



The German Mittelstand and the Israeli Startup Ecosystem

Tapping Israel's Innovative Potential

The German Mittelstand and the Israeli Startup Ecosystem

Tapping Israel's Innovative Potential

Contents

Accompanying Note by Prof. Dr. Eugene Kandel	6
Preface	8
Executive Summary	10
Chapter 1 - Introduction to Israel	14
Chapter 2 - Verticals	21
Chapter 3 - Engagement Modes	31
Chapter 4 - Engagement Resources	59
Conclusion	63
Bibliography	64
About the Authors	66
Imprint	67

Accompanying Note

by Prof. Dr. Eugene Kandel

Start-up Nation Central (SNC) is a non-profit dedicated to promoting Israeli innovation. An important part of our work is to connect leaders of large corporations, large NGOs and governments from all over the world to the people, companies, and technologies in Israel that can help them address their pressing challenges.

Given the SNC mission, I am especially delighted to present to you the study “The German Mittelstand and the Israeli Startup Ecosystem – Tapping Israel’s Innovative Potential” at the time when Israel is approaching its 70th birthday. The study was commissioned by the Bertelsmann Stiftung with the intention to introduce the Israeli high-tech ecosystem to the German Mittelstand companies, and provide them with a practical guide on how to tap into this vast innovation potential.

While large German companies, such as Merck, Siemens and Deutsche Telekom, are already deeply involved in R & D activities in Israel, the Mittelstand companies have yet to acknowledge Israel’s vibrant ecosystem and the business opportunities that exist here for them. This is exactly what prompted Bertelsmann Stiftung to commission this intentionally practical study, which focuses on the “How?” and not only on the “Why?”. It presents various models of engagement that could be suitable for medium-size German companies to benefit from connecting to Israeli technological innovation. It is my belief that this kind of involvement of Mittelstand companies can benefit both sides and will take the Israeli-German economic cooperation to a higher level.

This study gives its reader a background on Israel, its ecosystem and business opportunities while focusing on collaboration models for Mittelstand companies. It also draws a blueprint of practical steps for a company that decides to explore this opportunity. With this practical approach in mind, I would like to suggest several guidelines that would make such a journey more effective and beneficial for the company. These are based on my

experience with many companies I encountered in my former role in the government and especially in my current role at SNC. The steps I find needed when deciding to explore the Israeli opportunity are as follows:

1. While externalizing technological solutions may seem risky, in today’s environment, it is clear that not doing so is much riskier, especially if your competitors are engaged in Open Innovation. Hundreds of large corporations around the world have realized this and are coming to Israel to partner and collaborate. Mittelstand companies can learn from larger firms’ experience while adapting the process to their specific needs.
2. Before engaging in the Israeli ecosystem, I strongly recommend that a company’s leadership come first to Israel to learn about and experience the local innovation ecosystem. It is almost impossible to get an impression from reading about it. Most companies that have enjoyed good guidance have left such a tour with a completely changed view of the benefits of connecting to this ecosystem. In many cases, the question they arrive with is “Why bother being in Israel?” and leave with “How can we afford not to be there?”. It is imperative that at least one C-level executive and/or board member as well as a senior technology officer come for the tour. Some companies bring their board and the entire leadership before they make a decision to engage, thereby creating a strong buy-in.
3. It is crucial that such a tour be organized by expert guides. There are several non-profit organizations that can organize such a tour (their details are in this study). In addition, of course, there are various for-profit organizations, such as law firms, venture capital funds and specialized professionals that can organize these trips. It is important to have a very experienced, professional and independent guide to get a view of the entire ecosystem.

4. A tour should involve three things:
 - a. a general overview of the ecosystem with its strengths and weaknesses;
 - b. a sector-specific overview;
 - c. and an element tailored specifically to the company's needs and demands.

5. I would recommend spending at least three days in Israel (apart from taking a few days off to see our small, but beautiful country). It is imperative to prepare the tour well in advance, communicating the needs and interests to the local guide. At the same time, be prepared to be surprised by the diversity of sectors and applications that the ecosystem offers. In many cases, corporations that come for one type of solution connect to a much wider set of solutions after the tour.

6. Connecting is a gradual process and may take different forms at various stages. It is wise to start and expand, as benefits become apparent.

I found the study very informative, practical and insightful, and so would like to commend the Pinpoint team in Israel and Germany that prepared this study and to thank the Bertelsmann Stiftung for their initiative in launching it.

I am confident that the study will assist Mittelstand companies in understanding the opportunities available while helping them tap into the Israeli innovation ecosystem, and hope that in the coming years we will see the fruits of this connection in their competitiveness and profitability.



Eugene Kandel

CEO of Start-Up Nation Central, Professor of Economics and Finance at the Hebrew University of Jerusalem, and former Head of the National Economic Council and the Economic Adviser to the Prime Minister of Israel.

Preface

Small-to-medium-sized enterprises, in Germany known as the “Mittelstand” comprise the backbone of the German economy. Representing 99 % of all companies in Germany, the strength of the Mittelstand is often cited as a stabilizing factor in the German economy. Some 95 % of Mittelstand companies are family-owned and managed. They are innovative companies that bring top-quality products and services to the market, a fact that has earned many of them global renown. Given their success and innovative capacity, it may seem surprising that German small-to-medium-sized enterprises seek innovation elsewhere. There are, however, two reasons for doing so. First, global competition is fiercer than ever as companies in China, India, South Korea and Europe deliver a growing number of innovations each year. Product lifecycles (i. e., the time lapsed between a product’s inception and obsolescence) are shrinking rapidly, and business management scholars agree that we live in a hyper-competitive world. The ubiquity of the internet and the ease and fast pace with which companies can obtain information have contributed to these developments. In addition, disruptive technologies present a threat to traditional industries. Autonomous cars, robotics, machine-to-machine technologies, 3D printing and similar developments may change the industry world as we know it today. If they are to remain relevant, German Mittelstand companies must face this threat by opening their internal R & D to external innovation and sharing data. Second, whereas knowledge and experience clearly show positive effects on capacity and skill, if this knowledge and experience leads to a lack of openness to other forms of knowledge or experience, this can yield negative effects. Companies that fail to seek knowledge or experience outside their own may grow complacent, thereby missing vital opportunities to innovate.

As a result, we observe today a steady, clear trend among large corporations worldwide opening their traditionally in-house R & D infrastructure to include external R & D, which often involves sending probes or establishing special

investment units that collaborate with and buy technology from other companies. Although Mittelstand companies obviously have fewer resources than large multinationals, they nonetheless have similar needs regarding innovation in securing a competitive advantage. We therefore believe that, in terms of advancing innovation, what is good for many large global corporations is also good for Germany’s Mittelstand companies.

Why Israel?

Israel’s reputation as a “startup nation” offering great opportunities for companies from around the globe has gained traction in recent years. Indeed, with 5,000–7,000 startups in the country, Israel’s high-tech scene outperforms most others around the globe. In 2016, Israeli high-tech exits (through either mergers and acquisitions or initial public offerings) reached \$ 10 billion, which represents a 16 % increase relative to the year before. In addition, more than 320 multinational corporations from China, Japan, Germany, the United Kingdom and the United States are engaged in R & D activity in Israel. Keenly aware of the potential for innovation in Israel, several major German companies such as Deutsche Telekom, Bosch and SAP have already established R & D centers in Israel. Yet many German Mittelstand companies have yet to devote similar attention to R & D in Israel, thereby missing out on a wealth of opportunity to advance innovation. Given the mutual benefits for both German Mittelstand and Israeli companies, we ask: how might Mittelstand companies best tap into Israeli innovation?

To be sure, there are many challenges associated with externalizing R & D, engaging in open models of interaction (i. e., “open” innovation), securing collaboration partners and internationalization. In order to meet these challenges, Mittelstand companies in particular must be well prepared. This report therefore targets primarily those Mittelstand managers and technology experts seeking quality

information that will help them better understand Israel's startup landscape while drawing on the experience and best (or failed) practices of other companies in internalizing external R & D and engaging in open innovation.

The challenge

Involving complex processes that most companies prefer to keep under direct management control, R & D is traditionally the last activity to be outsourced by a firm. However, in the past two decades we have seen R & D centers established around the globe as large multinationals, including large German companies, have internationalized their R & D activities. Driven in part by the need to expand their pool of ideas, these companies are in pursuit of talent, regardless of nationality. The internationalization of R & D is also a cost effective mean of advancing innovation. As contemporary R & D increasingly shifts toward open innovation, companies are developing their products and services with the help of their community of users by tapping into user environments and enhancing their understanding what the user needs.

Target audience

This report was written for and with the input of Mittelstand managers, technology experts and entrepreneurs. It is intended to help guide any German-based company either considering or already involved in R & D and innovation activities outside of Germany or in Israel in particular. Policymakers, public interest groups and scientists working to secure Germany's future as a high-tech country are also addressed as stakeholders in this area. Finally, the report is intended as a starting point for anyone interested in the current status of the Mittelstand's engagement with Israel, including the risks and potential rewards such activity may yield.

Methodology

This report draws upon roughly 60 interviews conducted in Israel and Germany from April to September 2016. As the focus of this report, German small-to-medium enterprises are overrepresented in the sample with 23 interviews. Fifteen of these companies are already active in Israel. The remaining interviews were conducted with representatives from foreign companies that have already tapped into Israel's high-tech ecosystem, key personnel at Israeli startups, venture capital firms, angel investors, universities, accelerators and regulators, and supporting government agencies and non-governmental organizations (NGOs).

The Bertelsmann Stiftung is delighted to present this study and we thank our Israeli team, Dr. Shai Harel from the Hebrew University, Ido Alon and Ori Elman from Pinpoint for the analysis of the Israeli startup ecosystem and our German team, Timon Meyer, Partner at T-Base and Christoph Urbschat, Partner at Eclareon, for conducting the company interviews. We hope that the German Mittelstand and stakeholders in business, politics and academia find this study helpful for an improved understanding of how best to tap into Israel's innovative potential.

It is our belief that this mutually beneficial entanglement will transcend the boundaries of business and improve the relation between both countries and people in the future. We look forward to set the impulse for a constructive dialogue and cooperation that draws upon the insights featured here.

Stephan Vopel

Director of Living Values and Germany and Asia Programs, Bertelsmann Stiftung

Dr. Markus Gick

Senior Project Manager, German Israeli Young Leaders Exchange, Bertelsmann Stiftung

Executive Summary

This report explores how German Mittelstand companies can benefit from engaging with Israel's innovation ecosystem. As a global leader in innovation, Israel has attracted a number of large German companies with deep ties to the Israeli market, particularly in tech-driven industries such as the automotive, smart mobility and cybersecurity industries. Israeli expertise in the industrial internet of things has also drawn considerable attention. However, Mittelstand companies remain underrepresented in the Israeli market. Our goals therefore involve (a) demonstrating to Mittelstand companies the innovation potential currently available in Israel; (b) identifying the specific areas most suited for cooperation; and (c) providing initial "how to get started" information to interested Mittelstand companies. With these goals in mind, the following six key findings outline the current state of Mittelstand companies in Israel, as well as issues and engagement modes to consider before entering the Israeli market.

1: Low engagement propensity among Mittelstand companies

German Mittelstand companies feature a low level of engagement in the Israeli innovation ecosystem. Few have chosen to enter the Israeli market and establish outsourced innovation engagements. By contrast, large German firms are very active in Israel, as are several medium-sized U.S. companies with considerable R & D ties to companies in Israel. Indeed, these medium-sized U.S. companies have followed in the footsteps of large U.S. firms with long-term experience in the Israeli market. To understand why German Mittelstand companies remain underactive in Israel, we conducted a survey of Mittelstand managers in Germany. The primary reasons cited include a general reluctance among firms to outsource their R & D; perceptions among sales-driven companies in particular that the Israeli market is too small for their needs; concerns regarding the security situation and fears of losing Arab

clients as a consequence of working publicly with Israel. Whatever the reason, the fact remains that Mittelstand companies are failing to take advantage of the extant opportunities emerging in Israel's innovation ecosystem.

2: Sales are the key factor in determining market entry

The major criterion for deciding whether or not to engage in the Israeli market is market-driven. Sales and marketing mechanisms represent the first steps taken by large and Mittelstand German companies working mostly through external or wholly owned distributors. In many fields, such as machinery, healthcare and software, companies discovered that Israel offers a feasible, standalone sales market. However, the relatively small size of the Israeli market remains a deterrent to several Mittelstand companies.

3: Positive prospects

German companies are found to have positive perceptions of the Israeli economy, its business landscape and its innovation ecosystem. All the interviewees expressed openness to doing business in Israel, at least in principle. Furthermore, all interviewees, even those who have yet to do business in Israel, are aware of Israel as an innovation hub and are generally aware of the quality of Israeli technology. Almost all interlocutors expressed an interest in learning more about Israel's startup landscape or in gathering information on specific business verticals.

4: Barriers? Yes, but none of them are threatening

Although there are some barriers to market entry in Israel, none can be considered deal breakers. Prior studies point to the complexity of German-Jewish relations, concerns regarding Arab market responses, political unrest and fears

of intellectual property infringements and cybersecurity issues as potential barriers to market entry. Our interviews showed no indication of these potential barriers being factored into actual decision-making.

5: “Opportunistic” exposure is most common

The engagement process with the Israeli market is usually characterized by gradual or “opportunistic” exposure and is chronological. When questioned about the best means of launching operations in Israel, most of our interviewees suggested two options: (1) by distributing a company’s products in Israel or (2) procuring innovative Israeli products for a company’s internal use.

The first option involves first establishing sales or distribution operations and then exploring other R & D engagement modes. For most German companies we interviewed, top-down strategic decision-making was not a factor in the decision to launch distribution operations in Israel. Instead, these firms were approached by Israeli companies looking to secure cooperation partners. In several cases, a presence in Israel resulted in the pursuit of local innovation and R & D opportunities.

In other words, once the initially sales-driven link to Israel is established, or an Israeli innovative product has been integrated, the German company begins developing a body of knowledge concerning the Israeli market. The local sales representative or distributor serves as a scout screening relevant opportunities for the German company, which include innovations in a firm’s line of business, startups with complementary technologies, and optional targets that can help deepen the company’s engagement in the Israeli market.

The second option in opportunistic engagement involves a company selecting innovative Israeli products that enhance its internal operations. Cybersecurity or data analytics products that can be integrated into the organization or production floor and enable a company to generate preliminary inputs regarding the Israeli high-tech ecosystem and its capabilities are just one example.

In both options, the company develops a preliminary infrastructure and knowledge base that can evolve and lead to a variety of R & D engagement modes (see Key Finding 6). This allows Mittelstand companies to select the route most suitable to their needs while closely monitoring the allocation of resources.

6: Five major engagement modes

We identified five different engagement modes (ranked by their level of commitment from low to high):

1. Opportunistic exposure (via sales or procurement). This mode is very common among Mittelstand companies.
2. Scouting. This involves gathering information on the market, specific startup targets and technologies. Local specialists who are not German company employees, local company employees or Germans residing in Israel can serve as scouts.
3. Establishing accelerators and incubators. These facilities provide a company proximity to innovations that support its activities. The three key means of establishing such facilities – partnering with a local accelerator, establishing an accelerator or establishing an incubator – involve different degrees of risk, commitment, control and costs.
4. Establishing R & D activity. This can be done either in partnership with a local company or by setting up a wholly owned R & D center.
5. Strategic investments and mergers and acquisitions (M & A). In many cases, local R & D activity derives from strategic investments or a merger or acquisition of an Israeli company that has been transformed into a local R & D center.

Mittelstand companies take a step-by-step approach in choosing their engagement modes. In contrast, the resources and capabilities of some large organizations, both German and other multinationals, enable them to employ several or even the entire scope of engagement modes simultaneously.

Practical recommendations for initial entry into Israel's market

Across the board, our interviewees in both Germany and Israel identify low risk and flexibility as key criteria for Mittelstand companies interested in entering the Israeli market. Building consensus regarding such efforts within their own management ranks, owners and business partners means that Mittelstand companies – which lack the resources of multinationals – must tap available information networks and promote the idea within their organization.

It should be noted that not all companies choose the linear step-by-step approach described in this report. Some choose instead to act more directly and either pursue an M & A or build an accelerator or R & D lab themselves. However, all interviewees agree that the steps enumerated here are relevant to all Mittelstand companies interested in Israel, regardless of whether they ultimately leapfrog to a more advanced mode of engagement.

The practical blueprint for Mittelstand companies is as follows:

Conduct preliminary research on Israel and its capabilities

Almost all the executives at German companies we spoke with were open to learning more about technological advances, the Israeli startup scene as a whole, and specific business sectors or verticals. However, most of these firms have not yet taken active measures. Although many companies are aware of the technological and innovative capacities available in Israel, this awareness usually remains unexplored. Preliminary research steps include as follows:

Visit Israel on a fact-finding mission

Many delegations comprised of representatives from German cities, government bodies and companies come to Israel each year to learn about the country's innovation ecosystem. Tailor-made corporate visits during a selected trade fair, exhibition or even standalone visits can introduce B2B opportunities and foster meetings with other German companies that are active in Israel, as detailed below. Such visits, especially when headed by high-ranking decision-makers in the company, can prove crucial to launching a German company's decision to become active in the Israeli market.

Contact German companies already doing business in Israel

Several large German firms such as Bosch, Deutsche Telekom, Deutsche Bank and Merck are active in Israel. There are also several Mittelstand companies with sales or R & D operations in Israel. These include companies such as Software AG, Beckhoff and Pilz, each of which were interviewed for the case studies in the "Engagement Modes" chapter. These German companies are a valuable source of information regarding innovation within a specific vertical in Israel, doing business in Israel more generally and lessons learned.

Contact leading Israeli companies in the vertical your company operates in

Israel has several world-class companies, such as Mobileye in the automotive vertical with its autonomous car vision or Check Point, the industry-leading cybersecurity company that invented the firewall. These companies are valuable sources of information regarding leading trends in the vertical and specific innovations.

Contact those responsible for resources of support in Israel

There are several entities able to assist a German company in exploring its options in Israel. All such entities can share information on the Israeli economy, its potential, basic networking and other support data. These entities include governmental agencies established to strengthen Israeli-German relations, such as the Economic and Trade Missions in the embassy in Berlin, the consulate office in Munich and the German-Israeli Chamber of Commerce (AHK Israel). Other sources of information and networking can be found in local clusters and high-tech oriented organizations, such as the Israeli Advanced Technology Industries (IATI) and Start-up Nation Central. These and other entities are listed in the "Engagement Resources" chapter.

Purchase innovative Israeli products for own use

In our interviews, we found a rather superficial level of awareness among Mittelstand companies with regard to innovation in Israel. Some interviewees suggested purchasing Israeli products or conducting a proof of concept that can be embedded within a company's current business and scrutinized like any other product. This approach provides a German company access to a potentially viable

solution for a specific issue while allowing it to gain experience in working with Israeli suppliers and a firsthand understanding of Israeli capabilities regarding the specific product.

Build scouting capabilities in Israel

Scouting, which involves gathering information on particular markets, trends, technologies and startups, is a popular engagement mode for foreign companies. There are three scouting options, each of which offer companies flexibility in selecting what's right for them, expanding or scaling back activities quickly, and procuring recommendations tailored to their specific needs. These options include:

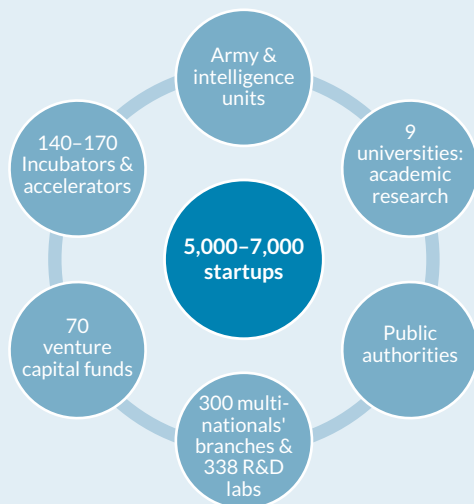
- **Local specialists who are not part of the company:** These experts have a greater understanding of the local market and do not involve overhead costs associated with setting up an office or hiring full-time employees.
- **Local company employees:** This option requires a greater commitment on the part of the company, which hires these scouts as full-time employees. However, these scouts generally have a more intimate understanding of a company's vision and goals.
- **Germans residing in Israel:** This option is the most expensive and involves hiring a German in Israel who is familiar with company routines and systems. These individuals generally make for better matchmakers once a potential company is found, though, as foreigners in Israel, these employees require time to develop familiarity with the local ecosystem and cultivate the necessary social networks.

Advanced engagement modes

After a Mittelstand company has conducted preliminary research on the Israeli market, purchased innovative Israeli products for its own production line and deployed scouts, it is positioned to evaluate the pros and cons of doing business in Israel and its high-tech innovation ecosystem and offerings. With this knowledge, a cautious Mittelstand company can explore other, more advanced R & D engagement modes (see "Engagement Modes" chapter).

Chapter 1 – Introduction to Israel

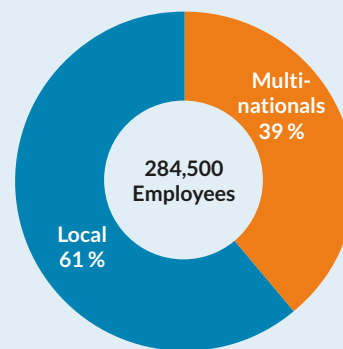
FIGURE 1 The Israeli ecosystem of innovation



Source: Startup National Central database, 2016; HighTech yearbook, IVC research center, 2016.

| BertelsmannStiftung

FIGURE 2 High-tech workforce in Israel, local and foreign companies (in percent, 2015)



Source: Venture Financing and Start-up Performance in Israel, Embassy of India, Tel Aviv, 2015.

| BertelsmannStiftung

Israel's innovation ecosystem

Featuring 5,000-7,000 startups, Israel has the highest density of startups in the world. These startups have emerged within a diverse innovation ecosystem that consists of six key areas: the armed forces; universities; public authorities; multinationals' branches and their R & D labs; venture capital funds; and incubators and accelerators (Fig. 1).

Israel's innovation ecosystem has pioneered several state-of-the-art solutions in areas such as firewalls (Check Point Software Technologies), billing (Amdocs), USB flash drives (M-Systems), voiceover internet protocol or VoIP (Vocaltec), digital printing (Indigo), and camera-based driver assistance (Mobileye). With a workforce of 284,500, Israel's high-tech sector is an important source of employment. Accounting for nearly 39% of positions in the sector, multinationals are significant job creators (Fig. 12).

Armed forces

Israel's military accounts for three sources of innovation: Unit 8200, which is collecting signal intelligence (SIGINT) and code decryption, the Talpiot program, which is a nine-year military field service and science program for high-potential military cadets, and some other undisclosed military units. Many program and units' graduates fuel Israel's vibrant high-tech sector by taking lead research and executive positions in Israeli tech companies.

Israeli defense industries, which have traditionally focused on components, electronics, electro-optics, avionics and other systems, have given Israeli high-tech industries an edge in civilian spin-offs in areas such as security, electronics, computer technology, software development, and the internet. For example, the need for better night-vision equipment resulted in local engineers becoming trained in image processing.

Additionally, there are many civil companies that develop technologies for military use, sometimes together with the army. In many cases, we see military technology that was adapted to the civil market. A famous example is Checkpoint, a world leader in cybersecurity with roots in a product that the founders worked on during their military service. The same is true for the instant messaging platform ICQ, which was invented by the army, or Given Imaging, which developed pillCam, a pill with a camera to help treat gastro problems. The company's technology derived from a civil company, Rafael, and is based in missile technology that was miniaturized to create the pillCam.

Universities

Israel's academic community has strong synergies with the local innovation ecosystem. These synergies generate a highly skilled workforce of 135 engineers per 10,000 actively employed in Israel, making the country number one in this regard, ahead of the United States at second place with only 85 per 10,000.

Israel's emphasis on education is manifest in the more than 100 colleges and seven universities that have produced six Nobel Prize laureates in the last ten years. Israel's academic sector is ranked first in the world for knowledge transfers and numbers among the top ten for university-industry collaborations.

Israeli universities also feature Technology Transfer Organizations (TTOs) that help commercialize university-based research. The companies involved have proven critical to funneling this research into commercial products that then generate substantial royalties for each academic institution. The universities bridge the gap between academic research and business, ensuring that the best and brightest have an opportunity to make a difference on a global scale.

Israel has 16 TTOs, including Yeda R & D Company Ltd. (Weizmann Institute of Science), Yissum Ltd. (Hebrew University of Jerusalem), Ramot at Tel Aviv University Ltd., T3 – Technion Technology Transfer (Technion – Israel Institute of Technology) and BGN Technologies (Ben-Gurion University of the Negev), which generate a combined € 1 billion in royalties annually. Each year, about 150 new technologies are licensed from Israeli universities and research institutions, and an average of 15 new companies based on academic inventions are spun out. TTOs like T3, Yissum and Yeda are ranked among the top tech transfer companies worldwide in terms of revenue. They play a

critical role in motivating Israeli researchers whose work, without the requisite knowhow, would likely never see the light of day.

