IP valuation in practice

27-28 November 2008

“Managing IP portfolios”

Erno Duda
President&CEO
SOLVO Biotechnology

„Biotechnology is all lines of work by which products are produced from raw materials with the aid of living things."

The first known use of the word „biotechnology" (1917) by Károly Ereky, a Hungarian agricultural engineer

Life Sciences Have Traditionally Been a Focus Area for Hungary

Presence of large international pharmaceutical and biotechnology firms

- Early and late stage R&D as well as manufacturing
- Not only sales and marketing

National pharmaceutical industry with strong historical roots:

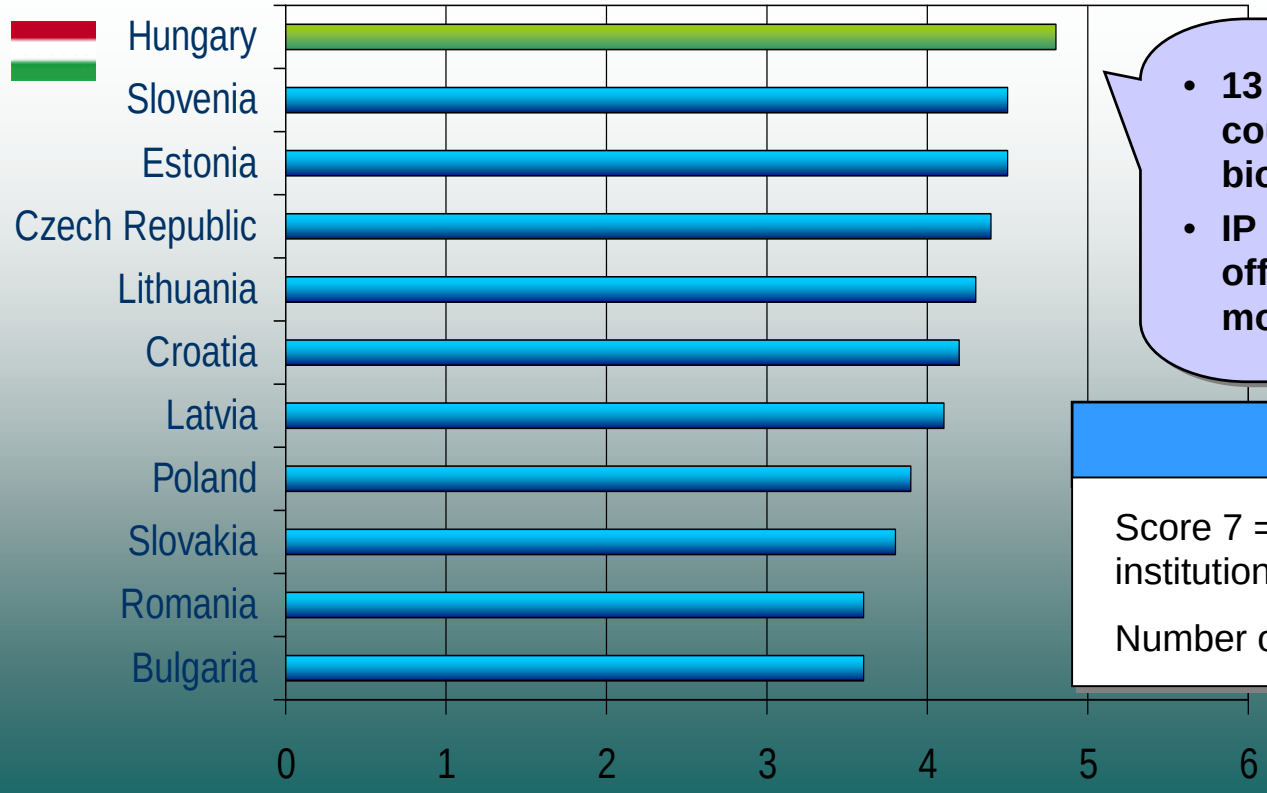
Founded as	Renamed after WWII	Now owned by
1901 Gedeon Richter		
1910 Alka	Chinoin	Sanofi-Aventis
1912 Rex	Biogal	TEVA
1912 Phylaxia	Human-Phylaxia	GSK
1913 Dr. Wander	Egis	Servier
1927 Alkaloida		ICN
1950 Drug Res. Inst.	-	TEVA

Gedeon Richter alone, with the addition of its planned $60 million R&D center, will employ over 1,000 R&D staff.

