

# ISRAEL HIGH-TECH & INVESTMENT REPORT

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## Up, Up and Away

### Salesforce buys Israeli co Clicksoftware for \$1.35b

The Petah Tikva based field service company is owned by US private equity fund Francisco Partners.

US CRM tech giant Salesforce last night announced that it has signed an agreement to acquire Israeli field service software company Clicksoftware for \$1.35 billion, less the value of the shares it already owns. Salesforce will pay in cash and shares and is expected to complete the deal by October 31, 2019 subject to antitrust regulatory approval in the US and Israel. Clicksoftware is owned by US private equity fund Francisco Partners.

Based in Petah Tikva, Clicksoftware has 200 employees in Israel and develops logistical management systems for customer service and technical support, sending out technicians and tracking the results. The company was founded more than 20 years ago by Moshe Benbassat, who has since left the company. The company is privately owned and therefore does not report financial results but it did report in 2016 that annual revenue was \$144 million.

Francisco Partners acquired Clicksoftware in 2015 for \$438 million and delisted it from Nasdaq. The private equity fund set out to enhance the value of the company and sell it within a few years. Based in San Francisco, Francisco Partners owns other Israeli companies SintecMedia and Dmatek and

formerly owned Ex Libris and several months ago it sold NSO at a company value of \$1 billion.

Salesforce said that ClickSoftware, "enables companies to intelligently schedule and optimize field service work. Salesforce Field Service Lightning, built on Service Cloud, harnesses the latest in dispatching, mobile workforce empowerment and IoT technologies

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### In this issue

- Salesforce buys Israeli co Clicksoftware for \$1.35b
  - The super yeasts producing protein and fuel
    - SolarEdge market cap up \$1b
    - The R&D Gospel
  - Oryx Vision closes as smart car market slows
    - Hot to launch Amazon Prime Video
    - Unemployment down sharply in Israel
- FDA approves Israeli co Biobeat's patch and watch
  - Israeli music app co JoyTunes raises \$25m
- Number of tech employees in Israel passes 300,000
- Anaplan buys Israeli business intelligence co Mintigo

to empower companies to connect their entire service workforce on a single, centralized platform. With the combined capabilities of Field Service Lightning and ClickSoftware, Salesforce will be positioned to lead the way to the future of field service."

Reports about talks between Salesforce and Clicksoftware were first reported in January. Last year, Salesforce acquired Israeli marketing analytics company Datorama for over \$800 million.

Clicksoftware CEO Mark Cattini said, "Our mission has been clear since the beginning-to be the global leader in field service management and deliver significant value to our customers. Joining Salesforce provides a tremendous opportunity to accelerate this vision. As a part of Salesforce, we will be able to innovate faster, enabling our joint customers to deliver even better experiences to their customers. This is an exciting milestone, and I look forward to what we'll deliver to our respective customers as one company after close."

Salesforce EVP and GM Service Cloud Bill Patterson said, "Delivering exceptional field service is an increasingly important priority for companies across industries with more than 70 percent of customer service leaders making significant investments to transform their mobile workforce. Our acquisition of ClickSoftware will not only accelerate the growth of Service Cloud, but drive further innovation with Field Service Lightning to better meet the needs of our customers. We are thrilled to welcome the ClickSoftware team to Salesforce."

### The super yeasts producing protein and fuel

Israeli company NextFerm has unique technology for turning natural yeasts into industrial power players.

If you go hiking in nature and see a group of

serious people intently examining a small, ordinary-looking organism and gathering it carefully and gently, it might be the management of NextFerm gathering its next intellectual property.

"Yeast is everywhere," says NextFerm CEO Boaz Noy, "even in the café we're sitting in now. The question is whether there are conditions for the growth of yeast with special characteristics. We know where to find special yeasts, but it's a secret."

NextFerm was founded by several senior executives from Enzymotec, a food ingredients company sold to flavor extracts company Frutarom in 2017 for \$290 million. Noy, who managed the bioactive ingredients division at Enzymotec, leads NextFerm, together with Dr. Tzafra Cohen, a specialist in food engineering and biotechnology who served in several senior R&D positions at Enzymotec, and chairman Yossi Peled, former CEO of food ingredients company Galam and former Enzymotec chairman.

NextFerm, which was founded in 2013, recruited additional managers and employees

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from Enzymotec. "It's not as if I raided Enzymotec for employees," Noy emphasizes. "It just so happened that they simply left exactly when I needed them." Some of NextFerm's investors also knew Noy from Enzymotec, for example Mexican company Arancia International and Chinese company Yitong.

