga TU, Warsaw UT, Tallin TU, Budapest UT

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## Public Education institutions providing education in logistics (ctnd)

- Academy of Economy – main focus on economy, but other social sciences and management also crucial e.g. SGH-Warsaw Academy of Economy
- Academy of Defence – main focus on military e.g. RMCS (U. Cranfield), National Defence Academy (Poland)
- Maritime Academy – main focus on maritime e.g. Latvian Maritime Academy, Gdansk Maritime Academy
- Scientific institutes e.g. IFF – Fraunhofer Gesellschaft

Fairly easy to distinguish the best in the business – official and unofficial rankings e.g. RAE and TAE in UK or Carnegie Classification of Institutions of Higher Education in US

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## **Public HEI offer**

- **Full academic courses**
    - undergraduate B.Sc., BEng., Eng., Dipl-Eng. (FH)
    - postgraduate M.Sc., MA, Magister, Dipl-Eng.
    - Interdisciplinary studies e.g. – Transport and Telecommunication or Logistics and Management
  - **Post-diploma studies – extended qualifications**
  - **PhD studies – scientific orientation**
  - **Short courses – specific knowledge, in the university or company**
  - **Distant learning – can be undergrad, postgrad, post-diploma or vocational**
  - **Vocational training both for profit and non-profit – may lead to a nationally or internationally recognised diploma**
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## **Non-public Education Institutions providing education in logistics**

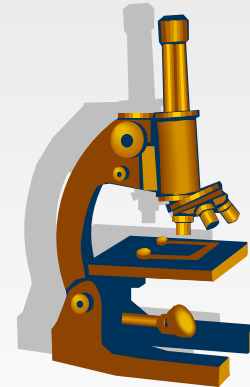
- **Non-public (private) HEIs – e.g.:**
  - **Transport and Telecommunications Institute (Latvia)**
  - **International High School of Logistics and Transport (Poland)**offer mostly undergrads courses, short courses and distant learning
- **Logistics is also taught as a subject in numerous High Schools of management, business and economy, some international**

**Some are accredited by professional or administrative (state) bodies – usually more trustworthy**

## Commercial (for profit) activities

Educational companies offer

- short courses,
- vocational training
- distant learning



## Modes of Courses Covered by Research

- Full academic courses both undergraduate and postgraduate incl. academic post-diploma courses – 104 from 16 countries
- Vocational and short courses – 25 from 10 countries
- Distant learning (e-learning) – 35 from 7 countries
- M-learning – vocational on-site - will be presented in detail by Dr. E. Ginters

## Details of logistics educations in public HEIs

1. Logistics is offered at **Universities and Universities of Technology** as part of studies in Engineering (Transport, Automation and Robotics, Computer, Mechanical), Management, Economy, or as a part of MBA

e.g.

RTU, KUT, WUT, NTUA, TU Crete, Chalmers, Eindhoven, NTNU, DTU, Budapest UT, Cranfield, Newcastle, **Alabama A&M (MBA)**, Beijing, Shanghai, Dalian, Shenzhen etc.

## Case study 1

**Warsaw University of Technology,  
Department of Transport**

**Specialisation – Logistics and  
transport techniques (LTT),**

**Further divided into:**

- **LTT of railway transport,**
- **LTT of road transport**
- **LTT of internal transport and  
warehousing.**



## Details of logistics educations in public HEIs

### 2. Logistics is offered at **Universities and Academies of Economy** as part of studies in **Management and Economy**

e.g.

University of International Business and Economy (UIBE-Beijing),  
SGH Warsaw, Poland  
OvG Magdeburg, Germany  
AUEB Athens, Greece  
U. Arkansas-Walton School of Business, USA

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## Case study 2

**Warsaw Academy of Economics  
(SGH) Department of  
Management**



**Chair of Logistics,  
Specialisation – Logistic  
Management**

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## Details of logistics educations in public HEIs

3. Logistics is offered at some **National Defence Academies** – little details is known (secret?)
4. **Maritime Academies** offer mainly postgraduate education for engineers or marine professionals. Follow the pattern of UT with more focus on port operations

## Case study 3

### Latvian Maritime Academy

Master programme in maritime transportation



**Specialization in:**

- **maritime transport management**
- **maritime transport maintenance**

## Logistics education at non-public HEIs and educational companies

**Undegraduate level – general logistics, management logistics, services logistics**

**Post-diploma courses – logistics of international supply chains, logistics system management (production, distribution, warehousing)**

