



CZECH HEALTH ATLAS

project meeting physicians, politicians, scientists and citizens

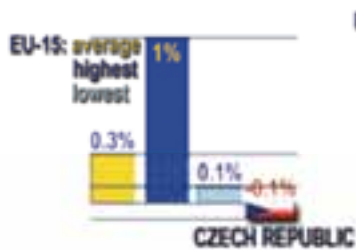
Vít Voženílek

Palacky University Olomouc

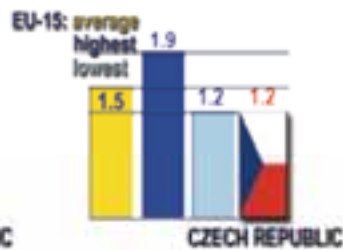
Czech Republic

Czech Republic & health care system

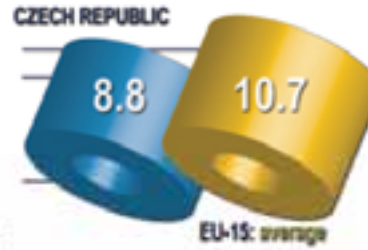
POPULATION DYNAMICS



Annual growth rate



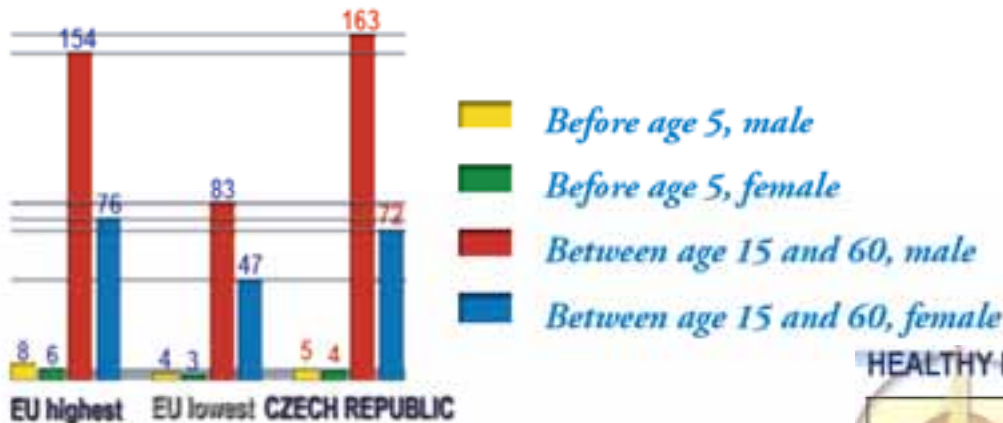
Fertility rate



Birth rates, live births /1000 population



PROBABILITY OF DYING (per 1000 population)



HEALTHY LIFE EXPECTANCY

	Total	At birth (in years)		At age 60 (in years)		% of total life expectancy lost	
		Male	Female	Male	Female	Male	Female
Czech Republic	68	66	71	13.5	17	9	10
EU-15 lowest	69	67	71	15	17	8	9
EU-15 highest	73	72	75	17	20	9	11

Health data management

MINISTRY OF HEALTH (public administration)

INSTITUTIONS UNDER THE MINISTRY OF HEALTH

- National Institute of Public Health
- National Health Board (intersectoral body chaired by the Minister of Health)
- Institute of Health Information and Statistics
- National Board on Environment and Health
- Drug and Technology Control Institute
- Czech Anti-Drug Committee
- Committees on AIDS, child abuse, problems of people with disabilities etc.

PARLIAMENTARY COMMITTEE

- Chamber of Deputies – Committee for Social Policy and Health Care
- Senate – Committee on Health and Social Policy

INSURANCE STRUCTURE

- Health Insurance Funds

PROFESSIONAL ASSOCIATIONS

- Czech Medical Chamber (Chamber of Physicians)
- Czech Medical Association of J.E.Purkyne
- Czech Chamber of Pharmacists
- Czech Stomatological Chamber

ACADEMIC INSTITUTIONS

- Seven university medical faculties
- Two university pharmaceutical faculties
- Two specialized institutes for professional postgraduate training

REGIONAL INSTITUTIONS One regional hygiene station and one health institute in each of the 13 regions and the capital city, Prague