Like Enzymotec, NextFerm develops specialist ingredients for the food industry. Enzymotec was based on unique fatty acid processing technology developed in the laboratory of Dr. Sobhi Basheer, and developed ingredients for food compounds for babies and essential fatty acids for lowering cholesterol, improving memory, and treating attention deficiency disorders. NextFerm is also based on unique technology developed by the company: controlled evolution of yeast.

### Antioxidant from yeast

"In 2014, after I left Enzymotec, I asked Ariel Katz (CEO of Enzymotec, who did not leave the company) to connect me with the next interesting technology," Noy says. "He set me up with Dr. Moran Gendelman, the inventor of the technology." Gendelman, who holds a PhD from Technion - Israel Institute of Technology, is now a senior researcher in the company.

The technology is based on a natural method of genetically improving yeast. Through specific changes in the environment in which the yeast grows, the company's researchers control a process of natural selection so that the resulting yeast produces a large quantity of a certain protein. For example, using genetic engineering, global leaders in the meat substitute sector have developed yeast that expresses large quantities of heme protein, the protein in blood that makes meat taste like meat. This protein is put into vegetable products in order to give them a meat taste.

"We want to make yeast different from what it

originally was, but without genetic engineering, not by genetic editing, but by affecting the environment," Cohen says.

NextFerm did not invent environmental selection of yeast, but the company says that several secret elements have been added to the technology that improve its performance. For example, the company has developed an antioxidant from improved yeast - its first product. "We began the development with yeasts isolated from nature that produce the material in small quantities. Through controlled evolution, we succeeded in producing 60 times as much material," Cohen says. "If I compare genetic improvement methods using a mechanism of modifying the environment with genetic engineering, our mechanism is not only likely to be safer, because it preserves the connection to natural yeast, but it can also be more effective. The environment causes simultaneous change in dozens of genes in the direction we want, compared with two-three that can be modified through genetic editing."

### Biological food and frozen food

Another of NextFerm's products is yeast that is resistant to freezing. "This is excellent for frozen dough. In tests that we conducted on it, it outperforms 100 year-old companies in resistance to freezing," Cohen says.

The combination of Gendelman's technology with the know-how of senior Enzymotec executives in designing and constructing industrial processes for food is probably what made it possible to achieve good results and progress within a fairly short time. A company that simply grew out of academic research would find it hard to do this without many years of work and many failures.

The know-how accumulated in marketing and in close cooperation with customers in the food sector in order to understand what they really

need and what they will consider an industrially feasible final product also proved itself. The company has already signed a cooperation agreement with Lallemand, an international company based in Canada and the second largest yeast company in the world.

"Lallemand proposed cooperation with us in the production of biological fuel," Noy says. "When biological fuel is produced, yeast is used to turn the corn into alcohol. This alcohol is the fuel. Our product, which will be launched two months from now, is a yeast that decomposes the corn more efficiently." He says that a law was recently passed in the US requiring that 10% of the fuel in the country should be based on corn, "because in addition to the question of sustainability, they have an important corn-growing industry, and this regulation strengthens it."

"Globes": Does a yeast company like this develop yeast for all industries? Both food and fuel?

Noy: "Yes, yeast is a specialty, and the application of the technology is multidisciplinary. Lallemand is a global leader in baking yeast, and also the biggest player in biological fuel. We are cooperating with them on both a biodiesel product and frozen yeast."

"Our third product is the antioxidant that we mentioned earlier, which can be added to tablets, and to jellybeans and other food products, because it has no taste or odor. This is its uniqueness, in addition to its effectiveness. We're launching this product independently, and the first market that we're entering is the US. We have set up a subcontracting production network. The equipment required for production costs very little, thanks to our unique technology. We can already produce in large quantities."

NextFerm will not establish its own brand of food supplements in the US, as Enzymotec did

with some of its products; it will market its ingredients to other food companies. NextFerm VP marketing and NextFerm USA CEO Elzaphan Hotam, who served in marketing positions in Enzymotec, will manage this activity.

### The meatless protein dream

In addition to these three products, which NextFerm believes will achieve substantial sales and bring the company to break-even, its leaders have another dream: protein from plants. This is one of the most fascinating sectors today, especially following the amazing IPO of Beyond Meat, a manufacturer of meat substitutes from plants, which has a market cap of almost \$10 billion.

NextFerm is now embarking on a financing round to raise \$10 million more in order to support the launch of its first three products, and in order to support development of muscle-building protein.

Noy and Cohen believe that yeasts, which are not exactly a plant but not an animal either, can provide protein substitutes very similar to animal protein in taste and nutritional value. "We have demonstrated the feasibility of building protein with our technology that is just like meat. There is an enormous need for this," Noy says.