All foreign owners have invested heavily in their Hungarian subsidiaries' R&D and manufacturing

Hungary Has an Outstandingly High Quality Research Baseand Human Capital…

Leading Position In Quality Of Scientific Research Institutions



- **13 research institutions countrywide dedicated to biotechnology-related R&D**
- **IP policies, TTOs and spin-off companies formed at most major universities**

Keys

Score 7 = Scientific research institutions are best in their fields

Number of countries assessed: 102

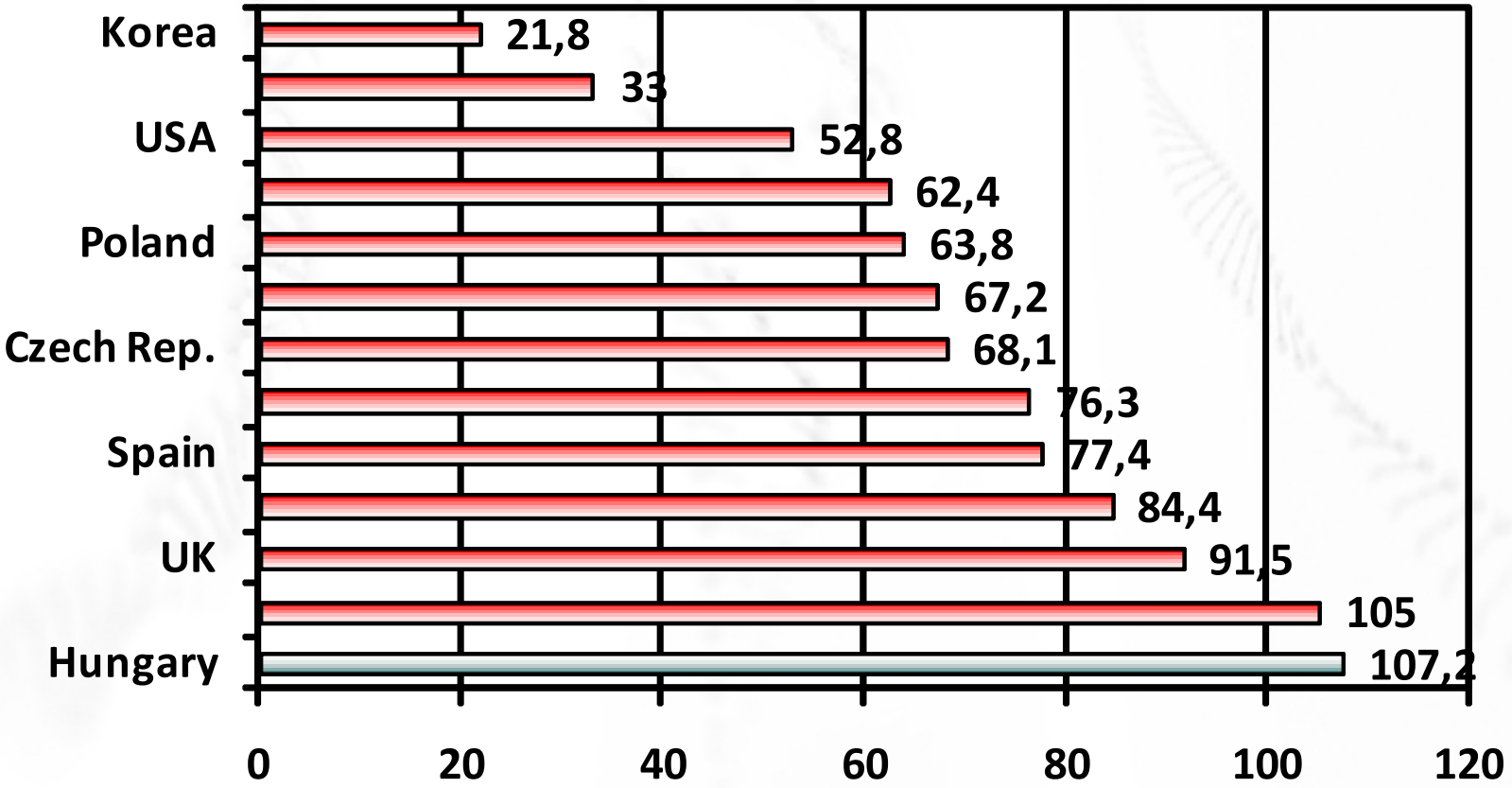
Strong ICT sector relatively to Hungary's size – a good basis for biotech development

Source: Global Competitiveness Report, 2003-2004

… Producing Much From Scarce Resources …

Number of publications per 1 M USD R&D expenditure in universities and research institutes

(source: NSIOD, Institute for Scientific Information)



… Especially in Science and Technology

East-West Divide: Science and Technology Benchmarks Across Europe				
	R&D Spending (% of GDP)	Annual Scientific Publications per million population	Publications/ R&D spending (m pop./ % of GDP)	High-tech exports (% of total exports)
European Union	1,93*	755	391	19,7
Poland	0,75	221	295	2,1+
Czech Republic	1,24	352	284	7,8
Hungary	0,88	370	536	**22,9**
Romania	0,40	70	175	4,5
Slovak Republic	0,66	293	444	4,1**
Slovenia	1,51	577	382	3,7**

Source: European Commission

In Central and Eastern Europe, Hungary Has the:

- Highest rate of **participation in adult training and education** of employees
- Highest percentage of **GDP spent on higher education**
- Highest rate of **labor force** working **in the R&D** sector
- Most **patent applications** submitted and most patents granted per capita
- Most **high-technology patents** per capita
- Highest number of **biotechnology companies**
- First **association for biotechnology** founded in 2002

HUNGARIAN BIOTECHNOLOGY ASSOCIATION

Most Significant Biotech Sector Amongst the 10 new EU member states

~ 50 Core Biotech Firms, Five Biotech-Related University Knowledge Centers and Three Bioincubators Clustered In Four Academic Towns

Major Areas Of Strength

- Medicinal chemistry
- Plant genomics
- Bioinformatics & Infobionics
- Clinical trials
- Biomarkers & Diagnostics
- ADME
- Molecular biology
- Vaccines

- 13 institutions dedicated to biotech-related R&D

What We Have...

