

Knowledge worker flows

Indicators and Issues for Brain Circulation

Symposium on International Migration and Development
Turin Italy 28-30 June 2006.

Five policy themes of globalization

- **Changing economic landscape**
- **Growing future jobs**
- **New mindsets and changing attitudes**
- **Regional identities and struggles**
- **Emergence of China and India**

(DAVOS, January 2006)

Some of the EU pressing policy priorities include the need to . . .

- **Promote greater coherency between innovation policies.**
- **Improve regulatory environment**
- **Increase the average research investment level to 3% by 2010.**
- **Improve the R&D capacity for innovation capability.**

Forecasting S&E human resources supply and demand an inexact science at best and today . . .

- **Europe needs to increase its supply of researchers from 500,000 to 800,000 FTEs by 2010.** (Gago Report, EU)
- **Recent predictions for the U.S. — S&E occupation growth will rise faster than overall growth with one estimate at 70% faster.** (NSF, U.S.)
- **Globalization means countries take on roles of source, transit or destination for skilled workers. Multinational corporations are recruiting in a competitive global labour market.** (Dr. Chubin, NSB, U.S.)

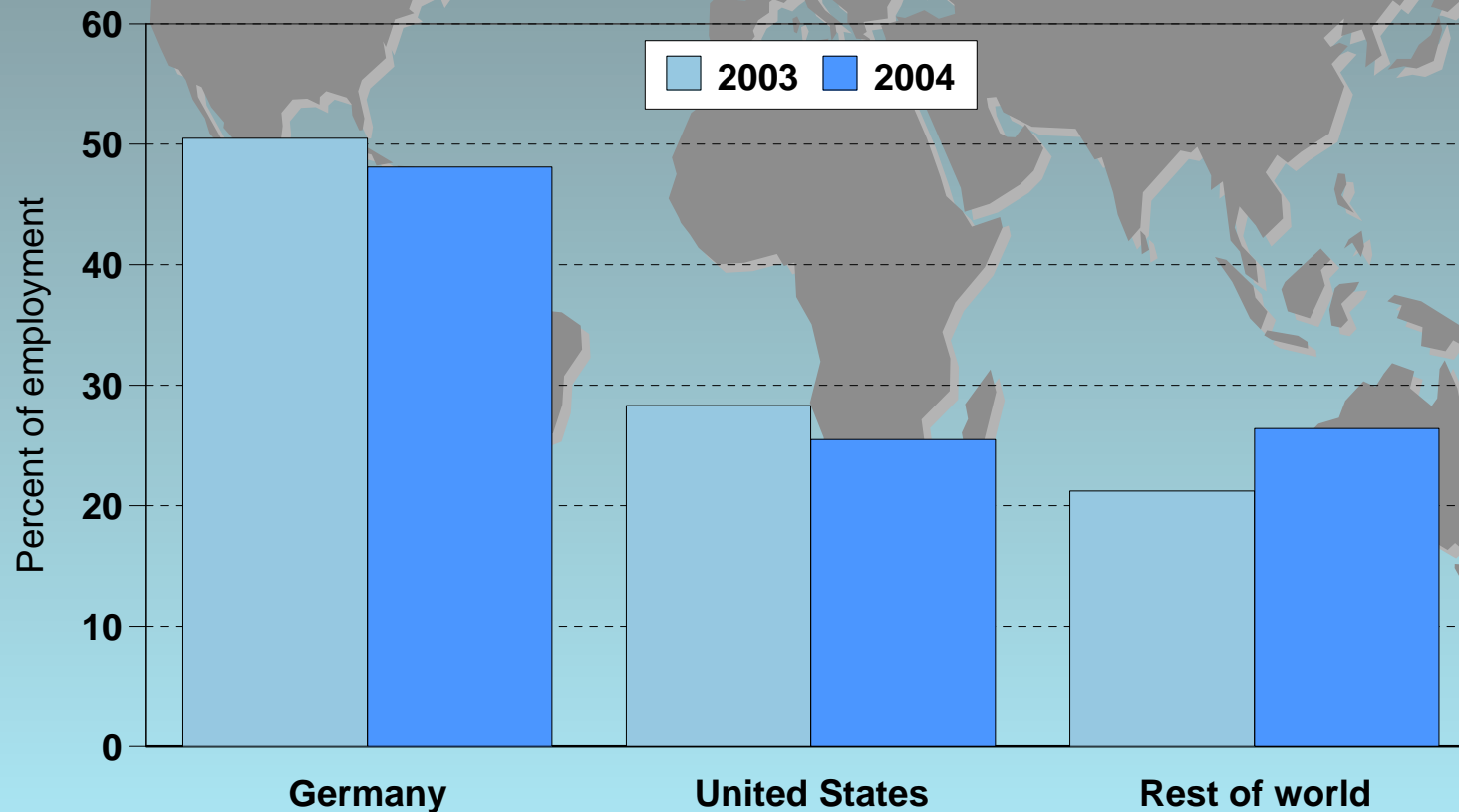
Multinational companies and their growing role in global R&D . . .