Atlas for physicians

to see large scope of information needed for their practice



HEALTH PROFESSIONALS (per 100 000 population)

- Dentists 660 *EU-15 average: 640*
- Nurses 970 *EU-15 average: 670*
- Pharmacists 530 *EU-15 average: 790*
- General practitioners 72 *EU-15 average: 102*

HOSPITALS

- Hospital beds (per 100 000) 857 *EU-15 average: 611*
- Annual inpatient admissions (per 100) 20 *EU-15 average: 18*
- Average length of stay 11.5 days *EU-15 average: 10*

PHARMACEUTICALS

- The whole Czech drug regulatory framework has been reviewed.
 - There are three categories of medicines: generic drugs covered by social insurance, non-generic drugs that are reimbursed if medically
-

Atlas for politicians

to seek arguments for their decisions



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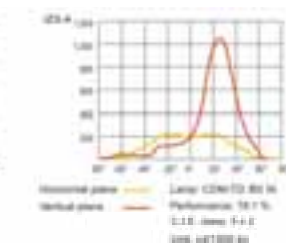
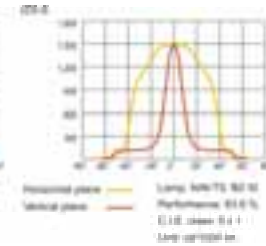
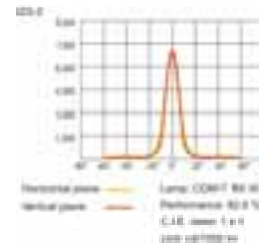
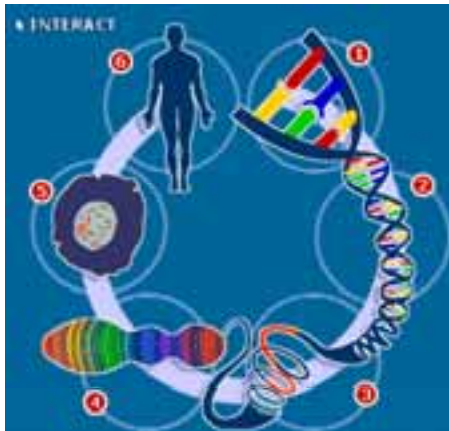
Atlas for scientists

(statisticians, analysts, geographers, cartographers)

to process various data



Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	
Population	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000
Area	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000
Volume	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000	100000



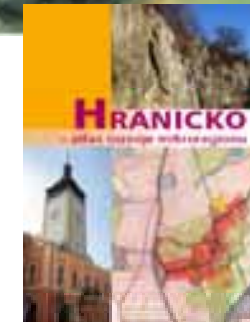
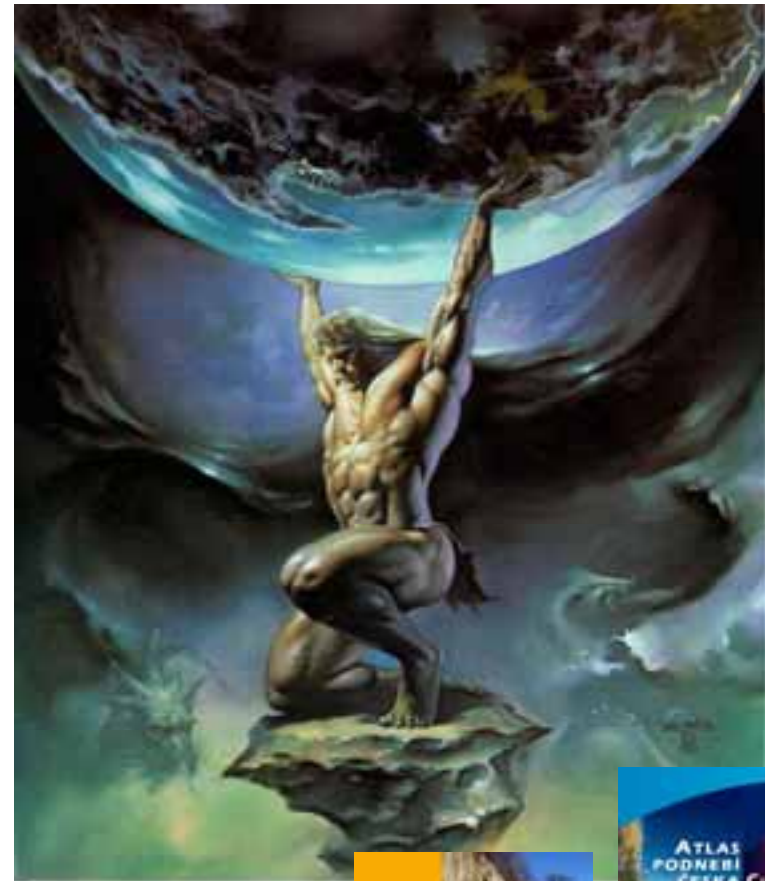
Atlas for citizens