Cohen: "Today, nutrition science is beginning to realize that not all proteins can be substituted. There are amino acids that have a direct and indirect effect on building of muscle mass, sugar metabolism and insulin in the body, etc. We plan to begin with lifestyle, with athletes building muscle, and also to expand to treatment of elderly people suffering from muscle loss. Today, you can't talk about muscle without also taking about the rest of the body. It affects the entire metabolism. We want to take this product and prove it clinically."

Noy: "We're not Beyond Meat, for the moral but hungry consumer. What distinguishes us is the effectiveness of the protein. It isn't a figment of our overactive imaginations; it comes from Elzaphan's knowledge of overseas customers, who are crying out for vegetarian solutions that provide functionality."

Later, NextFerm may return to its Enzymotec roots by also enriching with protein vegetarian food compounds for babies. "There are already nutrition companies asking us for samples," Noy says.

Will people be willing to pay for protein with special functionality?

Noy: "In the food industry, you have to bridge between the benefit of an ingredient and its price. The trend today, however, is that people are better informed and ask more questions about what they put into their mouths."

### SolarEdge market cap up \$1b

SolarEdge's share price has picked up 36.7% since the results were published, and now stands at \$88.17, putting its market cap at \$4.23 billion, compared with \$3.06 billion.

The market cap of Herzliya-based SolarEdge Technologies Inc. (Nasdaq: SEDG) rose by over \$1 billion. The company's good financial results and strong guidance for the next quarter, published exactly a week ago, gave wings to its share price.

After soaring 25% on the day following the publication of SolarEdge's results, its share price continued its northward journey on the ensuing trading days, including a 5.2% jump yesterday and another 1.7% so far today. SolarEdge's share price has picked up 36.7% since the results were published, and now stands at \$88.17, putting its market cap at \$4.23 billion, compared with \$3.06 billion a week ago.

SolarEdge develops and supplies systems for optimizing and monitoring solar energy. Over the past year, the company has expanded its activity through acquisitions in non-solar energy fields. SolarEdge held its Nasdaq IPO in 2015 at \$18 a share. After rising in the first two months following the IPO, the trend in the share reversed, with the price falling to a low of \$12.30 in late 2016. SolarEdge's share has since recovered, with a 147% return this year and a 381% return since the IPO.

The principal beneficiaries of the steep rise in SolarEdge's market cap are three investment institutions and the company's senior executives, headed by cofounder, chairman, and CEO Guy Sella, 54. According to the most recent report in April, Sella holds 1.3 million SolarEdge shares, 2.7% of the company's share capital, with a current value of \$112 million. Sella, a veteran of the IDF Intelligence Corps' technology unit, founded SolarEdge with partners in 2006, after having been a partner in the Star Ventures venture capital fund. The cost of his salary in 2018 was \$4.2 million, \$2.8 million of which was stock-based compensation.

### Third quarter guidance a pleasant surprise

Other SolarEdge executives and directors also holds shares in the company, with values ranging from \$2 million to \$50 million: CFO Ronen Faier, VP global sales Zvi Lando, cofounder and VP R&D Yoav Galin, and VP general counsel and corporate secretary Rachel Prishkolnik. Check Point CFO Tal Payne, who has been a director in SolarEdge since 2015, owns SolarEdge shares with a current value of \$2 million.

The investment institution with the largest holding in SolarEdge is BlackRock, with 10% of the shares having a current market value of \$412 million. BlackRock, which became a party at interest in the company in late 2017, has been increasing its stake ever since.

Another investment institution with holdings in SolarEdge is NN Group, a large Dutch financial company with 7.8% of SolarEdge's shares according to the most recent report, currently worth \$312 million. One Israeli institution is also among the beneficiaries of the surge in SolarEdge's share: Menorah Mivtachim, which held a 6.3% stake in the company as of April, currently worth \$258 million.

The spark for the positive momentum in SolarEdge's share was its second quarter reports, in which the company outperformed the analysts' forecasts, with 43% growth in revenue to \$325 million, a \$32.9 million GAAP net profit, and a \$49.3 million non-GAAP net profit. The difference between the latter two figures results mainly from reporting of \$11.4 million in share-based compensation for employees, up from \$9.7 million in the second quarter of 2018, due to the rise in the share price.

Another factor in the gap between GAAP and non-GAAP net profit is write-downs of intangible assets relating to the company's acquisitions. Over the past 15 months, SolarEdge paid \$105 million to acquire a controlling interest in South Korean company Kokam, through which it entered the market for production of batteries and energy storage solutions; \$140 million for a controlling interest in Italian company SMRE, which provides solutions for the electric car industry; and \$41 million for the activity of Israeli company Gamatronic, through which it entered the uninterruptible power systems (UPS) market. When SolarEdge reported its second quarter results, Sella said that his company's acquisitions were making going well, and that the company anticipated growth in each of its new product lines. The company's guidance for the third quarter, which was better than the market expected, cited \$395-410 million in revenue (the analysts forecast \$324 million), including \$20 million from the non-solar energy market.