- **Multinationals account for 46% of global R&D expenditures and 69% of global business R&D.**
- **Four of the top ten multinationals (as measured by R&D expenditures) are "based" in the EU — for now: Daimler Chrysler (Germany), Siemens (Germany), Volkswagen (Germany) and Nokia (Finland).**
- **Relocation of R&D overseas is no longer driven solely by the need for local adaptation or to tap established networks.**
- **Top reasons for relocation now include**
 - **availability and access to research talent**
 - **reduction of R&D costs.**

Multinationals' employment patterns are changing —

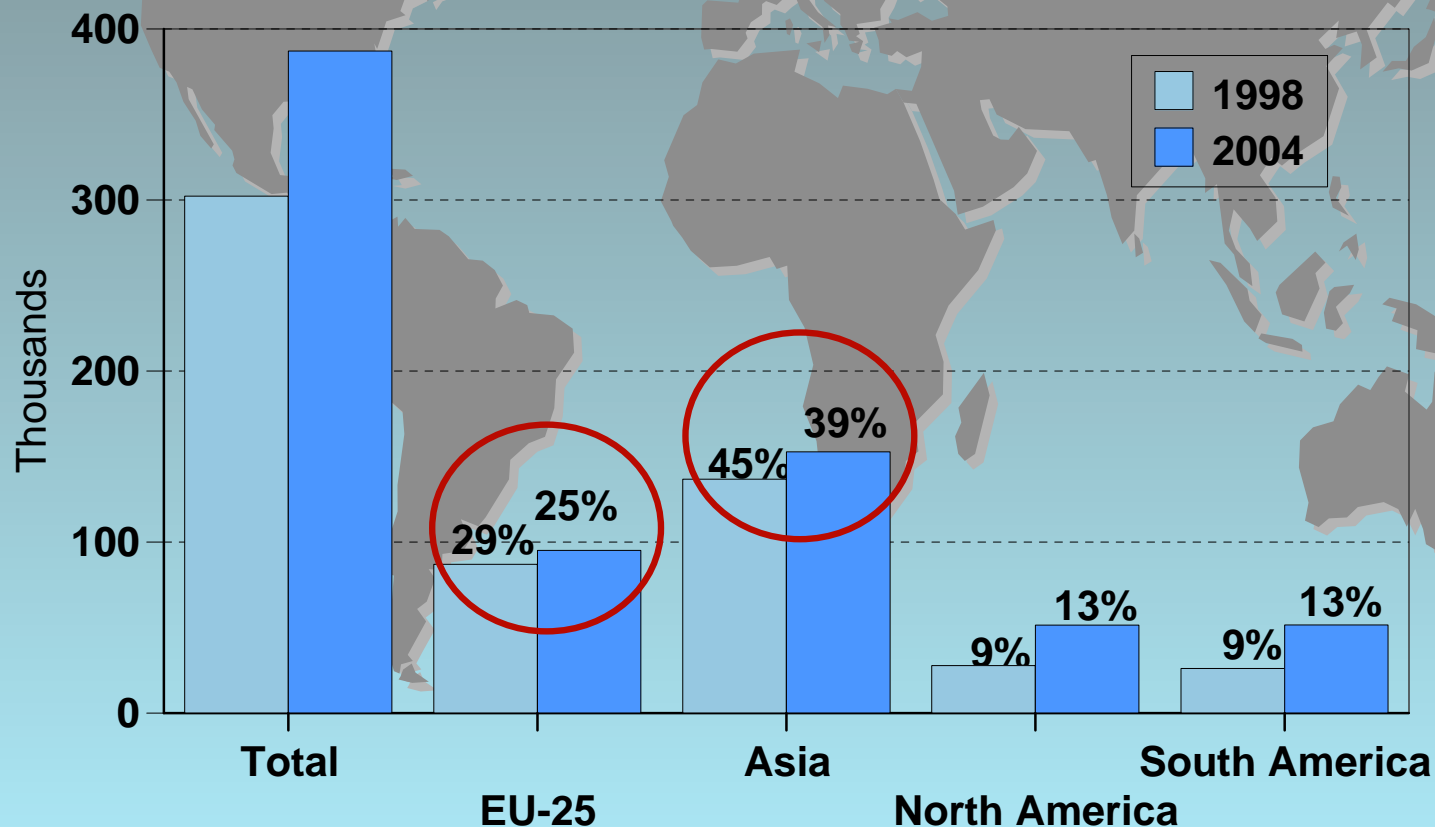
"DAIMLERCHRYSLER has manufacturing facilities in 17 countries and is owned by European, US and other international investors."