- ✓ Highly skilled **scientists** at reasonable cost
- ✓ Strong **academic/university background**
- ✓ Strong traditions in **pharmaceutical sector**
- ✓ Considerable results in **basic research**
- ✓ Large number of **well-trained graduates**
- ✓ **Scientists working in the U.S. and Europe** who would like to return
- ✓ **Subsidies** on patenting

...And What We Don't

- Lacking management experience in running biotech companies
- Limited scientific management skills
- Scientists not used to working in a for-profit environment
- Most research results are not protected
- Have to earn trust of pharma partners

Strategic Goals of the Hungarian Biotechnology Sector Between 2005 and 2010

Our Vision

*„Not only to elevate Hungary to be a clear Biotechnology leader among the EU accession countries, but also to **place Hungary among the top 10 EU states in Biotech by 2010**."*

Tools

Approx. 20 harmonized and well balanced measures aligned with a National Biotechnology Strategy, which is characterized by the followings**:**

- ✓ Clearly understandable and widely supported,
- ✓ Long term (2005-2015),
- ✓ Takes care of all underperforming areas at the same time,
- ✓ Scheduled measures in harmony with the current and future bottlenecks probably occurring along the biotechnology value chain.

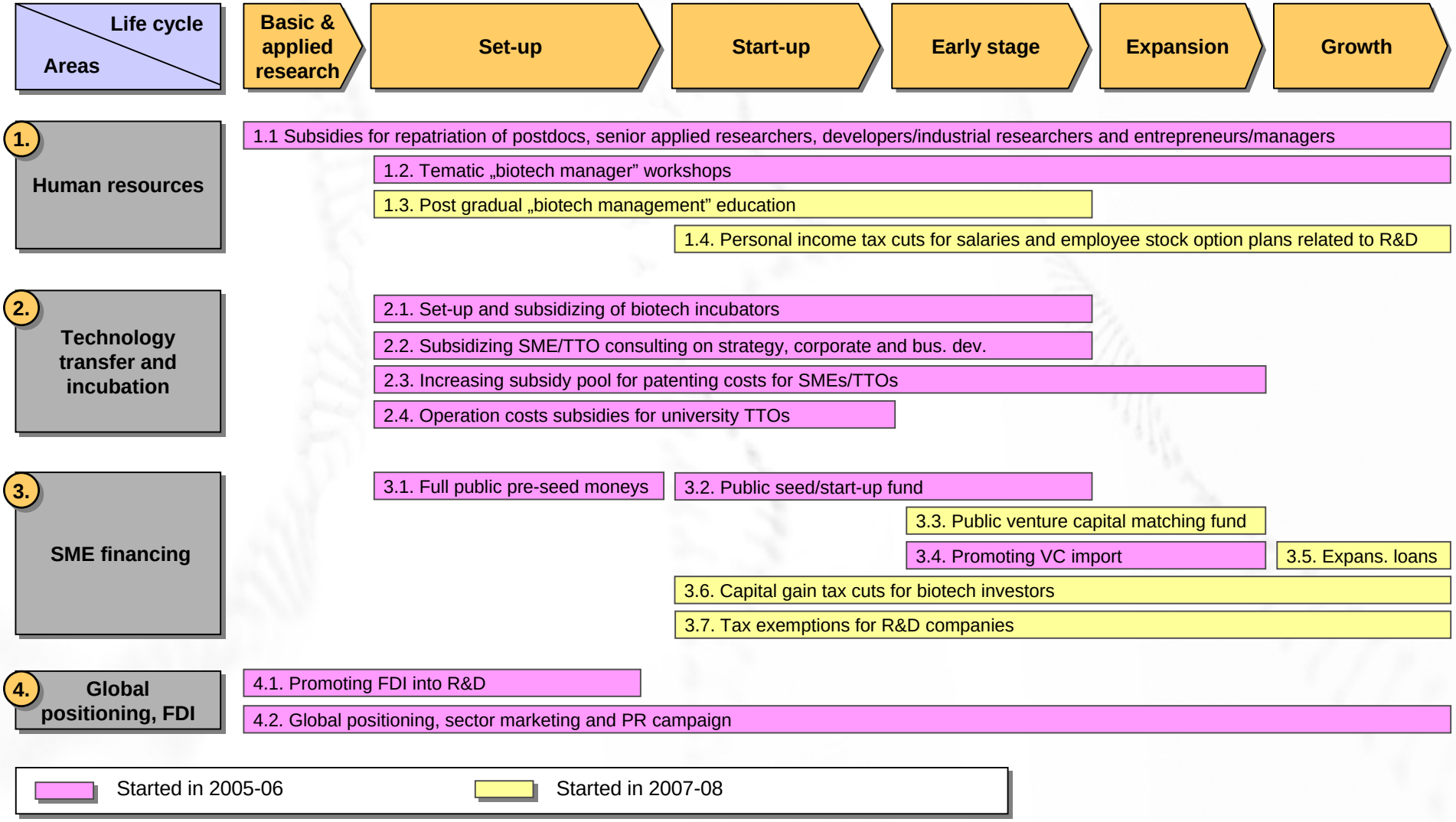
Source: Convincive Consulting (2006)