In response to the reports, Oppenheimer raised its target price for the share from \$66 to \$78 (the share price has since exceeded this), with a "Market outperform" recommendation, writing, "We continue to believe that SolarEdge is taking market share in a large number of end-markets." Oppenheimer is nevertheless cautious about SolarEdge's non-solar energy activity, despite the company's progress in its gross profit on these activities.

Credit Suisse also raised its target price for the share - from \$53 to \$70. Credit Suisse retained its "Neutral" recommendation for the share, while writing that the demand was greater than expected, especially in Europe.

### The R&D Gospel

Kibbutz industries are becoming more aware of the benefits of research and development programs.

"A decade ago, the application of research and development programmes in the kibbutz industries was a nearly unknown concept," says Joseph Criden, outgoing director-general of the R&D unit of the Kibbutz Industries Association. "At that time, the sum total of R&D projects in the kibbutz industry sector totalled 10; now the number of R&D projects in progress exceeds 100. In the early 1970s, the challenge was to create an awareness of the importance of R&D and to relate it to the overall potential success of the kibbutz industrial complex."

Criden, a former American who settled in Kfar Blum, is accredited by many as "being one of the guiding spirits behind the rapid industrial expansion of the kibbutz industries, and more than anyone else, he spread the gospel of R&D.

"If you buy know-how, you inevitably wind up behind the times, because there is an inherent time lag resulting from the length of time

required to find the desired know-how, as well as the time needed to negotiate its purchase and finally, the time it takes to transfer the know-how into marketable products. There is also competition, as other concerns around the world acquire similar or exactly the same know-how." This was Criden's message to fledgling kibbutz industries.

It appeared to be falling on unresponsive ears within the kibbutz movement. "Of course, it must be taken into account that in those days, one was lucky to find skilled technicians, not to mention engineers or other professionals, in the kibbutz. Today, kibbutzim have among their members not only engineers, but biologists, biochemists and a generally high technical level of manpower," says Criden.

Moreover, kibbutz industries have become attuned to the benefits to be derived from R&D programmes. An innovative approach may originate from any aspect of industrial activity. A case in point is that of the Kissufim factory at Kfar Giladi which was producing plastic eyeglass frames. In this type of production there is a relatively high waste factor.

An R&D project revealed that sophisticated injection moulding techniques could improve quality and increase profitability by eliminating costly waste of expensive raw materials.

Achieving world leadership in one field of endeavour may often result in unexpected side benefits. The industrialization of Kfar Hanita began more than 30 years ago. A workshop plan specializing in custom-designed tools developed into the Hanita Metal Works, which has a working force of more than 200. This kibbutz enterprise is widely recognized as a world leader in the development and production of high-speed cutting tools.

Extensive research had led to the realization that high-vacuum roll coating equipment could be designed and built for industrial high-volume

coating production. The object of the R&D was to determine whether Kibbutz Hanita could enter the international converting market with full metalizing, coating and lamination facilities.

Having established basic goals, Hanita searched for a consulting partner to help them in selecting equipment, marketing and starting up the manufacturing operation. Eventually, a three-part agreement was signed with the Dunmore corporation whereby Hanita would acquire Dunmore technology, a worldwide sales organization to market products from both facilities and a cooperative R&D programme.

"The complex structure in the product lines for which this equipment has been custom designed are not limited by international boundaries. The complexity comes about because each customer has unique requirements. Customer will now have access to two sources of production through one sales and customer service organization," says Michael I. Sullivan, president of Dunmore. Next year will mark the first production and sales of the Hanita line, with expectations for a quick entry into the market.

Kibbutzim has amassed extensive experience in irrigation, partly because of the country's limited water supply. The need to save water has led to the development of sprinkler control systems. One of these, developed by Kfar Blum, is being marketed successfully by the California Hydronic Systems, Inc.

Called "The Sprinkler Thinker", the device has an automatic battery-powered sprinkler control system, requiring no electrical wiring. Installation, classified as "do it yourself," is inexpensive. requiring no electrical wiring. Installation, classified as "do it yourself", is inexpensive.

For the past 12 years, Beit Keshet Electronics has been engaged in the development,

production, and marketing of electronic systems. Since 1979, its main product has been the development and manufacture of electronic weighing systems.