The TTOs have also formed an umbrella organization, the Israel Tech Transfer Organization (ITTN). Currently, 12 partnering TTOs comprise the shareholders. ITTN is in the process of adding new members from government-owned medical centers and R & D institutions.

Public authorities

The Israel Innovation Authority (IIA), formerly the Office of the Chief Scientist (OCS) within the Ministry of the Economy, is today an independent organization tasked with oversight of government support for industrial R & D. The IIA budget in 2015-2016 was NIS 1.45 billion (roughly € 350 million). The IIA has various support channels for startups such as the R & D Fund, the Tnufa Program, the Magnet Program and the Global Enterprise Collaboration Program.

The IIA plays an important role in boosting the Israeli innovation ecosystem by providing early-stage startups with otherwise absent financial and professional support. Indeed, venture capital finance organizations usually avoid investing in startups at the pre-seed and seed stages because of the high risk involved. With no finalized products, a lack of capital and strategic partners, many startups need specific forms of funding and guidance that the IIA can provide.

In addition, the IIA offers a variety of international cooperation and incentive programs operated by the International Collaboration Division desks (Europe, the Americas and Asia-Pacific/Africa), as well as by the desk responsible for collaborations with multinational corporations. The support for international cooperation projects is carried out through the EU Framework Programme for Research and Innovation, binational funds for joint projects involving Israeli and foreign companies, or by bilateral parallel support programs in which each party offers financing through existing programs.

Together with its counterpart organizations abroad, the International Collaboration Division defines the objectives of the programs and the criteria specific to each incentive program. In addition, the International Collaboration Division publishes calls for proposals, assists in finding partners for projects, and coordinates the evaluation of projects and their approval on both sides. Moreover, the division's desks assist with "matching" partners in Israel

and abroad to create joint R & D projects, organize meetings between Israeli and foreign companies and investors while facilitating participation in conferences, exhibitions and more.

The activities of the International Collaboration Division are relevant to other divisions of the IIA. As a result, target audiences of other divisions can also benefit from the array of programs, tools and international connections available through the International Collaboration Division. The division's activities are directed at both Israeli and international clients.

Multinationals' branches and R & D labs

In addition to Israel's international presence in leading stock exchanges and markets, many major global tech companies have some subsidiary or research center in Israel, including Intel, Microsoft, Google, Cisco Systems, Facebook, Applied Materials, Apple, IBM, Oracle, Motorola Solutions and Hewlett-Packard. Some 39 % of Israeli high-tech employees work in the R & D departments of multinationals. Many innovations from these R & D centers, such as Pentium PC/laptop processors (Intel), Google Suggest and much of Hewlett-Packard's software infrastructure, have made their way into households across the globe.

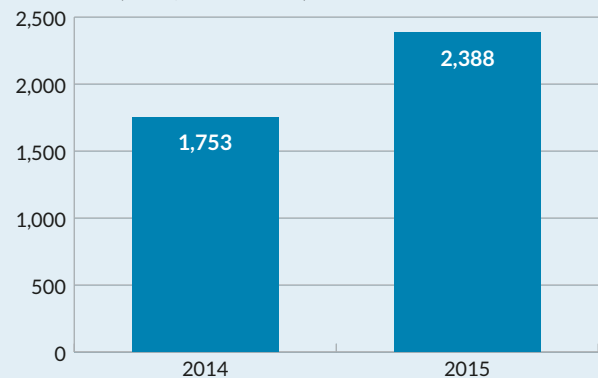
Multinationals also enjoy the benefits of financial incentive programs from the Israeli government. Intel has been granted the largest amount of aid: in 2011, the government provided Intel with € 500 million in grants. In 2014, Intel received additional grants of € 226 million in investment subsidies and a preferred corporate tax rate of 5 %.

Venture capital funds

The VC market in Israel is extremely vibrant, with VC-backed deals reaching a whopping € 2.4 billion in 2015.

Currently, the market comprises 70 active foreign and Israeli funds. Among the most prominent Israeli funds are Jerusalem Venture Partners (JVP), Genesis Partners, Infinity Fund, Carmel Ventures, Evergreen Venture Partners and Pitango Venture Partners. In recent years, more and more top-tier U.S. and European VC funds have opened offices in Israel, such as Battery Ventures, Lightspeed Venture Partners, Susquehanna Growth Equity, Sequoia Capital, Bessemer Venture Partners, BlueRun, Blumberg Capital, Bridge Capital Fund, Partech International Inc., Defta Partners and Ziegler Meditech Equity Partners.

FIGURE 3 Capital raised in Israeli VC-backed deals (€ mn, 2014–2015)



Source: High-Tech Yearbook, IVC research center, 2016.

BertelsmannStiftung

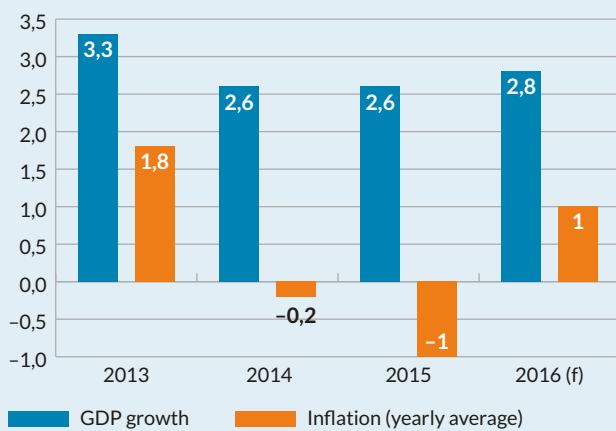
Furthermore, there are nearly 220 international funds, including Polaris Venture Partners, Accel Partners and Greylock Partners that do not have offices in Israel but actively invest in the country through local representatives. Recently, VCs have been mainly interested in the software and internet sectors, investing a combined total of € 1.6 billion in 2015, which accounts for approximately two-thirds of the total capital raised in the same year.

Incubators and accelerators

The dramatic growth of Israeli startups and the country's high-tech market, fueled by massive amounts of capital, yielded an all-time high in the number of incubators, accelerators and mentorship programs in the country in 2015.

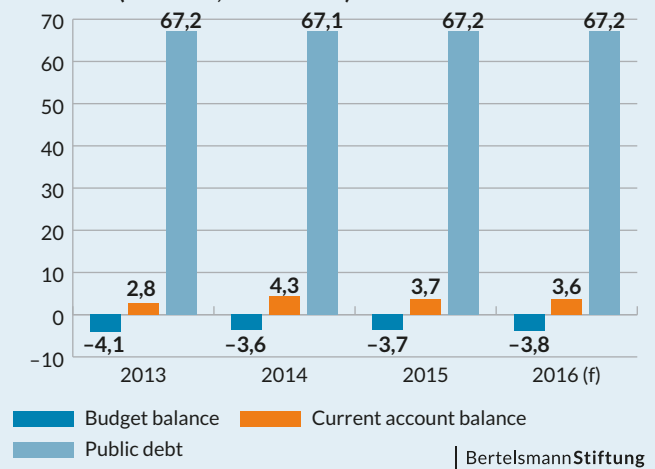
Incubators enable novice entrepreneurs to transform innovative, technology-driven ideas into products or services by providing access to R & D grants, infrastructure (i. e., office spaces, mentorship network, informal event programs, investor exposure, and public funding links) and consulting services. There are currently 24 incubators initiated by the incubator program of the IIA, specializing in the information technology (IT) and telecom sectors, biomedical and medical devices, waterpurification, conservation, desalination and the field of agritech. Currently, some 160 young companies are pursuing R & D at these incubators in locations such as Beer Sheva, Haifa, Jerusalem, Kiryat Gat, Kiryat Shmona, Netanya, Nazareth and Tel Aviv.

FIGURE 4 GDP growth and inflation (% , 2013–2016)



Source: www.coface.com; www.cbs.gov, 2016.

FIGURE 5 Budget, current account and public debt balances (% of GDP, 2013–2016)



| BertelsmannStiftung

In addition, there are more than 80 accelerators, which are corporate-based and backed by multinationals. The accelerators generally offer startups a limited amount of capital (i. e., equivalent to a 3%–8% stake in the company) and provide growth-oriented guidance for periods anywhere from three to six months.

Israel's booming high-tech market also accounts for the growth in co-working spaces. As spaces converted and adapted to a startup work environment, co-working spaces offer early-stage startups the opportunity to improve activity. They frequently feature an upbeat design, high-speed internet and several workstations, making them particularly attractive to young entrepreneurs. Some 40 of Israel's 112 co-working spaces are located in the greater Tel Aviv metropolitan area.

Political, economic, sociological and technological (PEST) factors in Israel

PEST analysis involves examining the macro-environmental factors influencing the long-term performance of a company's operations.

Political

The Middle East's only consolidated parliamentary democracy, Israel's three branches of government – the legislative, executive and judicial – feature institutional checks and balances. The executive branch is subject to the confidence of the legislative branch (the Knesset), and the independence of the judiciary is guaranteed by law. Early parliamentary elections in 2015 yielded a victory for the

center-right to right-wing Likud party. As a result, Likud formed a right-wing government with Benjamin Netanyahu as prime minister.

Economic

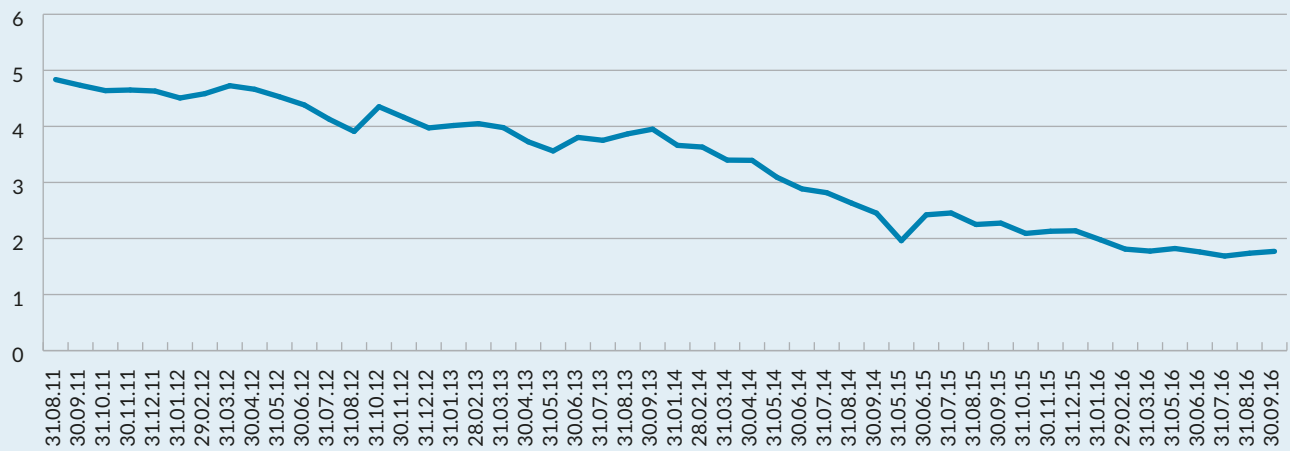
Israel has a population of 8.5 million and a GDP per capita of roughly € 34,000. For 2016, the economy expanded by approximately 3% and featured an inflation rate of -0.2%. The current account balance remained in surplus in 2016, despite an increase in imports fueled by dynamic domestic demand. Public debt remains relatively stable.

Historically, Israel has relied on imports to meet its energy needs. However, the discovery in recent years of large quantities of offshore natural gas is expected to have a profound impact on Israel's energy requirements and will affect the country's terms of trade, current account balance other macroeconomic factors. Currently, the country's export-oriented economy leans on technology and innovation.

Sociological

Israel is characterized by a diverse culture and population diversity. The two dominant Jewish ethnic groups are the Ashkenazim, which includes Jews from northern and eastern Europe, and the Sephardim, which includes Jews countries in the Mediterranean, Balkan, Aegean and Middle Eastern regions. The country's Arab population plays an important role in Israel's cultural and economic fabric, as evinced by the emergent Arab high-tech scene in Nazareth.

FIGURE 6 Nominal yield to maturity of 10-year Israeli government bonds (% , 2011–2016)



Source: Bank of Israel, 2016.

| BertelsmannStiftung

Israel is the only country in the world where life revolves around the Hebrew calendar. Work and school holidays are determined by Jewish holidays, and the official day of rest is Saturday, the Jewish Sabbath. Military service is mandatory for Israeli citizens, with the exception of Arabs, who have the right to volunteer.

Technological

Israeli startups across all major technology sectors continue to drive innovation globally. Notable Israeli companies undertake significant activities in the areas of expertise where they have established global leadership positions.

Security conditions

In addition to the aforementioned PEST factors, security conditions in Israel – which are as complex as they are mercurial – are a key factor to consider. Political tensions in the country can run high, as Israel is at the heart of several military conflicts and disputes among various Arab countries. While the roots of the modern Arab–Israeli conflict can be traced to the rise of Zionism and Arab nationalism in the late 19th century, the conflict today involves addressing various religious, geopolitical, environmental, natural resource-related, economic and infrastructural aspects.

The civil war in Syria has effectively reshuffled the situation along Israel’s northern border and further complicated its relations with the Syrian and Iranian government and Hezbollah (both backed by Iran), as well as Syrian opposition groups, who are pitted against each other. The

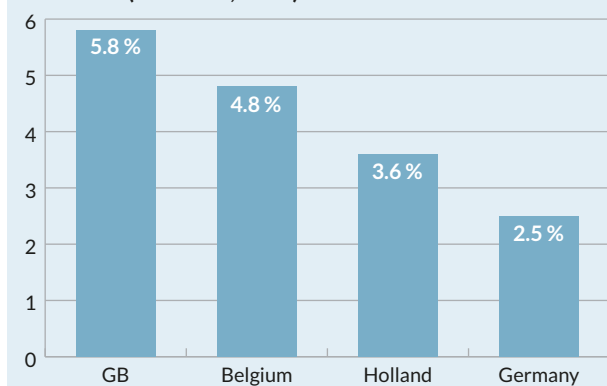
rounds of conflict between Israel and Hamas-ruled Gaza, the more recent of which resulted in a 2014 ceasefire, are a feature of the Israeli–Palestinian conflict and thus the larger Arab–Israeli conflict. Despite long-held peace treaties between Israel and Egypt and Jordan, several interim peace accords with Palestine and ceasefires that are generally upheld, Israel and the Arab world remain at odds with each other over many issues.

Israel’s security situation is also reflected in the yield to maturity of Israeli government bonds (see Fig. 16). These yields are higher than in some developed countries, which signals that the security risk is taken into account and priced into the bond. Though foreigners may to some extent balk at such security risks, Israelis perceive them as a relatively low threat. Indeed, domestic private and institutional investors show a strong appetite for such bonds.

German-Israeli relations

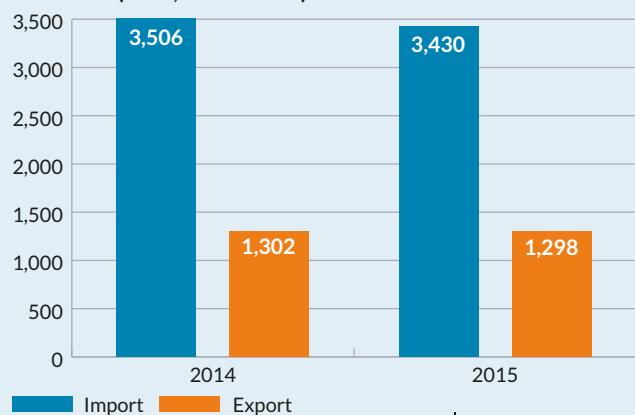
The German–Israeli relationship continues to be shaped by the memory of the Holocaust and German efforts to prevent future genocide. The two countries established diplomatic relations in 1965. Germany is represented in Israel through its embassy in Tel Aviv. Israel is represented in Germany through its embassy in Berlin and its Consulate-General in Munich. Both countries are full members of the Organization for Economic Cooperation and Development (OECD) and the Union for the Mediterranean. In addition, Israel has a free trade agreement with the EU that reduces bilateral export–import costs.

FIGURE 7 Israel's top export partners in Europe (% of total, 2014)



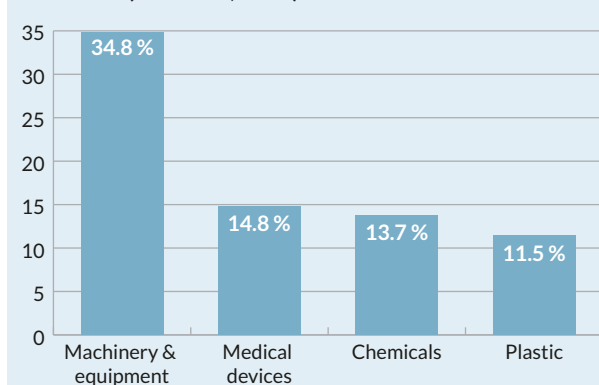
Source: www.cbs.gov, 2016.

FIGURE 8 Israel's imports and exports to Germany (€ mn, 2014–2015)



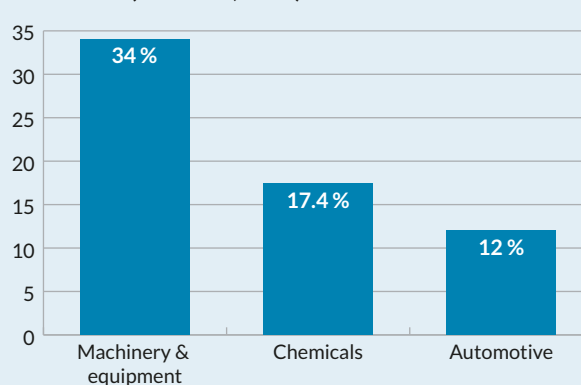
| BertelsmannStiftung

FIGURE 9 Israel's top exported goods to Germany (% of total, 2015)



Source: www.cbs.gov, 2016.

FIGURE 10 Israel's top imported goods to Germany (% of total, 2015)



| BertelsmannStiftung

Israeli-German relations have been characterized by overall friendship between the two nations. As demonstrated below, Germany is Israel's fourth-largest export partner in Europe. In Israel, many important German brands are represented by Israeli businessmen or through joint ventures. Siemens, Deutsche Telekom and SAP are among the biggest German companies with offices or industrial plants in Israel. In recent years, cooperation between German and Israeli companies in high-tech sectors such as IT, communications and biotechnology has dramatically increased. Israel's exports to Germany totaled € 1.3 billion in 2015 and imports from Germany total € 3.4 billion, a slight decline compared with 2014 (see Fig. 18).

Israel's top commodity exported to Germany, machinery and equipment, posted € 452 million exports to Germany in 2015. Other major exports include medical devices and

chemicals, totaling € 192 and € 178 million, respectively, in the same year (see Fig. 19). Totalling € 1 billion in 2015, machinery and equipment also comprise Israel's largest top imported commodity from Germany. Other major imports include chemicals and automotive, which were valued at € 598 and € 421 million, respectively, for the same year (see Fig. 110).

Military cooperation between the two countries dates back to 1959 when the Federal Republic of Germany first delivered military equipment to Israel. Over the years, successive German governments have been ready to meet urgent Israeli defense needs. Currently, one sophisticated submarine slated for the Israeli navy is under construction in Germany, the construction of three more is currently under discussion in addition to five that were already provided and subsidized by the German government.

Germany is also involved in the international effort to stop arms smuggling to Lebanon.

The two countries have cultivated mutually fruitful scientific cooperation through their universities, Minerva programs targeting German–Israeli scientific dialogue and cooperation, and youth exchange programs. Each year, some 2,000 Israelis and 4,500 Germans participate in the German–Israeli professional exchange program run by Germany’s Federal Ministry for Family Affairs, Senior Citizens, Women and Youth.

Israel places great importance on sister city relationships with German cities. Haifa and Tel Aviv both have five sister cities in Germany, Netanya has two, and Rishon LeZion has one. Over 100 Israeli cities and local authorities have ties with Germany.

Whereas a substantial share of German business in Israel is attributable to large companies, relatively few Mittelstand companies operate in Israel. However, our study points to a sharp increase in cooperation in the high-tech sector in recent years. German companies seeking to tap into Israeli innovation have established sales and marketing units in Israel and are pursuing different strategies to enter the Israeli market. Most of them export goods to Israel, either directly or through distributors. Some companies have gradually expanded their exposure by seizing R & D-related opportunities that emerge in the course of doing business in Israel. Other companies established scouting teams and R & D centers that commonly emerged from M & A transactions (see “Engagement Modes” chapter).

Chapter 2 – Verticals

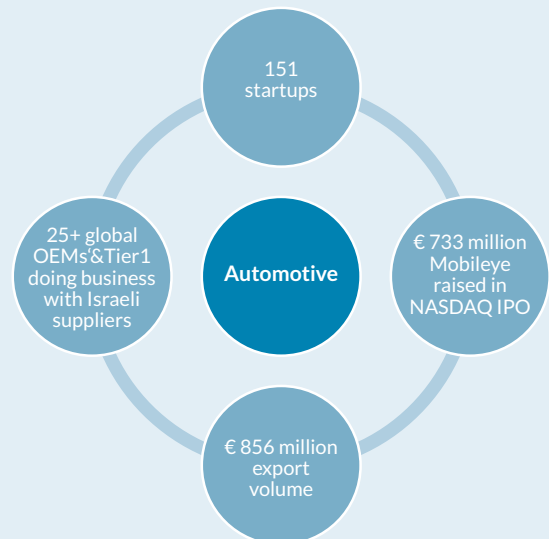
This chapter details specific high-tech verticals and cross-verticals chosen based on a mapping of German Mittelstand companies' innovation needs and Israeli innovation offerings. It is by no means a full account of all Israeli verticals, but rather a sample of major verticals warranting examination by German Mittelstand companies.

Each vertical is enumerated across three subsections:

- **Background:** defining vertical/cross-vertical as well as a summary of the status of the sector in Israel.
- **Significance:** an examination of why this vertical is significant for Mittelstand companies and what German companies are already doing in this sector in Israel.
- **Opportunities:** suitable entry points for Mittelstand companies based on interviews with German and foreign companies as well as Israeli experts.

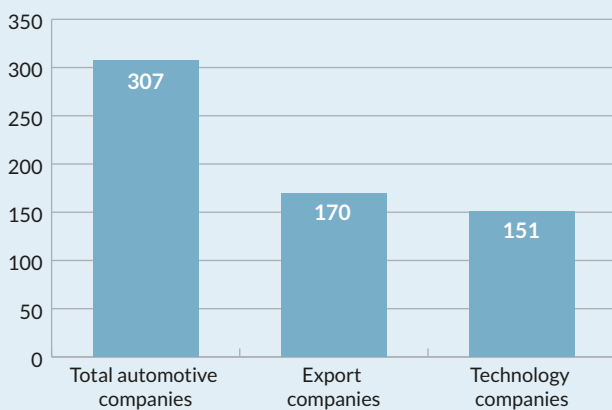
Automotive sector

FIGURE 11 Automotive sector



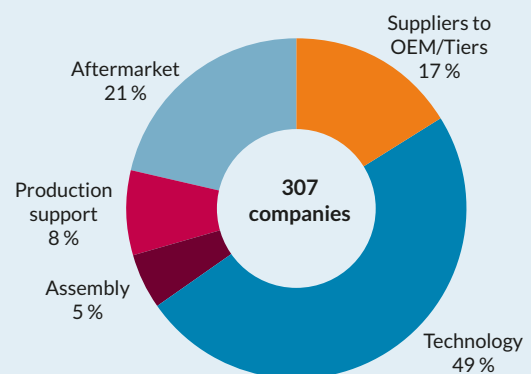
Source: Israel automotive industry, The Israel Export & International Cooperation Institute, 2016; Startup National Central database, 2016; Israeli ICT Industry Review, Israel Advanced Technology Industries, 2015. | BertelsmannStiftung

FIGURE 12 Israeli automotive industry



Source: Israel automotive industry, The Israel Export & International Cooperation Institute, 2016; Startup National Central database, 2016.

FIGURE 13 Israeli automotive industry by segment



| BertelsmannStiftung

Background

The Israeli automotive vertical is comprised of a traditional and an innovative segment. The traditional segment is mechanical and machinery-oriented, and includes products that Israeli industry excels in, such as powertrains (oil pans, cylinders, gears), steering brackets, springs, and headrests. Technology-oriented, the innovative segment features breakthroughs in specialized materials, advanced electronics and communication systems, driver awareness systems, automotive IT, and security.