National Biotechnology Strategy for 2005–2010 has Set a Concrete List of Achievables

- Formation of **100 to 200 new biotech companies**, of which approx. 80 viable and established ones remain in business by 2010;
- **2 to 5 new large FDI into R&D** by multinational pharmaceutical or biotechnology companies;
- **Several thousands of high value added jobs** with highly skilled and well-paid employees;
- **Global recognition of Hungary** as an ”up and coming” biotech country.

HUNGARIAN BIOTECHNOLOGY ASSOCIATION

~20 Measures to Eliminate Major Bottlenecks: Technology Transfer, Incubation, Financing and HR



Source: Convincive Consulting analysis (2007)

What We Already Achieved and Initiatives in Progress

1. Human resources

- ✓ New initiatives for **repatriation of scientists** of Hungarian origin (2005)
- ✓ Hungarian Biotech Association initiated **BioManager Training Programme** (2006)

2. Technology transfer and incubation

- ✓ **Bayh-Dole-like „Innovation Act"** passed (2004)
- ✓ **Five biotech-focused regional knowledge centers** set up at major universities (2005)
- ✓ **Cooperative Research Center** program (since 2001) – allowing companies to build joint infrastructure at major universities, and join early-stage pre-competitive research
- ✓ **Three** state-funded and PPP **biotechnology incubators** set up (2005 and 2006)

3. SME financing

- ✓ State-funded **SBIR-like pre-seed/seed financing program** (Irinyi János program) initiated (2005) – almost half of first winners are biotech projects
- ✓ State-fundeded **seed-expansion capital fund** set up (2005) – involvement of private moneys planned

4. Global positioning, FDI

- ✓ State agency (ITDH) enables **massive presence of biotech companies at international conferences** (BIO, BIO Europe, BioSquare, Cordia etc.) and **US roadshows**
- ✓ Government ready to enter into **customized negotioations with int'l biotech investors**
- ✓ New **database on biotech sector** and **biotech investment opportunities**

~40 Biotech Investment Opportunities in 2007

3rd issue of the database of almost **40 concrete Hungarian biotech projects**, presenting an approximately **EUR 100 million** aggregated value of **investment opportunities**.

	up to EUR 1 million	EUR 1 to 3 million	EUR 3 to 5 million	above EUR 5 million
Capital Increase	• Topical NO Donors Therapy • Avi-Chemix™ Chemical Microarrays • Diabetes Drug	• Transgenic Animal Models • MAS-H5N1 Virus Detection Device • Assays for Human Skin Research • Biochip Microfluidic Device • Biofotonika Spectrophotometer Device • Tonosoft Tonometric Device • Transmentix Schizophrenia Diagnostics • Atherosclerosis and Cytoprotective Therapy • Medicinal Chemistry Sofware • MMP Inhibitors Cardioprotective Therapy • Zebrafish Assays • Cera-Med Safety Pharma Technologies • MoAb Immunodiagnostics • Sensocrine Pharmacotherapy • Serum-free Culture Media Additives	• Artificial Blood Therapy	• DermaVir Immunotherapy • Immunising Antigen – Atherosclerosis Vaccine Therapy • Deuterium Depletion Therapy • MAS-MicHip Therapy & Device
Spin-off	• Human Bone Grafts Therapy • Natural Health Products • Spine Knows Better Orthopedic Device • Multi-functional Gas Analyzer Device • eccPCR Kit	• Cancer Therapy • Herpavir Therapy • Biogas Inoculi Technology • Digoxin Combination Drugs • Gingko Benfo Anti-Dementia Drug • Humanized Mice Transporter Models	• MDQ Theranostics	• MDR Reversal Drug • Cherry Seed Therapy & Cosmetics

Source: ITD Hungary, www.itd.hu

SOLVO®

BIOTECHNOLOGY

"THE TRANSPORTER COMPANY"
– We get you through barriers!