Deganya Bet Industries has acquired a reputation as an innovative and reliable supplier of polycrystalline cutting tools, which allow for the relatively easy cutting of nonferrous metals and nonmetallic materials as well as hardened ferrous metals and high temperature alloys.

Deganya Bet prides itself on the fast service and standard tools stocked for quick delivery, its high-quality tool designs, the fact that its tools are the most cost-effective and productive tools existing for machining recommended materials. Higher productivity compensates for higher price. Regrinding yields additional profit. The tool range is designed to fit standard toolholders, allowing switchover without additional cost and replacement of present tools without loss of production time.

Joseph Zur, of the Kibbutz Industries Association's R&D unit, says that in the years ahead kibbutzim will become ever more industrialized, using R&D as a springboard for bringing out unique and useful products. "We are trying to assist in the computerization of cow sheds and chicken coops. In the case of cowsheds, it's important to be able to determine the daily output of each cow and to determine the fat content by weight."

At kibbutz Afikim the problem of identification of individual cows has received a lot of attention and, according to Zur, the kibbutz is on the verge of a major breakthrough in this particular area of technology.

"Kibbutzim today have over 300 manufacturing concerns. More than a few are relatively small units. In view of the size, the accent is more on development than on an applied research. It is of great satisfaction to us to know that there is

a relatively high degree of success of the projects submitted for assistance and approval to the chief scientist," explains Zur.

"Kibbutzim are responsible for 50 per cent of the country's total agricultural production. Though accounting for only three per cent of the country's population, kibbutzim are responsible for five per cent of the country's total industrial production. In terms of industry, we are convinced that there is a vast unrealized potential," he added.

"Not all kibbutzim have the necessary minimum qualifications to consider the use and advantages of R&D. But we at the KIA see this as an important part of our task, so that future potential will be realized sooner rather than later," concludes Zur.

### *The Kibbutz high-tech paradox (26.2.88)*

While the kibbutz population represents only 2 percent of the country's population, its industries account for 7 percent of Israel's industrial output. These figures are indicative of an ongoing trend of industrialization and, if past developments are any indication, these figures are bound to grow appreciatively by the end of this decade.

The desire for kibbutzim to enter into industrial undertakings was underscored recently in an eye-catching pamphlet entitled, "Kibbutz Yahel in Search of Industry." This kibbutz, according to the pamphlet, is seeking to acquire technology that is suitable to its capabilities - and financial and social advantages. In the initial stage, Kibbutz Yahel is prepared to invest \$2m., and says that 12 to 15 kibbutz members are available to man the industrial project.

In 1985, export sales of the kibbutz industries came to about \$290 million. Notwithstanding this impressive total, an in-depth analysis of kibbutz industries shows a serious absence of



science-based firms. In 1984, for example the kibbutzim exported only \$10 million worth of electronic products, and this accounted for only 3.4 percent of the total kibbutz industries exports.

There are many reasons for the lack of participation in hi-tech undertakings. One of these is the absence of broad-based, technologically-trained and skilled technicians. Middle-management skills are also scarce. Observers point out that when a kibbutznik gains an advanced technological education, he is likely to consider seeking material advancement outside the kibbutz, rather than "return to the farm."

Moreover, there does not appear to be any infrastructure within kibbutzim on which to base, cultivate and propagate an innovative high-tech environment. While the Kibbutz Industries Association is trying to remedy this situation, a research and development unit for kibbutzim has not yet been established. The Association - and other observers - is aware that the absence on kibbutzim of a tradition of research and development facilities is a major shortcoming and a barrier to the establishment of high-tech industries.

Many kibbutzim have turned to industry after having attained a high level of agricultural expertise. The more intensive the agriculture and the higher the output, the fewer workers are required. Along with this, there appears to be a very real trend for kibbutzniks to shy away from agricultural pursuits - especially those which entail relatively heavy work. By adding industries, the kibbutzim meet the emerging trends toward new occupational preferences. Some kibbutzim establish light industries to provide useful occupations for their senior citizens.

In addition, the kibbutz member - no less than his big city counterpart - is interested in lessening his workload and in creating a

pleasant industrial working atmosphere. It is not surprising, therefore, that kibbutzim are in the forefront of adopting robots as a way of alleviating the unpleasantness and drudgery of certain industrial tasks.

More than 2,000 kibbutz members have trained at the Ruppin Institute's robotics centre in the past two years. This provides evidence that the kibbutzim are interested in robotics and consider them suitable to their unique social structure.

While in private industry the robots are generally opposed by unions who fear they will take away jobs, on the kibbutzim - where members have life-time security, this fear does not exist. Furthermore, robots help kibbutzim deal with the problem of limited manpower.

