



Innovation and Investments Growth in Israel

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[Movie: The Israeli Pride](#)



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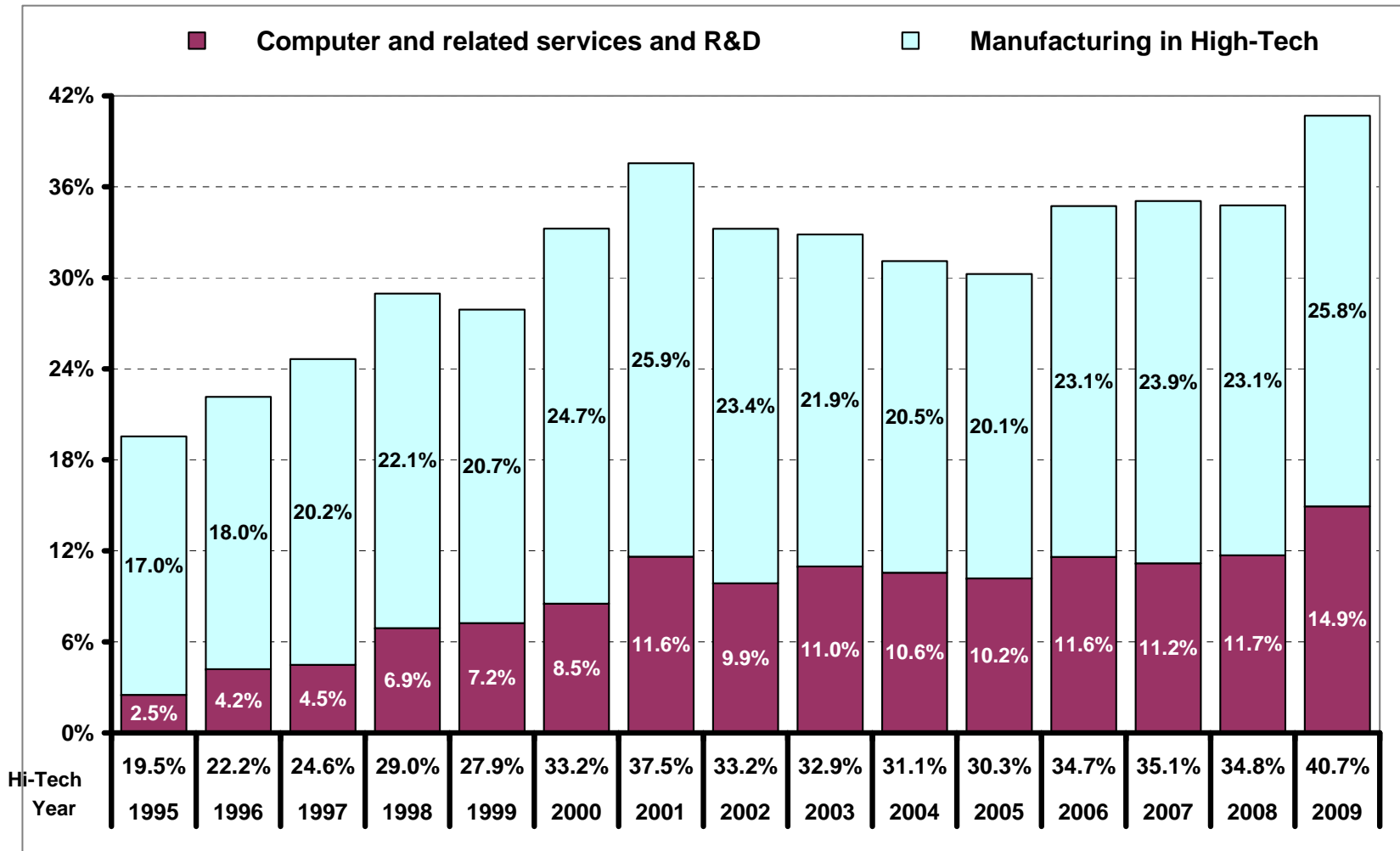
Agenda

- **Introduction to the Israeli High tech**
- Foreign investments
- Foreign investments focus on late stages
- Manpower in multinational companies
- Academia research trends
- Diversification of VC Investments by Industry
- Conclusions

Hi-Tech Contribution

Share of Hi-Tech in Exports of Goods and Services, 1995 – 2009

The local computer and R&D export did not decline through '08-'09, through global economical crisis