While Israel does not engage in large-scale vehicle manufacturing, there are 307 Israeli companies operating in the automotive industry. As illustrated below, 49% of the Israeli companies in the industry are technology-oriented.

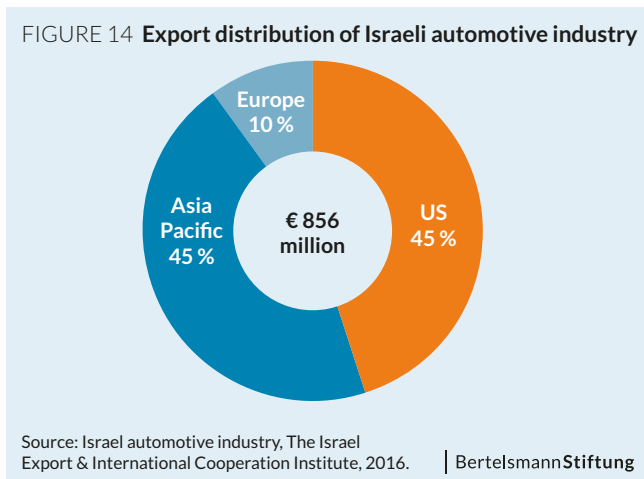


FIGURE 15 Top OEMs & Tier 1 suppliers doing business with Israeli manufacturers (Germans in orange)

Toyota	GM	Ford	Renault	MAN
VW	Valeo	PSA Peugeot Citroen	Johnson Controls	Mitsubishi
Daimler	Audi	Navistar International Corporation	Delphi	ZF
TRW	Volvo	SAIC	Bosch	Freightliner
brose	Visteon	China FAW Group Corporation	GETRAG	Autoliv

Source: Israel automotive industry, The Israel Export & International Cooperation Institute, 2016

Automotive is an export-oriented sector; more than 55% of companies sell overseas, mainly to customers in the United States and Asia. In total, Israel exports about €856 million of automotive parts and systems. Currently, exports are

dominated by manufacturers of non-commodity products requiring high precision. Leading original equipment (OEM) and Tier-1 manufacturers, including VW, GM, Daimler and MAN purchase these products.

It is the innovative segment, however, which is rapidly growing in Israel. Electronic components are increasingly important. Today, they account, on average, for 35% of total production costs.

Automotive related innovations can be divided into six categories:

- Electric vehicles and batteries:** The goal is to advance environmentally sustainable transportation, improve energy efficiency, and save costs. There are currently 27 Israeli startups.
- Data, connectivity and analytics:** The goal is to implement Internet of Things (IoT) in transportation for improved safety and reduced congestion, to boost productivity, free up space, and improve connectivity between vehicles and infrastructure. There are currently 10 Israeli startups.
- In car monitoring and sensors:** In vehicle monitoring and sensors capture cars' computer sensor data using the vehicle's on-board diagnostic port and add a layer of additional features. These devices turn this information into a resource, as they help users easily understand a check-engine light, adjust one's insurance rate based on how/when one actually drives, and create added safety features through tracking and emergency response services. There are 25 Israeli startups developing technologies.
- Ride-sharing, smart city technologies:** Ride-sharing and smart city technologies utilize digital telecommunication to enable society to move more safely and efficiently using intelligent transportation systems. There are currently 57 Israeli startups active.
- Alternative fuels:** Alternative fuels promote low-cost, energy efficient fuels in vehicles and improved environmental sustainability. There are currently nine Israeli startups.
- Cybersecurity:** Cybersecurity protects vehicles, fleets and connectivity platforms from hacking. There are currently 13 Israeli startups.

FIGURE 16 Export revenue by industry

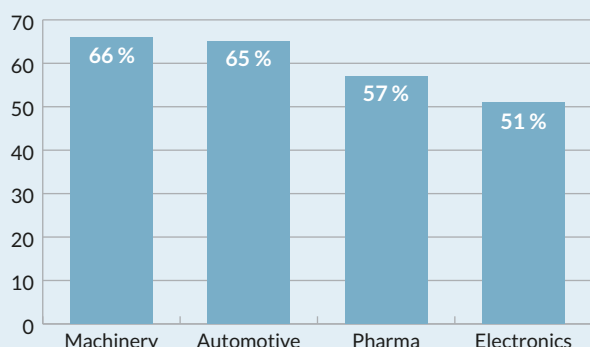
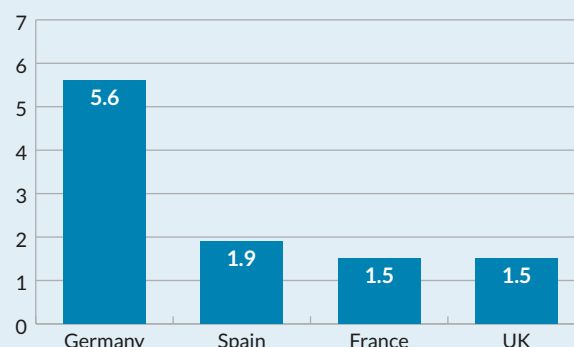


FIGURE 17 European passenger car production



Source: Industry overview – The automotive industry in Germany, Germany Trade & Invest (GTAI), 2015; Pinpoint Research, 2016.

| BertelsmannStiftung

An indication of this vertical's strength in Israel can be found in the number and magnitude of M & As and initial public offerings (IPOs) in recent years. In 2016 alone, two notable M & A were SAIPS – a machine learning developer acquired by Ford – and TowerSec – a global provider of automotive cybersecurity acquired by Harman for € 74 million. The largest IPO in the Israeli automotive sector occurred in 2014 when Mobileye (currently the leading, in terms of revenue, automotive company in Israel and a global leader in autonomous cars) raised € 733 million on the NASDAQ stock exchange. Prior to this IPO, Mobileye had raised more than € 400 million in private financing. In March 2017, Mobileye was acquired by Intel for the total amount of US\$ 15 billion, the biggest-ever acquisition of an Israeli tech company.

Significance

Germany is the leading automotive market in Europe in both production and sales. In 2014, the automotive sector, including both the traditional and innovation segments, recorded € 384 billion in turnover and more than € 251 billion in exports.

The automotive sector is one of Germany's most innovative industries, accounting for one-third of total R & D expenditure by German industry. Moreover, 15% of its total revenue is allocated to R & D. German Mittelstand companies are an important part of this sector, accounting for 8% of all hidden champions. Global dominance, export and R & D orientation, and the strong presence of hidden champions illustrate the automotive industry's focus on innovation. This can serve as a catalyst for German interest in the corresponding Israeli vertical.

Many German automotive companies operate in Israel in both segments. In the traditional segment, Israeli companies supply parts and components to top German OEM companies (e. g., Daimler, BMW, VW, MAN and Jaguar). Tier-1 suppliers (e. g., Delphi, Bosch, Valeo, Autoliv, Faurecia, Johnson Controls, ZF, Getrag, and Magna Steyr) also source components from Israel. In the innovative segment, an increasing number of German companies are pursuing Israeli technology. Bosch, for instance, has already established a scouting team to explore emerging technologies. Daimler is establishing an R & D center in Israel and has joined Bridge, an acceleration program. Other German companies regularly meet with Israeli technology companies to identify market trends and better understand recent innovations. Illustrative of this trend is Volkswagen's 2016 strategic investment of \$300 million in the shared transportation company GETT. Volkswagen is also cooperating with auto cybersecurity company CyMotive Technologies, which is headed by former Israel Security Agency director Yuval Diskin.

Opportunities

The automotive vertical has three entry points: preliminary research, scouting engagement and opportunistic engagement.

Preliminary research on Israel and its capabilities

Three methods may be relevant to Mittelstand companies seeking preliminary information about the Israeli innovation ecosystem and doing business in Israel:

- Contact German automotive companies that already do business with Israeli companies (e. g., Bosch, Daimler and MAN).

- The automotive industry already includes many ties between German and Israeli companies. Mittelstand companies can initiate their research on Israel by learning from the dozens of German companies that have established business relationships with Israeli manufacturers.
- Contact leading Israeli companies in the automotive industry (e. g., Mobileye) that can offer preliminary strategic insights on where the industry is headed.
- Contact and gather information from German companies that operate in Israel in other verticals (e. g., Merck, Beckhoff and Pilz). This can help expand a company's understanding of doing business in Israel and Israel's high-tech capabilities.

Scouting engagement mode

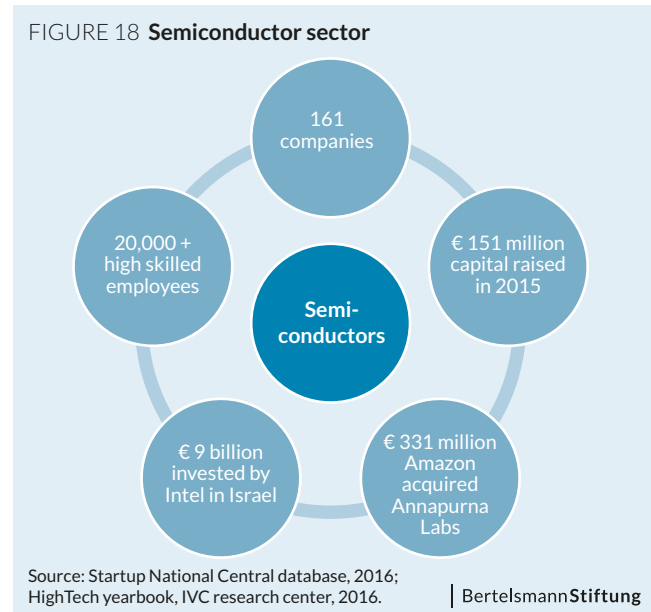
Mittelstand companies can adopt this popular mode, used by many other foreign companies to tap into the Israeli innovation ecosystem for the first time, to gather information on a specific market, its trends, technologies and startups. There are three scouting options: local specialists who are not part of the company, local company employees, and Germans who reside in Israel. In general, the scouting team has two main goals: obtaining market information and establishing collaborations. This mode is illustrated in the next chapter with Bosch, which established a team of local company employees.

Opportunistic engagement mode

In this mode, German companies can be exposed to business in Israel for the first time by purchasing products from local suppliers. In this way, they gain experience and information about the Israeli ecosystem at relatively low-risk and -cost before moving to the next stage of working within the innovative segment. In the manufacturing segment, many Israel companies have operations with top German OEM and Tier-1 companies. This allows these companies to better understand German needs and demands, making them attractive new suppliers for Mittelstand companies.

Additional inputs on potential entry points for German companies in the Israeli automotive sector are detailed in the Bosch case study in the following chapter.

Semiconductor sector

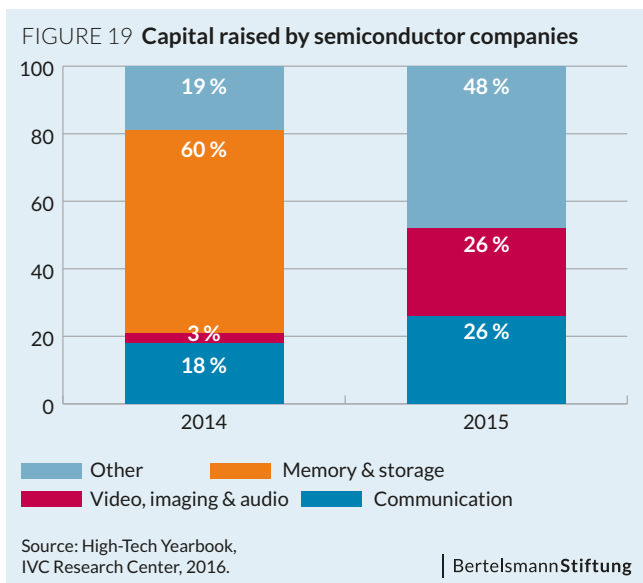


Background

Within Germany's electrical engineering and electronics vertical, Israeli companies operate mainly in the semiconductor sector. The industry constitutes three subsectors in Israel: 1) memory and storage video, 2) image and audio, and 3) communications.

The Israeli semiconductor industry has 161 companies that employ more than 20,000 people and generate around € 5 billion in revenue annual. Many Tier-1 global semiconductor companies have significant R & D centers in Israel, including Motorola and Intel. Intel has invested more than € 9 billion in Israel and is currently the largest employer in the country's high-tech sector. Also, Israel has the third highest concentration of design houses in the world: more than 150.

In addition to multinationals, there are several established Israeli companies operating in various related markets. Among them is Tower Semiconductor, a provider of customized solutions in complementary metal oxide semiconductor technologies. Different from other Israeli companies, Tower Semiconductor has its own manufacturing plants. Other notable Israeli companies are NASDAQ-traded Mellanox Technologies, a provider of connectivity solutions for servers, and Orbotech, a major vendor of inspection and imaging systems for the electronics industry.



The Israeli semiconductor industry is very active in terms of M & A transactions and raising capital. Major exits in 2015 included Annapurna Labs, which was acquired by Amazon for € 331 million, and Pebbles Interfaces, which was acquired by Facebook for € 40 million. In terms of financing, Israeli semiconductor companies raised € 151 million in 2015; the largest deal being secured by Optimal Plus, which raised € 38 million in Series C financing.

For many years, Israel had an active cluster of memory chip companies who introduced a variety of technologies that have become industry standards (e. g., the USB flash drive, which was initially developed by M-systems and subsequently acquired by SanDisk). But in 2015, another

subsector became more dominant: the share of capital raised by the video, imaging and audio subsector grew by 23 base points.

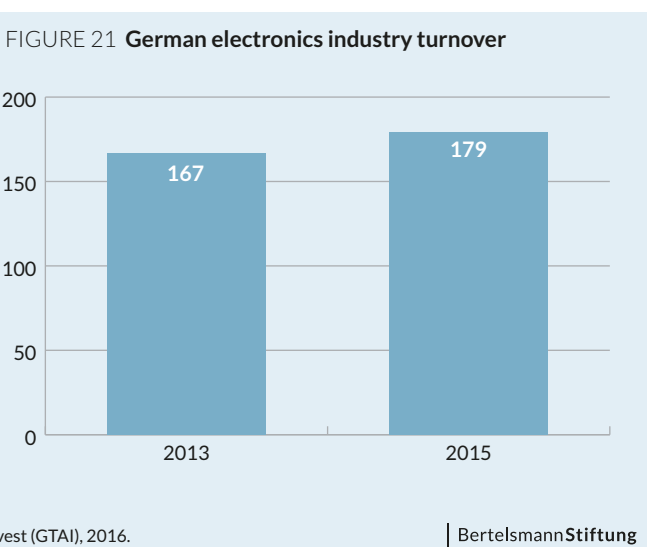
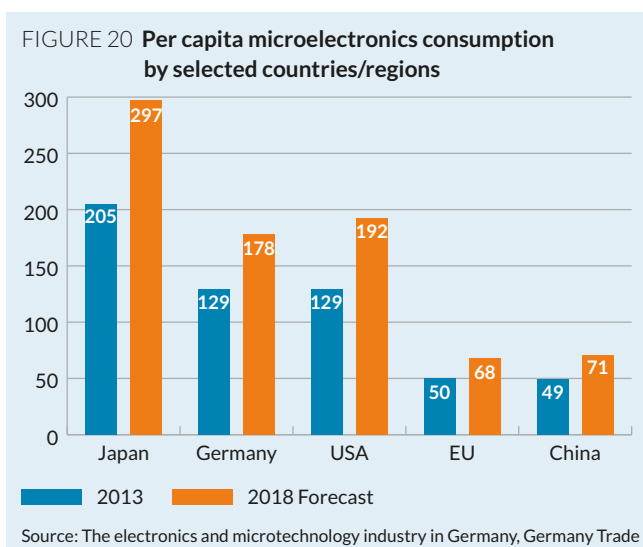
Significance

Germany’s electronics industry in general, and semiconductor sector in particular, have major attributes that merit tapping into the innovative Israeli semiconductor industry. These attributes include the size of Germany’s electronics industry, its global dominance, export orientation, R & D investment and the abundance of active Mittelstand companies. Germany’s electronics industry generated turnover of € 179 billion and exported € 91 billion in 2015 and continues to grow. This economic success has been fueled by aggressive investment in R & D: € 15.5 billion in 2015 alone. Despite strong competition, German semiconductor companies remain the European leaders in terms of revenue, boasting turnover of € 12 billion in 2015. In addition, Germany is ranked among the top three consumers of microelectronics worldwide.

Israel has one of the largest semiconductor sectors outside of the United States and is home to many global R & D centers, mostly from the United States. In contrast, there is no major German activity in the Israeli semiconductor industry, creating potential for higher involvement.

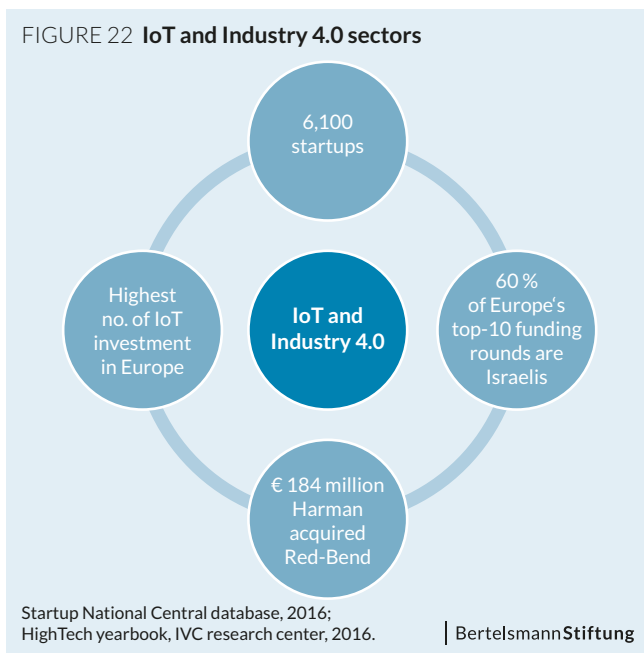
Opportunities

Video, imaging and audio are all major components of the digitalization transformation. According to the German Ministry of Economic Affairs, Mittelstand



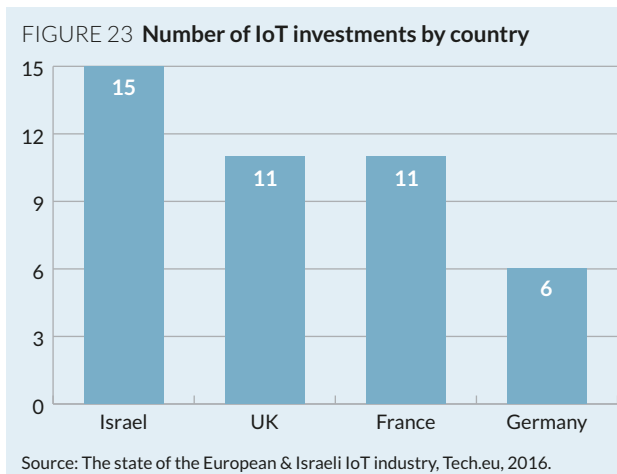
companies in particular need to be made more aware of the opportunities that can be derived from digitization. The vast Israeli offerings can be a potential entry point for these companies. Additional inputs regarding German companies tapping into Israeli innovation in electronics, telecommunications and software are listed in case studies in the next chapter.

IoT and Industry 4.0 sectors



Background

The IoT refers to the concept of taking objects, adding sensing and processing capabilities, and connecting them



to the internet. This internetworking of objects enables the user to collect information and control processes remotely.

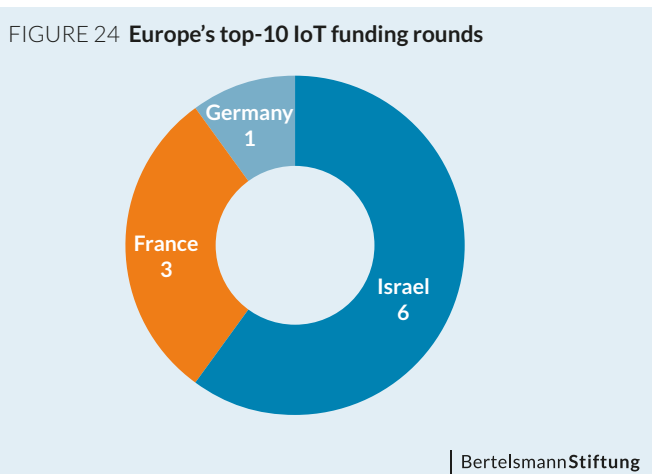
Industry 4.0 focuses on the end-to-end digitization of all physical assets and the integration of value chain participants into digital ecosystems. The Israeli IoT sector accounts for roughly 330 active startups, representing around 5% of all startups in Israel. Most Israeli IoT companies operate in the healthcare, life sciences or cybersecurity sectors. In 2015, Israel accounted for Europe's largest number of IoT investments, thanks to strong developer tools and smart cities activity. Six of the ten largest European financing rounds in the sector were secured by Israeli companies.

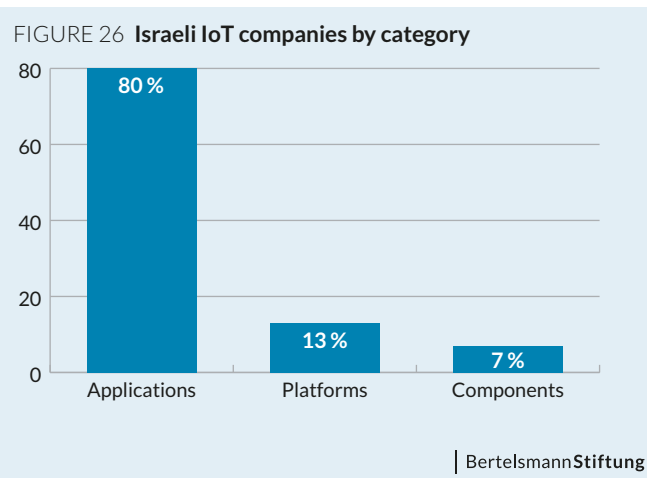
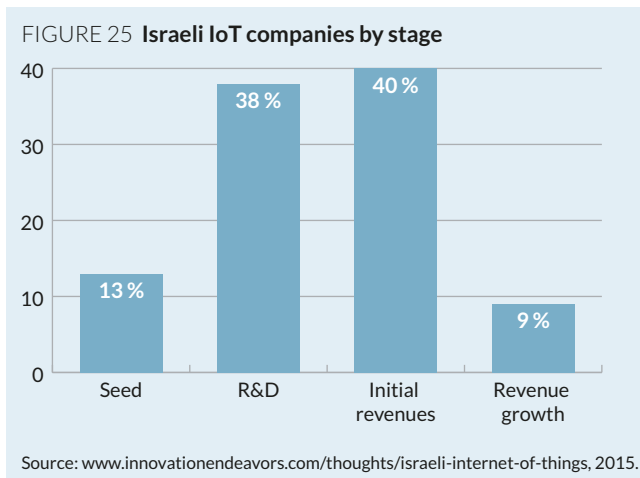
Most companies are in the middle stages of their lifecycle (i. e. the R & D or initial revenue stages). Moreover, nearly 80% of companies are focused on the applications category rather than other categories, such as IoT platforms or components. This concentration of companies in the middle stages of development indicates a lack of market maturity with many startups yet to find their long-term product-market fit.

Notable Israeli IoT companies include Telit Communications, a provider of enterprise communication modules; AllinPack, a provider of a platform for connecting sensors; and Red Bend Software, a provider of mobile software management technology, which was acquired by Harman for € 184 million in 2015.

Significance

Industry 4.0 and IoT are crucial areas in which German manufacturers need to innovate if they are to grow. However, rather than inventing an isolated technology,





the challenge for German companies will be to integrate new technologies into their existing products.

Opportunities exist for German companies to capitalize on the knowledge and space within the Israeli IoT sector, particularly in the platform and components categories where many Israeli companies are still in the early stages of their lifecycle.

German companies can use their size and access to the global market to take advantage of Israeli innovation to maintain leadership.

Some German companies have already established collaborations with Israeli IoT companies. Bosch has invested in a few Israeli startups via its venture capital fund and recently established a local office for technology scouting led by an Israeli specialist.

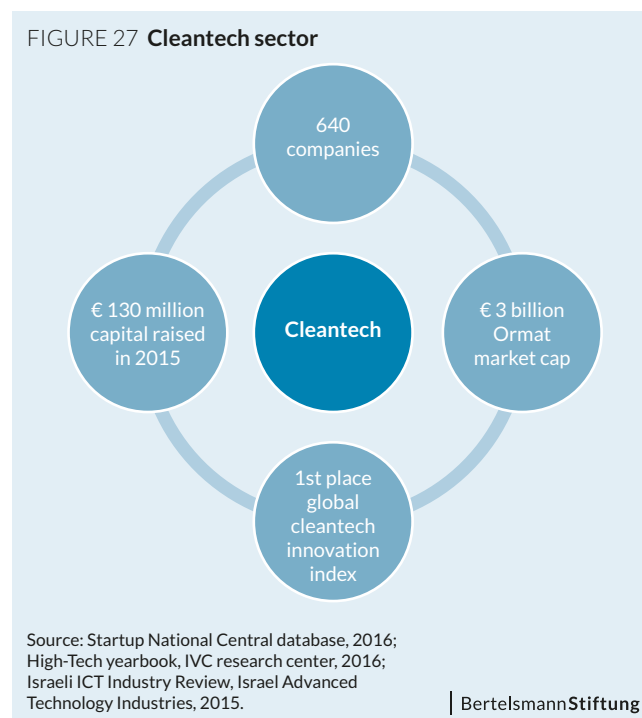
Steam CC, an Israeli 3D printing developer that markets under the Ripples brand, has entered into partnership with Lufthansa providing a printing technology for customizing the milk-foam of coffee products served in Lufthansa’s First and Business Class lounges.