- The number of DaimlerChrysler employees rose from 362,063 in 2003 to 384,723 in 2004 but the share of employment in Germany and the U.S. fell.



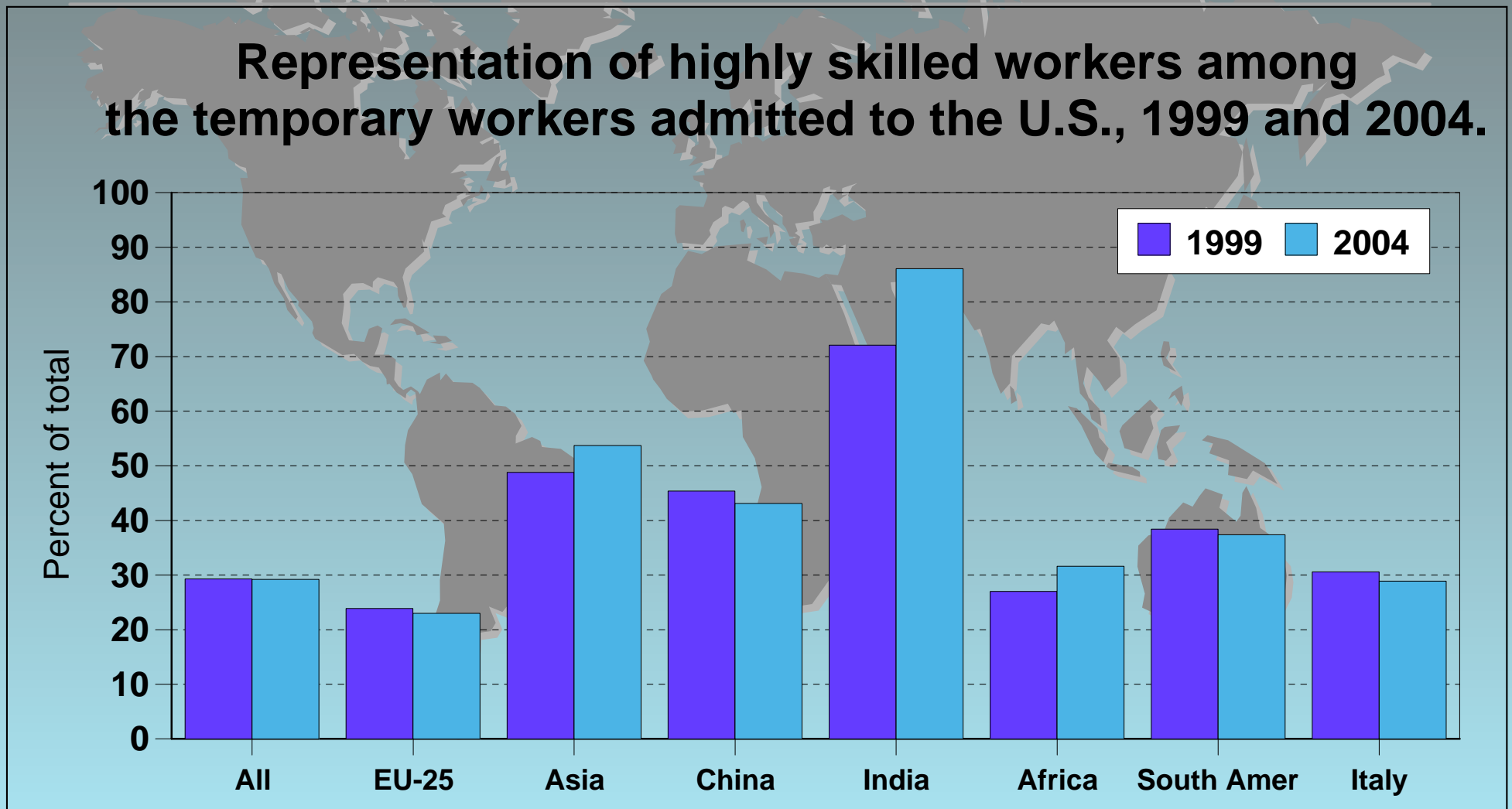
Reliance upon source countries for skilled S&E workers is shifting. . .