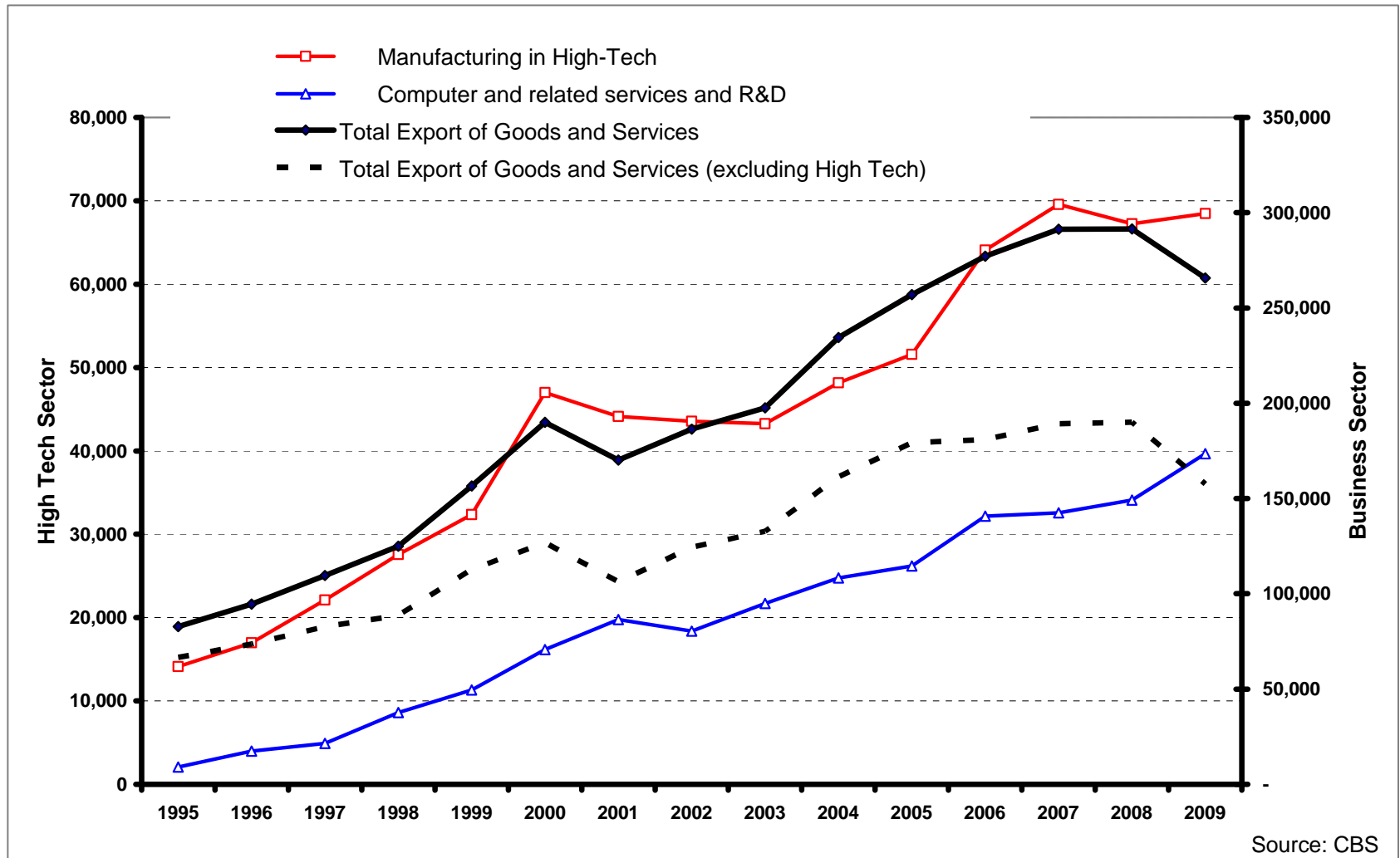


- The share of high-tech exports in total exports (goods and services) grew by 20% between 1995-2009.
- The share of manufacturing high-tech exports grew by almost 9%.
- 6 times increase in the share of software, computing and R&D services.

Source: CBS

Exports of Goods and Services, by Sector (NIS million)

High tech industry contribution of export is positive in the years of '08-'09, the global economical crisis

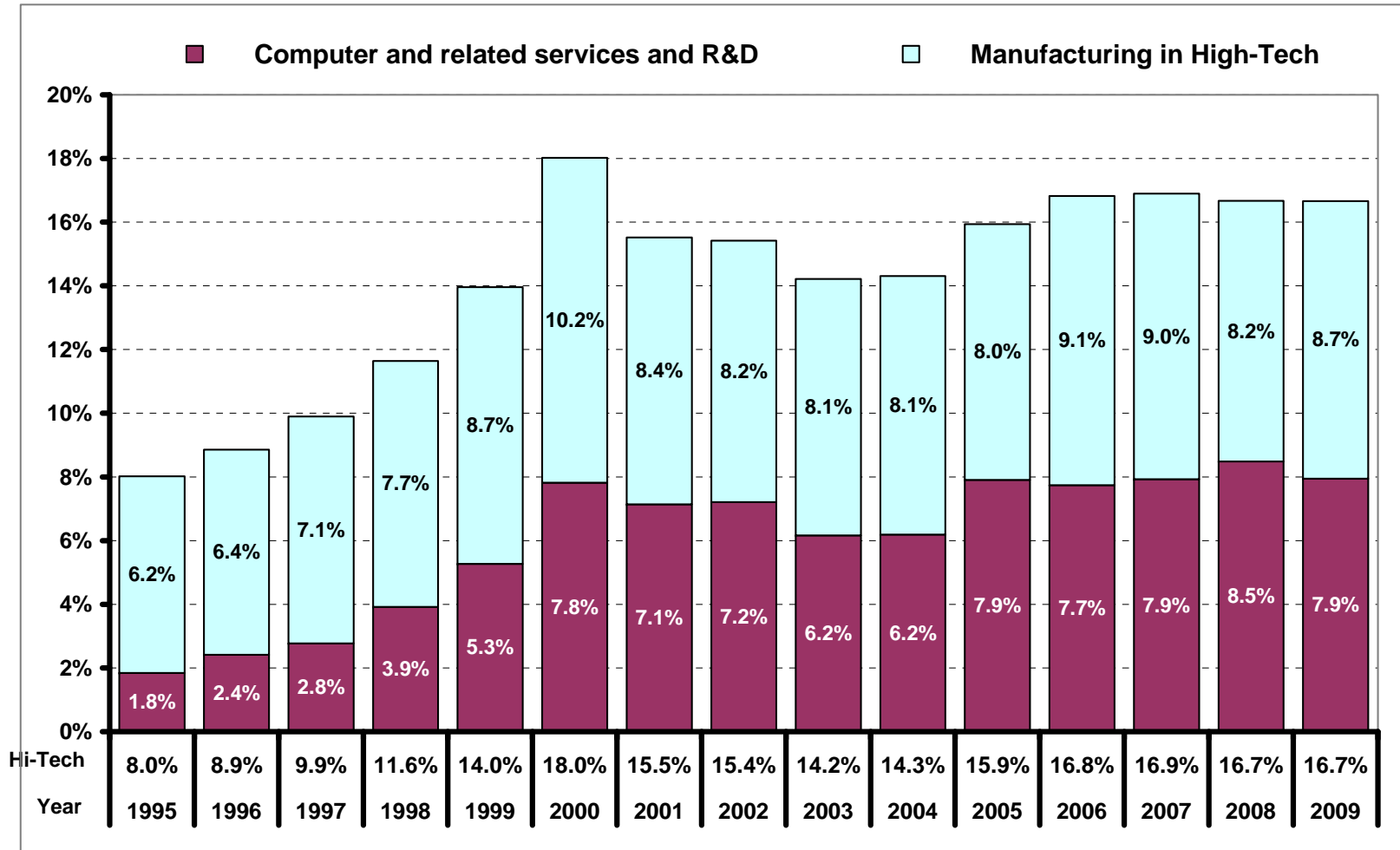


Source: CBS

Hi-Tech Contribution

Share of Hi-Tech in Business Sector GDP, 1995 – 2009

Ratio of High tech services to high tech industry is maintained in the last 5 years.