**Distant learning – all sorts of logistics related issues offered via Internet**

**Vocational training – basic level**

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## Short courses and vocational training

- University based intra- or extra mural
- Company based – on-site
- Distant (e-) learning



## Distant (e-) learning

- **Pure open universities** – e.g. Open University (UK), FernUniversitaet (Germany), Universidad Nacional de Education a Distancia (Spain)
- **Dual-mode universities** – both traditional and e-learning e.g. WUT (Poland),
- **Consortia of universities** – joint courses, administration, diplomas e.g. Virtual University (Poland), Federation Interuniversitaire d'Enseignement a Distance (France)
- **Professional and international organisations** – e.g. Chartered Institute of Logistics and Transport (CILT, UK), UN Conference on Trade and Development (UNCTAD)
- **Education companies** - plenty

## Distant (e-) learning

**35 courses described:**

- **Geneve – UNCTAD**
- **CILT UK**
- **Atlanta - Georgia Tech**
- **Defence Logistics Information Service - USA**
- **Embry-Riddle Aeronautical University – USA**
- **California State - USA**
- **LION Tech, efleetmngt, Logistics Training Center, Booz, Allen & Hamilton (USA)**
- **People Development Group – Leicestershire UK**
- **Toronto – George Brown “The Toronto City College”**
- **International Logistics Training Center – Moscow, Russia**
- **BIM - Dublin**

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## Sample logistics curriculum (proposal)

**Has to be offered as dual-mode**

**Institution:**

**Warsaw University of Technology,  
Department of Transport**

**Specialisation: Logistics and Transportation  
Techniques (LTT)**

**Profiles: LTT in railways, LTT in road transport, LTT in  
maritime transport, LTT in internal transport &  
warehousing, **LTT in multimodal transport****

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## Sample programme

- Subjects: I year: General – Maths, Physics, CAD, Computer Science, IT, Economy, Philosophy, International Relations**  
**Subject-specific – Transport systems & processes, material eng., Eng. design**
- II year: General – Electrical eng., operational research, mechanical eng., Transport economics, Foundations of International, maritime, tax and customs law**  
**Subject-specific – Transport infrastructure, logistics**
- III year: General – Electronics, control, telecommunications, measurement eng., management, transport security**  
**Subject specific – Traffic eng., rail traffic, road traffic, internal traffic, advanced transport systems, maritime transport**
- IV year: warehousing, cargo handling, management & organisation, IT systems in transport, port operations, modelling & simulation, cargo flow in logistics, supply chain management, multimodal transport, electives (Control in rail or road or internal or maritime transport, ...)**

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## Recommendations

Modern logistics education should:

- be mixture of engineering, economy, management and social/political sciences
- include strong international flavour
- adopt new ICT tools – e-learning, m-learning
- be flexible, adaptive, continuous, life-long experience

## Recommendations

In both developed and developing countries, the Internet will provide the only viable cost-effective means through which corporations and educational institutions will be able to provide access to ongoing opportunities for the continuing professional development of working individuals.

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## **Conclusions**

- Logistics education – major issue for universities, organisations and companies all over the world
- Traditional economy – production focused
- Knowledge economy – research, marketing, trade focused
- Internet based learning
- Continuing education
- Life-long education
- Education society

## Future trends

- Full undergrad and postgrad Internet based studies – major or additional
- Technological breakthrough and still more to come
- University education for all
- Education becomes one of major driving forces in global economy
- Diversification of educational offer

## Some useful links in e-learning

- **Distance Education Clearinghouse** - [www.uwex.edu/disted/](http://www.uwex.edu/disted/)
- **The International Distance Learning Course Finder**  
[www.dlcoursefinder.com/US](http://www.dlcoursefinder.com/US)
- **International Centre for Distance Learning - ICDE** - [www-open.ac.uk](http://www-open.ac.uk)
- **TeleLearning Network of Centres of Excellence** -  
[www.telelearn.ca/](http://www.telelearn.ca/)
- **World Wide Learn** - the World`s directory of online courses,  
online learning and online education [www.worldwidelearn.com/](http://www.worldwidelearn.com/)

Thank you for your kind attention !!!

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