VISION

- **Our vision is to become the leading biotechnology company in the Central Eastern European region by 2010.**

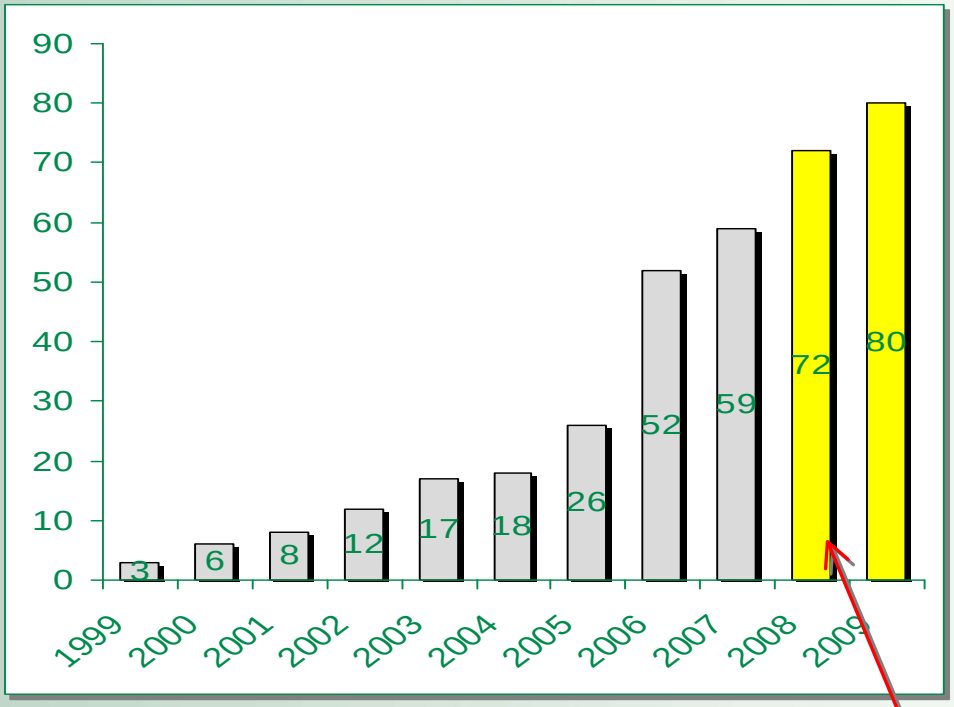
- We will achieve this through a combined growth and expansion strategy:
  - Membrane Transporter Assay Systems;
  - Personalized Medicine Diagnostics;
  - Novel Drug Development Platforms.

HISTORY

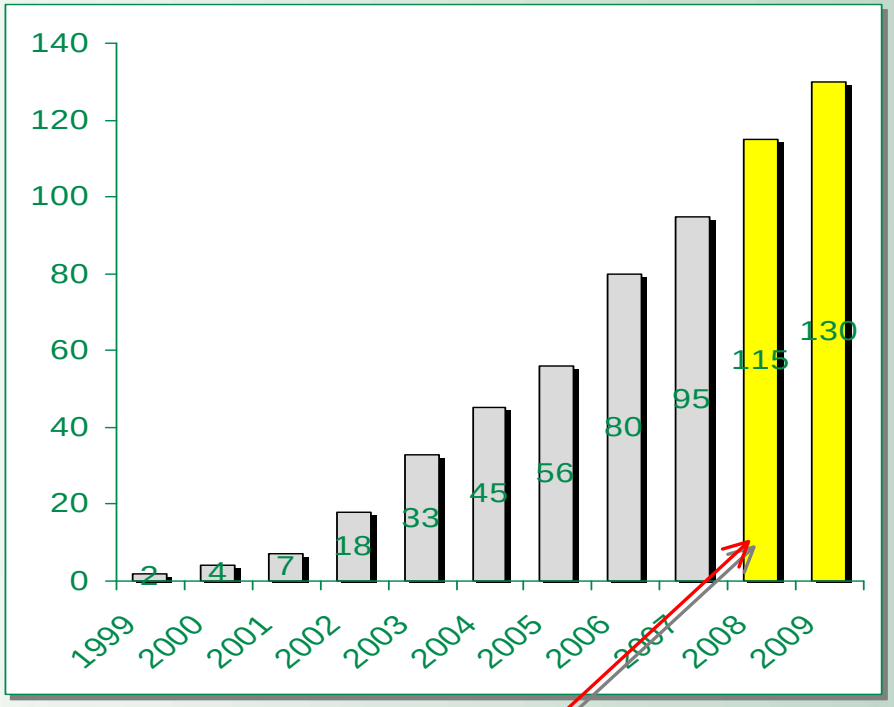
- *1999:* established in Szeged, Hungary.
- *2000:* first capital was raised
- *2001:* management team was set up
- *2001 through 2007:* significant efforts in product development and international promotion of assay tools (membrane transporter products, screening services, licenses); development of a new MDR diagnostics product family (MDQ); **global customer base, distribution and collaboration network established.**

Dynamic Growth - Comprehensive Pipeline

Number of Products & Services



Customer Base



Complex Solution Packages

SOLVO BIOTECHNOLOGY

"THE TRANSPORTER COMPANY"

„We get you through barriers!"

We develop and commercialize breakthrough membrane transporter assay products and services for the pharmaceutical, healthcare and consumer goods industries.

