KAMRAN IMANOV

ECONOMIC GROWTH BASED ON NEW KNOWLEDGE AND ECONOMIC CONTRIBUTION OF CREATIVE INDUSTRY: THE EXPERIENCE OF AZERBAIJAN

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Chairman of Board of the Intellectual Property Agency of the Republic of Azerbaijan.

Economic growth based on new knowledge and economic contribution of creative industry: The experience of Azerbaijan. Baku, 2019

This brochure was prepared on the basis of the presentation, by the Chairman of Board of the Intellectual Property Agency of the Republic of Azerbaijan Kamran Imanov, "Economic growth based on new knowledge and economic contribution of creative industry: The experience of Azerbaijan", presented at an international conference on the topic: "The economic importance of copyright and creative industries", which was organized on June 11, 2010 by the Copyright Agency in cooperation with the World Intellectual Property Organization.
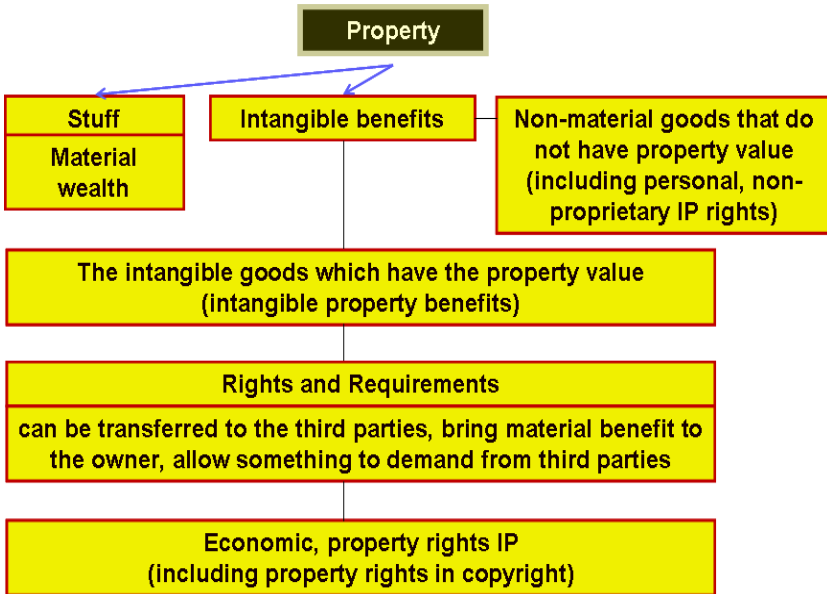
Contents

I. IP as an economic category

1. The property value of IP (from the Civil Code)

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                        ┌─────────────┐
                        │  Property   │
                        └─────────────┘
                         ╱      │
      ┌──────────────┐  ┌──────────────────┐  ┌────────────────────────┐
      │    Stuff     │  │ Intangible benefits │  │ Non-material goods that do │
      │──────────────│  └──────────────────┘  │  not have property value   │
      │  Material    │           │            │ (including personal, non-  │
      │   wealth     │           │            │   proprietary IP rights)   │
      └──────────────┘           │            └────────────────────────┘
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The intangible goods which have the property value
(intangible property benefits)

Rights and Requirements

can be transferred to the third parties, bring material benefit to
the owner, allow something to demand from third parties

Economic, property rights IP
(including property rights in copyright)

2. The cost of IP

➢ IP is a well-defined property for IP objects (with the exception of personal, non-property rights).

➢ P - as private property has a property value.

➢ The exclusive nature of the IP owner's rights is a monopoly.

➢ IP is the subject of economic relations: the owner can sell, transfer, assign or prohibit the use.

➢ An analogy with private property: can be sold, freely implemented or neglected (distribution function in economic analysis), infringement of third parties is prohibited (incentive function).

3. Characteristics and properties

- Goods with IP have some characteristics of ordinary goods, they benefit the community where they are distributed, can be used simultaneously by several people.
- The consumer value - the utility of goods with IP (increases the productive power of social labor, reduces the social value of products of material and spiritual production, give an effect in economic consumption).
- Exchange value is a property of exchange (the ability to be exchanged for another commodity in certain proportions and quantitative ratios).
- They have an aspect of public goods, along with the benefits they give a hardly measurable "external" effect.
- Along with the properties inherent in any product (utility, rarity, uniqueness), there are also specific features - a special commodity.
- When the commodity is consumed from IP, its usefulness does not disappear, it can be used by an unlimited circle of persons, is not subject to physical, but moral obsolescence.
- Goods with IP can be exchanged any number of times, has the effect of "reproduction".
- IP objects (copyright) have a very expensive first copy and cheap follow-ups (high fixed costs + very small marginal costs) - complexity in pricing policy.

4. Economic functions.
- ✓ The economic mechanism is the balance of the interests of the creators of IP and the needs of society in obtaining and using products (goods) with IP.
- ✓ IP legislation defines and recognizes IP, delineates the scope of property rights and establishes general rules for managing it.
- ✓ Legislation on IP makes it possible to create economically efficient production of trade and consumption of IP objects.
- ✓ The IP legislation helps IP creators to assess the market value of the created objects.

5. Economic consequences.
- Improvement of well-being, growth and development of the economy through the use of creative potential.
- Redistribution of income through a system of fees, payments and taxes.
- Granting a monopoly to the owner, etc.

6. The economic essence.
- ❖ A replenished resource that benefits not directly, but indirectly.
- ❖ The use of IP with the permission of the right-holder ensures minimum risk and maximum income.
- ❖ Despite the monopoly does not have a negative impact on competition, it stimulates others for new solutions ("small monopoly").