to look for information on health and care situation in their region



Atlas project

- Objects of the Atlas
- Atlas type and its title
- Map scales
- Construction background
- Atlas design
- Atlas content
- System of symbology
- Data and maps resources
- Technologic issues
- Organizatial and economic support



Object of the Atlas



to SHOW statistics and spatial distribution of various diseases



to LOCATE hotspots of health care system



to DISCOVER new knowledge about spatial aspects of diseases



to BE INFORMED about risk regions

Type of atlas and its title

CZECH HEALTH ATLAS

- scientific atlas



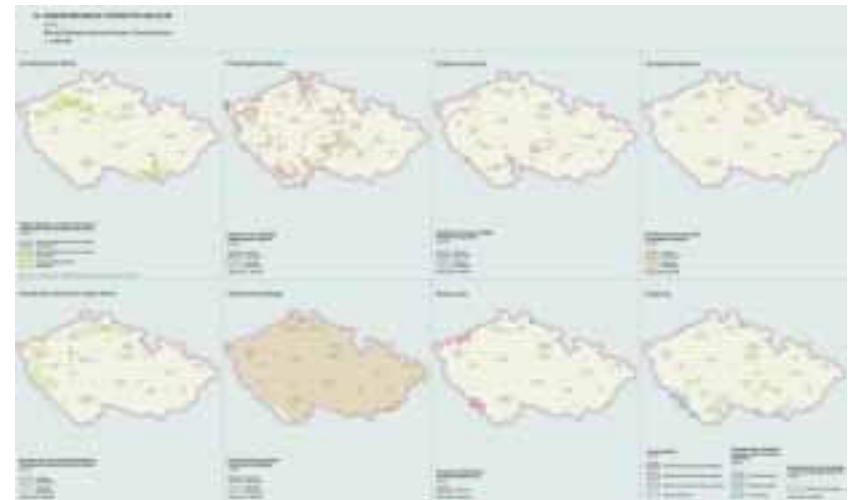
- encyclopaedia atlas
- multimedia maps



Map scales

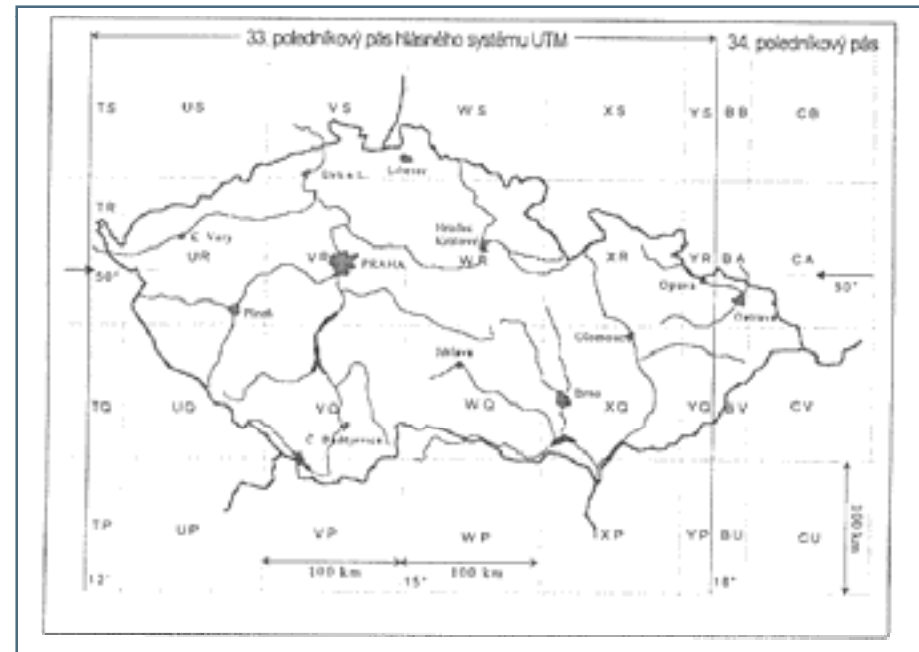
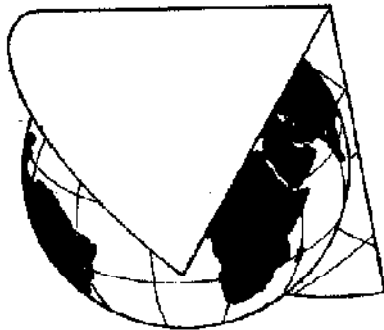
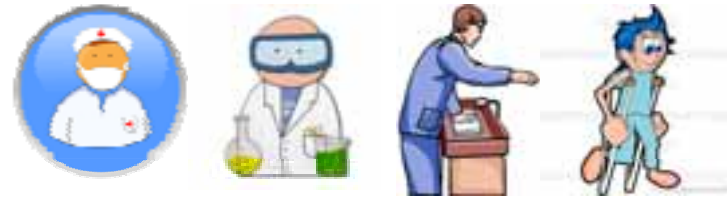