- HT ABC Efflux transporter assays
- HT Uptake transporter assays
- Monolayer assays
- Custom-Made Expression and Screening Systems
- Organ assay packages (including membrane, cellular and in vivo assays for intestine, liver, BBB and kidney)
- New animal models (Knock-in and Knock-out)
- *Personalized Medicine Applications – Diagnostics*
- *Novel drug development*

PREDEASY™ ATPase KIT

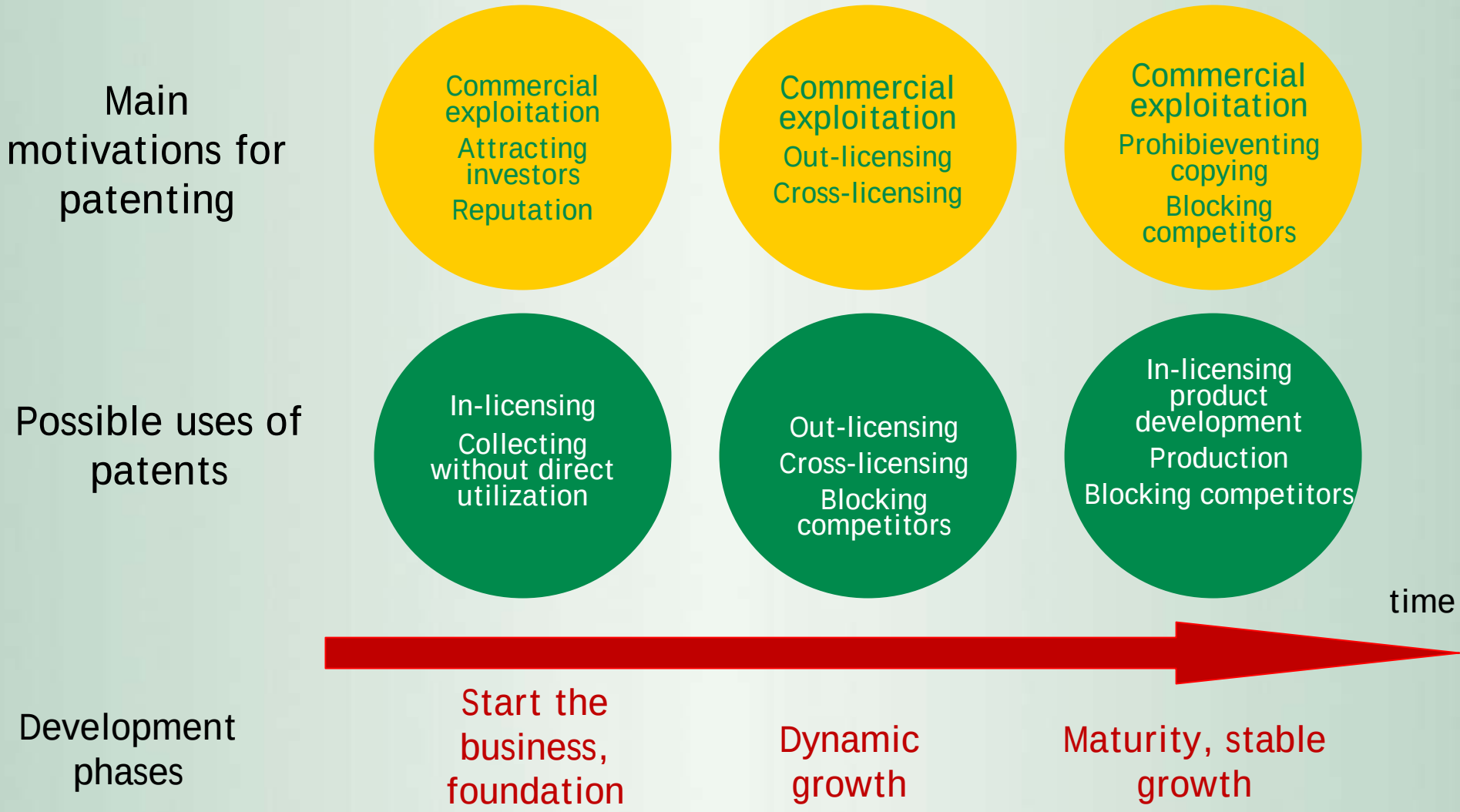
PREDIVEZ™ Vesicular Transport KIT

PrediScreen™ Comprehensive Service Solutions

PrediTrans™ Validated DTI Database

Some of our references

Patenting in practice at SOLVO



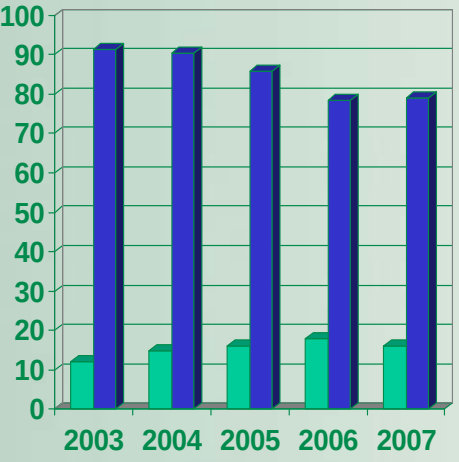
Support to the core business:

