



Its booming technology sector, both homegrown² startups³ and huge foreign companies, is propelling the Jewish state to rapid economic growth

以色列日益繁荣的技术领域,包括本土新创企业和大型外国公司,正在推动这个犹太人国家的经济快速发展

High Tech Puts Israel *in the Black¹

高新技术带给以色列贸易盈余

By Neal Sandler

After its founding in 1948, Israel ran chronic⁴ balance-of-payments⁵ deficits for decades. Only U.S. economic and military aid, along with cash from mainly Jewish donors, offset the *red ink⁶. But in recent years Israel has started producing substantial *trade surpluses⁷ thanks to its booming high-tech⁸ sector, which is arguably second only to California's Silicon Valley in innovation.

In fact the technology sector, which has been expanding at a 10% to 20% clip⁹ since 2003, has played a key role in the longest period of rapid economic growth in Israel's 60 years of existence. The economy has grown by 5% or more for four straight years, and even amid the current global economic shakiness is projected¹⁰ to grow around 4% this year.

Much credit goes to the rise of high-tech industrial parks scattered around Israel, dubbed "Silicon Wadis" (from the Arabic word for "valley"), that are today home to hundreds of foreign companies and long-standing¹¹ Israel success stories¹² such as Teva Pharmaceutical (TEVA) ECI Telecom and defense technologies maker Elbit Systems (ESLT). They also house many of the country's estimated 3,000 startup companies—giving them the highest per-capita¹³ concentration of startups in the world.

Foreign Companies Join Homegrown Successes

The surge of science parks, ranging from Haifa in the ►

1948 年建国后,以色列曾在长达数十年间处于长期国际收支亏空状态。只能依靠美国经济和军事援助以及主要来自犹太捐助者的现金才弥补了亏空。但近年来,由于高科技领域的迅速发展,以色列已开始出现大量贸易盈余。以色列在高科技领域的创新可能仅次于加州硅谷。

实际上,以色列的技术领域自 2003 年以来一直以 10% 至 20% 的速度发展,为以色列建国 60 年中最为持久的快速经济增长期发挥了关键作用。其经济连续 4 年以 5% 或更高的速度增长,即使在当前全球经济不稳定的状态下,预计今年也将增长 4% 左右。

这很大程度归功于散布在以色列各地的被称为“硅谷”(Wadis, 阿拉伯语意为山谷)的高科技工业园区的兴起。今天,这里拥有许多的外国公司,也见证了像梯瓦制药、依赛通信和国防技术制造商埃尔比特系统公司这些长盛不衰的公司的历程,这里还容纳了这个国家的约计为 3000 家新创企业的相当部分,使之成为全球人均新创企业密度最高的工业园区。

外国公司与本土企业共获成功

从北部海法一直到南部水牛城 科学 ►

north to Kiryat Gat in the south, has helped *put a dozen or so Israeli towns on the map¹⁴ of global tech hot spots. Much of the activity remains centered in the greater Tel Aviv region in towns such as Herzliya, which is the center of Israel's *venture capital¹⁵ industry. Academic institutions including the Technion, Weizmann Institute of Science, Hebrew University, and the Tel Aviv University have also played a key role.

Global tech giants including Intel (INTC), Microsoft (MSFT), Motorola (MOT), IBM (IBM), and Google (GOOG) have all established large local research and development facilities aimed at tapping¹⁶ the Jewish state's engineering talent pool¹⁷. They take their place alongside homegrown success stories such as Check Point Software (CHKP), M-Systems (SNDK), Comverse Technology (CMVT), Amdocs (DOX), and Nice Systems (NICE) that have given Israel a reputation in telecommunications and software. In the past decade, more than 100 Israeli startups have gone public on the Nasdaq stock exchange, while U.S. and European companies have spent tens of billions acquiring Israeli firms.

Because of the small local market, Israel's tech sector lives on exports. In 2007 high tech accounted for 46% of the country's nearly \$34 billion in industrial exports. A decade ago, the ratio was just 36%. Besides driving industrial exports, the tech sector also is starting to play a significant role in services exports. Software and computer-related services rose from \$3.2 billion in 2002 to over \$6.1 billion last year. ►



Teva, the world's largest generic drugmaker

园区的兴起使得 10 个左右的以色列城镇成为全球技术热点地区。园区活动依然主要集中在规模更大的特拉维夫地区的城镇如海尔兹利亚,这是以色列风险投资产业的中心。学术机构包括以色列理工大学、魏茨曼科学研究所、希伯来大学,而特拉维夫大学也扮演着重要角色。

全球技术巨头,如英特尔(INTC)、微软(MSFT)、摩托罗拉(MOT)、国际商业机器(IBM)和谷歌(GOOG)等,都已经设立了大型区域研发中心,旨在利用这个犹太人国家的工程人才群体。与在电信和软件领域为以色列赢得荣誉的本土成功企业如Check Point Software(纳斯达克交易代码:CHKP)、艾蒙系统(SNDK)、康维科技(CMVT)、Amdocs(DOX)和Nice Systems(NICE)一样,这些企业也获得了应有的地位。在过去 10 年间,100 多家以色列新创企业已在纳斯达克股票交易所上市,而美国和欧洲公司掏出了数百亿收购以色列企业。