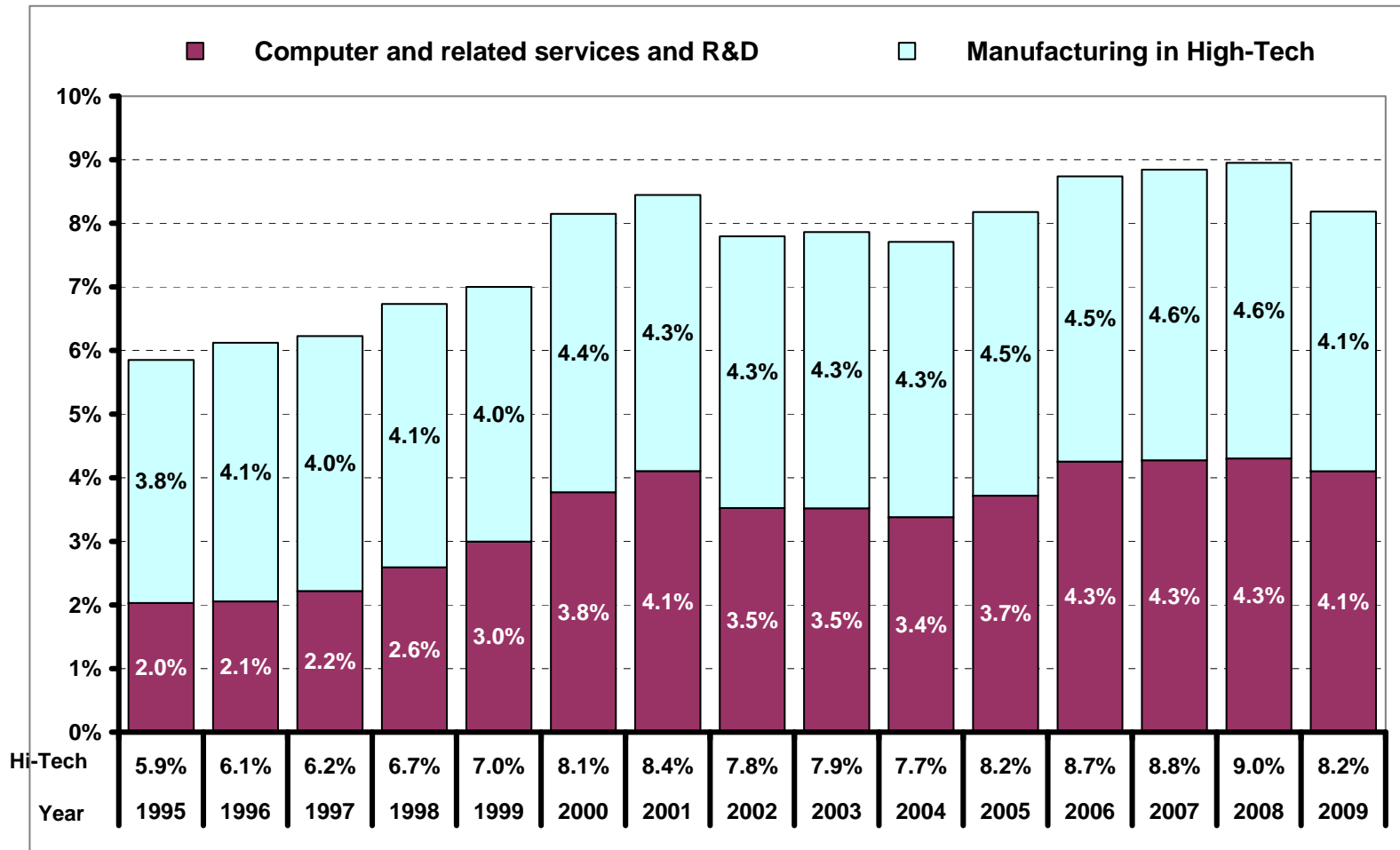
- The share of the high-tech sector in the business sector GDP doubled between 1995 – 2009.
- The share of high-tech manufacturing grew much less than the share of software, computing and R&D services which more than quadrupled.
- The rapid growth of High Tech Sector in 1995-2000 was replaced by significant decline following the dot-com crisis and the Intifada. 2005-2009 – resumed growth of the High Tech Sector.

Source: CBS

Hi-Tech Contribution

Share of Hi-Tech in Business Sector Employment, 1995 – 2009

High tech employees grew to account for 9% of total local work force, doing 16.7% of GDP and up to 41% of total export



Source: CBS

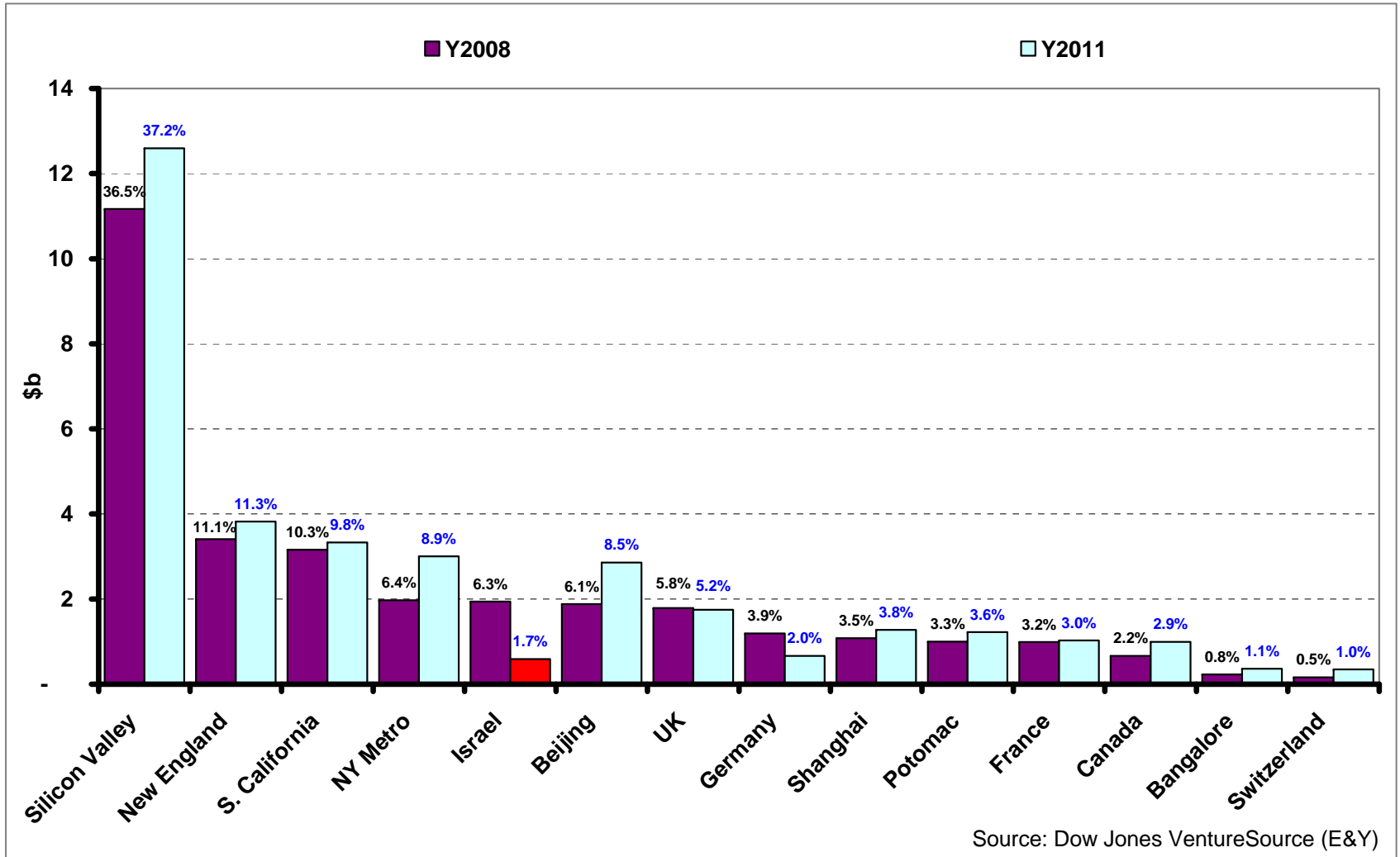
- The share of high-tech employment grew by 2.3% between 1995 – 2009.
- Most of the growth stems from the doubling of relative employment in software, computing and R&D services.