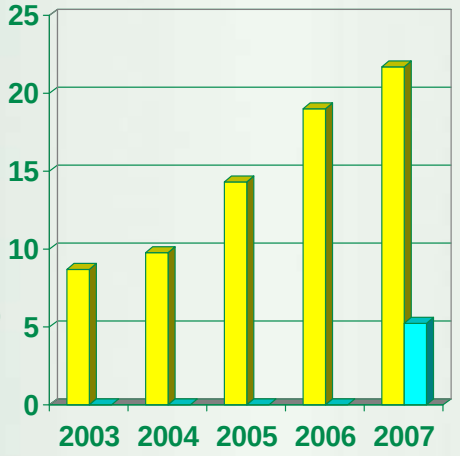
Development of Products & Services

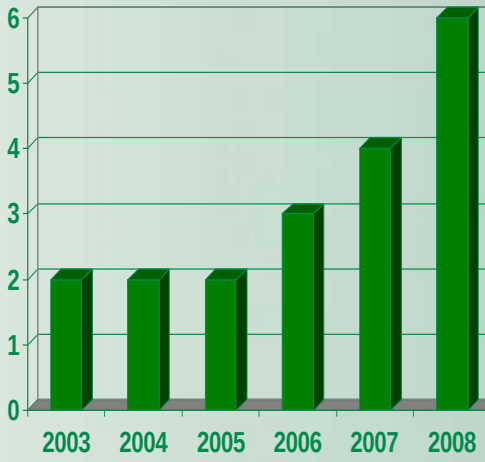
Patents and patent applications owned by Solvo

Reagent and patent license acquisition

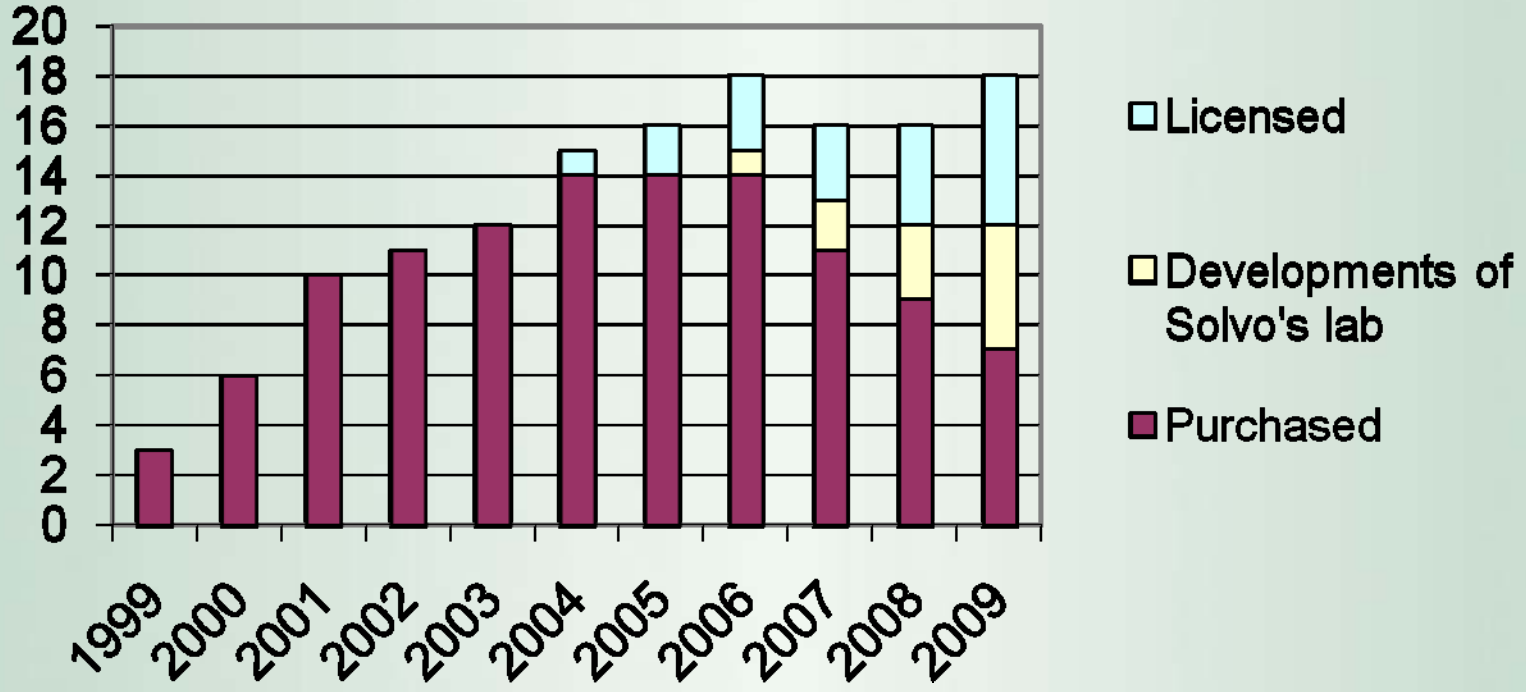
Registered trademarks and trademark applications