7. Conclusions.

IP is an economic category, complements the notion of "proprietary" property, has the cost, characteristics and properties, economic functions, has economic consequences, participates in economic turnover.

II. The economics based on knowledge and intangible assets

➢ «The industrial economy», «post-industrial economy», «new economy» - «economy based on knowledge».

➢ The impact of technological innovation and scientific and technological progress on economic growth. When is the **sustainable economic growth** possible?
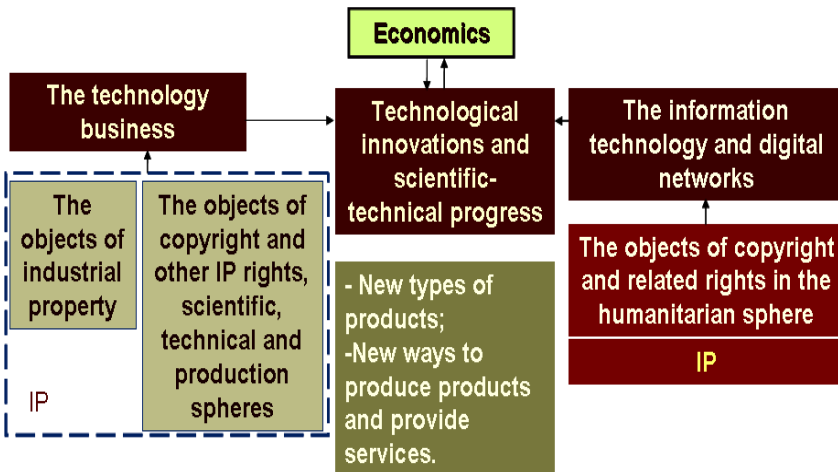
1. The economy which was based on concrete and iron is consistently replaced by a knowledge-based economy, where the leading role belongs to IP!

["Knowledge is the leading force of economic growth"].
Paul Romer

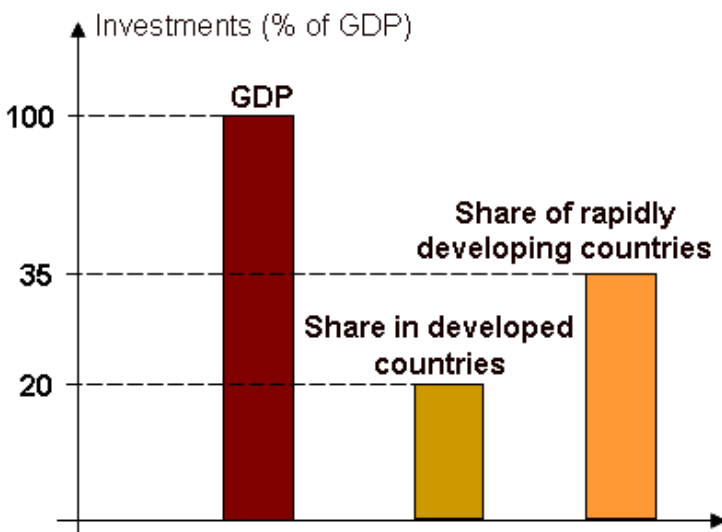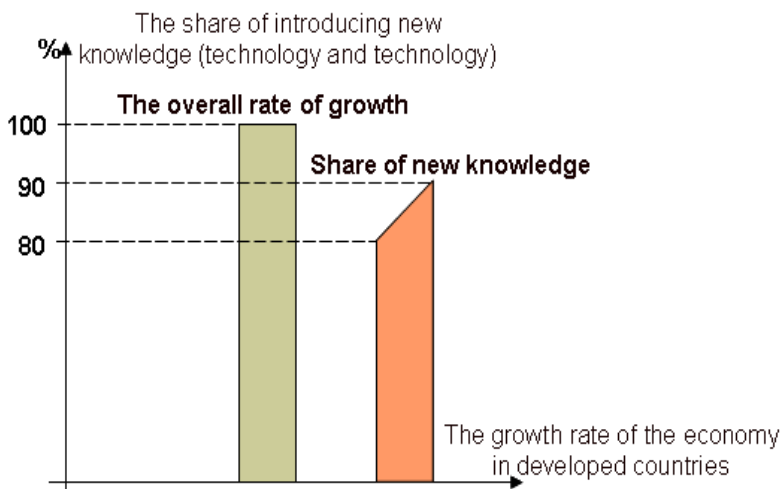2. **The macroeconomic changes over the past 15-20 years.**

➢ **International statistics confirm the relationship between economic growth, SRW (Scientific research work) and IP.**
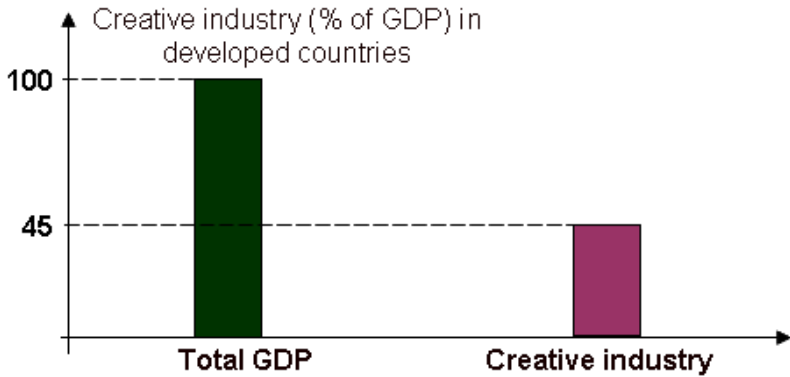
The first glance of economists: economic growth is explained by 2 driving sources - the presence of production factors (physical capital) and labor (human capital), as well as the use of new technologies.

