



MICHAEL NAGLE / BLOOMBERG

# LET'S SAY HELLO

Intel's \$15 billion purchase of Mobileye could be the way to go for Israeli hi-tech bringing in jobs and expertise rather than taking away brains



**HOW SMALL** is Israel? Small enough that a single \$15 billion acquisition of a hi-tech start-up, albeit the biggest such exit in Israel's history, could possibly ignite a major new industry, create thousands of high-paying jobs and bring Israeli taxpayers a significant tax reduction.

On Monday, March 13, global giant Intel announced it was acquiring Mobileye, a Jerusalem-based manufacturer of vision systems for driving assistance and autonomous vehicles, for \$15b., making founders Prof. Amnon Shashua and Ziv Aviram instant billionaires. Intel paid \$63.54 per share in cash, or a third more than the current market price of Mobileye shares. The price was a steep 30 times annual revenue. Mobileye says it sold 80 percent of the advanced driver-assistance systems marketed worldwide. Some 15 million cars already have Mobileye cameras.

Mobileye's launch product was a camera and related software that warned of impending car crashes. It has since expanded to what it calls road experience management, an application that makes more accurate digital road maps in real time ("Creating an automobile revolution," January 23).

The previous record for an Israeli exit was the purchase of Stef Wertheimer's Iscar by

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Investors predict the self-driving market – in which Mobileye is a major player – will grow exponentially and further develop in-car online shopping and entertainment

Warren Buffett's Berkshire Hathaway for a total of \$6b., in 2006 and 2013.

Tax revenue directly generated by the deal from the 25-30 percent capital gains tax could be more than four billion shekels – enough to enable lower income tax or value added tax.

Is this another instance of Israel selling its brains rather than using them to build global companies? Hopefully, no.

**Why are car companies flocking to Israel, which has not made a single car since Haifa-based Autocars made the fiberglass-bodied Carmel, Sussita and Gilboa cars in the 1960s and 1970s?**

"This acquisition merges the intelligent eyes of the autonomous car with the intelligent brain that actually drives the car," Intel CEO Brian Krzanich wrote to Mobileye employees. He said Intel plans to make Israel the center of Intel's R&D for self-driving vehicle systems, built around Mobileye and headed by Shashua, and intends to hire many engineers.

Earlier, Mobileye had partnered with Intel to design fifth-generation microprocessors for autonomous vehicles to be produced and sold in 2021. Intel, Mobileye and German automaker BMW are collaborating to produce 40 self-driving cars that will hit the road for testing later this year.

The Mobileye acquisition could prove crucial for Intel. It missed the smartphone tidal wave, losing out to competitor Qualcomm, and is fighting to find new markets for its microprocessors. “Others predict the future. At Intel, we build it,” CEO Krzanich wrote, a bit bombastically. In acquiring Mobileye, Intel seems to be buying the future.

**BOSTON CONSULTING** Group predicts that the self-driving vehicle market will amount to \$42 billion by 2025. That may well be conservative. Investment bank Goldman Sachs sees the market growing from only \$3b. in 2015 to \$96b. in 2025 and \$290b. in 2035. Global consulting firm McKinsey & Co. thinks self-driving car data alone could be worth between \$450b. to \$750b. by 2030, creating such innovations as in-car shopping, in-car entertainment and even improved city planning. If drivers are not actually driving, they have time to buy online, enjoy programming and watch ads.

At least part of what Intel is buying from Mobileye is data – huge amounts of it. “The average autonomous [self-driving] car will create about four terabytes of data daily,” Krzanich noted, “or about the same amount of data generated by 3,000 people.” The average American driver drives 33 miles (53 km) a day. For Israelis, it’s less – 47 km a day. All that driving – to work, for shopping, etc. – generates enormous data from the crash-warning camera.

Mobileye’s REM (Road Experience Management) software can help create highly accurate maps vital for safe self-driving cars. The Mobileye data is captured with a single forward-facing camera and packaged in convenient 10 kilobyte packets, easy to upload.

Mobileye is anything but an overnight success. Founders Shashua and Aviram

launched their start-up in 1999. They worked for seven years to produce the crash-warning system. Their decision to produce their own computer chips, against all advice, was crucial.

When an exit brings not only an influx of dollars but also puts in place a major R&D operation by a leading global company, it opens doors to even more jobs, exports and wealth

Shashua and Aviram have another start-up, called Orcam, founded in 2010. Orcam produces a portable artificial-vision device that enables the visually impaired to understand text and identify objects, bringing sight to the blind. About a thousand visually impaired persons worldwide already use the device.

The daily Haaretz reported in detail on those who will reap the windfall wealth created by the Mobileye exit. Israeli car importer Dr. Shmuel Harlap, who now owns 7 percent of Mobileye shares, was an early investor; Harlap never sold a single share and hence becomes a billionaire.

Many Mobileye workers have stock options, authorizing them to buy shares at \$21, implying that each share brings a profit of \$42.50. Israeli tax law permits workers to classify their options profits as capital gains, not wages, and hence to pay less tax. In total, workers’ stock options will bring \$1.2 billion. Institutional investors, too, will gain. Menora Mivtachim, one of Israel’s five largest insurance and finance groups, holds nearly a million shares and will make \$60m. in profit.