由于当地市场狭小,以色列技术领域依赖出口。2007 年,高科技在以色列近 340 亿美元的工业产品出口中占到 46%。10 年前,这个比例仅为 36%。除了推动工业产品出口,技术领域也开始在服务产品出口中发挥重要作用。软件和电脑相关服务行业的产值已经从 2002 年的 32 亿美元增长到去年的逾 61 亿美元。►

1. in the black 处于黑字地位,有盈余,有结余
2. homegrown ['həʊm'grəʊn] *a.* 本地的,本土生长的;有本地特色的
3. start-up ['stɑ:tʌp] *n.* 新办的企业,新兴公司
4. chronic ['krɒnɪk] *a.* 长期的,不断的,不止息的
5. balance-of-payments 国际收支(表)
6. red ink 赤字,亏损,亏空状态
7. trade surplus 贸易盈余(指出口总值超过进口总值的差额)
8. high-tech ['haɪ'tek] *a.* 高技术的,高科技的(尤指电子方面)
9. clip [klɪp] *n.* <口> 急驰,快步,速度,高速

10. project [prə'dʒekt] *vt.* 预计,预测,推想
11. long-standing ['lɒŋ'stændɪŋ] *a.* (已持续)长时间的,为时甚久的
12. story ['stɔ:ri] *n.* (人或组织机构等的)经历,历程
13. per-capita ['kæpɪtə] *a.* 按人计算的,人均
14. put on the map 赋予...以重要性,使出名,使存在
15. venture capital 风险资本(创建企业时为购买建筑物、设备等借贷的资金)
16. tap [tæp] *vt.* 利用,开发,发掘(已有的资源、知识等)
17. pool [pu:l] *n.* (统称)备用人员

Talent Shortages in Key Fields

“The high-tech industry has, in effect, turned Israel into a country with a substantial balance-of-payments surplus,” says Dan Peled, a Haifa University economist and program manager at the Neaman Institute, a think tank that assesses links between society and technology. “The acquisition of hundreds of Israeli technology companies has contributed significantly to the inflow of capital into the country.”

The high-tech sector now employs around 150,000, about 8% of the civilian workforce, but generates an estimated 15% of the country's gross domestic product. Israel tops the world in research and development spending as a percentage of GDP, at 4.4%. The next closest are Sweden and Finland with 3.7% and 3.5%, respectively. The U.S. spends about 2% of GDP on R&D.

Compared to the U.S. and some European economies, Israeli R&D investment goes further still. “The cost of an Israeli engineer is still about 80% of his counterpart in Silicon Valley,” says Moshe Zviran, a Tel Aviv University management expert who tracks high-tech manpower. But the cost advantage has been eroding¹⁸ in recent years with the strength of the Israeli shekel¹⁹ and a 5% annual increase in wages in the past three years. Israel is also facing competition from India and China, where engineering wages are a mere fifth of local levels.

Unlike the mid-1990s, when immigrant flows from the former Soviet Union kept supplies of talented engineers high and wages down, incoming engineers today come primarily from Israel's academic institutions—and there aren't nearly enough of them. Currently there are shortages in key fields such as software engineering. Experts warn that the country's troubled educational system and a “brain drain”²⁰ could have a negative impact on the future of Israel's world-class high-tech industry. ■

关键领域人才匮乏

“高科技行业,实际上,已将以色列转变成为具有国际收支大量盈余的国家。”海法大学经济学家、以色列一家评估社会与技术联系的智库 Neaman Institute 的项目经理达思·佩莱德表示,“对许多以色列公司的收购已经为以色列的资本流入作出巨大贡献。”

以色列高科技领域目前雇用员工约 15 万人,占民用劳动力的 8%,产出的估值却占国内生产总值的约 15%。以色列的研发支出占国内生产总值的 4.4%,全球排名第一。瑞典和芬兰紧随其后,分别为 3.7% 和 3.5%。美国的研发支出约占国内生产总值的 2%。

与美国和一些欧洲经济体相比,以色列的研发投入仍在继续增加。“一名以色列工程师的费用却相当于在硅谷支付一名与其水平相当的工程师费用的约 80%,”长期追踪高科技人力资源的特拉维夫大学管理学专家摩西·斯夫兰表示。但随着近年新以色列镑的强势



和过去 3 年每年 5% 的工资增幅,以色列的成本优势一直在削弱。同时,以色列还面临着印度和中国的竞争,后两者工程业的工资仅为以色列当地水平的 1/5。

与 20 世纪 90 年代中期不同的是,当时前苏联移民的涌入提供了源源不断的高水平低薪资的工程师,而今天步入业界的工程师主要来自以色列学术机构,而且人数远远不够。当前,在软件工程等关键领域存在人才短缺。专家警告,以色列糟糕的教育体系和人才外流将对其世界一流水平的高科技行业的未来造成不利影响。

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18. erode [ɪˈrɒd] vt. 削弱 损害

19. shekel [ˈʃekəl] n. 新以色列镑(1980 年 2 月开始采用的以色列货币单位 相当于 10 以色列镑)

20. brain drain (国家)的人才流失