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Worldwide VC Investments by Cluster

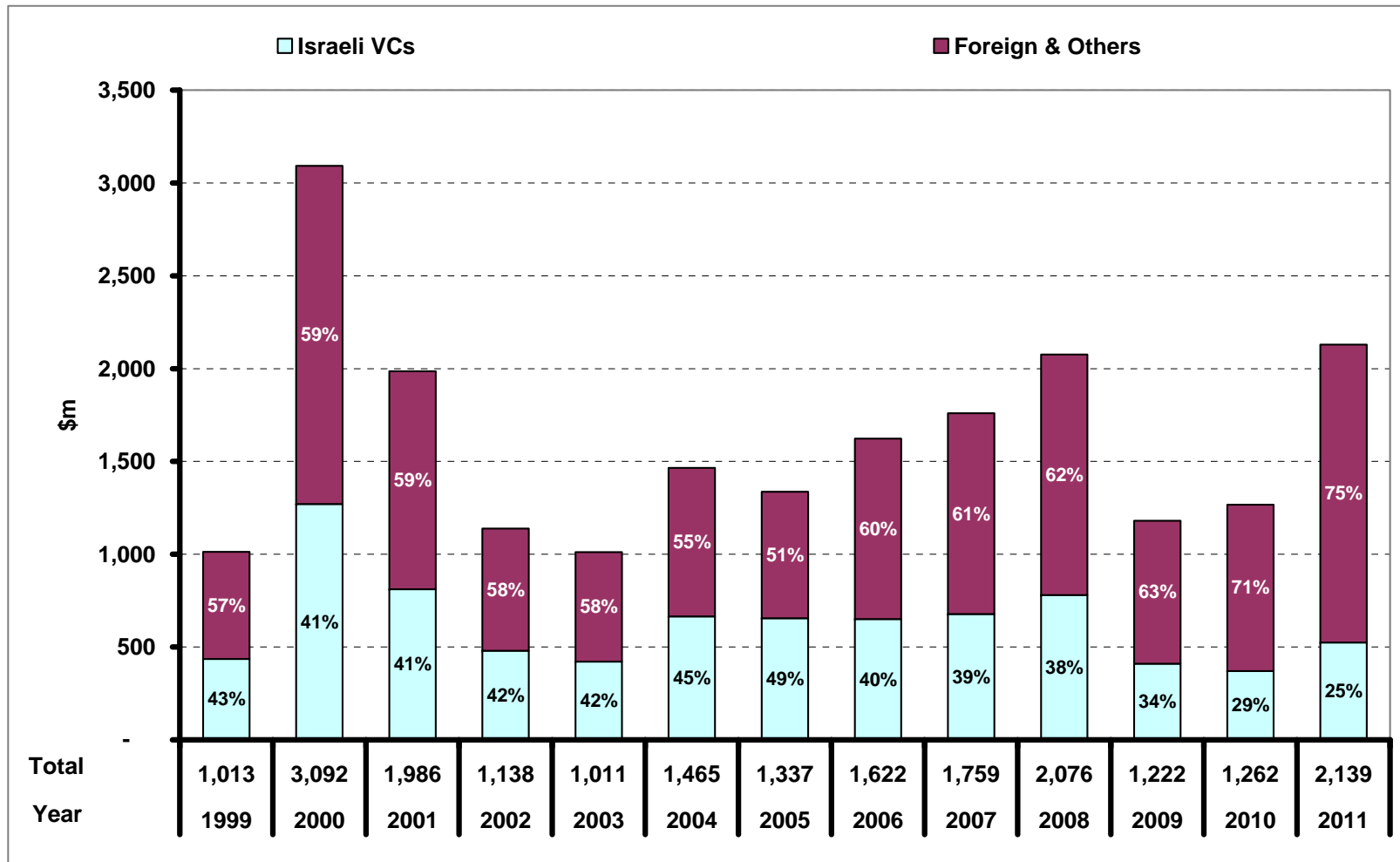
Amount raised was decreased locally btw years '08 to '11, perhaps reflecting the natural % of Israel vs. global investments



VC Investments in Israeli Hi-Tech Companies

Growing Foreign Capital share in local investments

Foreign VC investments, increase the opportunity for more multinationals M&As of local companies



Source: IVC

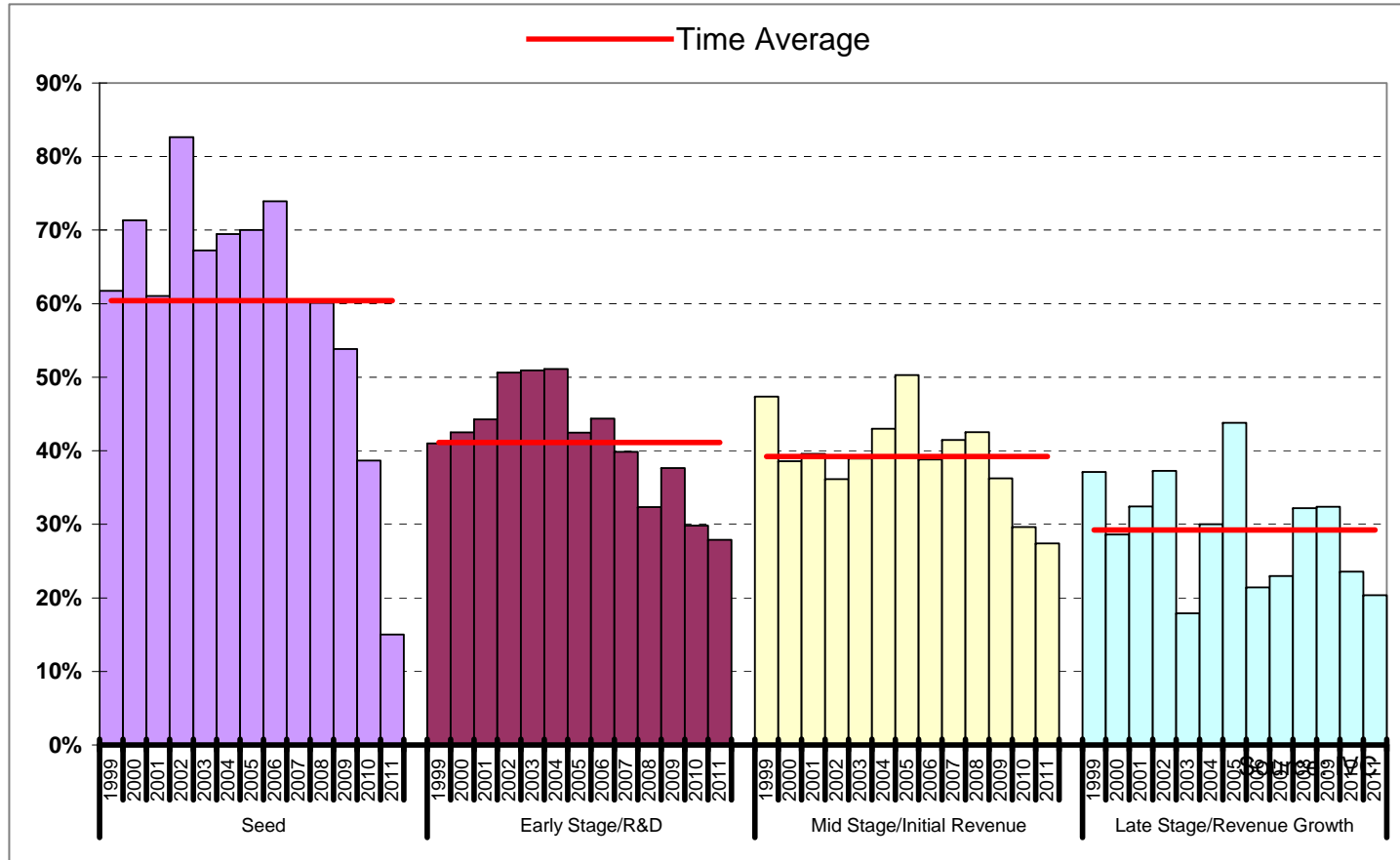
➤ 2008-2011: The share of only Israeli VC in total VC investments in Israel drop to about 30%.