Opportunities

Plattform Industrie 4.0, the world’s largest Industry 4.0 network, supports German companies integrate Industry 4.0 products and services. At the Mittelstand 4.0 Centers of Excellence, funded by the German Ministry of Economic Affairs, Mittelstand companies can test their own technical developments with clients before making further investments. These centers provide support for Mittelstand companies interested in integrating Israeli innovations.

The IoT relies heavily on data analytics and cybersecurity, both areas in which Israel excels. German companies interested in Israeli IoT capabilities should start by integrating cyber or analytics products. This mode is detailed in Microsoft Corporation case study in Chapter 4.2.

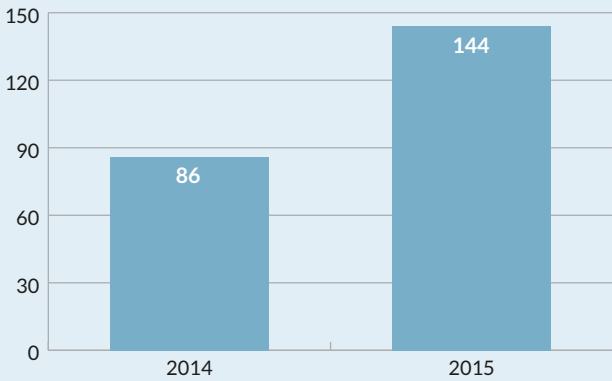
Cleantech sector



Background

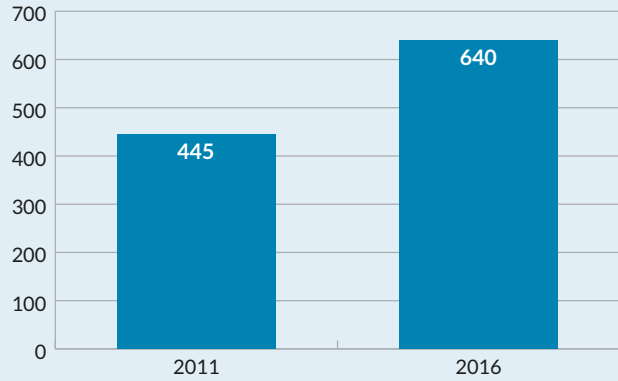
The Israeli cleantech vertical includes sustainable water, energy, and environmental technologies. There are 640

FIGURE 28 Investment in cleantech companies



Source: High Tech Yearbook, IVC Research Center, 2016.

FIGURE 29 Number of cleantech companies



BertelsmannStiftung

cleantech companies and around 16 accelerators in Israel. The cleantech industry is dominated by early-stage companies, with a handful of internationally established commercial brands, mostly in the energy and water sectors.

As Israel is a country with limited water and fuel resources, local industry has developed strong skills and expertise in renewable energy, water technologies, agro technologies and other fields. As a result, Israel ranked 1 out of 40 countries in the latest Global Cleantech Innovation Index Report for providing the best conditions for cleantech companies.

Solar technologies take most of the limelight within the energy sector and there are a number of prominent startups. A notable player in the renewable energy industry is Ormat Industries, a provider of geothermal power solutions, which has a market capitalization of € 3 billion on the New York Stock Exchange.

Israel has extensive expertise and specialization in water reclamation as the country reuses almost 80 % of its wastewater for agricultural applications. Israel is also a pioneer in the drip irrigation field and has two of the world’s largest seawater reverse osmosis desalination plants. Notable companies in this field include Amiad Water Systems, a filtration solutions provider, and Bermad, a provider of irrigation management systems. Furthermore, the number of active companies and capital raised in Israel’s cleantech sector has also increased in recent years.

Significance

The “Energiewende” Germany’s transition toward an environmentally sustainable energy system, offers major opportunities for Mittelstand companies to expand into

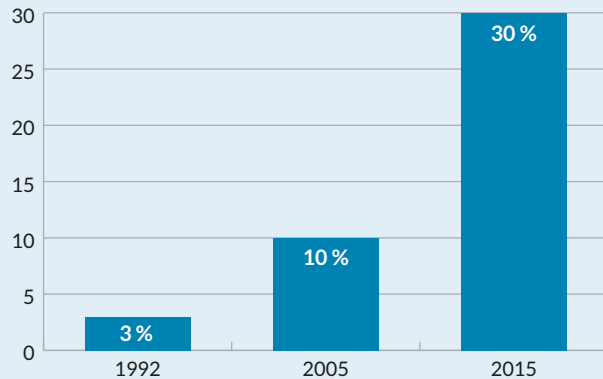
new markets, such as energy services and improving buildings’ energy performance. The energy transition boosts green innovations, creates jobs, cuts energy costs and helps Germany position itself as an exporter of green technologies.

The German High-Tech Strategy Action Plan identifies renewable energy resources, especially solar energy, as one of its main objectives. Germany has significantly increased its use of renewable energy over the past two decades.

Israeli companies have a vast skill set in the renewable energy sector, particularly in solar technologies, which can be used by German companies to enhance innovation, support government goals and boost employment.

Few German companies are engaged in the Israeli market at present. Although RWE, a German energy company,

FIGURE 30 Share of renewable energy generation in Germany



Source: www.energytransition.de, 2016.

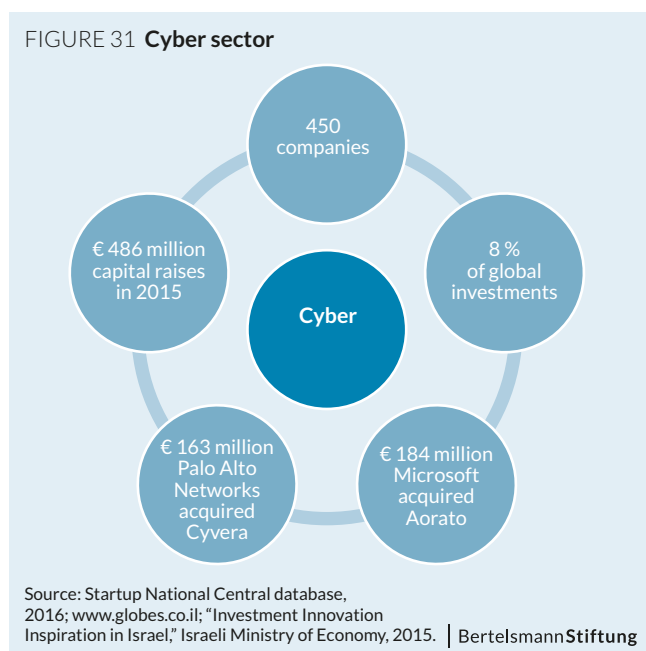
BertelsmannStiftung

has appointed an Israeli specialist for developing strategic collaborations with Israeli companies.

Opportunities

German manufacturers can test the quality and performance of Israeli renewable energy solutions under controlled conditions, using industrial control valves and filters, at their factories. This engagement mode offers low-risk exposure to Israeli cleantech capabilities and preliminary insights on potential for the German companies. This opportunistic engagement mode is detailed in Chapter 4 and in case studies in Chapter 4.2, such as Harro Höfliger.

Cyber sector



Background

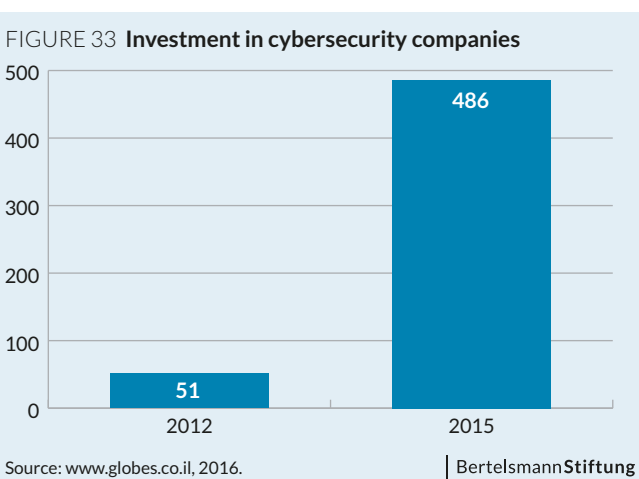
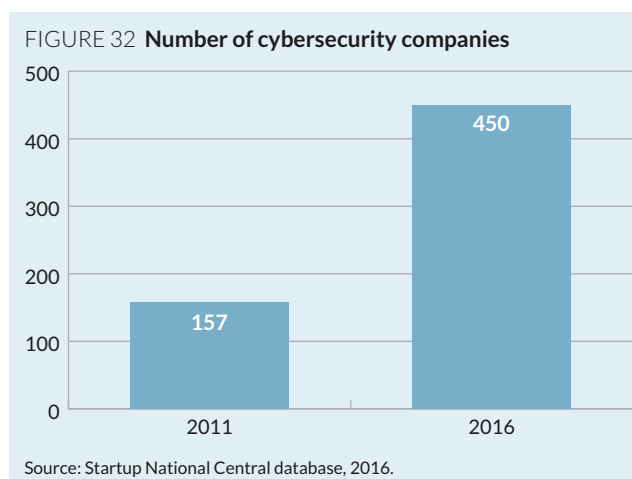
The cyber vertical includes companies that operate in the field of cybersecurity. Cybersecurity refers to the technologies, processes and practices designed to protect digital networks, computers, programs and data from attack, damage or unauthorized access.

The Israeli cybersecurity industry exports more than € 3 billion of goods and services each year. The Israeli cybersecurity industry accounts for an estimated 7% of global cybersecurity sales and 8% of global cybersecurity investment. The number of cybersecurity security companies in Israel has more than doubled over the last five years to 450. Although a large proportion of these companies are still in development laboratories.

Investment in Israel’s cybersecurity industry has increased sharply in recent years, while half of those cybersecurity companies founded in the past 20 years remain active.

Israel’s success in developing innovative cybersecurity solutions has convinced McAfee, CA, Cisco Systems, Microsoft, Intel and IBM to acquire Israeli companies and establish a R & D presence in Israel.

Notable Israeli cybersecurity companies include Check Point Software Systems, which raised \$ 44 million in IPOs on NASDAQ stock exchange, and Imperva, which raised € 70 million in IPOs on the New York Stock Exchange. Recent major M & As involving Israeli cybersecurity companies include Microsoft’s acquisition of Aorato for € 184 million and Palo Alto Networks’ acquisition of Cyvera for more than € 163 million.



Significance

Many Mittelstand companies operate in the electronics, machinery and automotive industries. The emerging wave of IoT and Industry 4.0 will require them to manufacture parts that can integrate cyber systems.

Yet, cyber-physical systems are increasingly at risk of cyber attack. Therefore, IT security and counterespionage will become key issues for German industry. Collaborations between Mittelstand and Israeli security companies will help maintain Germany's position as a global leader for innovation.

German regulations provide additional incentives. Germany has passed legislation requiring 2,000 essential service providers to implement minimum information security standards within the next couple of years.

Currently, there are several large German companies operating in Israel. Aiming to strengthen relations between the cybersecurity communities in Germany and Israel, the Cyber-Security Council Germany (Cyber-Sicherheitsrat Deutschland e.V.) opened in March 2017 its first international chapter in Israel together with the Israeli company Checkmarx.

In 2016, Volkswagen and three leading Israeli experts established an automotive cybersecurity company, CyMotive Technologies. The company will develop advanced cybersecurity solutions for next-generation connected cars and mobile services. Telekom Innovation Laboratories was established in 2004 at Ben-Gurion University through collaboration between the university and Deutsche Telekom. One of the focus topics of the Innovation labs is cybersecurity. The labs are located at Israeli Cyber Innovation Arena –Cyberspark, which is a joint venture of the Israel National Cyber Bureau (INCB) in the Prime Minister's Office, Beer-Sheva Municipality, Ben-Gurion University of the Negev, and leading companies in the cybersecurity industry.

Opportunities

To comply with their legal obligations to implement information security standards, German companies can utilize Israeli cybersecurity solutions and test their capabilities in-house. This engagement mode is detailed in the Microsoft Corporation case study in Chapter 4.2.

Chapter 3 – Engagement Modes

This chapter describes the main engagement modes companies chose when they initiated activity in Israel. In answer to this report's central question, we focus largely on companies that have established R & D activities in Israel. We do, however, also include a couple of cases of Mittelstand companies currently engaged solely in marketing and distribution. This allows us to broaden our discussion on R & D engagement modes and consider why these companies have not used them (yet).

We also include case studies of large multinationals, which serves several purposes. First, these companies have the means to invest in several engagement modes, illustrating the full scope of alternatives Mittelstand companies can choose from. Second, multinationals have extensive experience with various engagement modes, operating in Israel and doing business with Israelis. Third, our interviewees from multinationals were asked to harness their knowledge of the needs, strengths, and weaknesses of mid-sized companies, and to derive lessons relevant to such companies.

Our description of each engagement mode consists of two parts:

- A high-level definition of the mode, its pros and cons, a synopsis, and statistics on the current stage of this engagement mode in Israel.
- Case studies for the specific mode. In these case studies, we present companies (both German and non-German) that chose to use the mode, and recount their development story. Each case study includes five sections:
 - Overview of the company.
 - High-level introduction to the different activities the company has in Israel, both past and present.
 - The company's innovation approach and needs

(mostly those answered via its engagement modes in Israel).

- The specific engagement modes, which the company applied to tap into the high-tech ecosystem in Israel.
- The company's view of lessons learned for foreign companies, in general, and Mittelstand companies, in particular, considering entering the Israeli market.

We have identified five engagement modes:

1. **Gradual (opportunistic exposure):** A process in which the company gradually enters the market through other activities (e. g., marketing, distribution or production). In doing so, the company builds trust with local actors and greater understanding of the Israeli economy and its opportunities. With this acquired knowledge, it can later seize R & D-related opportunities.
2. **Scouting:** The act of gathering information about a particular market – its trends, technologies and startups.
3. **Accelerators and incubators:** Accelerators support early-stage, growth-driven startups through education, mentorship and access to data. An incubator brings in an external management team to manage a specific idea that was developed internally.
4. **R & D labs:** This mode relies on the facilities of a multinational for “whole product” development and market penetration, independently or in collaboration with startups.
5. **M & A:** A transaction in which a company acquires control of another company by purchasing its stock or exchanging the stock for its own. Occasionally, the buyer transforms the target company into a local R & D center.

FIGURE 34 Engagement modes

	1. Gradual exposure	2. Scouting			3. Accelerators & incubators			4. R & D		5. Acquisitions
		Local specialists	Local employees	German employees	Partnership with local accelerator	Building accelerator	Building incubator	Partnership	Establish R & D lab	
Risk	Low	Low	Low	Low	Low	Moderate	High	Moderate	High	High
Control	High	Low	Moderate	High	Moderate	Moderate	High	High	High	High
Commitment	Low	Low	Moderate	High	Moderate	Moderate	High	High	High	High

	1. Gradual exposure	2. Scouting	3. Accelerators & incubators	4. R & D	5. Acquisitions
Case studies	Harro Höfliger Pilz Beckhoff Herrmann Adva Software AG	Mail.ru Siemens Bosch Microsoft Deutsche Telekom Adva	Bosch Coca-Cola Microsoft Deutsche Telekom, Merck	Bosch Microsoft Herrmann	Mail.ru Microsoft Adva Software AG

Source: Study team interviews, 2016.

These five engagement modes can be sorted by utilizing three metrics: level of risk, control and commitment. Risk measures the company’s total investment in establishing the engagement mode. Control assesses the company’s influence on the direction, process, content and outcome of the relevant mode. Commitment evaluates the overall involvement required by management and the organization as well as the barriers to terminating operations.

The case studies can be summarized by the five engagement modes (bearing in mind that a company can be active in several modes):

The five modes are classified by level of risk, from lowest to highest, as illustrated in the above table summarizing the metrics.

Engagement mode 1 – “opportunistic” exposure

In this engagement mode, the company gradually enters the market through other activities (e. g., marketing, distribution or production). As it does business, it seizes R & D-related opportunities that emerge from its existing operations. After this initial activity, the company can proactively search for R & D-related opportunities or, as is often the case with foreign mid-sized companies in Israel, be presented with an opportunity by other actors (e. g., the distributor, local companies or local experts). This can be an option for multinationals wanting to test the waters (i. e., to gauge their opportunities and chances) in Israel. The extent

of commitment and resources can be managed and fine-tuned by the company throughout the process.

“How did we first enter the market? We’ve had a business relationship with a small Israeli company for a long time; that company worked for us almost exclusively and we ended up acquiring it.”

Michael Roth, Vice President R & D, ADVA Optical Networking.

The pros of gradual exposure are:

- Good information feedback from target market with on-the-ground representatives.
- Rapid market access.
- Development of stronger relationships.
- The ability to choose the foreign representative.
- Low barriers, in terms of costs, to exit.

The cons of gradual exposure are:

- Since it is a slow process, it may take a considerable time to pursue and seize opportunities.
- There are no dedicated personnel seeking out R & D opportunities, potentially costing the company favorable opportunities.

Exports are a common way to enter a foreign market and most companies began their international expansion through this mode of engagement. Exporting can be carried out via sales representatives or distributors. The company may also use licensing (an agreement to allow foreign companies to manufacture its products) or franchising (semi-independent local business owners pay fees and

royalties to the company). The Israeli operation may also serve as a scout, pinpointing new opportunities for the German company. The company’s tightening business relationship and increasing knowledge of the Israeli market facilitates expanding and deepening market activities.

This engagement mode was common among Mittelstand companies. Of the Mittelstand companies interviewed, most employ a sales-oriented, market-driven internationalization approach. Some used the opportunistic engagement mode by first distributing their products in Israel.

Usually, these companies did not commence operations based on strategic decision-making. Instead, they were first approached by proactive partners, who persuaded them to cooperate locally. In several cases, a presence in Israel resulted in the pursuit of other R & D engagement modes there.

Though it is a common engagement mode in Israel and a common approach by German Mittelstand companies, there are few formal statistics illustrating this approach. We will detail this approach and illustrate its popularity – in Israel, in general, and by Mittelstand companies, in particular – with case studies of three Mittelstand companies: Harro Höfliger, Pilsz and Beckhoff.

Harro Höfliger

Overview	
FULL NAME	Harro Höfliger Verpackungsmaschinen GmbH
HEADQUARTERS	Allmersbach im Tal, Baden-Württemberg
EMPLOYEES	1,000+
SALES	€200 million (2015)
LINE OF BUSINESS	Mechanical engineering and construction
PRIMARY ENGAGEMENT MODE	Opportunistic exposure
ADDITIONAL ENGAGEMENT MODES	-
INTERVIEWEE	Markus Höfliger, CFO

General background and activities in Israel

Höfliger is a mechanical engineering and construction company operating in the pharmaceuticals, medical devices, consumer goods, cosmetics, and chemical engineering industries. The company has eight foreign subsidiaries and a network of several dozen global distributors.

Höfliger is active in the Israeli market. In an interview, CFO Markus Höfliger said, “For several years, we have had good contacts in Israel, these include several Israeli customers. For example, we worked with a local startup that developed a new adhesive bandage system. These bandages can be applied on extremely severe injuries (e. g., hemorrhage of the aorta). The patch immediately binds with the blood, thereby triggering a reaction that closes the wound. This is a fabulous innovation in my view. Also, even though I can’t think of names, I know that Israelis work on other alternative healing devices, for instance on inhalation systems. Our local branch in Israel specializes in pharmaceutical and medical devices; therefore, we are particularly specialized in this area.”

Innovation approach and needs

Höfliger wants to be economically successful by achieving and maintaining a technological edge.

“Keeping this edge is our biggest challenge. There are three main objectives for us: First, we try to expand on our existing businesses,” says Markus Höfliger. “Technology cycles are increasingly getting faster (i. e., technologies must always be kept up-to-date in order to achieve our economic goals). Our second aim is to expand our technology and market segments. Finally, we continuously scan the market for new areas/fields of application in which our existing technologies can be implemented to add value.”

Höfliger’s revenue and sales are growing rapidly, and it currently has over 1,000 employees. It operates in seven technology or business units, which operate in 18 special markets. Innovation must be managed for each unit and is critical throughout the value chain. “I’d be hard-pressed to limit our innovation needs to just a few major ones,” said Markus Höfliger

Ten to 15 years ago, Höfliger developed new products based on customer demand, but it now has its own R & D department that operates freely and independently of customer orders. The department keeps an eye out for new global market segments and its colleagues are in charge of innovation.

In terms of major innovation trends, Höfliger is considering trends that are not necessarily customer-related. These can be described as general “developments” (e. g., a technology-based organizational structure) or initiated by global change (e. g., Europe’s aging population). These developments are not limited just to IoT or big data. Due to globalization and other trends, technology cycles continue

to accelerate and the impacts are felt immediately, affecting the company and its business decisions.

Engagement modes

Höfliger used the partnership mode to tap into the Israeli innovation ecosystem. “At the beginning of 2000, our main markets were in Western Europe, North America and Germany. As a Mittelstand company, we had limited financial resources compared with large corporations, but you can only be successful in global markets if your presence is felt. At that time, we ranked China as the most important market, then India, Russia and South America. In that order, we established our local offices; requiring about three years to set each up,” says Markus Höfliger.

Further, he states that because Israel is a special market, if one establishes a branch office there, it must be economically profitable because for political reasons you cannot do business with the neighboring countries. The company therefore operates in Israel through representatives that cooperate closely with local authorities. Höfliger works with generics giant Teva as well as with small, innovative companies (e. g., the previously mentioned bandage company). The company has been operating in Israel for over 10 years and has determined that Israel’s big advantage is that the knowhow needed to operate technical equipment is readily available.

Höfliger engaged initially with its Israeli partner at a leading trade fair in Germany, where Höfliger was an exhibitor. The Israeli company was interested in Höfliger’s technology and asked whether Höfliger had a representative in Israel or would be interested in collaborating.

Höfliger has 15–20 employees who are familiar with the local culture at its German headquarters.

Höfliger viewed this as a general prerequisite: if you wish to work with someone, you must understand where they’re coming from. As such, the company employs locals overseas rather than German expats.

“All in all, we have collaborative measures with different companies and startups worldwide, including Israel, such as the bandage project mentioned earlier. We developed a prototype for serial production, which was sent to Israel. Now the finished system is in Ireland,” Markus Höfliger concluded.

Höfliger did encounter some barriers when it started doing business with Israel: “The biggest difficulty in our case was that we offer special equipment which must be installed by our German installers. In the beginning of our cooperation we had to send German employees there. The political instability somewhat hampered this and we realized that risk was assessed very differently in Israel. We had to monitor installations quite closely in order not to frustrate our people. This caused some challenges and tension, but nothing that we were unable to resolve.”

Lessons learned

Höfliger’s experience generates several major inputs regarding the need to outsource innovation and utilizing the opportunistic engagement mode in Israel:

- **The existing need of companies to outsource innovation:** Multinationals have recognized that it is difficult to continually enable and manage in-house innovation; as a result, innovation is partially outsourced. Some companies identify startups and acquire them once a breakthrough has succeeded. Others work with startups during the development process because once a startup is acquired by another company, you may have missed the train. The market must be continuously scanned for interesting companies and breakthrough developments.
- **Track trends:** In addition to bottom-up scouting of companies, Höfliger closely monitors major trends, whether technological or societal.
- **Höfliger engagement mode in Israel:** As it does in all new markets, the company employed an opportunistic approach when entering Israel. The principal (and usually sole) driver is market potential/size. In Israel’s case, the company was approached by an Israeli partner.

Pilz GmbH

Overview	
FULL NAME	Pilz GmbH & Co. KG
HEADQUARTERS	Ostfildern, Baden Wurttemberg
EMPLOYEES	2,000 < (worldwide)
SALES	€288 million (2015)
LINE OF BUSINESS	Produces automation technology
PRIMARY ENGAGEMENT MODE	Opportunistic exposure
ADDITIONAL ENGAGEMENT MODES	–
INTERVIEWEE	Renate Pilz, CEO

General background and activities in Israel

Pilz is a leading automation technology company. It provides customized solutions for industries globally, including innovative sensor, control, and drive technology products for the automotive, packaging, wind energy, and logistics industries. Pilz operates 40 foreign subsidiaries and has over 75 distributors.