The second glance of economists: economic growth depends on the interaction of the two sources (factors of production and use of technology), and also on the relative proportion between labor and physical capital on the one hand and new technologies on the other.

Postulate: IP significantly affects the valuation and quantitative characteristics of human capital, as well as the pace and direction of technological change.

Growth of economic importance of IP at the macro level

The share of introducing new knowledge (technology and technology)

%

The overall rate of growth

100

90

80

Share of new knowledge

The growth rate of the economy in developed countries

Investments (% of GDP)

GDP

100

Share of rapidly developing countries

35

Share in developed countries

20

Creative industry (% of GDP) in developed countries

2.1. The role of IP in different countries (different structures of the output capital) depending on the level of income.
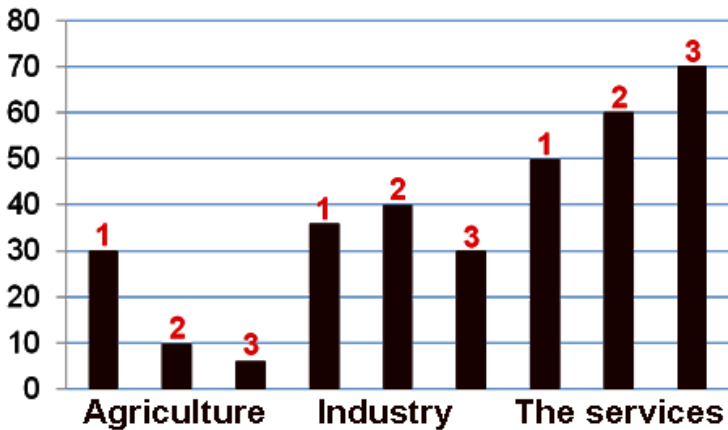
1 – low income
2 – average income
3 – high income

**Source:** *The World Bank: "Trends in world development"*

Results:
- ✓ Developing countries may benefit from IP in various ways.
- ✓ In the poorest countries (<1 US $ in income), the productive sphere accounts for less than 5% of economic activity. At the same time in industry, the main influence of IP is manifested in the modernization of equipment and methods of production.
- ✓ Strengthening the role of IP should be consistent with the country's economic priorities.
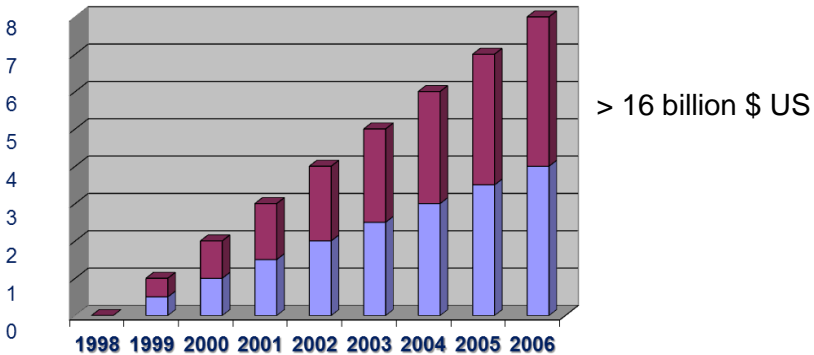
2.2. The industry, based on copyright (the creative industry) is developing rapidly.

In the world economy, copyright-based industry: about 7% with an annual growth rate of 5%.