Intel’s Mobileye buyout will consolidate a rather amazing new industry for Israeli hi-tech. The business daily TheMarker reports that more than 100 Israeli companies are developing a range of technologies for the auto market. There have already been a rash of exits. They include Ford’s purchase of Saips, which makes algorithms for computer vision and Volkswagen’s 40 percent stake in CyMotiv, an automotive cyber security start-up co-founded by former Shin Bet head Yuval Diskin. Germany’s Daimler, maker of Mercedes, announced it is opening an R&D facility in Israel. General Motors opened its R&D center in Herzliya more than six years ago.

Why are car companies flocking to Israel, which has not made a single car since Haifa-based Autocars made the fiberglass-bodied Carmel, Sussita and Gilboa cars in the 1960s and 1970s? The answer was provided by Harvard Business School Prof. Clayton Christensen back in 1995.

Self-driving car systems are an example of what he calls a “disruptive technology” – a new technology based on software and computers, well outside the core competencies of car companies, where upstart newcomers can disrupt the way the car industry is run, displacing established market-leading firms, products and alliances.

**INCREASINGLY, VEHICLES** are packed with computers, sensors and software. Car companies are racing to cement alliances with autonomous vehicle start-ups, skilled in creating software, in order not to miss out on the burgeoning new market. Disruptive technologies thrive wherever start-ups are inventive, fearless, independent-minded, iconoclastic and, above all, speedy. This fits Israel to a T.

It is entirely possible that the car industry of the near future will be dominated not by GM, VW, Fiat or Ford, but by Intel and by Uber, founded in 2009, a company that offers taxi rides in personal cars. The core value of a car will become not its engine or drive train but the system that lets it drive safely by itself. Uber is already



DAVID PAUL MORRIS / BLOOMBERG

Amnon Shashua (left), chairman and chief technology officer of Mobileye, Klaus Froehlich (center), a member of BMW's management board, and Brian Krzanich, chief executive officer of Intel, have struck a fruitful collaboration, as car companies race to cement alliances with autonomous vehicle start-ups

(HP) in September 2001. Indigo is now an independent division of HP and makes its printers at a super-modern plant in Kiryat Gat. HP Israel is now the second-largest foreign employer, after Intel.

Former chief scientist Avi Hasson, now chairman of the Israel Innovation Authority, told *The Marker*: "Mobileye represents the new generation of companies led by serial entrepreneurs and CEOs who aspire to define and lead the field. There are other Israeli companies in this position, and to some extent it's the next chapter in the book of "Start-up Nation." A company that is bought at this stage creates more value for Israel."

Mobileye is located in Jerusalem's Har Hotzvim science park, the northwest extension of Mt. Scopus. Har Hotzvim is a thriving hi-tech center, with such global companies as Intel, Teva, NDS and IBM located there. It is smack in the center of Haredi neighborhoods, and the contrast between the ultra-Orthodox and ultra-hi-tech is stark.

Exits are here to stay. The Mobileye exit leads me to wonder whether the government can fashion tax incentives and other regulations to encourage other, similar "exit/entry" deals.

A famous Beatles song pleads, "I don't know why you say goodbye, I say hello." That should become our refrain. Let's try to persuade acquiring companies to say hello rather than goodbye. Let's make it worth their while to invest in their newly acquired start-ups and build and strengthen them in Israel. ■

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testing self-driving cars in Pittsburgh. Israel's Transport Ministry has so far kept Uber from operating in Israel, fearing its impact on taxi drivers.

Having often bashed exits as fire sales of our brains, I'm now happy to moderate my views. Some exits are in fact entries. Take, for instance, the start-up Anobit, founded by Ariel Maislos. I interviewed him a year ago for an online course on entrepreneurship. Maislos's company created software for solid-state hard drives. Apple found Anobit's software highly valuable for its iPhones and tablets and made Anobit a key supplier. Eventually Apple acquired Anobit, for well over \$400m. But this exit was, in fact, an entry.

When I later returned to speak to Maislos at his new start-up Stratoscale (software-based data center technology) in Hezliya Pituah, I was pleased to see a huge Apple sign next door. Apple converted Anobit into its R&D center in Israel, employing over 200 well-paid engineers. It was led by Aharon Aharon, a hi-tech veter-

an who now heads the new Innovation Authority, the successor to the Chief Scientist's Office.

**THIS DECISION** by Apple to acquire Anobit was surprising and unusual, because Apple generally refrains from acquisitions, keeps its R&D at home, and already employs some 1,000 chip designers at its headquarters in Cupertino, California. But clearly the creative Israeli engineers bring Apple what it needs – speed and inventiveness.

So, my conclusion is: When an exit brings not only an influx of dollars but also puts in place a major R&D operation by a leading global company, it opens doors to even more jobs, exports and wealth.

Bad exits lead Israeli brainpower to migrate abroad. And this happens not infrequently. Good exits leave Israeli brainpower in place, and expand it, to form the nucleus of new industries and endeavors.

Take Indigo, for instance, a digital color printing start-up founded by Benny Landa. Indigo was bought by Hewlett Packard