- In the U.S. although the numbers are increasing in real terms, the representation of the supplying countries is changing.



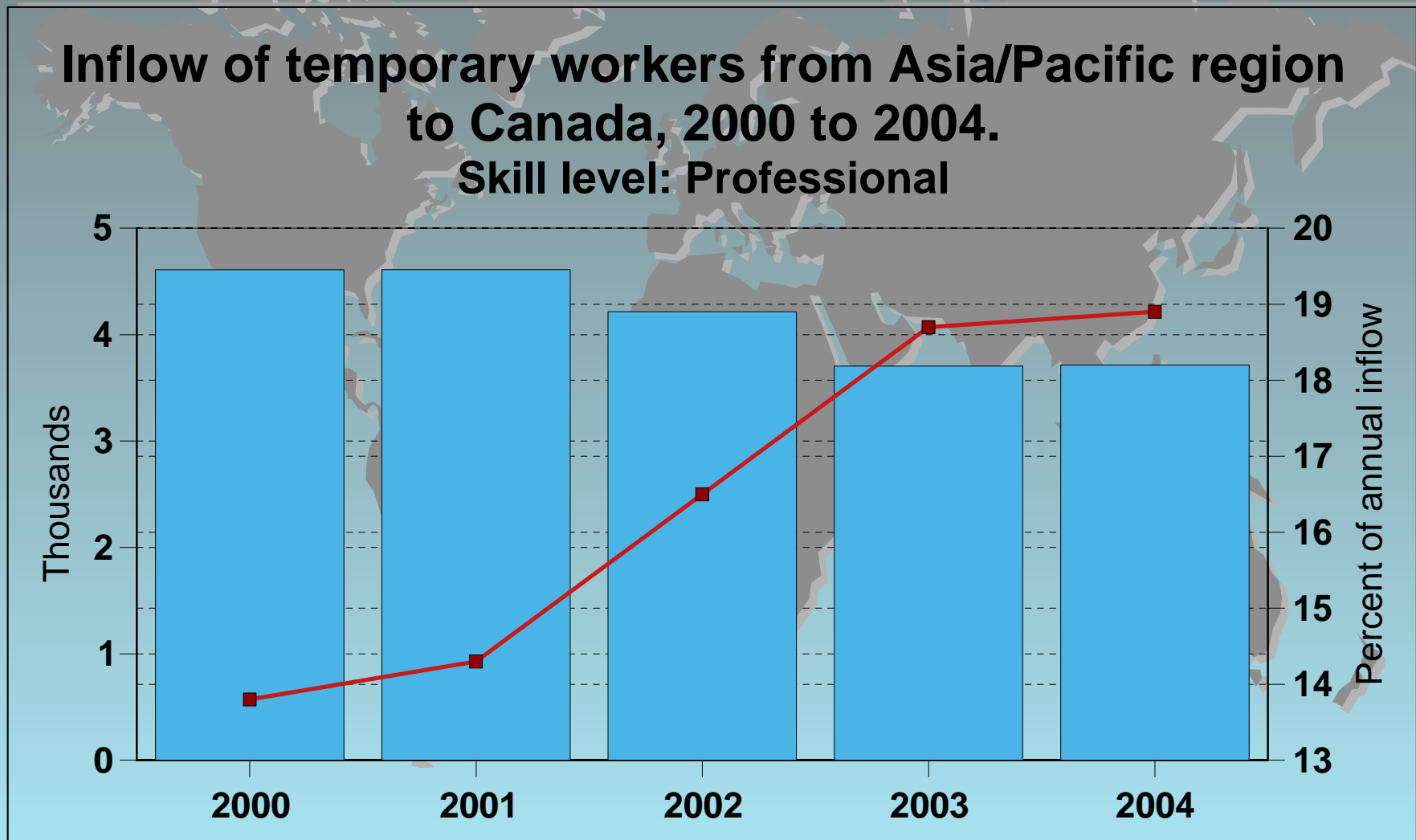
Source: MERIT, based on USCIS data.