In another field - that of innovative irrigation and water systems - the kibbutzim have not only excelled but have also demonstrated a marked degree of international success. These systems have been the hallmark of Israeli farming achievements, and have been instrumental in this country's ability to feed its own population.

Impetus for the developments of agricultural industries can be related to a number of factors, including shortage of manpower, poor soil, lack of water and energy, and the need to replace food exports by locally-produced agricultural products. Furthermore, novel irrigation methods have served to overcome the problems of working under unfavorable climatic conditions. As a result, kibbutzim and other settlements are some of the major exporters of winter crops and flowers to Europe.

Another innovative Israeli process is chemigation, the supply of fertilizer through irrigation systems, to improve crop yields. The invention of this process has resulted in the development of a variety of products.

Key suppliers are Kibbutz Amiad in the Galilee, which produces fertilizers and chemical injectors without any external energy being required, and Netafim of Kibbutz Hatserim in the Negev, which manufactures unique drip-irrigation systems.

### Oryx Vision closes as smart car market slows

The company raised \$67 million before its CEO decided that the autonomous vehicle market is maturing at a slower rate than previously expected.

Israeli auto-tech company Oryx Vision, which has developed Lidar sensors for autonomous vehicles, has closed down, and will pay back to its investors the \$40 million it still has in cash. Oryx Vision CEO Ram Wellingstein decided to close the company down, and notified its employees of his decision in the company offices last Tuesday. He said that changes in the autonomous vehicle market had hampered the company's ability to give its investors a return on their investment.

Oryx Vision was founded in 2009 by Wellingstein, a serial entrepreneur who cofounded Intucell, and VP R&D David Ben-Bassat, who was the company's technological brain until three months ago. Ben-Bassat was also a cofounder of RFWaves, which developed wireless communications technology based on radio frequencies. RFWaves was acquired by semiconductor corporation Vishay Intertechnology in 2004. Oryx Vision has raised \$67 million, including a \$50 million financing round two years ago. The company's most prominent investors are Maniv Mobility, Bessemer Venture Partners, and WRVI Capital.

The decision to close Oryx Vision down came after a period of nearly a year, during which Wellingstein and Ben-Bassat realized that the autonomous vehicle market in which the

company operates is changing and going into a slowdown. They informed the board of directors, and the investors agreed to continue to participate in another financing round if it was needed. "I left the company three months ago because of material disagreements with Ran. I was not a party to the decision to close the company down," Ben-Bassat told "Globes." "I believed, and still believe, that there is an opportunity for other options for the company." No comment was available from Wellingstein.

Over the past year, Wellingstein advocated shutting down Oryx in opposition to Ben-Bassat, because he believed that there was no point in continuing to operate in a market experiencing a slowdown. Ben-Bassat believed that the company could continue operating on a leaner format and keep the investors from losing money on their investment, but now realizes that it will take longer than he originally thought.

"The diagnosis is correct. The market is behind schedule and shrinking. The situation now is not the same as it was in 2016, and I really think that there was hype here. There was a bubble, and it hasn't finished deflating. We're barely a third of the way there," Ben-Bassat added.

Optimistic forecasts predicted that the autonomous vehicle market would ripen in 2020, but it now appears that this will take at least a few more years, and possibly as long as a decade, according to some forecasts. In an article published several months ago by Mobileye founder Prof. Amnon Shashua in the MIT technological journal, he cites three main obstacles to developing an autonomous vehicle: developing much safer sensor systems than the current systems, creating global legal regulation that will allow a driverless car to travel freely on public roads without the manufacturer being subject to lawsuits in the event of an accident, and a dramatic fall in costs.

Lidar is technology for measuring distance using a laser that illuminates various objects and a sensor that measures the wavelength and uses it to determine the distance. Oryx Vision began developing this technology for autonomous vehicles in 2009 under the radar and with independent financing. By the time that the company raised \$50 million in 2017, there were other companies with similar developments. For example, US company Velodyne raised \$150 million in its first financing round in 2016, and is now considered the leader in the global Lidar market. Israeli startup Innoviz Technologies also raised a great deal of money, including a \$132 million round this year.

Giants like Google and Uber are also developing their own Lidar technologies, and in contrast to startups, they do not depend on the venture capital industry's timetables. While the technological developments needed to move the market forward are essentially software developments, Oryx Vision was a hardware company, and therefore depended on the maturation of these developments. The company's investors, on the other hand, expressed willingness to continue investing in it, until it was decided to terminate its activity.

### Hot to launch Amazon Prime Video

Hot CEO Tal Granot-Goldstein said that the Amazon Prime Video service would be added to a long list of applications and services available to Hot's customers.