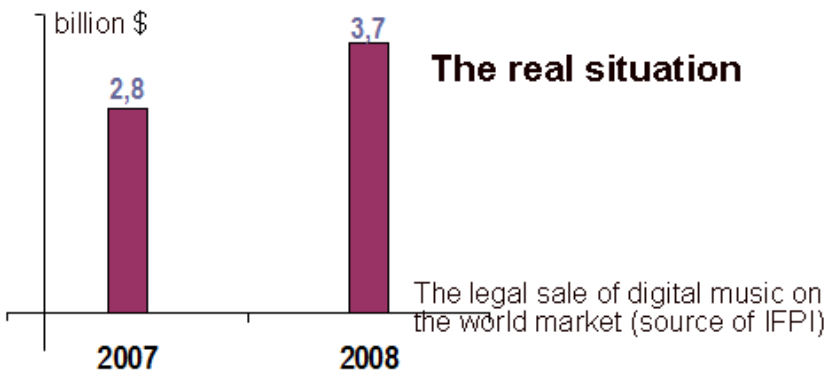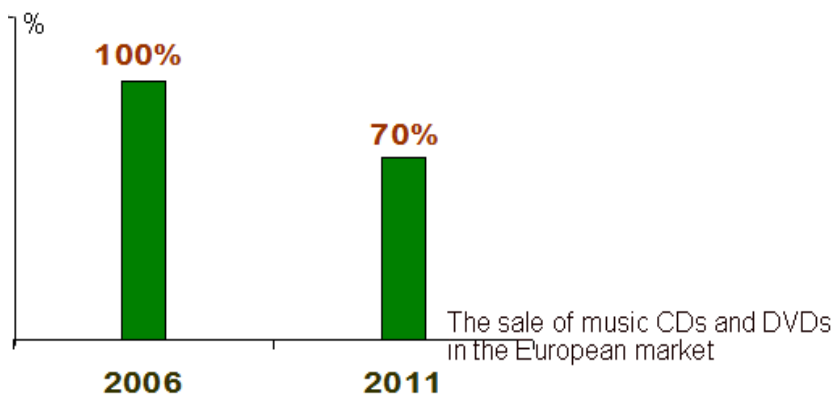The dynamics of the copyright industry in the United States (1980-2009).
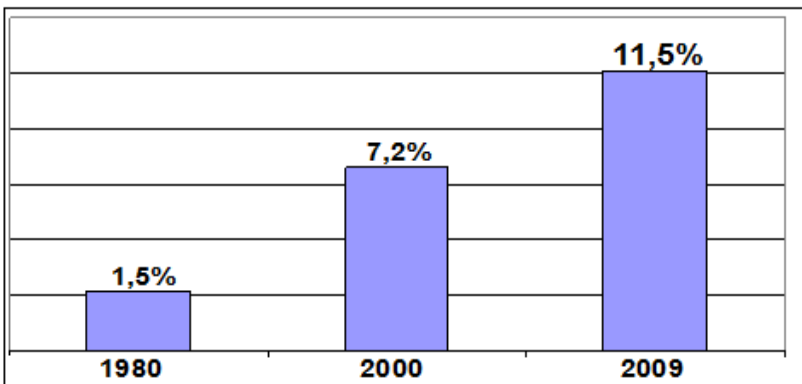
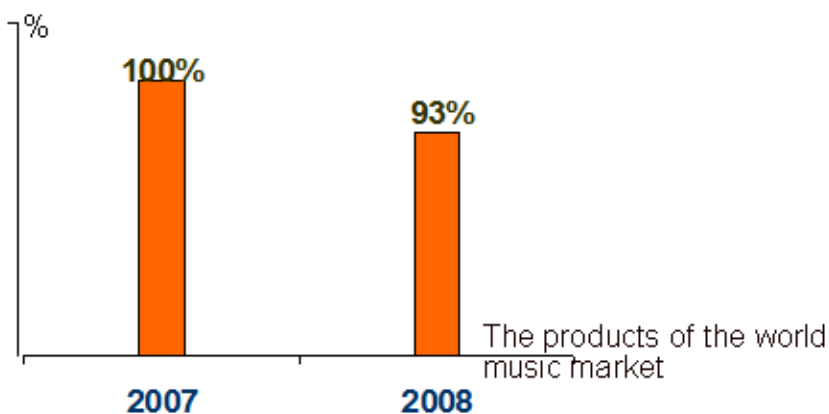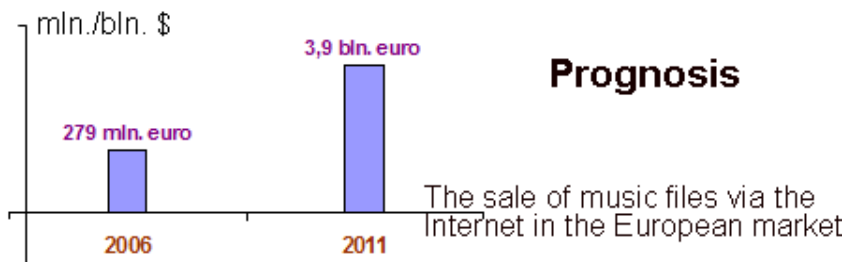**2.3. The development of Internet commerce (e-com) > 50% of goods sold - IP objects, every 3 of the sold 4 products - objects of copyright.**

> 16 billion $ US

Source: *Gartner, Inc., http://www4.gartner.com*

2.4. The sale of digital music content is growing rapidly.

mln./bln. $

3,9 bln. euro

279 mln. euro

Prognosis

2006   2011

The sale of music files via the
Internet in the European market

%

100%

93%

The products of the world
music market

2007   **2008**

%

100%

70%

The sale of music CDs and DVDs
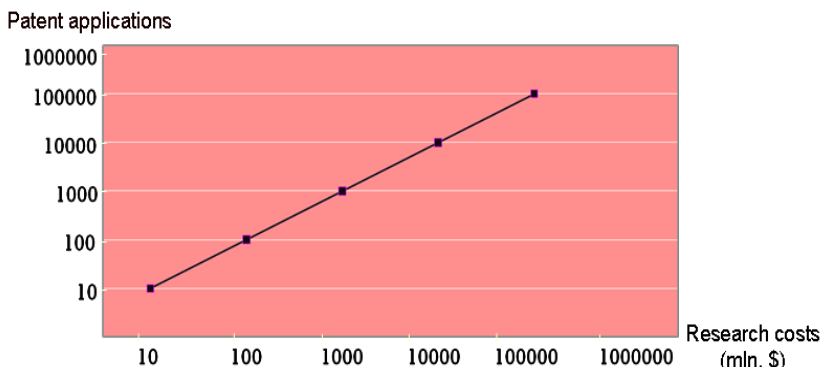in the European market

2006   **2011**

15

2.5. The protection of IP led to a new model of international trade (BTO - "TRIPS", USA - "301 amendment").

IP has become an important factor in the economy.

2.6. IP contributed to the growth of the share of investment in research.

Source: *OESD*

WIPO studies have shown the positive role of IP in attracting foreign direct investment.