The company conducts business in Israel through a local distribution partner. Overall, its experience has been positive.

Innovation approach and needs

Pilz focuses on innovation and through a structured system pursues this goal. In an interview, CEO Renate Pilz says, “Our company’s DNA essentially relies on the fact that 20 % of our sales volume is invested in innovation. We employ a very clear structure here. One team is responsible for research and development, another for a phase we call ‘pre-development.’ Among other things, these colleagues work on existing technologies in cooperation with universities and institutes, evaluating the suitability of each technology for the manufacturing process of certain products.”

Pilz has a long-standing customer base that offer suggestions and requests for new innovations. Consequently, the innovation process often starts with the customer. Every request is forwarded to the “pre-development” team and, subsequently, to the R & D team.

From the earliest stage, these teams work with the production-engineering department to prepare the innovation for possible manufacture. One important development aspect is feasibility planning under the credo “innovation is real only if the market accepts it.”

Pilz focuses on automation, in the broadest sense of the term. Within this sector, technologies are constantly evolving and new technologies and materials arise. For example, carbon has largely replaced steel. Innovative materials make new processing techniques possible or even mandatory.

Pilz is impacted by underlying trends, such as Industry 4.0, robotics, and 3-D printing. The company is currently building an application that facilitate collaboration between humans and robots.

Engagement modes

For Pilz, Israel is currently purely a sales market. Renate Pilz stated that, “We have extensive experience with distributors in Israel, but no subsidiary there, because the market’s size wouldn’t justify that.”

Lessons learned

Pilz’s experience generates two major inputs regarding a sales-oriented engagement mode and the overall Israeli market.

- Pilz engagement mode in Israel:** As a market-driven Mittelstand company, Pilz found Israel attractive as a standalone market. The company’s sales-oriented engagement mode can sometimes result in further commitment through scouting, R & D and M & A. The company actively employs a twofold internationalization approach. It is opportunistic (i. e., sales-driven), but Pilz also scouts for potential value-adding R & D partnerships. “Our research has not yet led us to pursue R & D operations in Israel. Having said that, our company is very open to R & D partnerships, in general, and that obviously includes Israel. We constantly scan all markets, including the Israeli market, and we are open to new ideas and inventions. In general, foreign countries are initially seen as potential sales markets and analyzed accordingly. Then, at a later stage, we do research in those countries with our eye on potential R & D partnerships,” said Renate Pilz.
- The Israeli market:** Pilz’s overall experience and perception of the Israeli market is positive. Renate Pilz said, “We do see a difficult environment in the Israeli economy, but with so much talent and structure feel it definitely has a future. The Israeli partners we have worked with are very reliable; we’ve only had positive experiences so far – which is to say we’re always open to doing business there.”

Beckhoff

Overview	
FULL NAME	Beckhoff Automation GmbH & Co. KG
HEADQUARTERS	Verl, North Rhine-Westphalia, Germany
EMPLOYEES	Approx. 3,000 (worldwide)
SALES	€ 620 million (2015)
LINE OF BUSINESS	Produces automation technology in different performance categories
PRIMARY ENGAGEMENT MODE	Opportunistic exposure
ADDITIONAL ENGAGEMENT MODES	-
INTERVIEWEE	Dr. Ursula Frank, Head of Project Management R & D

General background and activities in Israel

Beckhoff Automation implements computer-controlled open automation systems. The product range covers industrial computers, I/O and fieldbus components, drive technology and automation software. Beckhoff has 34 foreign subsidiaries and has over 75 distributors worldwide.

In early 2011, Beckhoff Automation established a subsidiary in Airport City, near Tel Aviv. Intensive market observation and several years of customer support from the German head office preceded this decision.

Innovation approach and needs

Beckhoff Automation is an innovator and first mover of PC-based automation technology. Given its immersion in Industry 4.0, IoT, and cyber technology, it illustrates how Mittelstand companies can integrate and actively use major new trends.

Despite its recent growth and considerable size, Beckhoff Automation still relies heavily on the experience, decision-making, and innovative capacity of its CEO. In an interview, Dr. Ursula Frank, Head of Project Management R & D, said, “We are a known innovator in the field of automation technology – a pioneer in what we do. Our advantage is the ability to act as an early mover and bring new technologies to the market faster. We find that with increased recognition, this becomes more difficult. In recent years, we’ve grown quite rapidly and thus are being taken seriously as a major global player, rather than just a somewhat irrelevant Mittelstand company. This also means we face tough competition, especially from Asia.”

Frank stated that staying at the forefront of development is increasingly complex. In the early days of IT automation, you essentially organized the steering mechanisms of machines. The contemporary Industry 4.0 era entails the digitalization of all business processes as well as a convergence of all data. Beckhoff Automation’s customers expect it to master this process.

The company’s biggest challenge today is finding the right way to manage this new complexity. Traditionally, the company was deeply immersed in the components of computer technology, to the point that it developed its own chips and motherboards, where it frequently confronted the limits of its capacities. Beckhoff Automation had an early start in big data and used its expertise to lay the groundwork for Industry 4.0 at several machinery manufacturers, reducing their “fear” of digitalization and facilitating IoT processes. The company was also involved in early-stage studies on cyber technology and smart factories, shaping the technology in various fields and adapting its strategy accordingly.

The company is continuously involved in cluster research projects. It is safe to say that Industry 4.0 is a logical extension to the company’s business. The company therefore believes that it is on top of most of the trends that shape its business.

To manage the company’s innovations, Beckhoff Automation uses several processes. “Our CEO, Mr. Beckhoff, is at the forefront of most processes – which is a blessing, as he is incredibly skilled, having built the company from scratch. Our biggest indicator for innovation is derived from scanning the market for customer demands, where we focus on the competition, new trends at universities, etc.; we also get a lot of creative input directly from our staff. We try to reach the best possible balance between a ‘technology push’ (i. e., our own ideas) and a ‘market pull’ (i. e., what the market demands). Our contributors cross the entire spectrum, including our main developers, product managers and the innovation team,” said Frank.

Engagement modes

The company employs an opportunistic approach when entering new markets. The principal, and usually only, driver is market potential – a common approach by Mittelstand companies. This case study sheds light on the opportunities available to German companies considering Israel as a standalone market.

Beckhoff Automation’s main operation in the Israeli market is product distribution. “For us, the most important aspect is market demand. We collaborate very well when it comes to business. While the political landscape may be more complex, we have no difficulties doing business in Israel,” said Frank.

“We employ the same approach worldwide; this has nothing to do with Israel. All of our development work is carried out at our headquarters in Germany. We delegate a little bit of it to other sites within Germany (e. g., steering technique in Marktheidenfeld and the development of motherboards in Münster), but the remainder is extremely concentrated. When we go abroad, we seek to sell our products and find local people and train them to do just that. We acted accordingly in Israel: identifying a distributor, commencing our interaction with clients, establishing basic marketing processes and writing up a product catalog,” Frank stated.

Lessons learned

Beckhoff Automation is an example of a market-driven Mittelstand company, which is highly innovative and keeps its R & D largely in-house. The company stresses intellectual property, thus developing all R & D processes internally. The company entered Israel to distribute its products and in this regard can shed light on the country’s potential as a standalone sales market and mechanisms necessary to enter it.

Frank said, “With regard to our impression of the Israeli business landscape, two things are tangible: there is high education and an amazing emphasis on technology. Our approach to the process of entering Israel was purely pragmatic: because of the demand for, and the prospective widespread use of, many of our technologies in Israel, it became a logical conclusion to both our sales/export department and ultimately the management board to create a subsidiary in Israel. In terms of engagement resources when entering Israel, our main point of reference throughout the entire process was the German-Israeli Chamber of Commerce (AHK Israel), which has proven to be very helpful. In our Israeli operations we now focus on three aspects: distribution, training and support.”

Engagement mode 2 – scouting

Scouting is the gathering of information about a particular market – its trends, technologies and startups. It can involve general research or be focused on a specific

technological area, identifying relevant developments for a company. Scouting can be accomplished in three ways:

Local specialists who are not part of the company

External consultants who have a greater understanding of the local market: this option has the lowest price tag of the three, as it does not carry the overhead costs of setting up an office and hiring full-time employees, and compensation is usually tied to a specific deal. Such local specialists are usually focused on M & A and their interests lie in the success of the deals that they broker. The scout is usually compensated with a three to five percent finder’s fee (paid by either the buyer or the seller), the payment contingent upon success. This mode also requires less commitment, as the company can easily terminate any agreement. However, it affords the company only limited control as the scout is not an employee and, consequently, may not reflect the company’s procedures or values.

Local company employees

This mode constitutes a higher degree of commitment on the company’s part as it utilizes full-time local employees. Local staff can be trained to reflect the company’s vision and objectives. The company can set up an office for them or, as is often the case in Israel, use one of the numerous high-tech shared working spaces. As locals, they provide a very good understanding of the ecosystem and possess a social network, which exposes them to local knowledge and better deals. One of their vital tasks is to connect the startups they find with the relevant department at the company. This is a sensitive role, as it requires these local staff to serve as mediators and facilitate the entire process. As such, if they lack sufficient knowledge of the company’s personnel and routines, they may be unable to successfully make matches. For this reason, some companies choose to send German employees with substantial knowledge of the company to Israel.

Germans or employees from the company who reside in Israel

Relocating company employees to Israel to investigate the local market is the most expensive option. The opposite of engaging an Israeli scout, the advantages and disadvantages are reversed: the person is familiar with the company’s routines and systems and, consequently, will be a better matchmaker when a potential startup for collaboration is found. However, as a foreigner in Israel, employees

will need time to familiarize themselves with the local ecosystem to develop the necessary social network.

The pros of scouting are:

- Systematic screening of potential companies and technologies.
- Carried out within the target country by company employees or external scouts.
- Lower cost compared to other engagement modes.
- Takes little time to launch as well as terminate.
- Can lead to additional business activity in the future.

The cons of scouting are:

- Using an external scout makes it harder to control the effort of finding companies and an external scout rarely can manage an entire M & A process alone.
- A local person requires time to understand the company’s needs, to learn how to match potential companies with the relevant departments in the home company, and to become familiar with the social norms and best engagement processes.
- A person from the home country requires time to build a local social network and to gain an in-depth understanding of the ecosystem. It is also more costly: relocating an employee to a foreign country is typically triple the cost of engaging a local.

“We work with a local scouting team focusing on M&As. Ideally, an employee of the company should be appointed to lead the scouting process, report directly to the CEO/owner and ‘push’ the process inside the organization.”

Mor Yegerman, General Manager, Mail.ru

It is estimated that there are currently 5,000–7,000 active high-tech startups in Israel. Additionally, there is a high concentration of creative technical talent and large expenditures on R & D. Given this environment, there are many multinationals scouting the Israeli market for new and innovative technologies via internal or external staff. We will go into the details of this approach in the case studies of three multinationals: mail.ru, which uses local specialists who are not part of the company, Bosch, which employs Israelis, and Siemens, which employs Germans who reside in Israel.

Mail.ru Group

Overview	
FULL NAME	Mail.Ru Group Limited
HEADQUARTERS	Moscow, Russia
EMPLOYEES	3,000
SALES	€ 513 million
LINE OF BUSINESS	Provides Russian language email, social networks, ecommerce and gaming services
PRIMARY ENGAGEMENT MODE	Scouting
ADDITIONAL ENGAGEMENT MODES	M&A
INTERVIEWEE	Mor Yegerman, General Manager Shanni Shivhon, Deal Flow & Business Development

General background and activities in Israel

Mail.ru is a major company in the Russian-speaking internet market. Its products reach approximately 94 % of Russian internet users monthly, and it leads on Russian desktop and mobile platforms.

The company employs an external company named “M.Y innovation” for scouting duties in Israel. “M.Y innovation,” which supplies scouting services to corporations, employs three experts, all of whom once worked for Mirabilis, the Israeli company that developed the ICQ instant messaging program. ICQ (I Seek You) allowed users to chat with their friends and participate in PC-to-PC, PC-to-phone, and phone-to-phone calls. In 1998, Mirabilis was acquired by America Online (AOL) for € 370 million – € 260 million in cash – for 100 % of Mirabilis’s assets and contingent payments totaling € 110 million over a three-year period. ICQ became an Israel-based R & D center for Mail.ru, with roughly 100 employees. Mail.ru subsequently relocated ICQ’s R & D activities to Russia.

Simultaneously, the company decided to change the business model of its Israeli division to become Mail.ru’s sole scouting branch worldwide. The idea of transforming the Israeli center to scouting made sense because Mail.ru already had a foothold in the local innovation market. By 2016, Mail.ru had invested in two Israeli companies and led numerous collaborations with Israeli startups.

Innovation approach and needs

Mail.ru's needs are focused on its email, social networks, e-commerce and gaming services businesses. The needs are defined by two sources: higher management and the local team. For example, the Israeli team noticed that 40 % of users utilize ad-blocking software (which blocks the displaying of advertising on websites) and that there are Israeli companies offering countermeasures.

Engagement modes

Mail.ru used two engagement modes (i. e., scouting and M & A) to tap into Israeli innovation:

- **Scouting:** The scouting activities are conducted by three external experts. In general, the scout team has two main objectives: to obtain market information and establish collaborations. The team is responsible for gathering information on major trends in Mail.ru's markets, both local and worldwide. Furthermore, to expand and improve the company's solutions, the team also seeks relevant collaborations that can create project flows within Mail.ru. In terms of organizational structure, the scouts report to the CEO.

The work process is split into two parts: assessing startups and sharing inputs with the headquarters in Russia. The team initially meets a large pool of startups and conducts research and analysis on those that appear to be a good fit. Every two months, the team meets Mail.ru's management in Russia to share information and ideas for innovation. On the agenda: market trends and collaboration options as well as innovation development inside the company, pilots with specific startups, investments and M & As.
- **M & A:** To date, Mail.ru has invested in two Israeli companies. The Israeli team also took part in M & A transactions abroad and undertook dozens of collaborations with startups. For instance, the Israeli team brought in numerous partnerships for the Small-to-medium-sized enterprises portal project that Mail.ru established.

Lessons learned

The following inputs are from an interview with General Manager Mor Yegerman and Deal-Flow & Business Development Manager Shanni Shivhon. Mittelstand

companies can use several engagement modes to tap into Israeli innovation capabilities:

- **Establishing a VC fund and undertaking financial and strategic investments:** The disadvantage of this model is that VC success mainly depends on its exit ratio, which is less relevant for Mail.ru, since the primary objective is improving innovation in the company's operations.
- **Working with a local scouting team focusing on M & A deal-flow:** In this strategy, the team's interests may lie in the success of the deal that they broker and this interest may differ from the company's. The scout can charge a five percent finder's fee, which is only paid upon success and can be paid by the buyer or seller. Ideally, a company employee should be appointed to lead the scouting process, reporting directly to the CEO/owner and pushing the process inside the organization.
- **Establishing a separate company or working with an external local company that works on retainer and is measured by the number of projects and collaborations it secures:** The costs of such a company can vary. The company can be managed by (1) a partnership of several companies, decreasing costs; (2) an employee who manages the company at a cost of tens of thousands of euros per year; or (3) several employees at a cost of several hundred thousand euros per year.
- **Building or acquiring a stake in an R & D center:** For Mittelstand companies, this is a later-stage strategy, after the company has gained a foothold or adequate knowledge about the local market.
- **"Designer partners":** A partnership between an Israeli company and Mittelstand company, in which a specific development is made for a Mittelstand company. Through this project, the company learns about the nature of the other partner and innovation capabilities in Israel.
- **Purchasing Israeli products or services for internal needs:** In this case, the risk is significantly reduced and Mittelstand companies are gradually exposed to the Israeli innovation ecosystem and market characteristics. However, it is only relevant to the specific products or services that a Mittelstand company has purchased.

Robert Bosch GmbH

Overview	
FULL NAME	Robert Bosch GmbH
HEADQUARTERS	Gerlingen, Germany
EMPLOYEES	375,000
SALES	€ 71 billion (2015)
LINE OF BUSINESS	Manufactures automotive components, industrial and building products
PRIMARY ENGAGEMENT MODE	Scouting with an internal team
ADDITIONAL ENGAGEMENT MODES	R&D center
INTERVIEWEE	Dr. David Abraham, Head of RTO

General background and activities in Israel

Since its founding in 1886, Bosch's global manufacturing and sales network has grown to cover 150 countries. The company operates in four sectors: mobility solutions, industrial technology, consumer goods, and energy and building technology. Sixty percent of Bosch's business is related to the automotive industry, where it is the world's largest independent parts supplier. The foundation of the company's future growth is its innovative strength. Bosch has 375,000 employees at 118 locations around the globe. Bosch's strategic objective is to deliver innovations for a connected life.

Bosch has been active in the Israeli market for many years through a local distributor, Ledico Limited, and through purchasing agreements with Israeli parts suppliers in the traditional automotive segment. In 2016, Bosch established a research and technology office in Tel Aviv in order to work more closely with scientific institutions and universities as well as to identify innovative startups operating in machine learning, robotics, cybersecurity, connectivity, and IoT.

Innovation approach and needs

The following quotes and inputs are based on an interview with Dr. David Abraham, Head of RTO, Robert Bosch GmbH (the Regional Technology Office scouts for new technologies in fields that are relevant to Bosch).

"In general, the automotive industry is characterized by incremental innovation; hence, most firms stay in their 'comfort zone' and prefer to be conservative when it comes to new technologies. Bosch has realized that disruptive innovation in the automotive industry comes from technological fields and that Israel is an important global

player in these areas. Strong evidence of the major forces that are changing the industry can be seen by the entrance of technology companies such as Google and Mobileye to the automotive industry. Specific innovation needs in the automotive industry are related to autonomous cars and cybersecurity," said Dr. Abraham.

Engagement modes

In 2010, Bosch founded a corporate venture fund – Robert Bosch Venture Capital GmbH (RBVC). RBVC operates in Europe and includes two branches: in Silicon Valley and Tel Aviv. RBVC invests in seed, early and late-stage venture capital rounds, and participates in follow-on investments in privately held companies. Typically, RBVC invests € 6–15 million for a 10–25 % equity position in each company.

RBVC prefers to syndicate its investments with existing or new investors. One of the main reasons for using a VC firm as a main engagement mode is to attract potential companies unfamiliar with Bosch's activities by offering capital investments.

Bosch also has a corporate basic research unit that works on technological breakthroughs in software, robotics and engine management. This unit constantly develops new ideas for improving efficiency, safety, and reducing environmental impacts as well as opens up entirely new lines of business. Usually, it takes five to ten years to complete a project. Afterward, the project is moved to the R & D department. The unit reports to the president of Corporate Research, who occasionally visits Israel to examine the local innovation ecosystem and gain firsthand knowledge.

The Corporate Research unit uses two main engagement modes to gain a foothold in new innovation hubs. First, it opened a research and technology center; this mode demands a high degree of commitment. Second, the unit is testing the waters through an RTO. The substantial Israeli high-tech cluster in automotive technologies was the reason Bosch decided in 2016 to establish a new RTO in Tel Aviv. The company preferred to open an RTO instead of working with an external scouting team, because in this way it could subsequently transform the RTO into a RTC (Regional Technology Company) – organically or through an M & A.

Lessons learned

Bosch's experience generates three lines of insights: the potential of the Israeli market, building scouting capabilities and alternative engagement modes.

- The potential of the Israeli market:** Bosch perceives the Israeli innovation ecosystem as an interesting opportunity for Mittelstand companies. "These companies work according to the same business model for years, manufacturing high-quality goods and exporting predominantly within Europe. However, some industries experience disruptive innovation processes that force these Mittelstand companies to act, or else, be left behind. At this point, tapping into the Israeli ecosystem can be very relevant. For instance – machine makers discovered a demand for connectable machines, which connect the plant's control system through a cloud-based platform with analytic tools. In order to meet this demand, the manufacturer must have knowledge in the areas of cyber and sensors – areas in which Israeli companies excel," said Dr. Abraham.
- Building scouting capabilities:** Bosch sees the scouting mode as a suitable mode for Mittelstand companies seeking to engage the Israeli market, mainly because of its relatively low cost (one or just a few scouts are enough to start with). Other cost-saving options include: (1) to scout with additional companies and split the cost; and (2) to recruit a local scouting expert. Dr. Abraham said, "There are, however, disadvantages to these modes, mainly the inability to harness the entire organization to the process. In this regard, appointing one of the company's employees to the scout position is preferable, since she/he better understands how to harness the organization's potential, and her/his interests are more aligned to those of the organization. When examining whether to establish some sort of scouting mechanisms, the company should not only focus on the obvious benefits, but should also take into consideration the loss of potential benefits if scouting mechanisms are not built. Due to the vibrant innovation ecosystem in Israel, the company can be assured that it will not miss upgrades to its machines and products – if such a scouting mechanism is in place."
- Other possible engagement modes:** According to Dr. Abraham, Bosch has several inputs regarding Mittelstand companies deploying other possible engagement modes:
 - Founding accelerators in areas other than software requires direct dialogue with an R & D center; in the software or fintech fields, it is easier to build an accelerator remotely; however, in industrial fields, a more direct, local R & D, connection is required. Therefore, for Mittelstand companies in industrial sectors, establishing an accelerator should not be the first engagement mode.
 - Mittelstand companies should also consider "jumping straight in" by founding or acquiring an R & D center from the start. This can help harness the entire organization for the process and tap into the Israeli innovation ecosystem more efficiently.

Siemens

Overview	
FULL NAME	Siemens AG
HEADQUARTERS	Munich, Germany
EMPLOYEES	348,000
SALES	€ 76 billion (2015)
LINE OF BUSINESS	Produces technologies in the areas of electrification, automation and digitalization
PRIMARY ENGAGEMENT MODE	Scouting
ADDITIONAL ENGAGEMENT MODES	R & D Center and Headquarter
INTERVIEWEE	Dr. René Pompl, Head of TTB, Tel Aviv

General background and activities in Israel

Siemens AG operates in ten industries:

- **Power and gas** – offering products and solutions for generating electricity from fossil fuels and renewable energy and for transporting oil and natural gas.
- **Power generation services** – offering power generation equipment.
- **Wind power and renewables** – providing solutions for the wind power industry.
- **Energy management** – supplying products, systems, solutions, and services for the transmission and distribution of electrical energy.
- **Building technologies** – including building and infrastructure systems.
- **Mobility** – focusing on passenger and freight transportation solutions.

- **Digital factory** – offering automation technology, industrial switchgear, industry software and related services.
- **Process industries and drives** – offering various systems and solutions to industrial sectors.
- **Healthcare** – specializing in medical imaging, laboratory diagnostics and IT solutions for the healthcare industry.
- **Financial services** – providing business-to-business financial solutions.

Siemens has been present in Israel for nearly 90 years – since before the country’s founding. In 2000, Siemens Israel Ltd. was established and headquartered in Rosh Ha’Ayin. Since then, Siemens has been involved in the country’s key strategic infrastructure, energy, industrial, healthcare, and mobility projects, and has undertaken procurement and investment activities exceeding € 1 billion.

Innovation approach and needs

Siemens has a comprehensive setup to deal with the startup world, with the intention to invest in startups, partner with them or found them. This setup comprises four entities:

1. Siemens Venture Capital – invests in startups to establish and strengthen business partnerships.
2. Siemens Technology-to-Business (TTB) – helps Siemens businesses to systematically access and leverage startup innovations. The TTB has four centers located in Berkeley, Shanghai, Munich and Tel Aviv.
3. Siemens Novel Businesses – creates startups to develop disruptive business opportunities.
4. Siemens Technology Accelerator – commercializes technologies outside Siemens’ business areas.

The TTB’s focus over the next five years will be in: distributed electrification, autonomous machines, connected (e-)Mobility, artificial intelligence, block-chain applications, and eAircraft.

Engagement modes

Siemens utilizes several modes in Israel, but for the purpose of this study we will focus on its Tel Aviv TTB center, which applies three major approaches:

1. Engage with startups, universities, and entrepreneurs to facilitate direct interaction between Siemens’ businesses and innovation ecosystems (e. g., startups and VCs).

2. Identify and evaluate external innovations that could be relevant to Siemens as well as identify trends using startup ecosystems as a window to the future.
3. Validate relevance to Siemens of external innovations in projects with startups and Siemens business units.

The Siemens Tel Aviv center (as well as its other TTB centers around the world) offers the company’s business units the following value propositions:

- Gain insights into emergent spaces and help create strategy.
- Enhance the company’s product portfolio.
- Create (low-cost) sourcing options.
- Accelerate new business models.
- Address disruptions and competitive challenges.
- Access key customers in new ways.

Siemens also launched a new TTB program, called next47, with € 1 billion in funding for the first five years. The Tel Aviv TTB will be a part of this program.