Altice, the parent company of Hot Telecommunications Systems, has reported the signing of an agreement with new content player Amazon Prime Video. The service will be launched first in France and later by Altice's other arms, including Hot in Israel. The announcement did not state when the service would be available in Israel. Altice also has a cooperation agreement with Netflix, whose broadcasts are also available to Hot's

subscribers in Israel.

Hot CEO Tal Granot-Goldstein said that the Amazon Prime Video service would be added to a long list of applications and services] available to Hot's customers, enabling them to enjoy the most advanced viewing experience.

The Altice group has 50 million subscribers in France, the US, Portugal, Israel and the Dominican Republic. The company said that the agreement with Amazon was another step in Altice's investment in combining leading global streaming providers. Amazon Prime last year signed a cooperation agreement with Partner TV.

### Unemployment down sharply in Israel

Unemployment fell to 3.7% in July from 4.1% in June according to the Central Bureau of Statistics. Unemployment fell to 3.7% in July from 4.1% in June according to the latest workforce figures for Israelis over 15 published by the Central Bureau of Statistics. The employment rate, consisting of the proportion of employment in the general population, dipped from 63.4% in June to 63.1% in July. The rate among Israelis aged 15 and over remained unchanged last month at 60.8%.

### FDA approves Israeli co Biobeat's patch and watch

The patch and watch is for measurement of blood pressure, oxygenation and heart rate in hospitals, clinics, long-term care and at home.

Israeli medical device company Biobeat announced today that the US Food and Drug Administration (FDA) has granted a 510K clearance for its patch and watch for measurement of blood pressure, oxygenation and heart rate in hospitals, clinics, long-term care and at home. Biobeat's advanced sensing and remote monitoring solutions for patients

enable cloud-based healthcare with connectivity either through a smartphone or a dedicated gateway.

Biobeat founder and CEO Arik Ben Ishay said, "This is the first cuffless blood pressure solution to be cleared by the FDA- no more need for an inflating cuff. This clearance opens tremendous opportunities for remote monitoring of vital signs of patients and we are excited that we can now also offer this in the US market," continues Ben Ishay. Biobeat's products have already been CE marked and approved as medical devices in Europe and Israel."

Biobeat Chief Medical Officer Prof. Arik Eisenkraft said, "Remote monitoring of patient's vital sign requires completely different technological approaches than current practice. While blood pressure, heart rate and oxygenation are the backbones of monitoring, we will continue to work with the FDA to approve additional parameters for our devices."

Biobeat chairman Dr. Dan J. Gelvan said, "The promise of remote care for patients and the equally important continuum of care: connecting home-based, community and hospital care, will not happen without novel medical-grade sensors and we are proud to = be the pioneers in this field."

### Israeli music app co JoyTunes raises \$25m

The company's main teaching app Simply Piano received an award for excellence from Google and Apple.

Israeli music education startup JoyTunes announced the completion of a \$25 million financing round led by Israeli growth fund Qumra Capital. Qumra was joined by existing investors Insight Venture Partners, which led the previous round in the company. Among the company's investors are Aleph, Jeremy Stoppelman - CEO and founder of Yelp, Kaedan Capital, Founder Collective, Zohar

Gilon, and others.

Following this latest investment, JoyTunes has raised \$43 million. Sivan Shamri Dahan will be joining the company's board of directors. The current funding will be used to fuel expansion by enabling the development of new products and technology, in the field of musical education. JoyTunes CEO Yuval Kaminka said, "Since our last financing round, we have reached very significant achievements in technology, product and marketing. We are on the fast track to fulfill our vision - to become the music education center of every household worldwide. Over the past year, we have doubled our growth rate and proved that a small and super talented team based in Israel can develop a product that reflects a real market need and deliver it to hundreds of thousands of paying subscribers. We will continue to progress and grow out of Israel, where we are recruiting the best talent in technology, product, music and creative whereby formulating the next generation of global musicians. "

JoyTunes was founded in 2011 by Kaminka, Yigal Kaminka (Music Director) and Roey Izkovsky (CTO and Growth). The company currently employs 50 people, all in Israel, with headquarters in Sarona, Tel Aviv.

With over a million monthly downloads and hundreds of thousands of paid subscribers, JoyTunes has changed the way children and adults around the world learn to play music. No longer expensive, limited time or place, but an interactive app that teaches users to play intuitively, available around the clock.

Qumra Capital partner Sivan Shamri Dahan said, "JoyTunes is an exceptional company, one of the leading B2C fastest growing startups in Israel that with advanced technology and great online capabilities disrupts a huge traditional market revolutionizing the way people learn to play. In the modern world,

where people acquire new skills enriching their lives by self-learning new content such as a second language, sports and meditation, JoyTunes is the leader in the music field. The company is demonstrating phenomenal growth and we are very proud to have JoyTunes join our portfolio. JoyTunes combines a great business model, a clear vision, with an inspiring product making a positive impact on the world. We are very excited to support the company's expansion as a global leader in its field."