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VC Investments in Israeli Hi-Tech Companies - Israeli VC Share by Stage

Growing Foreign Capital share in local investments

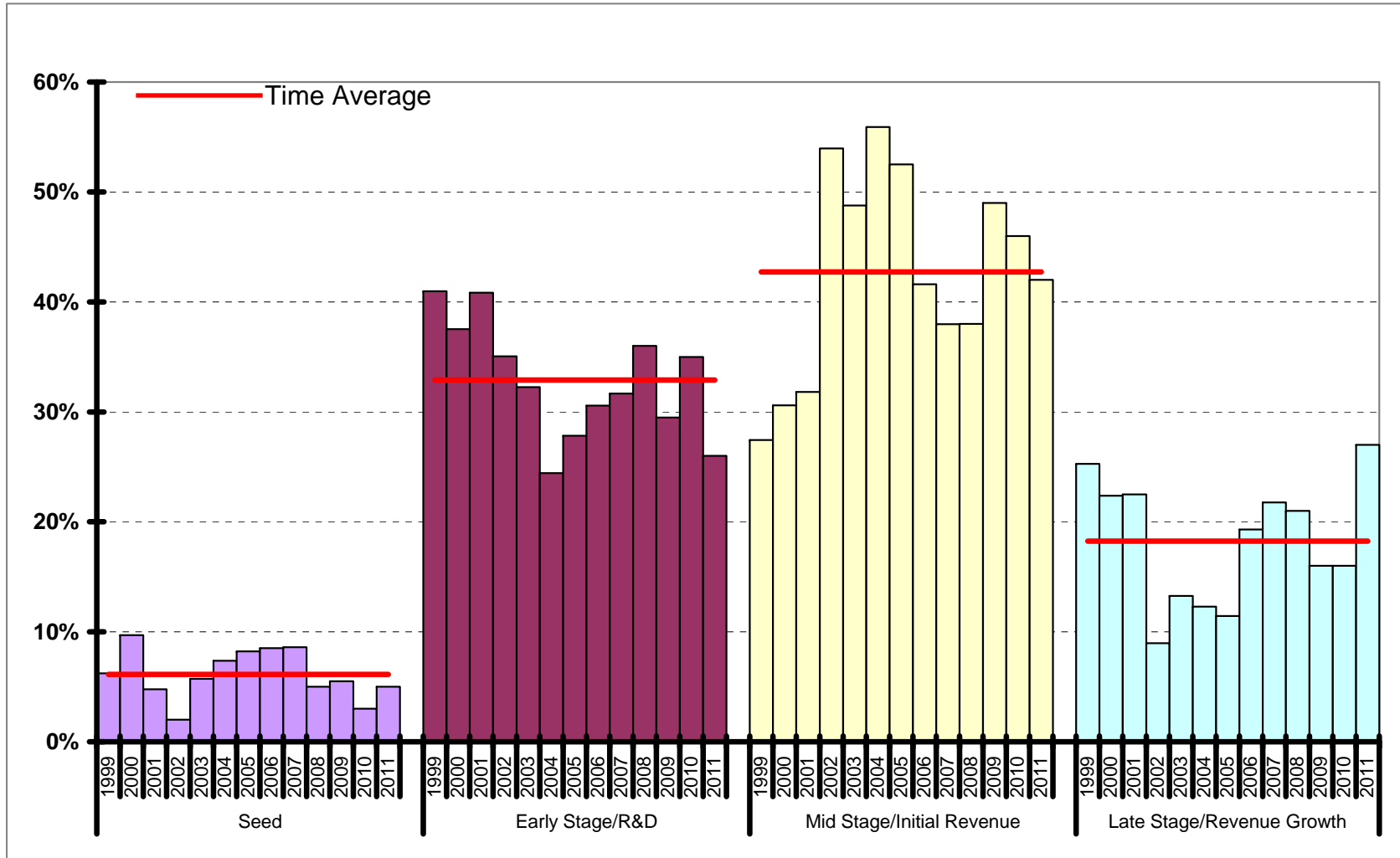


- Shares vary significantly depending on the stage of development. Variation stems from 2 sources:
 - (1) Investment policy & relative investment size required at different stages;
 - (2) Availability of alternative/complementary sources of funds at later stages;
- The high share (years 1999-2008 - 70% in average) of only Israeli VC founding in seed companies emphasizes the importance of the industry for early start-ups; **This share dropped to 15% only in 2011!**

Source: IVC

Capital Raised by Israeli High-Tech Companies by Stage (%) 1999-2011

The foreign VC investments focused on mid-late companies' stages.
Decline of local investments hurt companies in seed stages.



Source: IVC

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Multinational Enterprises Activities in Israel

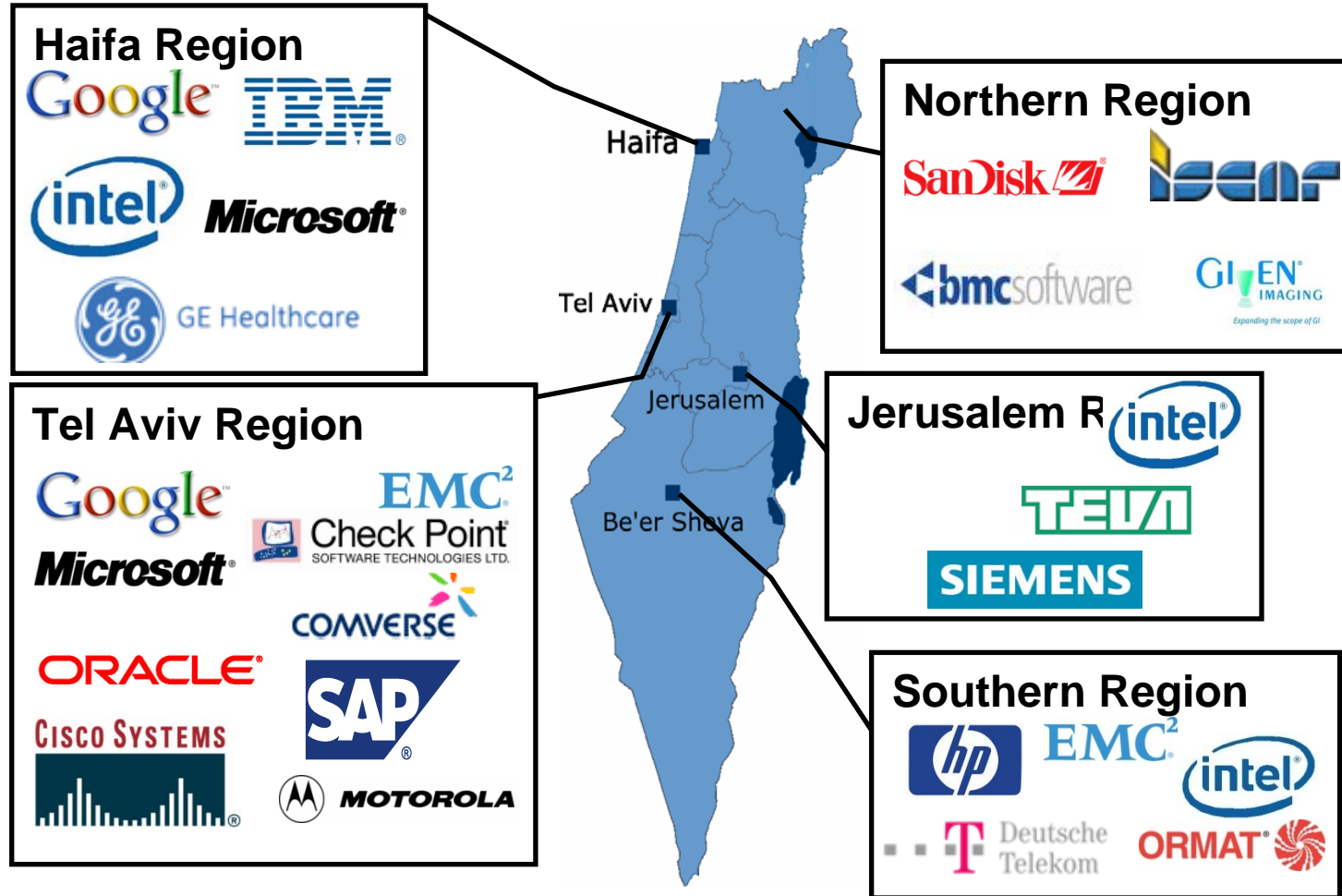
Employed persons in Israeli affiliates of foreign companies