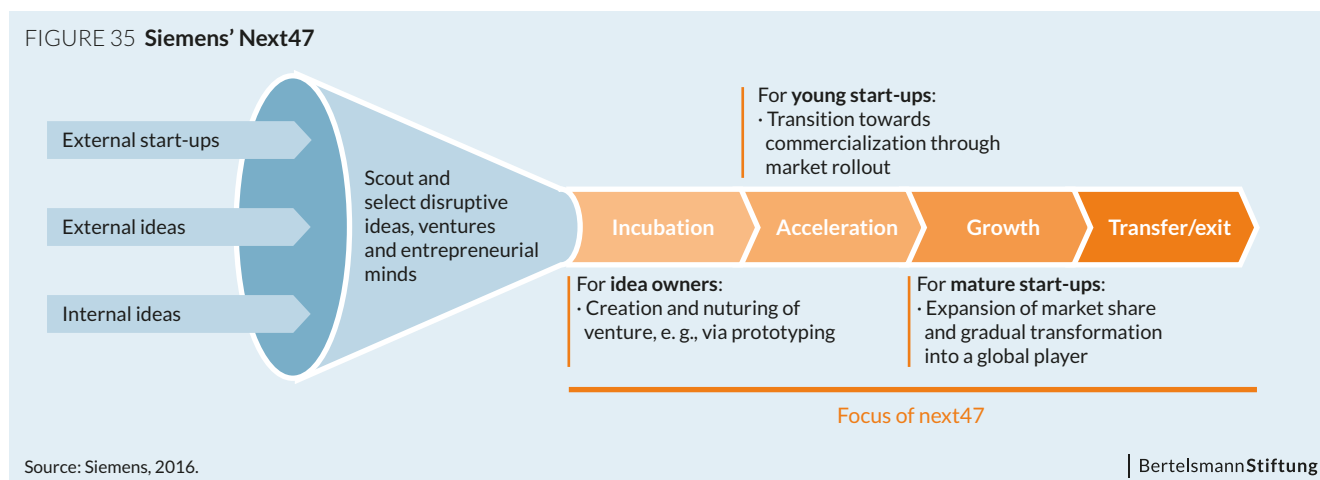
Siemens’ goal is to become the world’s premier location for innovative ventures shaping the future of electrification, automation and digitalization.

The program venturing approach is summed up in the following chart, illustrating the funnel the company has from scouting and prioritizing, to actively engaging with startups along various life stages.

Lessons learned

Siemens is a multinational with resources far beyond Mittelstand companies, but its Tel Aviv TTB offers Mittelstand companies a scouting approach that can be implemented with significantly smaller investments; the same was illustrated in the Mail.ru case study.

The engagement mode utilized by Siemens is noteworthy as the company chose to assign German employees to its Tel Aviv TTB. These employees offer Siemens a high degree of commitment, a good understanding of the company’s vision and objectives, and a strong understanding of how to assist startups and pilots to succeed within the company. The latter is a very sensitive role as they serve as mediators and facilitate the entire process. Of course, this mode, employing Germans as scouts in Israel, is more expensive than other scouting modes (such as using external expert scouts or local employees).



Engagement mode 3 – accelerators and incubators

Incubators have existed in Israel since 1992. Currently, the country has 24, established by the government during the emergent stage Israeli's startup ecosystem. Their aim is to support nascent ideas and supply entrepreneurs with the initial infrastructure needed to develop their ideas into a startup. The companies who enter the incubator receive funding as well as other services (e. g., mentoring, guidance, accounting and legal consulting). These incubators are owned and supported by the IIA. Over the past 15 years, their operations have been privatized. Today, private companies receive a 10-year license from the government to operate an incubator. In the current model of operation, the startups receive funding from the operators of the incubators in exchange for equity in the startup. In addition, they receive a larger amount of funding from the IIA. The upside of IIA funding is that the startups do not give equity in exchange for funds. The downside is that it sets limits on the transfer of a startup's IP outside of Israel. As a result of this IP complexity, foreign companies tend not to work with incubators.

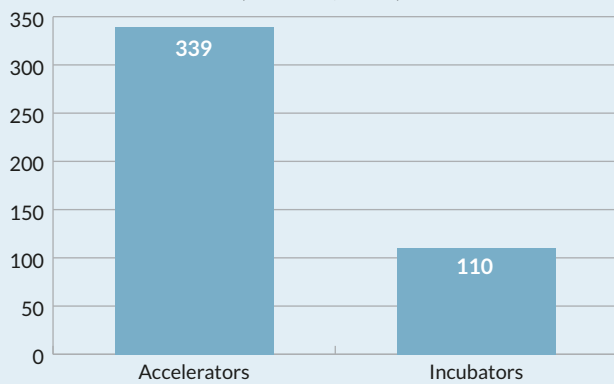
Accelerators are a relatively new phenomenon, emerging over the past seven or eight years. Accelerator is a generic name for several types of institutions, including pre-accelerators, accelerator scalators, co-working spaces with mentoring, co-working places without mentoring and corporate accelerating programs. Given their diverse structures, these types of institutions entail a variety of different benefits and costs for companies. Generally, the aim of these institutions is to support early-stage, growth-driven startups through education, mentorship, access to data and other resources. Startups enter accelerators for a

fixed time (usually four months). This is not the same in co-working spaces – where a startup rents space without enlisting in a formal program. Nonetheless, the main advantage of being involved in an accelerator (in any of its various forms) or an incubator is that it exposes a company to many early-stage startups and creates a steady deal-flow for inspection. Additionally, this mode enables the company to monitor ideas and innovation related to its business lines and R & D needs.

We have identified three sub-categories within this engagement mode; each differs in terms of risk, commitment, control and costs:

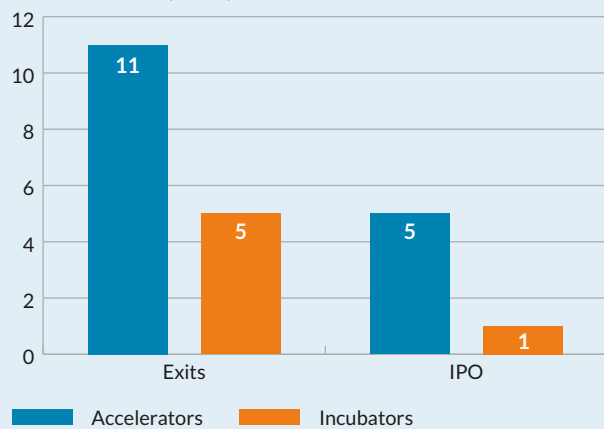
- **Generating a partnership with a local accelerator:** This entails lower costs for each partner by allowing them to split the total cost. However, it offers less control as it requires shared understanding among the partners. In this option, the German company draws up a program and finances teams to work on ideas that correspond with its R & D needs.
- **Founding an accelerator in Israel:** A German company can establish a wholly owned local accelerator. This is more expensive, but can be a good way to learn about the Israeli market, while maintaining full control of projects, and serve as a complimentary service for scouting.
- **Founding an incubator:** This necessitates higher risks and commitment, as the company must invest substantial capital and allocate a workforce for a longer period of time. This model fits companies whose R & D process is longer and requires more funds (e. g., pharmaceutical companies). A company that chooses

FIGURE 36 Capital raised by graduates of accelerators and incubators (€ million, 2015)



Source: www.geektime.com, 2016.

Number of exits and IPOs, by graduates of accelerators and incubators (2015)



BertelsmannStiftung

this type of engagement also needs to decide whether to accept government support (with IP restrictions) or open its own incubator (without IP restrictions). So far, only one foreign company, Merck Ventures, has established its own incubator.

The pros of accelerators and incubators are:

- Experimental, fast-paced environments where ideas can flourish and grow, protected from organizational structures, processes, and politics.
- Injecting ideas, technologies and pilots into an organization.
- Can be set up in collaboration with several non-competing companies.
- Supports scouting for other opportunities in the market.

The cons of accelerators and incubators are:

- Establishing a corporate accelerator/incubator requires precise strategic direction and clearly defined goals (e. g., number of pilots and investments).
- Requires strong commitment from a company and its leadership.
- Resources are needed to build the accelerator/incubator in terms of management, workforce and capital.
- Attracting the most promising entrepreneurs and startups involves fierce competition.
- IP complexity, in the case of a government-financed incubator.

“Establishing an accelerator may be more suitable for Mittelstand companies in partnership with a local company.”

Dr. Rom Eliaz, Head of the Israel Bio-Incubator, Merck KGaA, Darmstadt, Germany

Currently, there are between 120 and 150 active or pre-launch accelerators in Israel, spread across the country. Over the past year, a strong corporate accelerator trend has emerged in Israel with companies, usually large multinationals, seeking to gain access to the startup and innovation market. There has also been a surge in specialized accelerators targeting specific sectors or clients.

The popularity of accelerators in Israel can be illustrated by their sheer numbers, particularly when compared with Germany, which is home to only a few dozen accelerators.

The following charts further illustrate the current importance and magnitude of accelerators in Israeli high-tech: € 339 million was raised in 2015 alone by startups participating in accelerator programs; 474 startups graduated from accelerators in that same year, with more than half receiving funding; and 16 exits and IPOs were achieved by accelerator graduates.

Incubators are another mechanism. Currently there are 24 government incubators in Israel, of which 22 are technological incubators; one is a technology-based industrial incubator and one a designated biotech incubator. The incubators are spread across the country, including eight in peripheral areas. Approximately 180 companies in various stages of R & D operate in the incubators at any given time.

Selection of an incubator licensee is carried out through a competitive tender process in which the winner receives a 10-year license to operate an incubator in Israel. The competitive process is open to both local and foreign



entities. The main benefit is that the government supports the financing of startups in which the incubator invests.

The following case studies of Coca-Cola, Microsoft, Deutsche Telekom, and Merck are all examples of multinationals using accelerators and incubators as an engagement mode.

Coca-Cola

Overview	
FULL NAME	The Coca-Cola company
HEADQUARTERS	Atlanta, Georgia, USA
EMPLOYEES	123,200
SALES	€40 billion
LINE OF BUSINESS	Manufactures and markets beverages and syrups
PRIMARY ENGAGEMENT MODE	Accelerator
ADDITIONAL ENGAGEMENT MODES	R&D centers, M&A, partnership
INTERVIEWEE	Anonymous

General background and activities in Israel

The Coca-Cola Company owns, licenses and markets over 500 nonalcoholic beverage brands. The company also markets, manufactures and sells beverage concentrates, including fountain syrups. It owns leading beverage brands, including Coca-Cola, Diet Coke, Fanta and Sprite.

The Central Bottling Company Ltd. (CBC) has held the Coca-Cola franchise license in Israel since 1968. It currently

includes the Coca-Cola, Diet Coca-Cola, Coca-Cola Zero, Fanta, Sprite, Nestea and Kinley Soda franchises. CBC is among Coca-Cola's largest bottling facilities worldwide and has grown into a group of companies, which controls 40% of the Israeli beverages market, offering products ranging from mineral water to soft drinks to all-natural fruit juices to beer. CBC distributes products to 21,000 supermarkets, stores, restaurants, coffee shops, hotels and other points of sale throughout the country.

Following the establishment of sales and manufacturing operations in Israel, the company founded an accelerator, based in Tel Aviv, called The Bridge. This engagement mode is the focus of the following case study.

Innovation approach and needs

Given current global interconnectivity and the speed with which new technologies are being developed, Coca-Cola realized that it must proactively understand new trends and customer needs. The company identified five core themes it wants to explore to enhance its marketing and operations: consumer engagement, consumer retail, supply chain, marketing innovation, and health and wellness.

Engagement mode

Coca-Cola usually develops, acquires or scales up sustainable innovations through six R & D centers around the world. These centers are linked to external technology assessment and acquisition (ETA) hubs, which connect the company with partners, entrepreneurs, tech startups, and university researchers. Each R & D center works closely with regional Coca-Cola marketing teams to address local needs

and focuses on a particular area of innovation. The network also enables Coca-Cola to apply a lead-market model to launch innovations.

To obtain new technology, the company established The Bridge program. The Bridge is a commercialization program for startups, acting as a bridge between the Israeli entrepreneur community and all major global markets: the United States, Europe, Africa/Eurasia and the Pacific.

The company set up its accelerator with the objective of exploiting particular areas of technological breakthrough, advancements in emerging software technologies, and techniques to drive efficiencies and gain an exponentially improving competitive advantage. It also aimed to develop and incubate startups customized to meet its needs.

The company’s program lasts six months and provides tangible commercial guidance, by providing the startups with in-depth marketing training, access to experienced business mentors, and links to the company’s partners. The commercialization process includes an opportunity for an in-house pilot and a chance to license the startup’s products to Coca-Cola and/or its partners. The Bridge does not require any equity from the startups or IP ownership.

The Bridge’s startups range from early-stage to growth startups. They offer software solutions that are ready for commercialization and fit one of the five core themes mentioned previously.

After Coca-Cola launched The Bridge, the American media company Turner joined the program as a collaborator, granting exclusive licenses to the program’s startups.

The program’s objective is to have one out of every ten startups conclude a successful pilot and secure a license within the program activation period. Through mid-2016, The Bridge listed 160 applications annually, 32 selected startups over three years, and 60 pilots concluded/ in-progress.

Lessons learned

There are several lessons to be learned from Coca-Cola’s experience:

- **An accelerator as a major (and trending) engagement mode in Israel:** This mode allows for an experimental environment – Coca-Cola’s The Bridge program offers permission to explore and fail. This atmosphere

helps innovation to grow unrestricted by a company’s organizational structure and processes. Accelerators can also quickly adjust to evolving trends.

- **Collaborations:** Non-competing companies can collaborate to share the resources needed for such programs, in the way that Coca-Cola and Turner collaborate on The Bridge.

Microsoft Corporation

Overview	
FULL NAME	Microsoft Corporation
HEADQUARTERS	Microsoft Redmond campus, Redmond, Washington, United States
EMPLOYEES	114,000
SALES	€ 77 billion (2015)
LINE OF BUSINESS	Develops, licenses and supports a range of software products, services and devices
PRIMARY ENGAGEMENT MODE	Accelerators
ADDITIONAL ENGAGEMENT MODES	Scouting, VC, partnership, R&D center, M&A
INTERVIEWEE	Adir Ron, Open Source Lead at Microsoft
OTHER INPUTS	An interview with Tzahi Weisfeld, Head of Microsoft Ventures Europe and Global Accelerators Program, conducted in 2015 by the Israeli financial Newspaper, Globes

General background and activities in Israel

Founded in 1991, Microsoft Israel Research & Development Center is one of Microsoft’s three strategic global development centers. The center has two offices in Israel, employing 600 workers. Microsoft Israel includes incubation and mature product development activities as well as cloud and other online services.

The Israel R & D center also serves as an anchor for the venture capital industry and startup community, facilitating technology and business cooperation between Israeli industry and Microsoft’s product groups.

Major breakthroughs developed in Israel include the translation of Microsoft software into Hebrew and the development of Logic Hebrew for internet applications.

Innovation approach and needs

Internet of Things (IoT) is a major trend and a field that Microsoft invests heavily in. In general terms, IoT is the connectivity of physical items (“things”), enabling them to collect and exchange data. IoT creates several innovation needs, mostly in the fields of analytics and cyber. In terms of analytics, IoT is designed to tackle multiple problems. First, businesses are typically not fully aware of the magnitude of information that can be gathered on the production floor. Today, companies usually analyze information per machine, rather than viewing all the machines on the production floor as one system. Very few businesses have the ability to read and process this information as a whole. Moreover, organizations often cannot track historical information and lack the ability to analyze real-time data.

Although machines on the production floor can already upload information to the cloud, there are still developments to be made in implementing cyber systems in machines. With the increasing popularity of IoT, cybersecurity plays a major role in protecting machines now vulnerable to cyberattacks. The cyberattacks on Iran’s nuclear base in Natanz emphasize the damage that hackers can do. According to The New York Times, a computer worm was inserted into the facility infecting specific industrial control systems. Once it turned itself on, it accelerated or decelerated the centrifuges until they destroyed themselves.

Consequently, both analytics and cyber are areas of focus for Microsoft.

Engagement modes

As a large multinational, Microsoft has used several engagement modes to enter and deepening its presence in Israel.

One very successful mode is Microsoft Accelerator, which assists startups in scaling in a vast selection of verticals. It offers a four-month program in which startups gain increased visibility with investors, benefit from mentorship with top serial entrepreneurs, and participate in one-on-one sessions with experts in customer development, marketing, funding, and other subjects.

By the close of 2015, 70 startups with 400 entrepreneurs had passed through Microsoft’s accelerator. There have also been three exits – four percent of all the companies

that graduated from the program. In the top ten corporate accelerators in the United States the average is much lower: 59 % of all the companies raised an average of € 1.5 million, with a two percent rate of exits.

The program began as a local initiative of the R & D center in Israel out of a desire to have more direct contact with the local ecosystem. The model was then adopted by development centers in India and China, before eventually becoming a global program with seven accelerators worldwide.

For startups to participate, several selection criteria must be met: the startup must employ a balanced team with at least one founder who is a technology specialist; develop an idea that is big enough and can produce a significant impact; comprise a coachable team that has a chance to raise money; and be led by a strong CEO capable of going through difficult trials.

Other engagement modes that Microsoft uses:

- **Scouting:** Microsoft established a lab, The Garage, which offers advanced equipment and facilities, including 3D printers, which can produce prototypes, and laser machines, which can cut to a width of 0.01 mm. The Garage is available to outside startups, free of charge, by appointment. The startup can work on prototypes using equipment too expensive for it to otherwise access.
- **R & D Center:** The center was established in 1991 by two Israeli engineers who worked at some of Microsoft’s international branches.
- **VC:** Microsoft Ventures is an active, strategic partner at key stages of a startup’s growth, typically investing between Series A and D funds and with a focus on cloud startups.
- **Partnerships:** Microsoft develops IoT hardware in collaboration with Intel, at the largest IoT laboratory in Israel.
- **M & A:** In order to expand its IoT, analytics, and cyber capabilities and to capitalize on specific Israeli experience gained mostly in Unit 8200 (the IDF signal intelligence unit), Microsoft makes M & A deals. Recent notable Microsoft M & As are Adallom (€ 294 million), N-trig (€ 184 million), Secure Islands Technologies, Equivio and Aorato (the latter three for undisclosed amounts).

Lessons learned

Microsoft's experience generates two major inputs regarding IoT and engagement modes:

- **IoT:** This field is at the forefront of the Israeli high-tech ecosystem and where Microsoft pinpointed two very strong clusters: analytics and cybersecurity.
- **Engagement mode:** Microsoft has had a very good experience entering Israel and deepening its presence. However, employing all of the engagement modes used by Microsoft is better suited to large corporations. Mittelstand companies would do better to test the water before fully committing to entering Israel.

To pursue this more incremental approach, a Mittelstand company could consider testing and implementing Israeli solutions in analytics and cyber within their own production lines (i. e., buying the products and solutions for their own use). In both analytics and cyber, Mittelstand companies can experience Israeli IoT and innovation, while optimizing their current business processes. For instance, Mittelstand manufacturers can improve their production efficiencies by using Israeli information analytics solutions on their own assembly lines. This mode offers businesses a comprehensive view of their entire production floor, tracks historic information, and locates production problems, at both low cost and risk.

Mittelstand manufacturers can also implement Israeli cyber solutions in their plants and test their performance. After implementing these solutions, the Mittelstand companies will have gained a greater understanding of Israeli offerings, and gained experience working and communicating with Israeli startups and companies, at which point they could proceed to higher involvement modes of engagement.

Deutsche Telekom

Overview	
FULL NAME	Deutsche Telekom AG
HEADQUARTERS	Bonn, Germany
EMPLOYEES	226,000
SALES	€ 69 billion (2015)
LINE OF BUSINESS	Provides information technology (IT) and telecommunications services
PRIMARY ENGAGEMENT MODE	Accelerator
ADDITIONAL ENGAGEMENT MODES	Scouting
INTERVIEWEE	Stephanie Cherrin, Investment and Program Manager, Hub:raum Deutsche Telekom

General background and activities in Israel

Deutsche Telekom (DT) provides IT and telecommunications services. Its operating segments include fixed-network, mobile, and systems solutions, which operates ICT systems for multinationals and public sector institutions. The company's fixed-network business includes voice and data communications based on fixed-network and broadband technology, and the sale of terminal equipment and other hardware.

DT has been active in Israel for over ten years, though the company does not have fixed-network or end-users in Israel. Its extensive Israeli operations include:

- **T-Labs:** In 2004, Telekom Innovation Laboratories (DT's R & D division) established network security R & D labs with Ben-Gurion University. In these labs, Israeli scientists collaborate with DT experts to bring their designs for the future of ICT into reality. This was DT's first engagement with the Israeli market.
- **DT Capital Partners (DTCP):** DTCP is DT's investment management group. It undertakes financial and strategic venture capital investments in technology companies based in Europe, Silicon Valley, and Israel. DTCP looks for technology assets with sophisticated intellectual property and differentiated business models with high disruption potential. With approximately € 2 billion under management and a portfolio of over 70 companies, DTCP provides venture capital, private equity, and strategic advisory services to the technology, media, and telecommunication sectors. DTCP has three offices: in Berlin, Silicon Valley and Herzliya.

- **Collaboration center:** Similar to DT's offices in Germany and Silicon Valley, the Israeli office serves as the front-end of the scouting and business development activities for the group in Israel – the first point of contact for inquiries on venture investment.
- **Hub:raum:** This accelerator, which is the focus of our case study, links tech entrepreneurs and high-growth startup companies with the expert network, capital, and business opportunities of DT. Hub:raum offers financing, a co-working space, mentoring, networking events and connections to DT business units as well as access to customers. In exchange, DT takes 10 to 15% in equity. The Israeli branch was established two years ago in Tel Aviv to connect the digital startup ecosystem with DT. It focuses on early-stage companies and relevant collaborations.

Innovation approach and needs

DT's innovation strategy not only considers technological aspects, but also social developments, customer requirements and current market trends. DT has identified five key areas for its innovation strategy, which direct its research:

- **Intuitive usability:** Focusing on voice control and automated personalization.
- **Integrated communication:** Networking equipment and everyday objects will communicate with each other. DT is developing clear communication addresses and incorporating communicability into product specifications as standard practice.
- **Intelligent access:** Rather than just providing bandwidth, infrastructure will be able to respond to the requirements of specific applications.
- **Inherent security:** Weaknesses in ICT systems can be hazardous or even lethal for companies. An ICT security system must ensure that systems are protected against unauthorized access.
- **DT also focuses on data leakage prevention (DLP):** A joint research program with Ben-Gurion University seeks to provide a comprehensive overview of current research and offer practical solutions in the DLP domain.
- **Infrastructure development:** All of the individual components in modern high-performance networks

must interact seamlessly, with low maintenance and upgradability to future technologies wherever possible.

Engagement modes

Like other large multinationals, DT used several engagement modes to enter and deepen its presence in Israel: partnership, VC, and accelerator.

- **Partnership:** Ben-Gurion University has been collaborating with Telekom Innovation Laboratories on network security since 2004. Telekom Innovation Laboratories pools the knowhow of DT with the expertise of high-skilled research scientists.
- **VC:** Located in Herzliya, DTCP is the investment management group of DT in Israel. DTCP has three distinct businesses: venture capital, private equity and strategic advisory.
- **Accelerator:** First established in 2009, Hub:raum is DT's incubator/accelerator. It has offices in Berlin, Krakow and Tel Aviv. To date, Hub:raum has invested in roughly 30 companies worldwide. Hub:raum activities are measured by three primary criteria: the number of deals, the number of projects that were successfully implemented in DT, and the value of the investees.

In Israel, Hub:raum has one employee. It offers equity investments, business networking, mentoring, office space, and a bootcamp in the fields of cyber and narrowband. Bootcamps are a means to scout relevant investments. Recent bootcamp events exposed DT to a large number of Israeli companies.

DT has two key relationship managers at its headquarters in Germany to whom the scout introduces the companies he met with. These managers determine which companies are the most relevant to DT's business and then deepen their inquiries. Afterwards, the managers introduce the selected companies to DT management and locate the champion or the relevant partner that will push the new technology within the company.

All startups are tested according to three main parameters:

- Does the new activity support DT's existing business? For instance, does it enable DT to reach more end-customers or help it to become more efficient?
- Is the new activity cross-industry? Can it be offered to DT customers? For example, a new connectivity service for automotive manufacturers.

- If the market effect of the new technology is hard to measure, might DT benefit from being an early adaptor? For example, virtual reality (VR) and autonomous cars.

Lessons learned

DT's experience generates several inputs regarding the Israeli market and possible engagement modes. These include gathering information, a possible model that German companies can use, organizational issues that should be addressed, innovative fields that may be interesting for Mittelstand companies, and potential members of a scouting team.