The company's main app Simply Piano received an award for excellence from Google and Apple.

The company's app uses MusicSense, an artificial intelligence-based software engine that identifies which notes are played by the user and provides personalized feedback and instructions all in real-time. The company also launched the Piano Maestro app offering a solution for music teachers that is currently serving more than 10% of the music teachers in the US. The company is planning to launch a new product line for teaching additional instruments.

### **Number of tech employees in Israel passes 300,000**

Israel Innovation Authority data show that the number of tech employees in Israel has risen to nearly 9% of the workforce.

The Israel Innovation Authority reports that the number of tech employees increased by 19,000 in 2018, and by 11,000 in the first five months of 2019, raising the number of employees in the tech industry to a record 307,000. The figures for tech employees, published by the Central Bureau of Statistics, exclude telecom sector employees. According to the Central Bureau of Statistics, the average monthly wage in the technology industry was NIS 24,000.

Figures for 2018 published last January by the

Central Bureau of Statistics showed a 0.4% rise in the proportion of employment in the technology industry, including the communications sector. The Innovation Authority's figures, which exclude the communications sector, show the same rate of increase, from 8.3% to 8.7% at the end of 2018.

This is the steepest rise in the proportion of those employed in the technology industry since 2006. In general, the proportion of those employed in the technology industry rose from 7% to 8% in 2002-2016, with fluctuations along the way. The figures for 2018 and 2019 reveal that the proportion of those employed in the technology industry, excluding communications, is nearing 9% for the first time. According to the figures for January-May 2019, the steep increase in the proportion of those employed in technology sectors is continuing in 2019.

The Innovation Authority attributes this growth to the various measures taken by the government to increase the supply of qualified human capital for the industry, such as the Council of Higher Education Planning and Budgeting Committee's plan to increase the number of students in technological subjects in higher education and the Innovation Authority's support tracks, such as the Coding Bootcamps track and special tracks for encouraging entrepreneurship among Arabs, haredim (ultra-Orthodox Jews), and women.

This growth follows reports by various agencies of a shortage of 10,000-15,000 employees in the industry, as of 2018. The state, on the other hand, has set an ambitious target: employment of 12% of Israel's labor force in the technology industry by 2030. Growth in the proportion of those employed in the technology industry matches forecasts published last May by the Aaron Institute for Economic Policy, which predict that the proportion of those employed in the technology

industry will vary in the 11.5-15% range in the coming decade. This is lower than the forecast published by the Innovation Authority in last 2017, which predicted that the proportion would reach 15% within a decade. On the other hand, these predictions are more optimistic than an earlier study by the Aaron Institute and a study published several months before that by the Taub Center for Social Policy Studies in Israel.

Despite the growth in the sector, it is still important to stress that it is relevant only to a specific part of Israeli society. The Taub Center says that most of the those employed in the technology industry are men (the same is true in the rest of the world), and are non-haredi Jews. While the proportion of non-haredi Jewish men employed in the technology industry rose from 8% to 15%, the proportion among Arabs and haredim remains miniscule.

### Anaplan buys Israeli business intelligence co Mintigo

No financial details were disclosed about the acquisition but Mintigo has raised \$50 million since it was founded in 2009. US connected planning company Anaplan Inc. (NYSE: PLAN) has announced that it has acquired Israeli business intelligence company Mintigo for an undisclosed sum.

Based in Kfar Saba, Mintigo was founded in 2009 by Dr. Jacob Shama, Tal Segalov and Ehud Ben-Reuven. The company has raised \$50 million to date and investors include Gilot Capital Partners, Sequoia Capital IL, Adams Street Partners, Giza Venture Capital, Maverick Ventures, Vintage Investment Partners and La Maison. The company has combined big data with AI and predictive analytics to develop an intelligent customer engagement platform for enterprise marketing and sales.

Anaplan CEO Frank Calderoni said, "We are very excited to announce that we have signed an agreement to acquire Mintigo, an Israeli-based company with an AI-powered customer engagement platform that provides predictive analytics for marketing and sales. Mintigo brings strong expertise in data science and machine learning automation. Mintigo's exceptional talent will strengthen our position as a leader in the category of connected planning by augmenting and elevating the predictive capabilities of our solutions, while accelerating toward our vision for an AI-enabled platform. We also believe the Mintigo team is very well aligned with our culture."

He added, "We expect to complete this transaction by the end of the quarter subject to closing conditions."



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