High percentage of local employees in multinationals indicates high dependency on one hand, while potential for new international knowledge, work process, methodologies from MNC that is brought to the local market on the other hand

Code	Industry	2002	2003	2004	2005	2006	2007	2008	2009
32	Electronic components	43.8%	37.4%	30.6%	32.9%	39.2%	34.7%	28.0%	38.7%
33	Electronic communication equipment	36.9%	38.3%	44.8%	41.5%	39.5%	40.7%	64.6%	57.8%
34	Industrial equipment for control and supervision, medical and scientific equipment	15.8%	17.3%	15.1%	13.4%	15.6%	14.0%	12.7%	11.9%
72-73	Computer and related services and R&D	29.1%	28.0%	32.2%	33.6%	29.8%	29.1%	33.4%	33.4%
Business Sector		7%	7%	7%	8%	9%	9%	9%	9%

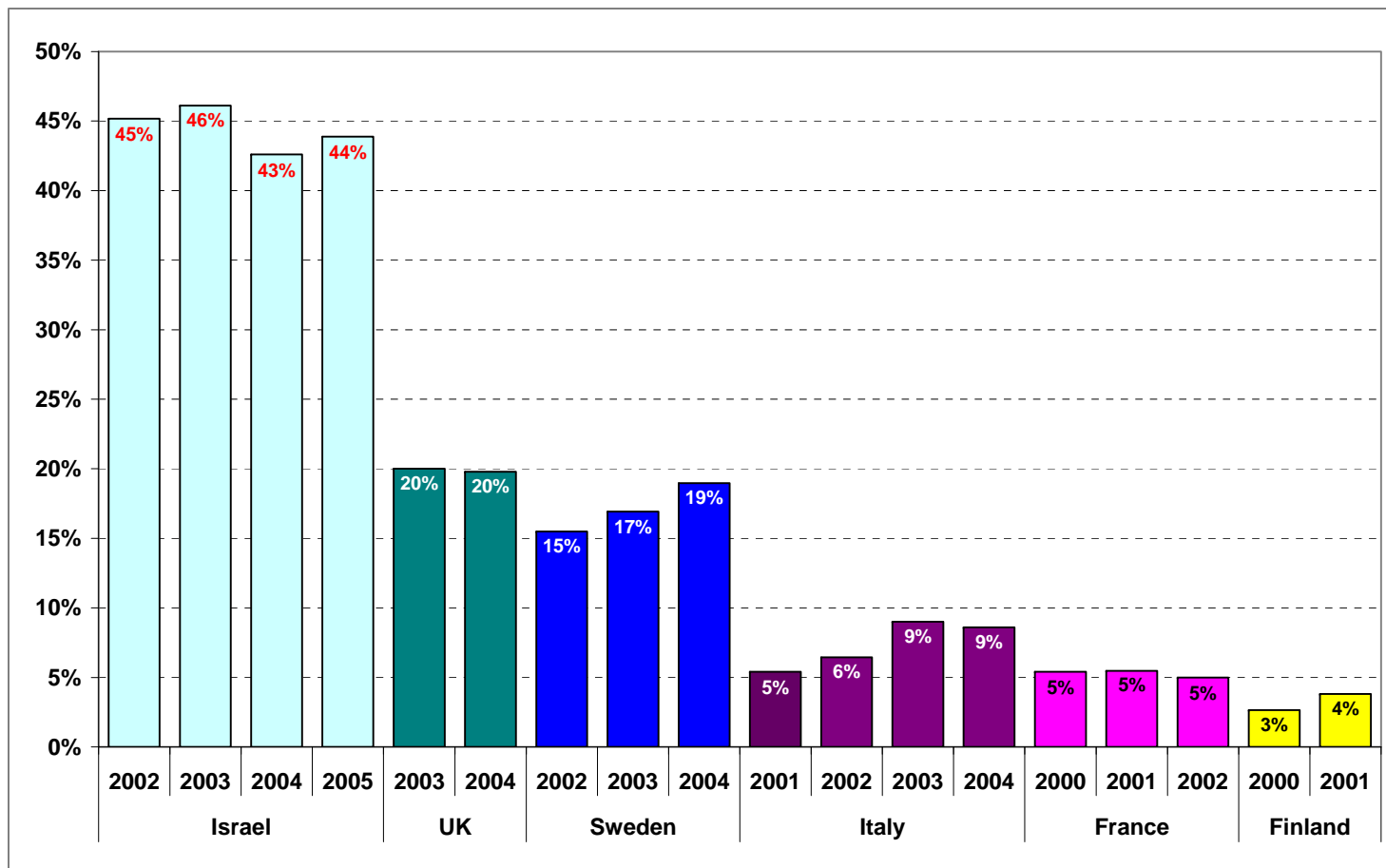
Source: CBS

R&D Centres In Israel



Employment in Foreign R&D Units as a Share of Total Employment in R&D Companies – Israel and Selected European Countries, Selected Available Years