- **Gathering information:** In an interview, Deutsche Telekom's Hub:raum Investment and Program Manager Stephanie Cherrin stated, "Other German companies have already approached us regarding the Israeli market, so this information channel is open."
- **Possible model for entering the Israeli market:** A possible model for Mittelstand companies seeking to enter the Israeli market is to narrow down candidates to only the most-relevant startups. The primary objective should focus on implementing new projects in the startup. The Israeli company should also focus on improving its current business, because it is well understood, does not require major changes and harnesses the entire organization.
- **Organizational issues:** It is important to align the company and implement Key Performance Indicators (KPIs) in specific roles that might be affected by the new technology. For example, in B2B sales, DT has two employees who are responsible for implementing innovations from startups.
- **Relevant innovation field:** An innovation field interesting to manufacturers is industrial IoT, which focuses on the effectiveness of machines on the production line.
- **Type of employees who can be appointed as scouts:** DT did not send German employees to Israel, preferring local workers who speak Hebrew and understand the local culture – creating greater comfort in the target companies. Notwithstanding, German employees have a better understanding of how the company works, facilitating implementation of an innovation.

Merck

Overview	
FULL NAME	Merck KGaA, Darmstadt, Germany
HEADQUARTERS	Darmstadt, Germany
EMPLOYEES	50,000
SALES	€ 13 billion (2015)
LINE OF BUSINESS	Offers health solutions through its prescription medicines, vaccines, biologic therapies and animal health products
PRIMARY ENGAGEMENT MODE	Incubator
ADDITIONAL ENGAGEMENT MODES	Accelerator
INTERVIEWEE	Rom Eliaz, Head of the Israel Bio-Incubator

General background and activities in Israel

Founded in 1668, Merck KGaA is a science and technology company for innovative and high-tech healthcare, life science and performance material products. In 1918, Merck established its American subsidiary, Merck & Company. Today, they are two different, unaffiliated companies, which use the names:

- **Merck & Co. Inc.** – referred to as MSD, except in the United States and Canada, where it is known simply as Merck. Merck & Company's annual revenue is € 36 billion.
- **Merck KGaA, Darmstadt, Germany** – referred to as Merck, except in the United States and Canada, where it is known as EMD. Merck's annual revenue is € 13 billion. This latter company is the subject of our case study.

Since 2007, Inter-Lab (formerly InterPharm) is Merck's R & D center in Israel. Inter-Lab's Cell Science group, an integral part of Merck's global biotechnology research and development organization, undertakes research and development projects in collaboration with other groups in the company. It currently has 40 employees.

In an interview, Dr. Rom Eliaz, head of the Israel Bio-Incubator, said, "Despite a success probability of 0.05 % in the biotech industry, two of Merck's best-selling drugs were developed in Israel." These two drugs are Rebif and Erbitux. Rebif, which has € 2 billion in annual global sales, treats relapsing forms of multiple sclerosis. Erbitux, also with € 2 billion in annual global sales, treats squamous cell carcinoma of the head and neck as well as metastatic

colorectal cancer. As a result of these successes, Merck decided to transform Inter-Lab into its Israeli R & D center. Of all the pharmaceutical companies in Israel, only Merck and Novartis have established a local contract research organization (CRO), which support pharma companies with research services outsourced on a contractual basis).

Innovation approach and needs

Merck's aim is to become one of the world's most innovative companies by focusing on four segments: healthcare, life science, performance materials and new business (i. e., focusing on digital health). Merck drives innovation in these business areas through its investment arm, Merck Ventures. This unit has € 300 million under management in an evergreen structure (i. e., Merck will always keep the funds under management at € 300 million).

Engagement modes

Merck's initial engagement mode with the Israeli high-tech ecosystem was M & A, which was later transformed to an R & D center. In recent years, Merck broadened its engagement in Israeli by establishing an incubator, which is our focus. Merck Ventures allocates € 20 million annually to Israeli activities, targeting the healthcare industry. This money also funds Merck's incubator in Israel, which is the company's only incubator worldwide. The incubator has seven employees in various scouting positions.

Established in 2011, Merck's incubator is the only fully private incubator in Israel, a setup that allows it to avoid the IP limitations associated with a government-funded incubator. The IIA provides 85 % of the funding of other incubators, with the operator providing the other 15 %. Merck's private setup was made possible mainly because of infrastructure that Merck already had in place from the establishment of its VC fund and the Inter-Lab's laboratories and equipment.

To date, Merck's incubator has invested in three Israeli companies; two have since closed, but the third, Metabomed, a cancer metabolism company, is considered a success. The incubator offers both seed financing and access to advanced laboratory facilities within Inter-Lab.

Israeli startups are selected on the basis of their potential to develop innovative technologies aligned with Merck's strategic focus. Since it takes 12 to 15 years for a biotech company to mature an innovation from the proof of concept

phase to a marketable product, Merck's incubator does not expect to integrate startup technologies into its products before 2030.

The incubator answers to the manager of Merck Ventures. Each investment is first examined by the head of the relevant global department who determines whether it aligns with the department and company's strategy. Then the investment must be approved by Merck's investment committee, which is comprised of the CEO and corporate executives.

Eliraz said, "In order to reduce risks and gain more knowledge, Merck also partners with other investors. For instance, Metabomed's investors include Merck Ventures, Boehringer Ingelheim (a German pharmaceutical company) and Pontifax (an Israeli venture capital firm). For Boehringer, this was its first investment in Israel." Boehringer later teamed up with Merck to invest in another startup.

Merck is currently considering additional engagement modes, such as accelerators. In order to mingle with the local innovation ecosystem, Merck also participated in a hackathon, a one-day design event where high-tech experts collaborate on a single project. Inter-Lab is also constantly on the lookout for academic and industrial partners to develop new drugs in Israel and globally.

Lessons learned

Merck's first acquisition was a success. From that point on, it proceeded to other engagement modes and activities. As a large multinational, some of Merck's engagement modes may not be applicable to Mittelstand companies. Nonetheless, Merck's experience generates insights on four subjects: gathering information, scouting, accelerators and a favorable organizational structure.

Eliraz said, "In order to achieve useful information on Israel and how to enter it, German companies can approach other German companies that already have businesses in Israel. For instance, the knowledge that Merck, in general, and my team, in particular, has gathered can act as a bridge between Mittelstand companies and Israeli technology." Mittelstand companies can also approach the IIA Authority or VC funds to gain additional information about Israeli industry and its capabilities.

After conducting thorough research into the Israeli innovation ecosystem, scouting can be used as the next engagement mode. "Based on Merck's experience, German

companies can achieve better results with a local scouting team, who have a vast understanding of the local market and its characteristics. Later, the company can assign its own employee to take over the scouting process,” Eliraz said.

Using accelerators as an engagement mode is less likely to succeed for Mittelstand companies due to their size and more limited financial resources. “Establishing an accelerator may only be suitable for Mittelstand companies partnering with a local company,” said Eliraz.

“Regarding a favorable organizational structure, the R & D or business development department should be in charge of the market engagement process and responsible for mobilizing the entire company. Alternatively, the process could be directed by the CEO’s office, as a side project of the chief of staff or any other relevant employee from the office.”

Engagement mode 4 – direct R & D involvement

R & D can be undertaken in two ways: (1) through strategic alliances and (2) by establishing a local R & D lab.

Partnership and strategic alliances with a local partner – A strategic alliance involves a contractual agreement between two or more enterprises for the sake of collaboration to achieve a common purpose. In this method, the company is relying heavily on the partner, with no direct control over the activities.

The pros of strategic alliances are:

- Technology exchange that enhances and complements the company’s expertise.
- Build capabilities to compete globally against multinationals with deeper pockets.
- The local company likely understands the local culture, market and ways of doing business better than a foreign company.
- Shared costs reduce the investment needed; this can be crucial for small or highly risk-averse entities.
- Access to high-quality personnel.

The cons of strategic alliances are:

- Lack of direct control.
- Possibility that the partner’s objectives differ from the company’s.
- Identifying the right partner can be challenging.

Establishment of local R & D lab – In this mode, companies enter the Israeli market via R & D centers; typically, these are acquired through the purchase of an Israeli company. However, some companies have chosen to establish an Israeli R & D branch from scratch. This engagement mode provides a high level of control and requires significant investment.

The pros of establishing an R & D center are:

- Provides fast access to technology and the local market.
- Keeps new knowledge in-house to create a competitive advantage.

The cons of establishing an R & D center are:

- Requires substantial financial means.
- Requires close oversight and understanding of the local market.

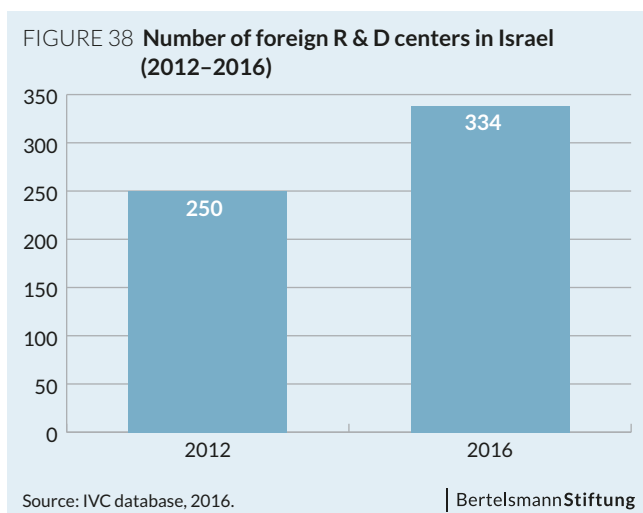
“Mittelstand companies should consider ‘jumping straight in’ by founding or acquiring an R & D center from the beginning. This can assist a company in harnessing its entire organization for the process and tap into the Israeli innovation ecosystem more efficiently.”

Dr. David Abraham, Head of RTO, Robert Bosch GmbH

The vast majority of breakthrough technologies coming out of Israel are developed by small startups. While startups are usually very creative and highly efficient in conducting R & D, commercialization of newly developed products has always been a challenge because of these companies’ very limited resources. In contrast, larger companies, like Mittelstand companies and multinationals, have a strong advantage in the commercialization, manufacturing and marketing of new products worldwide. Startups can thus benefit from collaboration, by sharing the risk of R & D investment and relying on the facilities of large companies for whole product development and market penetration.

The growth in this mode has been fueled by foreign companies’ interest in the Israeli ecosystem, as illustrated in the following graphs. As of 2016, there are 338 registered R & D centers in Israel, up from 250 in 2012.

Mittelstand companies considering entering Israel can benefit from the diversity of Israeli R & D centers, which are active in semiconductors, software security and cyber, medical devices, and IoT. They can also learn from the examples of high-tech multinational with R & D activities in Israel. Several of these multinationals, including Intel, Microsoft, Cisco, IBM and Apple, located their first foreign development centers in Israel.



Usually, multinationals pursue collaboration in Israel independently, but the Israeli government is also actively promoting collaboration through several programs, including the Global Enterprise Collaboration Program, which facilitates R & D collaboration between multinationals and Israeli companies. The multinational and the Israeli government jointly finance such projects.

A strategic alliance can also be achieved via academic collaboration. Ranked first in the world for knowhow transfer and in the top ten for university–industry collaboration, Israel has developed an efficient innovation–stimulating environment. The close ties between academia, industry, and government enable scientific innovation to be quickly converted into marketable products and have brought Israel annual revenue of € 23 billion in technological exports. Israel’s relative abundance of scientists and engineers ranks it eighth in the world.

A prominent factor driving Israel’s innovative capacity is an efficient technology transfer and commercialization mechanism. The vast majority of Israeli universities and R & D institutes have units dedicated to identifying scientific concepts that can be commercialized and efficiently transferred as products to the private sector.

In most cases, R & D centers are the result of an acquisition of an Israeli company. However, some corporations have chosen to establish an Israeli R & D branch from scratch. For these corporations, their Israeli center also serves as a tool for deepening their involvement with academia, the Israeli government, startups and other corporations. This is illustrated in the case of Herrmann, a Mittelstand company.

Herrmann

Overview	
FULL NAME	Herrmann Ultraschalltechnik GmbH & Co. KG
HEADQUARTERS	Karlsbad, Baden-Württemberg
EMPLOYEES	350
SALES	€ 54 million (2014)
LINE OF BUSINESS	Offers ultrasonic welding machines for plastics, packaging materials and nonwovens
PRIMARY ENGAGEMENT MODE	Opportunistic exposure
ADDITIONAL ENGAGEMENT MODES	R & D center, partnership
INTERVIEWEE	Volker Aust, Product Manager

General background and activities in Israel

Founded in 1961, Herrmann specializes in ultrasonic welding machines and systems. It has three product divisions: plastics, nonwoven fabrics and packaging. The plastics division offers ultrasonic joining of thermoplastic parts. The nonwovens division offers continuous ultrasonic bonding technology for high–speed processing of nonwovens, composite materials, paper and film. The packaging division offers complete packaging equipment solutions, including ultrasonic generators, anvils, acoustic stacks integration and application support.

Herrmann has established operations in Israel through a sales representative. In an interview, Herrmann Product Manager Volker Aust said, “We essentially have a distribution partner/sales representative in Israel, but the story does not stop there. We don’t limit ourselves to distribution; we also have an ultrasonic application lab there.”

Innovation approach and needs

Innovation in welding processes is the key to Herrmann’s development, as it enhances results and improves efficiency. Since every product is customized, Herrmann relies on dialogue and direct cooperation with customers in the production process. As a result, the company’s policy is to never establish branch offices without also setting up a local laboratory to facilitate product development.

Pointing to the rapid changes underway in plastic materials and the interwoven nature of plastic parts in most industries served by Herrmann, Aust emphasizes the need for ever–

evolving technology. “At the same time,” he says, “the texture of plastic parts is continuously changing. There are various compositions (e. g., glass fiber reinforced plastics and special 3D geometrics).” As a result, the company never stops adapting and refining its technology.

According to Aust, while close communication with clients are key, there is no replacement for actual welding texts performed at the company’s laboratories. Herrmann therefore has 25 locations in 19 countries. Each location is equipped with an ultrasonic application laboratory where clients can engage directly with the company. “It is our firm belief that a lab is a prerequisite for running successful operations abroad,” stated Aust.

If and when the company requires a “full-fledged research project for a new product,” says Aust, they extend their work to universities. Occasionally, he notes, they take a more “‘market insight’ approach,” in which market information is internally “analyzed, assessed and clustered in order to find new ideas and develop new products.”

Finally, with respect to innovation trends, Herrmann focuses on new production process technologies such as robot technology in tool production, which is, as he notes, “becoming a prerequisite for manufacturing in Germany.” The use of robots and machines allows the company to save costs and thus avoid outsourcing their production to other countries. The innovation of 3D printing also allows the company to produce certain tools easily and more quickly.

Engagement modes

Herrmann used its ultrasonic application lab as an engagement mode in Israel. Yet chronologically, its exposure to Israel was more opportunistic.

“It’s almost ironic that ‘Israel found us’ before we found Israel,” says Aust. Indeed, while researching technologies globally, various organizations began exploring the advantages of ultrasonic welding technology, which as applied by a small number of companies in Israel. However, as Aust explains, they had no reproducible, stable equipment and were therefore looking for partners.

Aust remembers: “At a trade fair, a very insightful potential distributor, Su Pad, approached us and suggested distributing our products in Israel as well as potentially partnering up with local companies.” After conducting a quick market analysis, Herrmann established trade relations with companies in Israel, initially manifest in

terms of local inventory. Eventually, the company decided to establish a lab with machinery and equipment in order to improve its local commercial operations. Herrmann trained its Israeli distribution partner on its processes and, in return, the partner set up a laboratory.

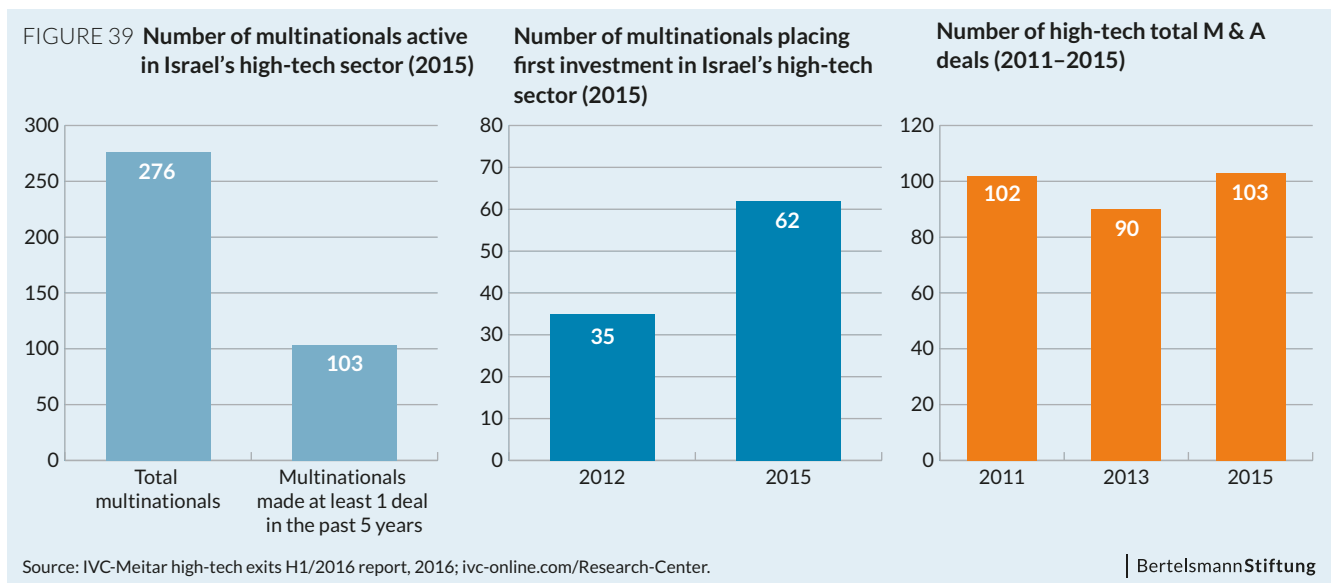
Herrmann currently has no expats in Israel, because its partner is doing a good job at carrying out all tasks independently. The company provides advice and systematic training. The partner organizes structured customer events and training courses, to which Herrmann sends experts. The result of this business model is that the company never had to set up a subsidiary in Israel, thus avoiding a number of barriers and difficulties it would have otherwise faced. “We don’t regret this one bit, as our approach has led to an excellent reputation among Israeli customers,” concluded Aust.

Lessons learned

Herrmann’s experience generates two major inputs: in terms of sales, the Israeli market is big enough for Mittelstand companies and collaboration with an Israeli partner or setting up an ultrasonic application lab are viable engagement modes.

- **Size of the Israeli market:** Aust said, “The Israeli market isn’t as small as one might think, despite the relatively small size of the country. There was a tangible need for our products and we are quite satisfied with the R & D aspect of our approach there. From our experience, Israelis very innovatively deal with their very challenging surroundings. It’s kind of a ‘necessity is the mother of invention’ approach. The challenges are many, including droughts resulting in water scarcity. This is an example of where we were able to help, because technical solutions are steadily being developed for these problems. We made a contribution to an irrigation system with small plastic parts. Another example is small plastic components for road margins. We feel very much aligned with the innovative spirit in Israel.”
- **Engagement modes for a Mittelstand company:** Herrmann views both partnerships and ultrasonic application labs as feasible methods. Chronologically, Herrmann’s first engagement mode with Israel was opportunistic in nature, when it was approached by a potential Israeli partner at a trade fair.

“We really like our approach, to partner up with a local distributor and then extend our operation into research.



We found one big advantage to doing R & D in Israel: new developments there also apply to comparable countries with similar challenges – droughts, for instance (e. g., in California and the Southwest of the United States, and in parts of South Africa). It is possible to draw on this knowledge while simultaneously searching for new market opportunities, which has proven very synergetic to us,” said Aust.

Engagement mode 5 – acquisitions

An acquisition is a transaction in which a company gains control of another company by purchasing its stock or swapping the stock for its own. Occasionally, the target company is transformed into a local R & D center for the acquiring company. This mode involves high risk and requires substantial financial means. Through acquisition, the company gains full control over existing intellectual property and technology.

The pros of acquisitions are:

- Provides access to established technology and talent pool.
- Keeps new knowledge in-house to provide a competitive edge.

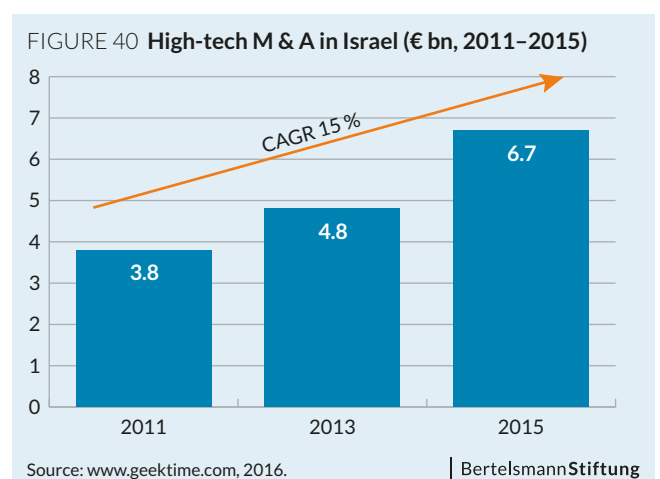
The cons of acquisitions are:

- The buyer must obtain a thorough understanding of the target’s domestic regulations.
- Relatively risky – 40 to 60 % of all acquisitions fail to increase the market value of the acquired company by more than the amount invested.

- Complex task involving bankers, lawyers and other specialists.
- Requires substantial financial wherewithal.
- Retaining the company’s innovative DNA and management in the new structure is a challenge.

Acquisitions are one of the most popular engagement modes in the Israeli ecosystem, as illustrated in the following charts. Of the 276 multinationals active in Israel, 103 have made at least one investment in the past five years – 62 of these in 2015 alone. In many cases, the acquisition becomes the foundation for an R & D center.

This popularity is also reflected in the total capital inflow to Israel, peaking at € 6.7 billion in 2015, and boasting a compound annual growth rate of 15 % between 2011 and 2015.



M & A as an engagement mode is illustrated in the following case studies of Mittelstand companies, Adva Optical and Software AG:

ADVA Optical Networking

Overview	
FULL NAME	ADVA Optical Networking SE
HEADQUARTERS	Meiningen, Thuringia, Germany
EMPLOYEES	1,764
SALES	€ 567 million (2016)
LINE OF BUSINESS	Provides network equipment for data, storage, voice and video services
PRIMARY ENGAGEMENT MODE	M&A
ADDITIONAL ENGAGEMENT MODES	Opportunistic exposure, scouting
INTERVIEWEE	Michael Roth, Vice President R&D

General background and activities in Israel

ADVA Optical Networking is a multinational telecommunications vendor that provides network equipment for data, storage, voice and video services. Its products are used by more than 250 carriers and over 10,000 companies globally.

Adva operates in Israel in several ways. In an interview, Adva Vice President R & D Michael Roth said, “We do very specific R & D in Israel. An important part of our devices portfolio is developed in Israel. These devices are quite complex and need to be programmed, so operating software must be developed. This also takes place in Israel.”

Chronologically, Adva initially had business relationships with a small Israeli company. After four years of collaboration, Adva acquired the Israeli company, transforming it into its local R & D center.

Innovation approach and needs

Adva produces effective communications products and durable equipment for the construction of large data infrastructures. Adva targets large companies and decentralized data centers worldwide. Among its clients are Deutsche Telekom, Telecom Italia, British Telecom and many Fortune 500 companies.

Some customers, particularly in banking, are very security-focused, requiring data communications to be encrypted.

Adva enables efficient and cost-saving processing and transmission of higher volumes of data. In addition, since wiring cannot be continually replaced, the company’s objective is to enable an effective usage of existing fiber infrastructure. The company focuses on integrating optimized hardware and software, with central control and fast, easy, and low-cost repair capabilities.

Engagement modes

Adva tapped into the Israel innovation ecosystem with an opportunistic entry mode. Roth describes Adva’s market entry: “We’ve had business relationships with a small Israeli company for a long time – the company worked for us almost exclusively – and we ended up acquiring it. We chose them because they were the perfect missing link for an Ethernet technology we were pursuing. Even back in the cooperation phase, before the acquisition, the company was a focused partner that grew considerably doing business with us. About 12 years ago we began working together and the acquisition took place about eight years ago. We played such an integral part in the growth of the company that the acquisition turned out to be rather smooth.”

Adva gained extensive experience collaborating with the Israeli company and got to know the Israeli management and their way of working. After four years of mutual work, Adva decided to acquire the Israeli company. Due to their shared history, the merger went smoothly. During the cooperation period, the Israeli company grew from fewer than 20 employees to almost 40.