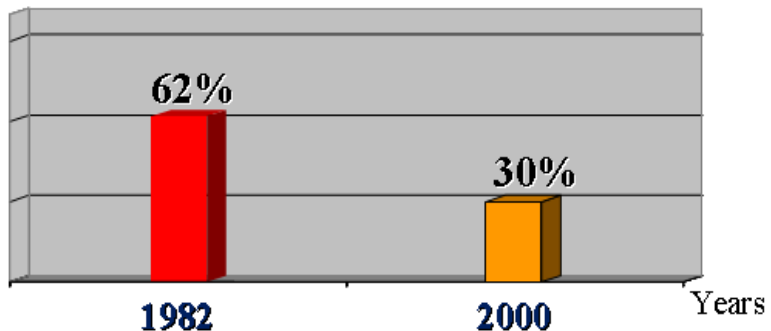# III. The microeconomic changes for the last 15-20 years

1.

3.1. IP has become an important element of intangible assets.
(Japan: for 284 firms, 45.2% of assets are determined by corporate knowledge. Recent research 60-65% of intangible assets consists of IP).

3.2. The relationship between tangible and intangible assets is changing in favor of the former.

Intangible assets

The ratio of the leading firms:
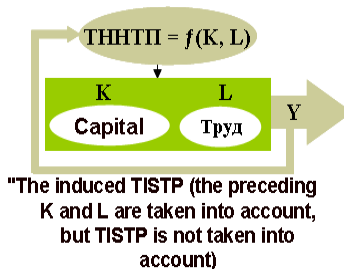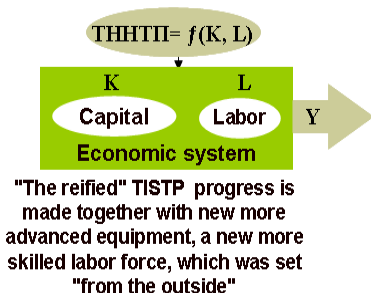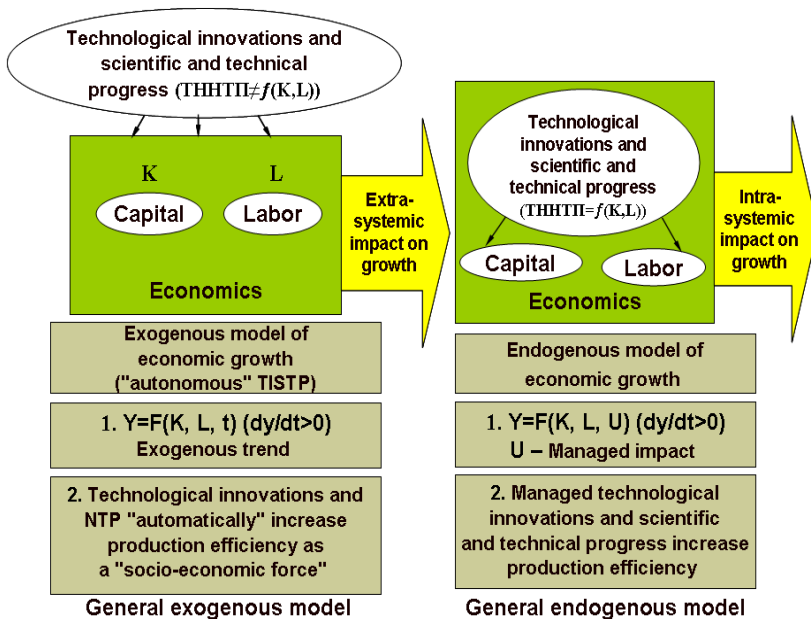Coca-Cola – 4:46   BP – 29:71
Walt Disney – 20:80   P&G – 21:79
Microsoft: the cost is 90 billion $, price on market capitalization – 270 billion $, 180 billion – IP.

3.3. IP changed the strategy of marketing and management of firms ("portfolios" of IP, IP - in transactions, IP in on-line assessments, etc.).

Only licensed market of IP for the last 10 years amounted to 100 billion $ (1999) and at the same time commercial potential of IP was realized only by 3% (British Technology Group, BTG).

2. Models of economic growth, technological innovations, scientific and technological progress and IP.

Technological innovations and scientific and technical progress (ТИНТП≠f(K,L))

K   L
Capital   Labor
Economics

Extra-systemic impact on growth

Technological innovations and scientific and technical progress (ТИНТП=f(K,L))

Capital   Labor
Economics

Intra-systemic impact on growth

Exogenous model of economic growth ("autonomous" TISTP)

1. Y=F(K, L, t) (dy/dt>0) Exogenous trend

2. Technological innovations and NTP "automatically" increase production efficiency as a "socio-economic force"

General exogenous model

Endogenous model of economic growth

1. Y=F(K, L, U) (dy/dt>0) U – Managed impact

2. Managed technological innovations and scientific and technical progress increase production efficiency

General endogenous model

ТИНТП= f(K, L)

K   L
Capital   Labor
Economic system   Y

"The reified" TISTP progress is made together with new more advanced equipment, a new more skilled labor force, which was set "from the outside"

ТИНТП = f(K, L)

K   L
Capital   Труд   Y

"The induced TISTP (the preceding K and L are taken into account, but TISTP is not taken into account)

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Evolutionary TISTP

The multiplicative production function with neutral TISTP

$$Y_t = A_t F(K_t, L_t) = A_t \cdot K_t^{\alpha} \cdot L_t^{\beta} = A_0 \, e^{\lambda t} \, K_t^{\alpha} \cdot L_t^{\beta}$$