Dependence on MNCs in Israel compared to other developed countries



Source: OECD, Measuring Globalization Activities of Multinationals

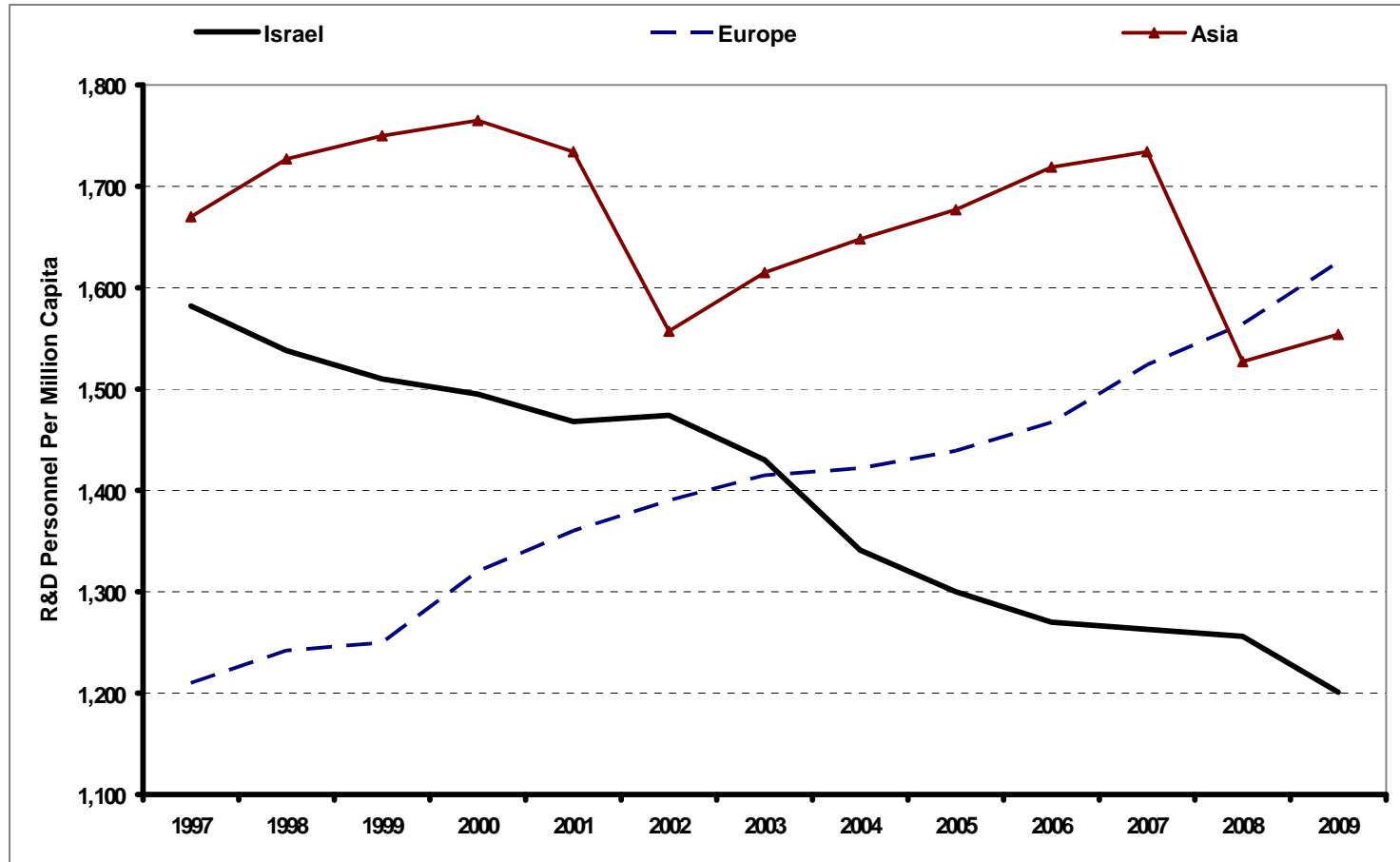
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Declining R&D Personnel in Higher Education

Estimation of Higher Educations R&D Personnel Per Million Capita – Israel, Europe, Asia

Decrease in the share of university research and development.



Source: OECD

* Higher education = Phd degree

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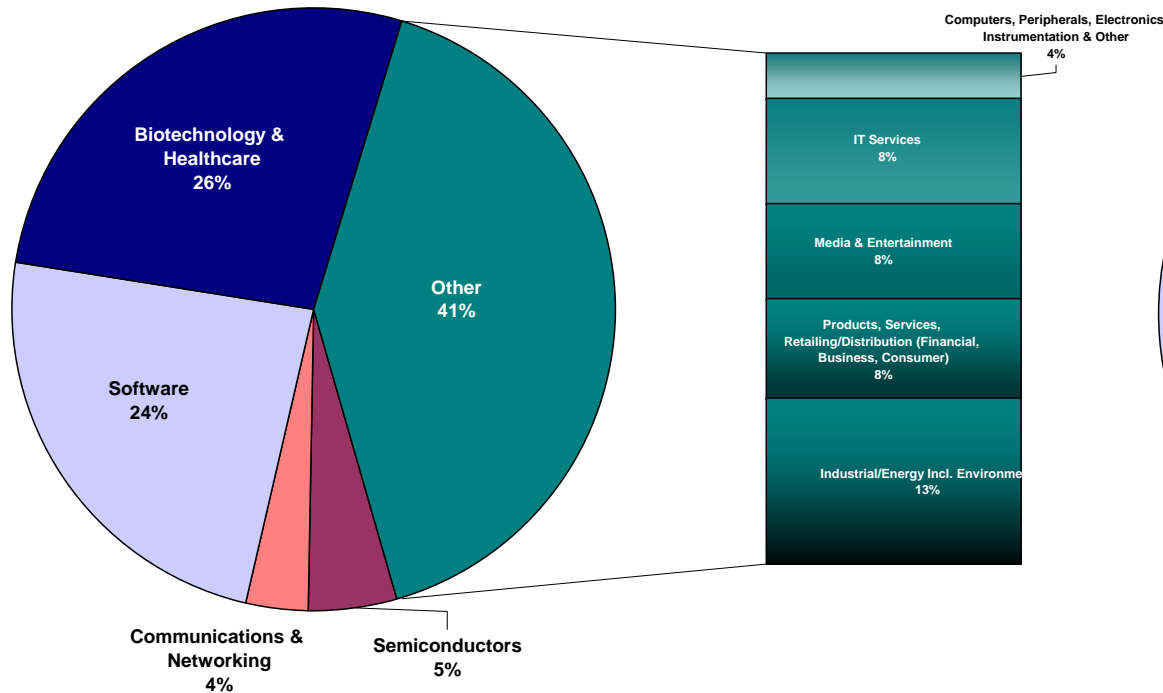
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VC Investments by Industry – 2011, US & Israel

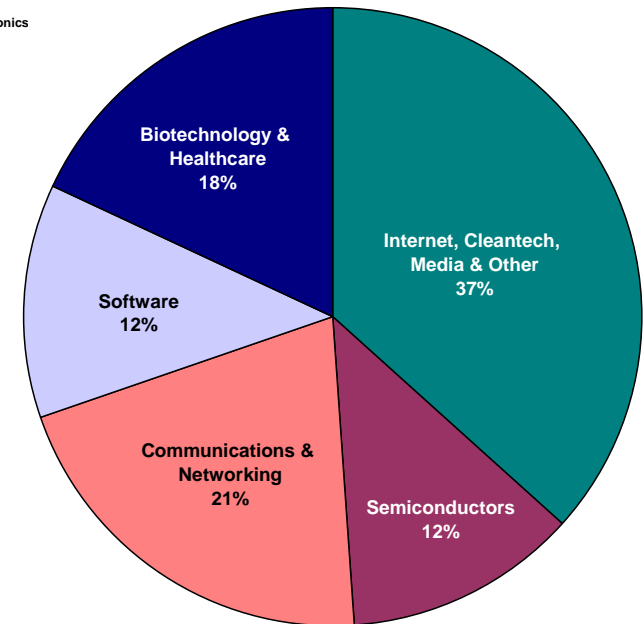
Israel is focused on ICT , but changing segments over the years

> Risk of missing the lead at the global generic technology curve?