All in all, Adva has made several investments in Israel. In 2013, it acquired LTE technologies developer, Biran High Tech Advisors, for several million euros in shares, following years of cooperation. Prior to that, Adva invested in Saguna Networks as part of a € 2 million financing round. Saguna specialized in Content Optimization Delivery Systems (CODS) technology, which focuses on transporting content directly from the mobile network base stations to subscribers. Adva also cooperates with local consultants and scouts in sectors that it identified as relevant to its business.

Lessons learned

Adva Optical is an example of a company that ran the gamut from scouting, via business relations with a small Israeli company, to acquiring that company, further developing it and now conducting R & D activities in Israel. Its experience generates two major inputs regarding engagement modes and the overall view of the Israeli ecosystem.

- **Engagement modes:** Adva, a Mittelstand company, used M & A and direct investment to tap into the Israeli ecosystem. Chronologically, Adva started with scouting mechanisms to gain preliminary insights, before gradually moving to other engagement modes, such as investment in one company, collaboration with another and then M & A. In this way, Adva gained extensive knowledge on the Israeli market and its partner, enabling a smooth M & A.
- **Insights about the Israeli economy and its high-tech sector:** “We discovered a long time ago that there is great potential for innovation in Israel. Identifying our future acquisition wasn’t particularly difficult. The company is located near Tel Aviv (in Ra’anana), a stone’s throw away from many other high-tech companies,” said Roth. Roth said that Adva’s management perceives Israel as a major source for innovation and a highly skilled workforce, and that its high-tech industry is constantly growing and fiercely competitive. On the downside, this also results in higher prices for companies, increased labor costs and overall market pressure.

Adva puts a great emphasis on the Israeli workforce and sees it as a crucial factor for success. Adva found that, in comparison with workers in Germany, some qualified employees are more expensive in Israel. Nonetheless, given their level of education and expertise, they are considered to produce a high value.

“Teams also tend to be culturally heterogeneous, which I find to be exciting and fruitful. There is a ‘mishmash’ of Jews, Muslims and Russian emigrants (among others). At times, integrating everyone can be challenging, but this has never been problematic for us. On the contrary, the advantages outweigh the disadvantages,” concluded Roth.

Software AG

Overview	
FULL NAME	Software AG
HEADQUARTERS	Darmstadt, Germany
EMPLOYEES	4,337
SALES	€873 million
LINE OF BUSINESS	Provides business infrastructure software
PRIMARY ENGAGEMENT MODE	M & A
ADDITIONAL ENGAGEMENT MODES	Opportunistic exposure
INTERVIEWEE	Eran Elroy, Country General Manager

General background and activities in Israel

Software AG is a Germany-based holding company and provider of business infrastructure software. It offers end-to-end, integrated solutions for process strategy, design, integration, monitoring and control as well as management of business processes. The company is divided into two segments: Enterprise Transaction Systems (ETS) and Business Process Excellence (BPE). Software AG’s solutions enable customers to drive operational efficiency, modernize their systems, and optimize processes for better decisions and service.

Software AG has been active in Israel since 2005, when it acquired Sabratec Limited, a privately held legacy integration vendor. In 2007 and 2008, it acquired two more companies: SPL Software and Jacada. All three had been in business for years before being acquired. For example, SPL, which was founded in the 1980s, claimed many of Israel’s largest organizations as its customers. Today, all three make up the Software AG R & D center in Israel.

“Currently, the Israeli branch employs 400 and accounts for 4 to 5 % of the company’s total revenue. Compared to other multinationals, the Israeli share of our total revenue is considerably high, illustrating the importance of the Israeli branch in the overall organization,” said Software AG’s Country General Manager Eran Elroy in an interview.

Innovation approach and needs

Elroy said, “Software AG’s main objectives are to increase its technological capabilities and expand its customer base. The company usually prefers to acquire companies that meet both.”

Engagement modes

Software AG tapped into the Israeli innovation ecosystem using the opportunistic exposure mode.

For the past 30 years, SPL Software, which develops advanced technology-based business solutions for large organizations, has been Software AG's exclusive representative in Israel.

Through the collaboration with SPL, Software AG has been exposed to the Israeli ecosystem. In 2005, Software AG acquired Israeli startup Sabratec for € 11 million. Sabratec's solutions were offered as complementary products to Software AG's own solutions.

As a result of the acquisition and cooperation between the two companies, Software AG gained extensive experience with the Israeli innovation ecosystem as well as the local needs of customers.

In 2007, Software AG acquired 80 % of SPL. Elroy said, "During the due diligence phase, the two companies strengthened their relationship. That strong bond and co-working experience resulted in a straightforward, smooth merger (which included instruction on Hebrew at Software AG's headquarters in Germany)." Today, SPL focuses on selling and marketing Software AG's solutions.

In January 2008, Software AG acquired the application modernization business of Jacada for € 18 million in cash. The deal expanded Software AG's application modernization portfolio with additional products for modernizing the user interface of mainframe and mid-range applications. In addition, eight of Jacada's R & D and support staff joined Software AG, ensuring uninterrupted product development and customer support. As a result of the acquisition, Software AG gained over 200 enterprise customers, mostly in the United States.

Lessons learned

Software AG's experience generates two major inputs regarding the preferred engagement mode for Mittelstand companies and the advantages offered by the Israeli tech companies.

- **Preferred engagement mode for Mittelstand companies:** Elroy said, "Mittelstand companies might not have enough financial resources to bear the risk of acquiring an Israeli company. Therefore, collaboration

with an Israeli company can be a suitable starting point. With such a collaboration, a Mittelstand company can achieve greater understanding of the value of Israeli technology, develop close business relationships and safeguard that the company's knowhow stays within the organization. In addition, there are already German companies operating in Israel and these can be an important source of information for new entrants, prior to any collaboration."

- **Advantages of Israeli tech companies:** Software AG perceives the Israeli market as a major source of knowledge, both technological and organizational. The Israeli success, evidenced by the significant contribution to the company's total turnover, is attributed to its highly skilled workforce, strong customer relationships and high-end solutions developed by the Israeli branch over the many years it distributed Software AG's products.

Chapter 4 – Engagement Resources

This chapter reviews existing engagement resources for companies seeking to launch business in Israel and tap the country's innovation ecosystem. We summarize practical resources identified through our research and provide contact information.

Examples of German companies operating in Israel

In most verticals, there are large German companies already conducting business in Israel. During the interviews, these companies expressed their willingness to provide information and share their experience regarding the Israeli market.

“In order to achieve useful information regarding Israel and how to enter it, German companies can approach other German companies that already have businesses in Israel. For instance, the knowledge that Merck in general, and my team in particular, has gathered can bridge between Mittelstand companies and Israeli technology,” said Dr. Rom Eliaz, head of the Israel bio-Incubator at Merck.

Below are some German companies that do business in Israel and their contact information:

Bayer	
VERTICAL	Pharmaceuticals and healthcare
ADDRESS	36 Hacharash Street, Hod Hasharon, 45240, Israel
EMAIL	info.bil@bayer.com
PHONE NUMBER	+972-9-7626700
WEBSITE	http://www.bayer.com/en/israel.aspx

Bosch	
VERTICAL	Automotive and machinery
ADDRESS	3 Rothschild Boulevard, Psagot Tower, 6th floor, Tel Aviv 6688106, Israel
EMAIL	Info.RBVC@de.bosch.com
PHONE NUMBER	+972-3-6423965
WEBSITE	http://www.rbvc.com/en/rbvc/home/home.html

Deutsche Bank	
VERTICAL	Finance
ADDRESS	46 Rothschild Boulevard, 21st Floor, 66883 Tel Aviv, Israel
EMAIL	Contact form on internet site
PHONE NUMBER	+972-3-7102000
WEBSITE	https://www.db.com/company/index.htm

Deutsche Telekom	
VERTICAL	Telecommunications
ADDRESS	P.O.B. 653, Beer Sheva, 84105, Israel
EMAIL	yehudith@bgu.ac.il
PHONE NUMBER	+972-8-6428120/21
WEBSITE	http://tlabs.bgu.ac.il/index.php

DHL	
VERTICAL	Postal services and logistics
ADDRESS	HaHermon Street, Airport City, P.O.B 285, 70151, Israel
EMAIL	Contact form on internet site
PHONE NUMBER	+972-3-5573557
WEBSITE	http://www.dhl.co.il/he.html

Henkel

VERTICAL	Industrial and consumer goods
ADDRESS	7 Arye Regev Street, 42504, Netanya, Israel
EMAIL	deborah.paz@il.henkel.com
PHONE NUMBER	+972-9-8862600
WEBSITE	http://www.henkel-adhesives.co.il/henkel-adhesives.htm

Merck

VERTICAL	Pharmaceuticals
ADDRESS	25 Maskit Street, Herzliya Pituach 46733, Israel
EMAIL	office.israel@merckgroup.com
PHONE NUMBER	+972-9-9510737
WEBSITE	http://www.merck.co.il/en/index.html

Miele (Through Electra Consumer Products Ltd. – local distributor)

VERTICAL	Machinery and equipment
ADDRESS	7 Jabotinsky Street, Aviv Tower, Ramat Gan, 52520, Israel
EMAIL	electra@electra.co.il
PHONE NUMBER	+972-3-7535666
WEBSITE	http://www.electra.co.il/eng

Software AG

VERTICAL	Software
ADDRESS	3B Yoni Netanyahu Street, Or-Yehuda 60200, Israel
EMAIL	Eran.Alroy@softwareag.com
PHONE NUMBER	+972-3-5388333
WEBSITE	http://www.softwareag.com/il

Government partners

Germany is Israel's fourth-largest trading partner in Europe. Both sides have strong ties in the IT, communications, science and military sectors. The following organizations have been established to strengthen economic activity between the two countries:

Israel Innovation Authority (IIA)

ADDRESS	1 Arava Street (or 4 HaYarden Street), Airport City, Israel
EMAIL	contactUs@innovationisrael.org.il
PHONE NUMBER	+972-3-7157975/6/7/8
WEBSITE	http://www.matimop.org.il/

Israel Export and International Cooperation Institute (IEICI)

ADDRESS	29 Hamered St., Tel Aviv, 68125, Israel
EMAIL	Contact form on internet site
PHONE NUMBER	+972-3-5142900
WEBSITE	http://www.export.gov.il/eng/

Trade and Economic Mission in Berlin

ADDRESS	Auguste Viktoria Strasse, 74–76 14193, Berlin, Germany
EMAIL	Berlin@israeltrade.gov.il
PHONE NUMBER	030/206 449–0
WEBSITE	http://itrade.gov.il/germany

Trade and Economic Mission in Munich

ADDRESS	Postfach 201153 80011, Munich, Germany
EMAIL	Munich@israeltrade.gov.il
PHONE NUMBER	089/543486513
WEBSITE	http://itrade.gov.il/germany

The Israeli Embassy in Germany

ADDRESS	Auguste Viktoria Strasse 74–76, 14193, Berlin, Germany
EMAIL	botschaft@israel.de
PHONE NUMBER	030/8904 5500
WEBSITE	http://embassies.gov.il/berlin/Pages/default.aspx

Expert scouts

German companies can approach local expert scouts. The scouting process can be conducted by one person who specializes in the company's sector or by a team. A scout's fee may involve a retainer or a finder's fee, the latter being paid (by buyer or seller) only in case of if an acquisition, cooperation or other form of engagement is secured. Ideally, a company employee should be appointed to lead the scouting process, report directly to the CEO/owner and advance the process within the organization.

Local clusters and high-tech oriented organizations

Local clusters and high-tech oriented organizations are non-profit platforms for knowledge sharing, networking and collaborating in a range of innovation fields. These organizations occasionally set up events tailored to a specific sector, such as workshops, innovation events, competitions and investors' events. Israeli platforms include:

- **Ecomotion** is a joint venture of the Israel Innovation Institute, the Prime Minister's Office (Fuel Choices Initiative), Ministry of Economy and the Israeli automotive and high-tech industry. Ecomotion's mission is to support the Israeli smart transportation sector while positioning Israel as a global innovation center for smart transportation. Ecomotion brings together young and experienced entrepreneurs, market leaders, international and local manufacturers, technology-oriented people, policymakers, academic researchers and investors.
- **Cyberspark** Industry Initiative is a joint venture of the Israel National Cyber Bureau (INCB) in the Prime Minister's Office, the Beer-Sheva Municipality, the Ben-Gurion University of the Negev, and leading companies in the cybersecurity industry such as EMC, JVP, BGNegev and Lockheed-Martin. It is a non-profit organization designed to serve as the central coordinating body of all stakeholders in joint cyber industry activities that leverage the region's strengths. The initiative promotes the region and the city of Beer Sheva as a global cyber center, encourages joint academia-industry partnerships and supports the articulation of plans to recruit and develop human resources in the field. It also plans to draw additional companies, both international and Israeli, to the region to establish projects or even base themselves there.

- **The German Israeli Startup Exchange Program (GISEP)** is a platform initiated by the German Startups Association and supported by the German Federal Ministry for Economic Affairs and Energy to strengthen the German-Israeli economic relations in the field of startups. The main aim of the GISEP is to promote an exchange between both startup ecosystems. The GISEP wants to support both German and Israeli founders in their efforts to not only understand but ultimately also being able to access the other country's ecosystem. To this end, the GISEP seeks to facilitate access to the German market for Israeli startups and vice versa through 1) provision of information, 2) capacity development, 3) access to networks, and 4) B2B matchmaking.
- **The Israeli Advanced Technology Industries (IATI)** is a platform that promotes the Israeli high-tech ecosystem on all its levels. Its more than 700 members are active at every level and aspect of the ecosystem and include entrepreneurs, startups, incubators, accelerators, R & D centers, multinationals, VC funds, private investors, TTOs and service providers. IATI is active in local and global networking, business development, lobbying the Knesset, promoting science, technology, engineering and mathematics (STEM) education and events, and organizing conferences.
- **Startup Nation Central** connects companies and countries to the people and technologies in Israel that can solve their most pressing challenges. It focuses on networking and provides customized solutions for government and business leaders, scholars and investors. It also offers a user-friendly, free-access database (<http://finder.startupnationcentral.org/>) of all startups and VCs in Israel, useful as an entry point for researching potential targets, innovations and networking.

Ecomotion	
VERTICAL	Automotive, Smart Mobility
ADDRESS	-
EMAIL	liorz@istipi.org
PHONE NUMBER	Contact form on internet site
WEBSITE	http://www.ecomotion.org.il

Cyberspark	
VERTICAL	Cybersecurity
ADDRESS	77 Ha'Energia Street, Advanced Technologies Park, Beer Sheva, Israel
EMAIL	info@cyberspark.org.il
PHONE NUMBER	+972 (0) 8 623 6949 (EXT. 111)
WEBSITE	http://cyberspark.org.il/

The German Israeli Startup Exchange Program (GISEP)	
VERTICAL	All
ADDRESS	Haus der Bundespressekonferenz, Office 6108, Schiffbauerdamm 40, 10117 Berlin, Germany
EMAIL	lukas.wiese@germanstartups.org
PHONE NUMBER	+49 (0) 30 6098959-15
WEBSITE	http://www.gisep.co

IATI	
VERTICAL	All
ADDRESS	89 Medinat HaYehudim Street, Building E, 11th floor, P.O.B 12591, Herzliya Pituach 4676672, Israel
EMAIL	liri@iati.co.il
PHONE NUMBER	+972-73-7136313
WEBSITE	http://www.iati.co.il

Startup Nation Central	
VERTICAL	All
ADDRESS	54 Ahad Ha'Am Street, Tel-Aviv, 6520216, Israel
EMAIL	Contact form on internet site
PHONE NUMBER	+972-5-479001
WEBSITE	http://www.startupnationcentral.org

Direct approach

Each company has its unique needs. Mittelstand companies can conduct preliminary research, determine relevant criteria and select specific Israeli startups that match their priorities. They can approach Israeli startups directly and schedule meetings, as direct communication in Israel is usually met with a prompt response. Details of potential targets can be gathered at the Startup Nation Central database: <http://finder.startupnationcentral.org/>.

Conclusion

Though currently underactive in Israel, German Mittelstand companies have much to gain from the Israeli innovation ecosystem. In order to take advantage of this opportunity, interested Mittelstand companies should begin by exploring what others in the field have to say about their experiences. This can involve contacting German and other companies already doing business in Israel as well as Israeli companies with cooperation experience. Agencies and organizations with data on the Israeli economy, its potential and networks, and other support data are also a good resource.

Once a company has carried out its preliminary research, it can purchase innovative Israeli products for internal use. This is a low-cost step that allows a Mittelstand company to secure a practical solution for its needs, gain direct experience working with Israeli suppliers, and develop a deeper understanding of Israeli capabilities relevant to the specific product.

Most companies then begin building scouting opportunities in Israel in order to gather more thorough information regarding particular markets, trends, technologies and startups. Once these capabilities are in place, a cautious Mittelstand company can explore other more advanced R & D engagement modes.

Sales and marketing offer another potential entry route. Indeed, most German companies we interviewed, regardless of size, took their first steps in the Israeli market in sales and marketing through external or wholly owned distributors. This route has the advantage of providing companies the shared experience needed to develop the trust and confidence that underlies successful R & D engagement modes.

As a primer for those German Mittelstand companies looking to engage with Israel, this report aims to help close the gap between German Mittelstand and multinational companies with respect to their engagement readiness. Though the paths taken by both types of company bear similarities, each route taken by an individual company must be adapted according to the sector and product range targeted. It is our hope that with this report, a greater number of interested Mittelstand companies will take advantage of the opportunities at hand and begin engaging with Israel startups on a larger scale.

Bibliography

Key sources

Israeli ICT Industry Review, Israel Advanced Technology Industries, 2015
High Tech Yearbook, IVC Research Center, 2016
IVC database
Bank of Israel
The Israeli Central Bureau of Statistics
Interviews with managers in multinationals with R & D operations in Israel and with industry leaders (for further information, please refer to the case studies)

Introduction to Israel

Israeli startup report, IVC Research Center, 2014
High Tech Yearbook, IVC Research Center, 2016
Venture Financing and Start-Up Performance in Israel, Embassy of India, Tel Aviv, 2015
<http://israelstrategist.com/2011/06/02/brief-history>
<http://blog.leweb.co/2014/11/israeli-startup-ecosystem>
www.businessinsider.com/best-tech-school-is-israels-unit-8200-2013-8
www.geektime.com/2016/01/11/annual-report-2015-startups-and-venture-capital-in-israel
<http://microventures.com/education/accelerators-vs-incubators>
<http://itrade.gov.il/switzerland/ittn-2015-3rd-conference-of-the-israel-tech-transfer-organization>
<https://medium.com/@200apps/the-story-of-the-startup-how-israel-became-the-startupnation-e6c5e64656cc#.ym1roqi6n>
<https://hbr.org/2015/09/how-israeli-startups-can-scale>
www.pc.co.il/it-news/176845/
http://embassies.gov.il/philadelphia/AboutIsrael/Public%20Diplomacy%20Materials/Documents/innovation_05.pdf
www.citylab.com/tech/2011/10/worlds-leading-nations-innovation-and-technology/224/

<https://angel.co/israel/investors>
<http://pestleanalysis.com/pest-analysis/>
www.coface.com/Economic-Studies-and-Country-Risks/Israel
www.mfa.gov.il/mfa/aboutisrael/state/pages/the%20state-%20political%20structure.aspx
<http://israelnotebook.blogspot.co.il/p/cultural-analysis.html>
<http://countrystudies.us/israel/49.htm>
[www.theisraelproject.org/german-israeli-relations/Development of Israel's Foreign Trade in 2014, Israel](http://www.theisraelproject.org/german-israeli-relations/Development-of-Israel's-Foreign-Trade-in-2014,Israel)
Ministry of Finance, 2014
www.geert-hofstede.com
www.mindtools.com/pages/article/newLDR_66.htm
www.dw.com/en/germany-and-israel-a-unique-relationship/a-18820054

Verticals

Israel automotive industry, The Israel Export & International Cooperation Institute, 2016
Startup National Central database, 2016
Ecomotion, smart transportation community, 4th annual event, Israel innovation institute, 2016
The electronics and microtechnology industry in Germany, Germany Trade & Invest (GTAI), 2016
Industry 4.0: Building the digital enterprise, PwC, 2016
The state of the European & Israeli IoT industry, Tech.eu, 2016
German Energy Transition, Craig Morris, Martin Pehnt, 2016
Bloomberg.com
Interview with Ms. Lior Zeno-Zamanski (community manager in Ecomotion)
www.slideshare.net/IsraelExport/israel-automotive-industry
<https://ec.europa.eu/digital-single-market/en/smart-cities>
<http://cars.walla.co.il/item/2988647>
www.globes.co.il/news/article.aspx?did=1001146598
www.ynetnews.com/articles/0,7340,L-4830062,00.html
www.haaretz.com/israel-news/business/1.663684

<http://israel.ahk.de/en/services/mega-topics/life-sciences>
www.leavcom.com/pdf/israeli-semiconductor-industry-continues-to-thrive-but-some-clouds-may-be-on-horizon.pdf
www.investinisrael.gov.il/explore_israel.html
<http://blog.ourcrowd.com/chips-israels-burgeoning-semiconductor-industry-sees-exits-worth-billions/>
https://www.gtai.de/GTAI/Content/EN/Invest/_SharedDocs/Downloads/GTAI/Info-sheets/Electronics/info-sheet-semiconductor-industry-en.pdf?v=2
www.haaretz.com/israel-news/business/.premium-1.661122
www.innovationendeavors.com/thoughts/israeli-internet-of-things
www.israel21c.org/israel-will-dominate-iot-trend-predicts-google-execs-vc-firm
www.israel21c.org/what-does-2016-hold-in-store-for-israeli-innovation/
www.timesofisrael.com/europes-biggest-cyber-tech-firm-to-open-center-in-israel/
<http://energytransition.de>
<http://whatis.techtarget.com/definition/cybersecurity>
<https://www.rt.com/news/273058-german-cybersecurity-law/>
<http://www.timesofisrael.com/how-israel-became-the-go-to-place-for-cyber-security/>

Engagement Modes

IVC-Meitar high-tech exits H1-2016 report, 2016
 IVC-Meitar exits 2015 report, 2016
 Invest in Israel, Ministry of the Economy, State of Israel, 2015
 Global Centers in Israel: a win-win situation, Israeli Advanced Technology Industries, 2013
 Technology Scouting - Harnessing a Network of Experts for Competitive Advantage, René Rohrbeck, 2010
 Transnational Management: Text, Cases and Readings in Cross-Border Management, Bartett, C.A., 2009
<https://hbr.org/2016/03/what-startup-accelerators-really-do>
knowledge.wharton.upenn.edu/article/playing-on-a-global-stage-asian-firms-see-a-new-strategy-in-acquisitions-abroad-and-at-home
www.geektime.com/2016/05/25/do-israeli-accelerators-and-incubators-produce-successful-startups-heres-our-full-report
www.whoprofits.org/company/central-bottling-company-cbc-coca-cola-israel

Engagement resources

Interview with Mr. Gil Cegla, Founder of Novawind (supplier of marketing and business development services for companies targeting Western European countries)
 Public information
he.mot.gov.il
www.calcalist.co.il/local/articles/0,7340,L-3693882,00.html

About the Authors



Shai Harel

Prof. Shai Harel is the EMBA Academic Director at the Hebrew University of Jerusalem. He held postdoctoral positions at London Business School and the Ben-Gurion University

of the Negev. His publications include a Handbook of Research on Venture Capital in Israel.



Ori Elman

Ori Ellman has served as the CEO of a leading research company. He has extensive experience in managing services companies that support accelerated growth and help align internal

organization structures with consolidation processes.



Ido Alon

Ido Alon is the CEO of Pinpoint, an Israeli management consultancy focused on growth strategies, innovation and scouting, digital strategies, and organizational design.



Markus Gick

Dr. Markus Gick is senior project manager at the Bertelsmann Foundation. He has worked several years for the Boston Consulting Group in projects covering the banking, energy and pharma

sectors. He holds a PhD in Law from Free University Berlin.

Imprint

© November 2017
Bertelsmann Stiftung, Gütersloh

Bertelsmann Stiftung
Carl-Bertelsmann-Straße 256
33311 Gütersloh
Phone +49 5241 81-0
www.bertelsmann-stiftung.de

Responsible
Markus Gick

Authors
Shai Harel, Ido Alon,
Ori Elman, Markus Gick

Editing
Barbara Serfozo

Design
Nicole Meyerholz, Bielefeld

Photo
Shutterstock/tonefotografia

Print
xxx

Address | Contact

Bertelsmann Stiftung
Carl-Bertelsmann-Straße 256
33311 Gütersloh
Phone +49 5241 81-0

Markus Gick
Senior Project Manager
Program Living Values
Phone +49 5241 81-81511
markus.gick@bertelsmann-stiftung.de

www.bertelsmann-stiftung.de