

CHAPTER 7

Smart Grid – The Israeli industry engagement

Amos Lasker

1. Executive summary

During the last 25 years the high tech industry positioned itself as the leading vehicle in Israel growing economy and export.

In the last few years several phenomenon are threatening the industry growth. The world continuous financial crisis, , The worldwide strong competition, the saturation of the traditional areas, structural changes, and the NIS revaluation. All these are leading to a reduction in yearly growth towards a one digit number.

The question is what are the emerging new business fields that can utilize existing and advance technologies of the Israeli high tech companies?

Today the Industry is mainly focusing on new solutions combining cloud, mobile, social, and Big Data elements. It is essential to identify new early stage businesses with significant potential growth utilizing the existing knowhow and experience.

A new field, relatively unknown to the Local Industrial community is the energy sector as a whole and the smart grid in particular.

The global focus on cleaner energy and energy efficiency has become a key driver for smart grid which is an integration of the Energy and Telecommunication systems. This turns SG to be a perfect solution for the evolution of the high tech industry.

The Israeli high – tech and electronic industry has more than 2000 companies who can provide services and products to the smart grid project, leveraging

the country's strong base in semiconductors, power electronics, communications, IT, and human resources.

The potential investments in Israel in the next 10 years are estimated to be 5B NIS. In USA the figure until 2020 is \$338B and in Europe Euro 56B. This represents a huge opportunity for the high tech industry. The industry has to take action and to learn:

- The specific requirements of the energy system.
- The international standards ,
- The current available products ,
- The profiles of energy customers and their market needs
- The business advantage combined with risk analysis.

Based on the results each company can analyze the profitability of adapting its product line to the Energy sector.

2. Israel High tech and Electronic industry - background and figures

Israel high tech industry and its achievements are much known worldwide. It is considered as a success story and serves as an example to small nations lacking natural resources.

The achievements in technology are demonstrated in the following data:

Israel has the world's highest percentage of scientists, with 135 engineers per 10,000 citizens. In comparison, the United States has 85 per 10,000. This is mainly due to

Immigration of thousands of skilled engineers and technicians from the former Soviet Union.

Israel is ranked *

- 1st in expenditure on R&D as percentage of GDP, and in quality of scientific research and institutes.
- 11/139 in company spending on R&D.
- 7/139 in capacity for innovation
- 10/139 in venture capital availability.
- 14/139 in University- Industry collaboration on R&D.

Israel is third in number of companies in the world listed on NASDAQ, this fits together with the fact that there are more startups in absolute terms than any other country outside the US.

Israel is exceptional as well in Innovative intellectual property results in registration of more scientific and technological patents per head.

In qualitative terms Israel is characterized by its Entrepreneur spirit and mentality of early adapters. Israel enjoys a highly qualified scientists and engineers with proven track record and strong R&D,

Israel is unique in the proven success of commercialization of defense technology, as well as close cooperation of industries and academic researchers.

In terms of the international criteria:

- Significant numbers of high- tech star- ups companies being acquired by international firms or going public.
- Israel has very powerful VC community, which enjoy investment and R&D incentives.
- Many of the leading American investment houses and Venture Capital funds have established presence in Israel in order to support Israeli high-tech firms and benefit from the current boom

The outcome is that During the last 25 years the high tech industry positioned itself as the leading vehicle in Israel growing economy and export.

*Source: CBS, Global competitiveness index 2010-11.

3. The Problem

In the last few years the phenomenal success has been challenged, so that the yearly growth rate was constantly reduced to one digit number.

The reasons are a combination of macro – economic and structural changes.

- The world continuous financial crisis – The European debt crisis and the concern over US economic growth.
- The worldwide strong competition – The emerging power of Far- East economies

- The saturation of the traditional areas and the emergence of new technological platform such as mobile broadband, network cloud services, Bid Data, social networks, etc.
- The NIS revaluation due to the relatively strong Israeli economy.

The capital raised by Israeli VC funds was reduced from the 2000 pick of \$2.8B to \$0.8B in 2012. It is reflected in the percentage of VC funds investments out of total yearly investments in high tech companies. During the period 2003-2012 it was reduced from 42% to 24% *. On top of it some of the multinational companies reduced the budget allocation for local R&D centers.

This increases the reliance of the local industry on foreign investors and exposes it to the global financial crisis.

Another indication for technological innovation is the number of PCT applications which were reduced by 3-4% each year from 2008.

The problem is how Israel restores the high tech industry. What are the potential new business fields that can utilize existing and advance technologies of Israeli high tech and electronic companies?

- WIPO Statistics Database , March 2012.

4. The Solution

Typically all kind of these problems are addressed to the government. Even though much is dependent on government policy, the real solution is derived from the entrepreneur's initiatives. They should "reinvent" themselves by identifying new early stage businesses with significant potential growth utilizing the existing knowhow and experience .

Today the Industry is mainly focusing on new solutions combining cloud, mobile, social, and Big Data elements. A new field, relatively unknown to the local industrial community is the energy sector as a whole and the smart grid in particular.

The solid technical human resources enable the introduction of advanced technologies to new areas such as The Smart Grid.

It should be noted that the global focus on cleaner energy and energy efficiency has become a key driver for smart grid which is an integration of the Energy and Telecommunication systems. This is a perfect solution for the evolution of the high tech industry.

The following table presents the total potential of involvement of local companies classified by sector :

| Sector | Total companies in the sector | Less relevant sub-sectors | Estimation of total relevant companies |
|----------------|-------------------------------|--|--|
| Communications | 701 | VoIP, Broadcast | 630 |
| Internet | 1111 | Online entertainment, Search engines, e- | 870 |

| | | | |
|----------------|-------------|-------------------|-------------|
| | | learning | |
| IT Enterprise | 909 | - | 909 |
| Semiconductors | 123 | Video/Audio, RFID | 86 |
| | | | |
| Total | 2844 | | 2495 |

- IVC Research Database

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5. The integration between business areas and Smart Grid.

The products and services for the Smart Grid include most of the high tech business areas:

- Data Management
- Data communication
- Data transmission
- Information technology.
- Big data analysis
- Databases for mainframe and mid- range computers.
- Core management applications
- Machine to machine communication
- Predictive intelligence
- Energy storage.
- Data security
- Encryption
- Antivirus Technologies.
- Internet technologies and products.
- Billing software.
- Wired and wireless products for core networks.
- Monitoring and diagnostics tools.
- Enterprise network
- Load sharing

- Energy efficiency. (Such as Building envelope isolation, Air condition cooling, Lighting, Solar water heating , Control systems).

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