US Total VC Investments \$29.5 Billion



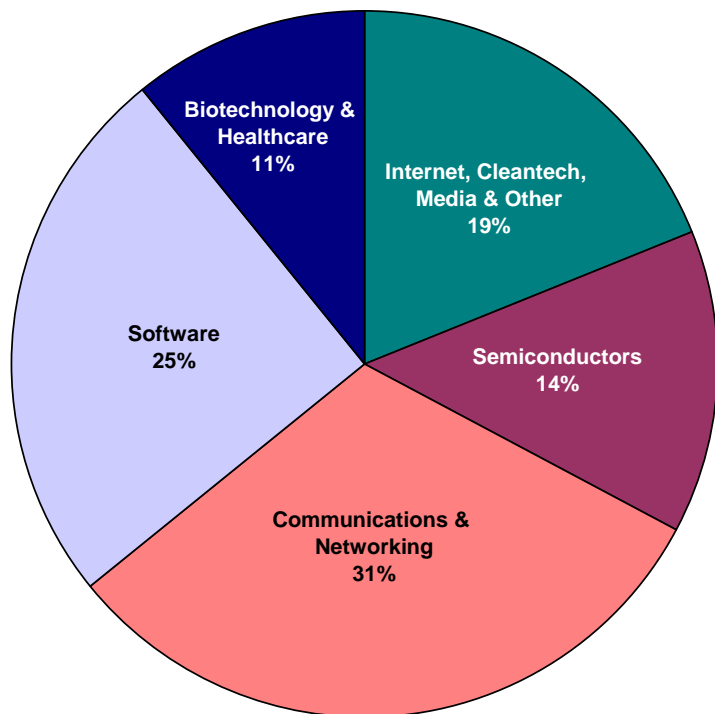
Israel Total VC Investments \$1.2 Billion



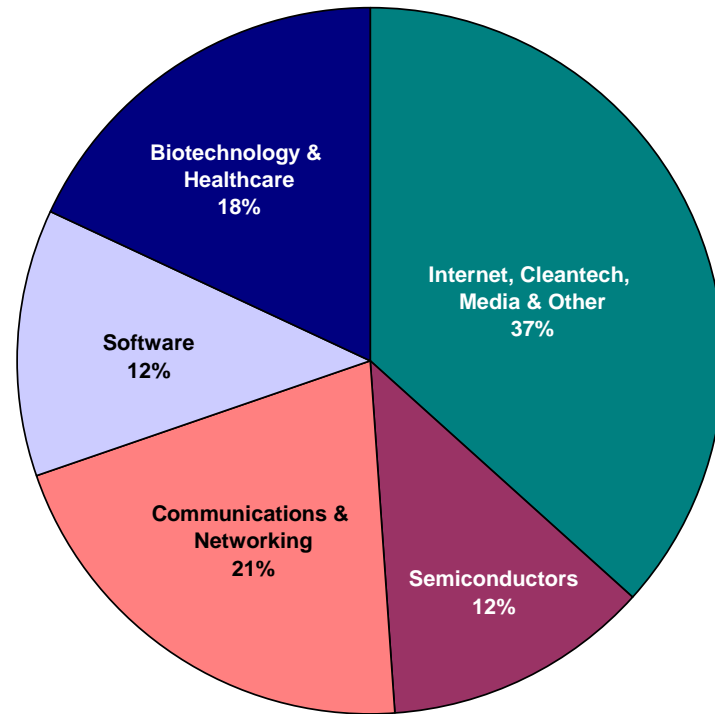
- Israel's VCs focus on Hi-Tech only;
- **2008 Israel:** Software, communications, networking and semiconductors sectors receive 70% of VC investments Vs. 32% in the US; **2011** this share dropped to 45% in Israel and was stable in USA.
- **2008 Israel:** Biotechnology & Healthcare sectors receive only 11% of investments, Vs. 29% in the US; **2011:** This share rises to 18% in Israel and drop to 26% in USA.
- The Internet sector showed the highest growth among VC Investments. From 8% in 2008 to 23% in 2011.
- Israel's OCS support focuses on manufacturing R&D.

Diversification of VC Investments by Industry – 2008, 2011, Israel

While overall investment money decreased in Israel in '11 vs. '08, it was usually invested in a more easy-to-exit type of businesses.



2008:
Israel Total VC Investments \$1.4 Billion
Internet ~ 8%



2011:
Israel Total VC Investments \$1.2 Billion
Internet ~23%

Source: PricewaterhouseCoopers' Money Tree Reports

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Issues of Concern

Policy Recommendations

	Issues of Concern	Consequences Time Horizon
Start-Ups	<ul style="list-style-type: none"> • Dependence on foreign capital • Growing share of foreign capital 	Short & long term
Corporate R&D	<ul style="list-style-type: none"> • Dependence of labor force in foreign companies (MNCs) 	Short & long term
Higher Education	<ul style="list-style-type: none"> • Aging academic staff • Declining budgets • Declining R&D personnel 	Long term
Current Technological Profile	<ul style="list-style-type: none"> • Major focus on ICT (legacy of the defense R&D high impact) Is shifting from generic technology to the close to market products/applications • Risk of missing the lead at the global technology curve 	Long term

Proposed Policy Recommendations

Recommendations	Aim
Short Term	
<p>Government support to hi-tech companies at all stages of development, specially seed and also later stage.</p> <p><i>(Chief Israeli science announced on Sep '12, a \$1M program to support seed companies which focus on core R&D)</i></p>	<ul style="list-style-type: none"> • Ensure perpetual creation of local innovation • Ensure Israel will maintain global technology leadership and continue creation of the next generation of core technology
Long Term	
<p>Promote the participation of local institutional investors in venture capital funding.</p>	<p>Reduce dependence on foreign (volatile) finance of close-to-market R&D.</p>
<p>Promotion of hi-tech job opportunities in Israel's periphery areas:</p> <ul style="list-style-type: none"> • To attract non locals; • To offer better opportunities to locals. 	<p>Spur growth in periphery areas</p> <ul style="list-style-type: none"> • Most long term growth will be indirect and will stem from the relative and incremental improvement of the socio-economic status of the population.
<p>Expansion of higher education financing resources specifically aimed at:</p> <ul style="list-style-type: none"> • Recruiting younger researchers; • Attracting Israeli researchers from abroad; • Promote work relations with industry; • Spin-off promotion. 	<p>Enlarge and diversify Israel's future technology profile and R&D base so as keep the lead in global technology production.</p>

“In my visits to universities around the world, I mostly hear how they’ve been able to duplicate US technology; the Israeli universities I visited aspire to innovating well beyond that.”

Professor Yannis Yortsos, Dean of Engineering, Viterbi School of Engineering, University of Southern California, May 2009

Thank You!