from 1:5 mil to 1:500 000 depending on page/screen format



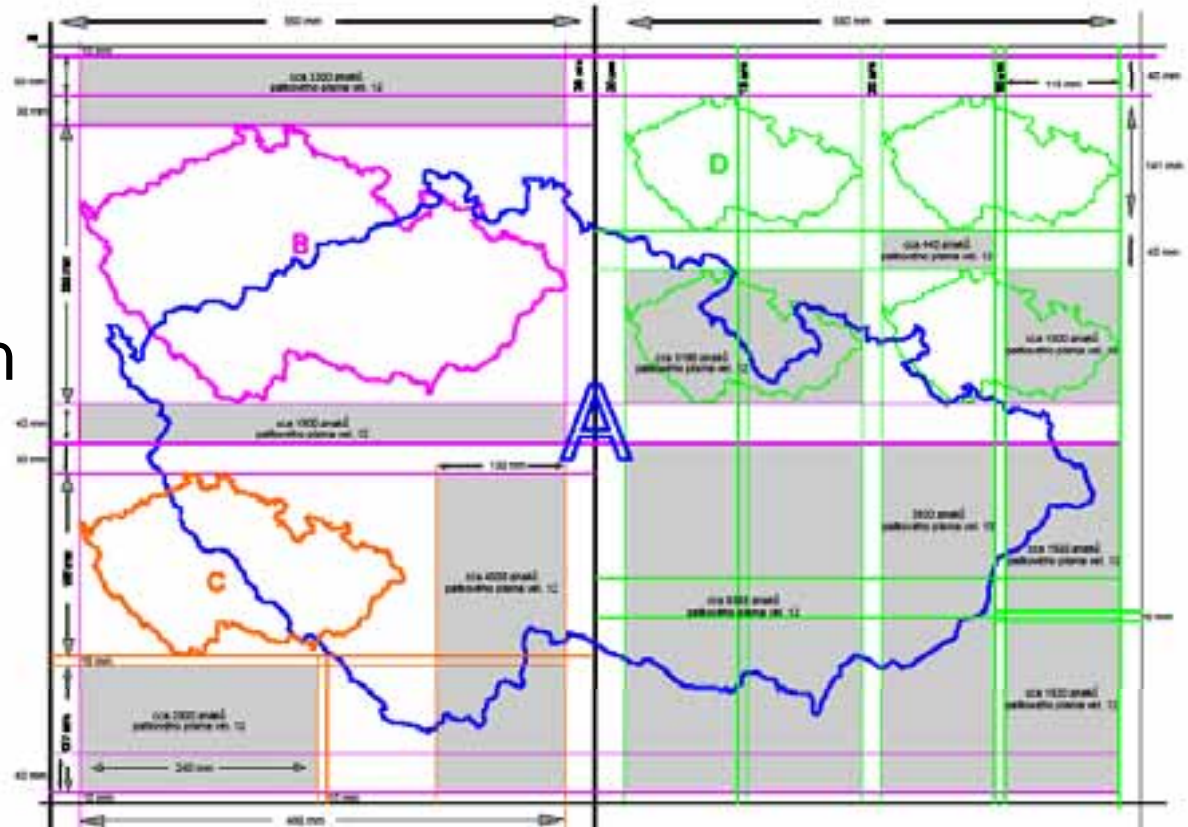
Construction background

- map projection
- coordinate system
- meridians and parallel lines



Atlas desing

- map composition
- page composition
- graphic design



- scientific atlas



- encyclopaedia atlas
- multimedia maps



Atlas content

- all kinds of diseases



- health information systems management
- national health promotion policy
- improving health financing and quality of health care
- health management and human resources
- mental health policy
- control among risk groups
- strengthening communicable disease surveillance
- assessing health system performance
- awareness and skills among health professionals, and developing health promotion



- new treatment implementation
- medicine implication
- distribution of medical research
- mental therapy success
- sources of danger factors (alcohol, tobacco, drugs, pollution etc.)