The representation of highly skilled workers among the temporary workers.



Source: MERIT, based on USCIS data.

Canada and its reliance upon the Asia/Pacific region



Source: MERIT, based on CIC data, 2006.

EU policy reaction to international demand and EU needs . . .

- **"Researchers must move around more ...
The Commission will therefore prioritize making it more attractive for European youth to choose a career in research as well as stimulate emigration of researchers from countries outside of the EU and Europe"**
(DG Research, Liberali, 2005).

Foreign researchers identify 'push' and 'pull' factors of doing research in Italy.

	Strong factor	Medium factor	Not a factor
To be involved in another research milieu	55%	31%	15%
Specialise in sector not at home	29%	29%	42%
Study and scientific opportunities	46%	39%	15%
Availability of scientific equipment	37%	38%	25%
Forefront of the research sector	24%	51%	25%

PUSH

PULL

Source: CNR-IRPPS, Brain Drain Project, 2003.

'Movers' identify important reasons for going abroad.

	EU-25	U.S.	Latin Amer.	China	India	North Af/ Mid East
Career advancement	88% ¹	52% ²	80% ¹	75% ⁵	83% ¹	78% ¹
Employer reputation	74% ²	61% ¹	77% ³	86% ¹	81% ²	69% ³
Access to leading edge technologies	73% ³	30% ⁴	79% ²	84% ³	81% ²	78% ¹
R&D funding	70% ⁴	24% ⁵	80% ¹	85% ²	79% ³	78% ¹
Professional networking	68% ⁵	46% ³	68% ⁴	81% ⁴	79% ³	74% ²
Salary	54% ⁶	18% ⁶	66% ⁵	81% ⁴	77% ⁴	78% ¹

Source: MERIT, Brain Drain Project, 2003.

'Movers' rate skills as important for mobility.