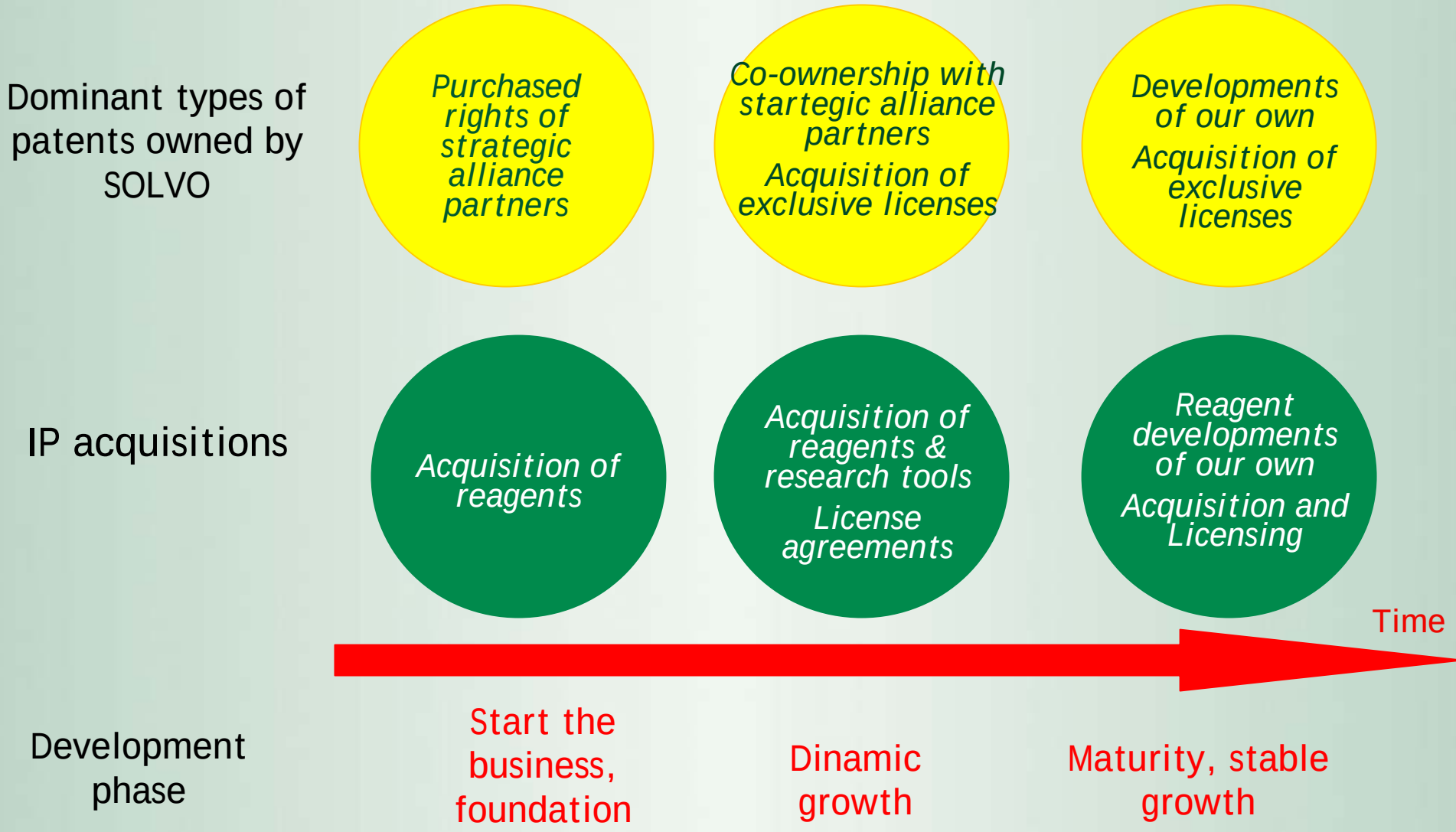




Changes in the Stucture of our Patent Portfolio



Changes in the IP Aquisition



Challenges

✓ The value of their intellectual assets is usually greater than the values of their tangible assets

✓ IP portfolio gets the attention of investors, potential partners and acquirers

✓Although companies often invest heavily in the procurement of IP, they often do little to ensure the effectiveness of exploitation of their acquired rights

✓ Managing IP requires strategies and tactics

✓Well focused IP portfolio that is aligned with the company's business strategy.

✓Effective use of resources

✓ Never-ending series of surprises as competitive patents randomly float to the surface.

Guiding principles for the IP plan

✓ Focus IP investment on a core set of IP that directly supports business objectives.

✓Make information about IP portfolio and landscape readily available to business leaders.

✓ Avoid possible „IP landmines" for products in product pipeline.

✓ Avoid unnecessary loss of IP due to public disclosures, offer for sale and the like.

✓ Build a corporate culture that is attentive to IP issues and strategy.

✓ Facilitate accurate communication of IP information to partners and customers.

✓ Grow a patent portfolio in a focused manner around core products.

✓ Maximize inventor participation; increase the pool of patented inventors.

Thank you for your attention