- pharmaceutical industry
- spatial analysis and geovisualization



- health care accessibility
- quality of health care (hospitals etc.)
- risk factor distribution
- quality of life
- manual for prevention and wellness



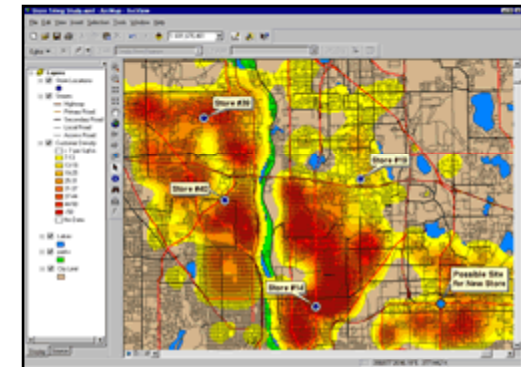
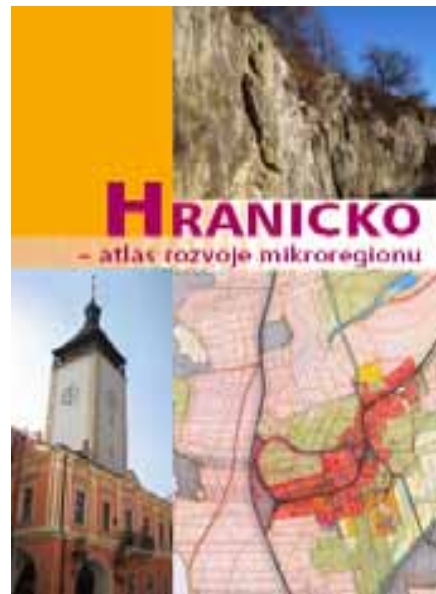
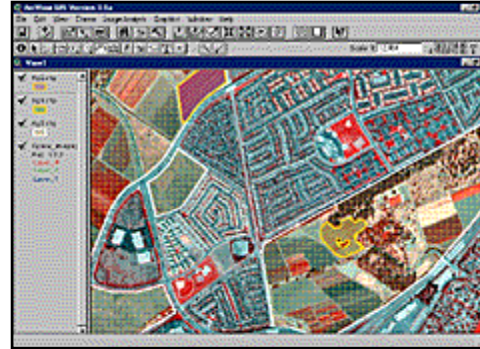
Data and maps resources

- Ministry of Health <http://www.mzcr.cz>
- Office of the President <http://www.hrad.cz>
- Parliament of the Czech Republic:
 - Committee for Social Policy and Health Care <http://www.psp.cz>
 - Committee on Health and Social Policy <http://www.senat.cz>
- Government of the Czech Republic <http://www.vlada.cz>
- Governmental Council for Health and Environment <http://wtd.vlada.cz/eng>
- General Health Insurance Office of the Czech Republic <http://www.vzp.cz>
- Czech Statistical Office <http://www.czso.cz>
- Institute of Health Information and Statistics of the Czech Republic <http://www.szu.cz>