	EU-25	U.S.	Latin Amer.	China	India	North Af/ Mid East
Communication skills	79% ¹	78% ¹	95% ¹	83% ²	87% ¹	82% ³
Leadership skills	77% ²	73% ²	87% ²	78% ³	87% ¹	83% ²
Language	63% ³	51% ³	74% ⁴	84% ¹	84% ²	92% ¹
Computer user skills	53% ⁴	50% ⁴	76% ³	67% ⁴	63% ³	75% ⁴

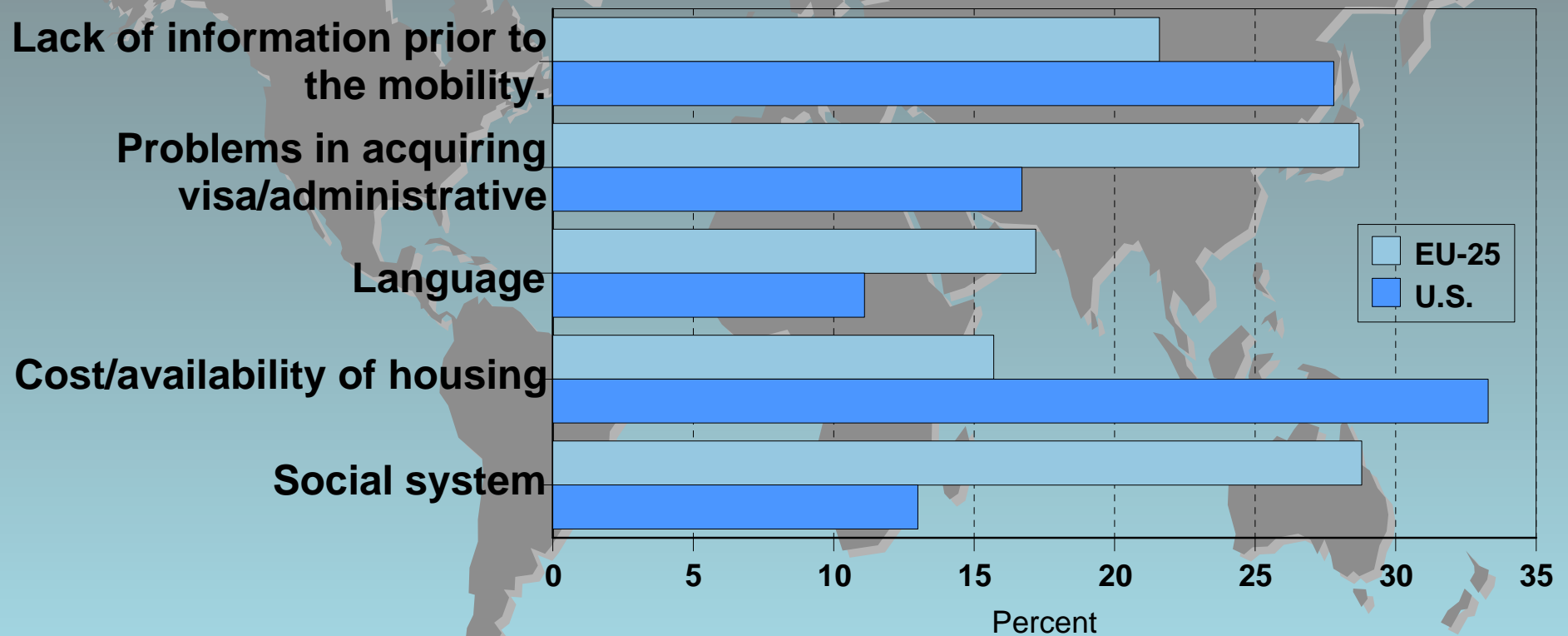
Source: MERIT, Brain Drain Project, 2003.

Men and women 'movers' rate skills as important for mobility.

	EU-25	U.S.	Latin Amer.	China	India	North Af/ Mid East
Communication skills	80% 72%	79% 75%	95% 100%	84% 84%	87% 82%	92% 82%
Leadership skills	77% 63%	75% 65%	87% 86%	78% 84%	87% 82%	83% 82%
Language	77% 57%	50% 51%	80% 100%	84% 84%	85% 82%	92% 82%
Computer user skills	56% 42%	79% 75%	76% 86%	67% 68%	63% 64%	75% 73%

Source: MERIT, Brain Drain Project, 2003.

Identifying barriers to mobility.



Source: MERIT, Brain Drain Project, 2003.