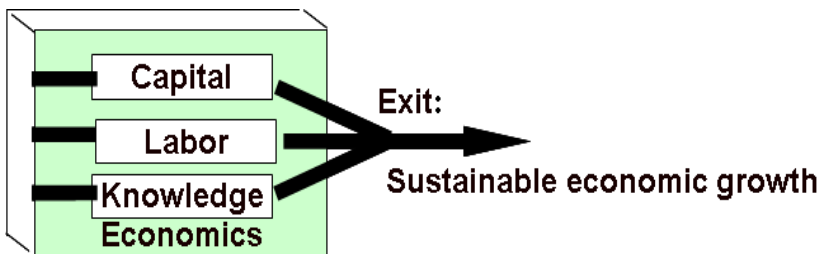$A_t = (1+\lambda)^t = e^{\lambda t} : e^{\lambda t}$ – Timbergen, λ – measure TISTP;

$Y_t = F(K_t, L_t) = F(K_t, A_L(t)\cdot L_t)$ – labor-intensive neutral TISTP – Xarrod;

$Y_t = F(K_t, L_t) = F(A_K(t)\cdot K_t, L_t)$ – capital increasing neutral TISTP– Solow;

$Y_t = F(K_t, L_t) = F(A_K(t)\cdot K_t, A_L(t)\cdot L_t)$ – resource increasing neutral TISTP – Xiks;

$Y_t = A_K \cdot F(K_t, L_t)$ – production- increasing neutral TISTP – Xiks.

The model of sustainable economic growth (taking into account the tempo of TISTP) Solow

1. $Y = A \cdot F(K, L) = A \cdot K^{\alpha} \cdot L^{\beta}$; A – coefficient TISTP.

2. Decomposition of Solow: $\Delta Y/Y = \Delta A/A + \alpha \Delta K/K + \beta \Delta L/L$ $(\alpha+\beta=1)$.

3. Rate of economic growth = tempo of TISTP + rate of capital accumulation + growth rate of labor costs.

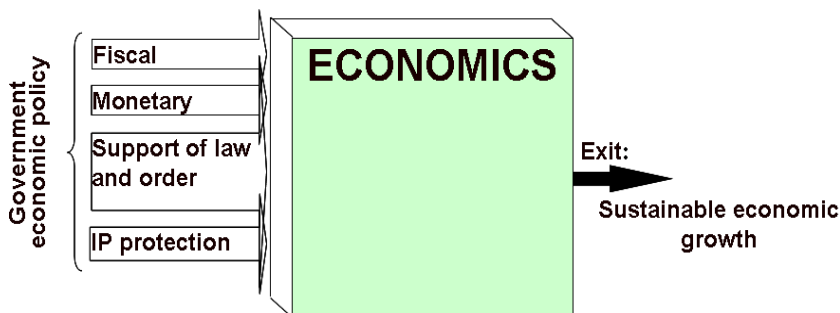4. Solow (exogenous model): economic growth due to $\Delta L/L$ and $\Delta A/A$.

5. Undecomposable "remainder": $\Delta A/A$ gives from $\frac{1}{3}$ to $\frac{1}{2}$ growth $\Delta Y/Y$.

6. Technological knowledge as a representation of society about production processes.

Sustainable economic growth:
the Romer and Lucas model

$$Y = A \cdot F(K, L, H) = A \cdot K^\alpha \cdot L^\beta \cdot H^\lambda$$
$$\Delta Y/Y = \Delta A/A + \alpha\Delta K/K + \beta\Delta L/L + \lambda\Delta H/H$$

1. Human capital H (the cost of efforts to transform technological knowledge into work skills) and the change in human capital $\Delta H/H$ in the Romer model.
2. The role of investment, externalities, growth of $\Delta K/K$, transition to the endogenous model of TISTP in the Lucas model.
3. Influence of the structure of political institutions on economic growth.
4. The policy of the government can influence the growth rates both positively and negatively.
5. The impact of IP protection on economic growth.

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The assessment of the development of the national economy by the Solow model

$$\Delta Y / Y = \Delta A/A + \alpha \Delta K/K + \beta \Delta L/L,$$

where A – growth due to STP, K – fixed assets (capital), L – employed in production (labor), Y – GDP, $\alpha = 0,5$; $\beta = 0,5$.

Indicators	Years				
	2000	2001	2002	2003	2004
GDP (mln. manats)	4718,5	5315,6	6062,5	7146,5	8530,2
Basic fund (mln. manats)	18139,7	20959,7	22314,5	25412,4	29045,7
From the economically active population, total employed in production (thousand people)	3704,5	3715,0	3726,5	3747,0	3809,1

ΔY_5 – for 5 years = 3812,1

ΔY_1 – for 1 year = 3812,1 : 5 = 762,4

Y_5 – for 5 years = 31772,9

Y_1 – for 1 year = 31772,9 : 5 = 6354,6

$\Delta Y_1 / Y_1$ = 762,4 : 6356,6 = 0,12

ΔK_5 – for 5 years = 10906,0

ΔK_1 for 1 year = 10906,0 : 5 = 2181,2

K_5 – for 5 years = 115872,0

K_1 for 1 year = 115872,0 : 5 = 23174,4

$\Delta K_1 / K_1$ = 2181,2 : 23174,4 = 0,09

ΔL_5 – for 5 years = 104,6

ΔL_1 – for 1 year = 104,6 : 5 = 20,9

L_5 – for 5 years = 18702,0

L_1 – for 1 year = 18702,0 : 5 = 3740,4

$\Delta L_1 / L_1$ = 20,9 : 3740,4 = 0,006

$0,12 = \Delta A/A + (0,5 \times 0,09) + (0,5 \times 0,006)$

The growth of GDP due to TISTP $\Delta A/A$ = 0,07 → 7,2%

The assessment of the development of the national economy by the Solow model

$$\Delta Y/ Y = \Delta A/A + \alpha \Delta K/K + \beta \Delta L/L,$$

where A – growth due to STP, K – fixed assets (capital), L – employed in production (labor), Y – GDP, $\alpha = 0,5$; $\beta = 0,5$.