- **mapping on demand**
- **analysis and modeling**

Technologic issues



Organizational and economic support



no budget
consultancy



budget creator



contribution in budget
analytical participating

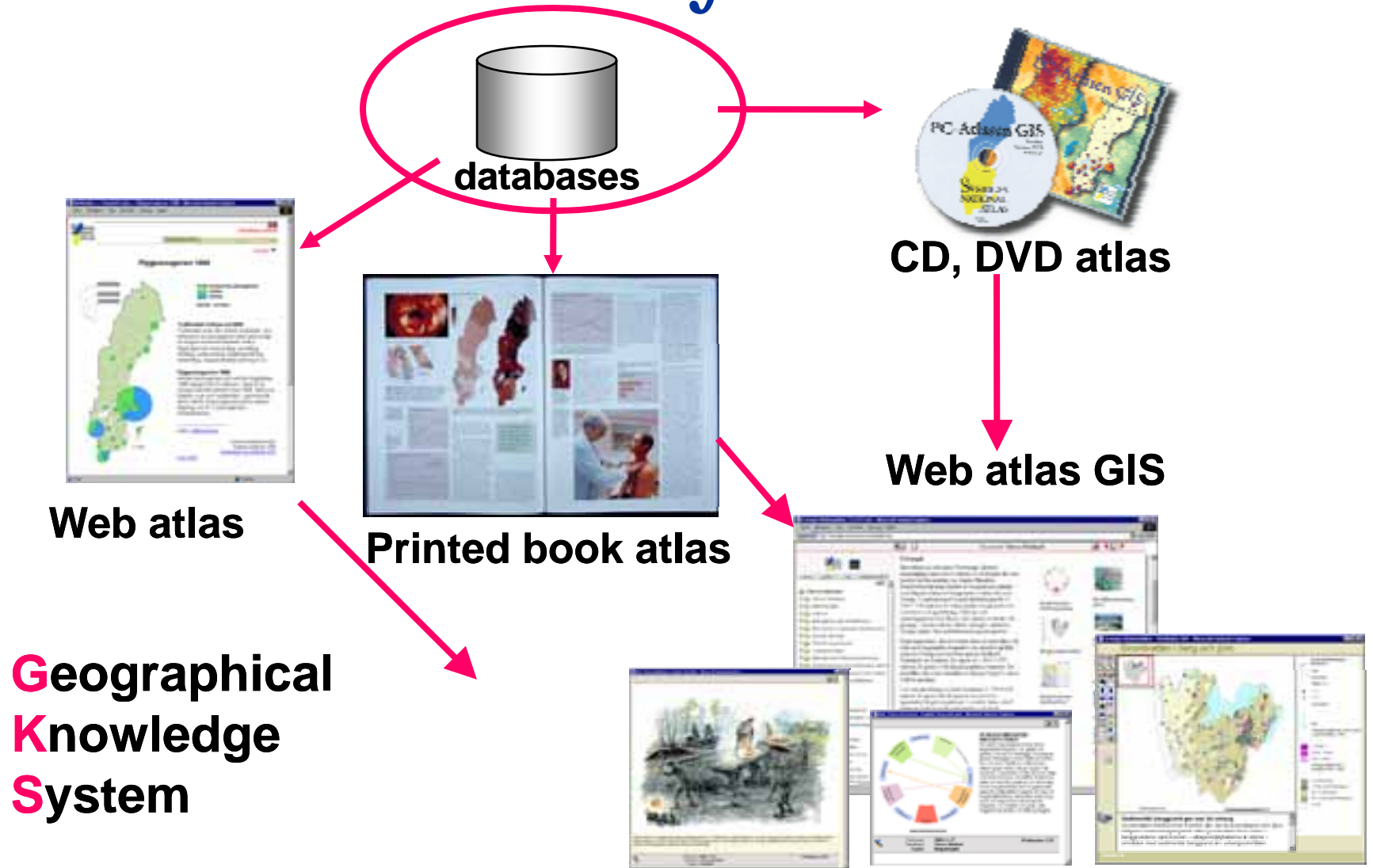


budget refoundators

Team work

physicians * scientists * GI experts * cartographers

Atlas information system



Atlas using



International Cartographic Association
Association Cartographique Internationale



ICA - Commission on National and Regional Atlases | CNRA



2008 ESRI Health GIS Conference * September 28 – October 1 2008 * Washington D.C.

Thank you for your attention

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