Indicators	Years				
	2004	2005	2006	2007	2008
GDP (mln. manats)	8530,2	12522,5	18746,2	28360,5	38005,7
Basic fund (mln. manats)	29045,7	33939,3	40641,2	50183,0	58177,5
From the economically active population, total employed in production (thousand people)	3809,1	3850,2	3973,0	4014,1	4056,0

Y_5 – for 5 years = 29475,5

ΔY_1 – for 1 year = 29475,5 : 5 = 5895,1

Y_5 – for 5 years = 105895,1

Y_1 – for 1 year = 105895,1 : 5 = 21179,0

$\Delta Y_1/ Y_1$ = 5895,1 : 21179,0 = 0,28

ΔK_5 – for 5 years = 29131,8

ΔK_1 – for 1 year = 29131,8 : 5 = 5826,36

K_5 – for 5 years = 211986,7

K_1 – for 1 year = 211986,7 : 5 = 42397,34

$\Delta K_1/K_1$ = 5826,36 : 42397,34 = 0,137

ΔL_5 – for 5 years = 246,9

ΔL_1 – for 1 year = 246,9 : 5 = 49,38

L_5 – for 5 years = 19702,3

L_1 – for 1 year = 19702,3 : 5 = 3940,46

$\Delta L_1/L_1$ = 49,38 : 3940,46 = 0,012

$0,28 = \Delta A/A + (0,5 \times 0,137) + (0,5 \times 0,012)$

The growth of GDP due to TISTP $\Delta A/A$ = 0,206 → 20,6%

Conclusion: for 9 years of sustainable economic growth, the growth of GDP through TISTP increased by 13%

IV. The share of industry in GDP, based on copyright

The economic contribution of branches of national economy based on the Copyright (2003-2009)
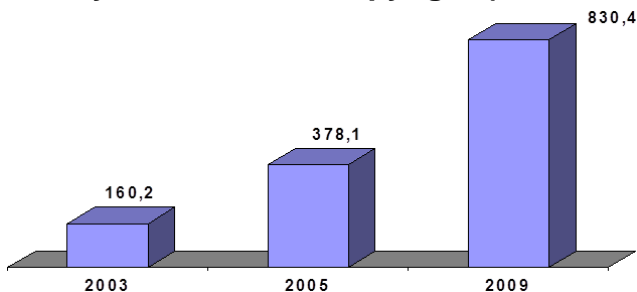
Grouping of industries based on copyright

The groups of economic sectors based on copyright	The branches of the economy	Sub-sectors
The basic copyright (1: 1)	Press and literature	Newspapers, Magazines and periodicals, books; News agencies; Maps and images, directories and other published material; Promotional materials; Libraries.
	Music, theater production, opera	Printing and publishing music; Production of recorded music; Concerts and performances.
	Radio and television, film production	National radio and television broadcasting; Cable TV (systems and channels); Satellite television; Accompanying services; Movies, clips and etc.
	Photo	Studios and commercial photography .
	Science, software and databases	Scope of Science; Programming, development, project, production (business programs, video games, educational programs, etc.); Database processing and publishing.
	Visual and graphic art	Art galleries; Graphic design; Museums.
	Advertising services	Advertising agencies, sale of services.
	The state policy in the field of copyright; copyright society	The realization of state policy in the sphere of copyrights; Services of copyright societies.

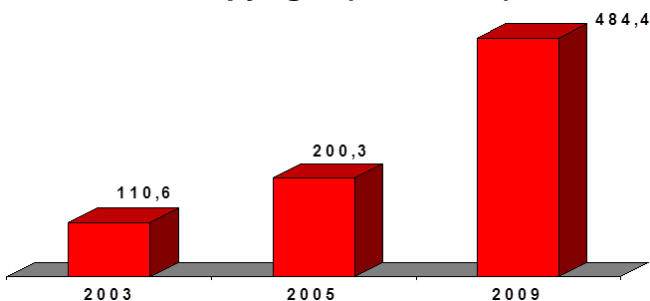| Interdependent industry sectors (1:5)	Televisions, radios, CDs, DVDs, players, etc., electronic gaming equipment, etc. similar equipment	Production of TV sets, radio, CD and DVD players, etc., electronic game equipment, computers, musical instruments, photographic and cinematographic tools, photocopiers.
	IT sector production	Products and services of the IT sector.
	the Internet	The services of Internet providers.
	Recording material	Production of material for recording.
	Paper	Manufacture of paper.
Industries, partly based on copyright (1:10)	Manufacture of clothing, textiles and footwear; Jewelry; Furniture, accessories; House utensils, porcelain, glass; Wall coverings and carpets; Toys and games; Architectural design, ; Design; Other crafts;	Manufacture of clothing, textiles and footwear; Jewelry; Furniture, accessories; House utensils, porcelain, glass; Wall coverings and carpets; Toys and games; Architectural design; Design; Other crafts.
Auxiliary industries (1:100)	Trade; Transport; Connectivity	Wholesale and retail trade; General transportation; Telephony.

The indicators of industries, based on copyright – 2009

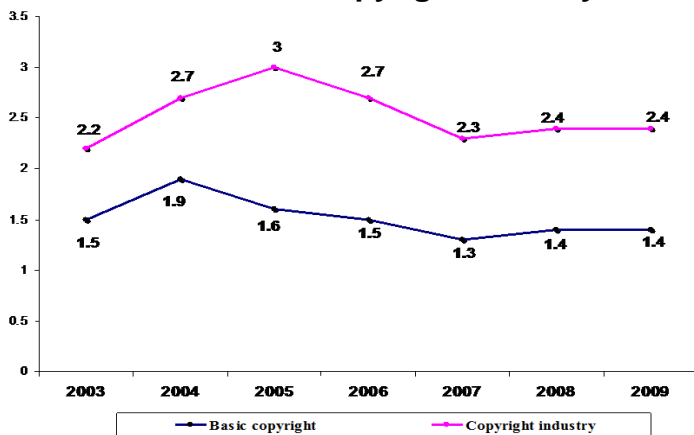| Indicators	Volume (million, man.)	% of GDP
The basic copyright	484,4	1,4
Interdependent industry sectors	190,3	0,57
Industries, partly based on copyright	31,1	0,09
Auxiliary industries	124,6	0,36
Industries, based on copyright: totals	830,4	2,4

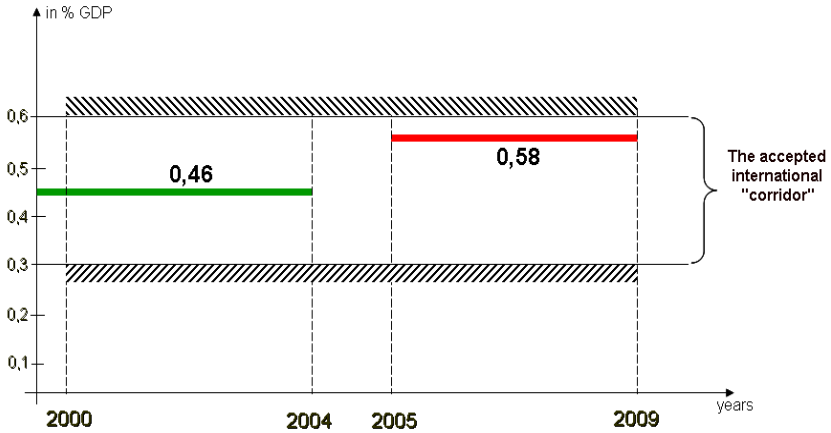## Economy based on the Copyright (mln. man.)

830,4

378,1

160,2

2003   2005   2009

Core Copyright (mln. man.)

484,4

200,3

110,6

2003   2005   2009

Contribution of the copyright industry to GDP%

2.2   2.7   3   2.7   2.3   2.4   2.4

1.5   1.9   1.6   1.5   1.3   1.4   1.4

2003   2004   2005   2006   2007   2008   2009

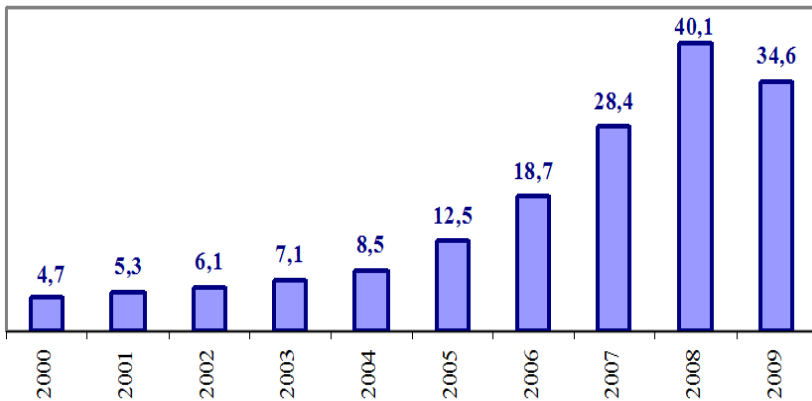Basic copyright   Copyright industry

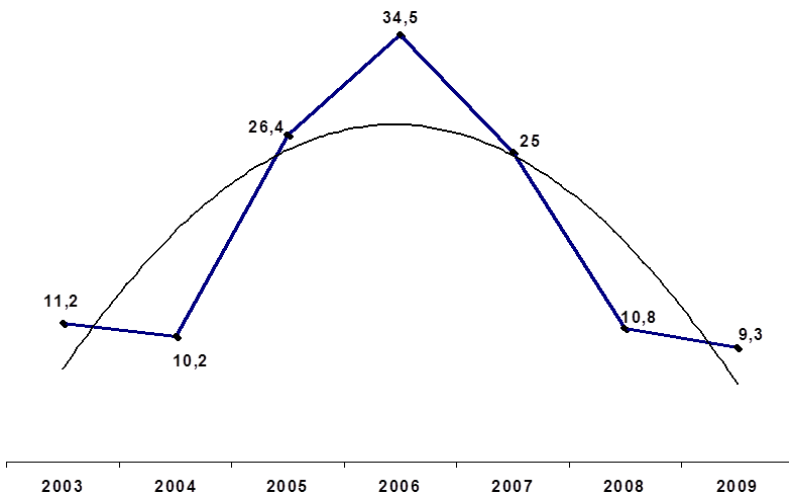# Correlation: basic copyright - copyright industry

The dynamics of Azerbaijan's GDP (billion man.)

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The rate of growth of GDP, %

11,2	10,2	26,4	34,5	25	10,8	9,3
2003	2004	2005	2006	2007	2008	2009

Inter-country comparisons of copyright indicators in GDP (%)

	Bulgaria	Ukraine	Azerbaijan	USA
The basic copyright industry	1.74	1.54	1.4	6.56
The entire copyright industry	2.81	2.85	2.4	11.12