

Israel

A blue-toned illustration of two people, possibly a man and a woman, looking intently at a globe. The globe is rendered with white grid lines and is the central focus of their attention. The background is filled with various abstract shapes and textures, including what appears to be a map or a document with some markings. The overall style is artistic and somewhat sketchy, with a strong emphasis on the color blue.

Changing the world in 36 hours



AVIKATZ

Israelis and Indians get together for a weekend hackathon to tackle pressing health challenges faced by the developing world
By Bernard Dichek

Moran Neuhof, a Tel Aviv University neurobiology student, and Devorah Heymann, a Tel Aviv doctor, probably would have spent the third weekend of July at home relaxing, as would have Abhishek Appaji, a 27-year-old engineer in Bangalore, and Meghana Kambham, a 25-year-old doctor and entrepreneur in Hyderabad, India. Instead, they decided to participate in a 36-hour marathon competition, in which they hardly had time to eat or sleep, trying to solve some of the most pressing health problems affecting the global poor.

Neuhof, Appaji, Heymann and Kambham were among some 1,000 other participants in the MED4DEV India-Israel Affordable Healthcare Hackathon, which involved 80 teams in the three Indian cities of Bangalore, Mumbai and Hyderabad and 16 in Tel Aviv.

Hackathons are events during which a group of people with different skills get together for a brief, intensive period to develop new technologies. Usually, they work in teams competing for a cash prize.

The first hackathons, held about 20 years ago, were devoted to developing new software – hence the portmanteau name that combines “hack,” an engineering term meaning exploratory programming (not to be confused with the commonly used alternative meaning of illegal tapping into computer codes) with the word “marathon.” In recent years, hackathons have been held to stimulate innovations in a wide variety of fields, including music, science and biotechnology.

The MED4DEV hackathon set out to develop new solutions to the healthcare problems faced by lower- and middle-income communities in India, explains Aliza Belman Inbal. She points out that Israel has more than 1,000 start-ups in the healthcare sector, but almost all of them target the needs of rich people in rich countries.

Many Israeli entrepreneurs are not aware of the business opportunities in the developing world,” says Belman Inbal, director of the TAU Pears Program for Global Innovation and one of the hackathon organizers. “India, for its part, is a world leader in what is known as frugal innovation, which targets the needs of mass markets. It also has a healthcare market that is expected to grow to 280 billion dollars by 2020. So, it makes clear business sense to build bridges between the Indian and Israel-

li technology ecosystems.”

To prepare for the 36-hour event, Belman Inbal, and co-organizer Hilly Hirt, travelled to India where they met with NGOs working in the healthcare sector, business accelerators, venture capitalists and private companies. “In addition to finding participants, sponsors, judges and mentors, we tried to determine in a very specific way what the most important challenges are that could impact on the largest number of people,” says Hirt.

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The organizers eventually came up with nine different hackathon challenges and found sponsors to provide the nine winning teams with cash prizes and a tailor-made business acceleration program in Tel Aviv. They also arranged with Indian and Israeli professionals who have expertise in each area to be available as mentors for consultation by the teams throughout the event.

THE CHALLENGE that caught the attention of Moran Neuhof was a listing indicating a need for the detection of hearing impairments among rural populations. Hearing impairment is the second most common disability in India, affecting about 64 million people. The prize-winning idea devised by Neuhof’s team, involves an Android app hearing test. “The app can be activated by a healthcare worker travelling in any village, even without Internet access and uploaded later to a database,” explains Neuhof.

He points out that the entire concept was invented on the spot during the hackathon

together with some people he had never met before. “It all happened there,” says Neuhof, referring to the Google Campus on the 34th floor of a Tel Aviv office building where the Israeli teams met and worked. “There were orientation meetings prior to the actual event, but it was only during the hackathon itself that the team came together, thought up the idea and put together our video presentation. Some of us worked all night.”

In the three-minute video presentation Neuhof’s winning team pitched to the judges, the device is described in graphic detail. The depiction gives the impression of being a blueprint ready for manufacture, even though, as Neuhof points out, it is still at the concept level.

Prior to the hackathon, Neuhof assumed he would continue with his doctoral studies in neurobiology and pursue a career path in academic research. Now he is not so sure. “We have talked to investors and the possibility of founding a start-up seems quite real,” he says.

Abhishek Appaji was drawn by the challenge that dealt with monitoring the wellbeing of pregnant women and unborn babies. With more than 25 million babies born in India each year, the populous country leads the world in the number of pregnancies. Yet because the majority of Indian women are not monitored during pregnancy, it also leads the world in fetal abnormalities and childhood deaths.

Appaji, a 27-year-old medical imaging researcher at India’s BMS College of Engineering, had worked on pregnancy monitoring systems for several established technology companies, but had never started his own business. He decided to join forces with a software engineer and life scientist. His Bangalore-based team came up with an idea for a low-cost ultrasound device that focuses on the placenta in order to monitor the condition of both mother and child. “It can be used by both non-medical practitioners and the mothers themselves,” explains Appaji.

His team’s presentation, which included a detailed business plan, earned a 1,500 dollar prize awarded by the Nice Foundation, an Indian NGO.

Since the hackathon, Appaji has discussed his team’s innovation with government agencies and venture capitalists, and he is optimistic about gaining investment. But it remains to be seen if financial support will be enough. “In India, the medical community is a very conservative one and it will be

a challenge to get the acceptance of doctors for something as innovative as what we are proposing,” says Appaji.

Dr. Devorah Heymann, who recently took up medical residency at Tel Aviv’s Sourasky Medical Center, is familiar with the Indian medical system as she has worked in India, the Cook Islands, Tanzania and other developing countries. Her original role in the hackathon was to serve as a mentor to the Tel Aviv teams, but early on she became very enthusiastic about working on a hackathon challenge focusing on preventing child malnutrition.

“I DECIDED to jump on board and cancel my weekend plans,” says Heymann, who joined a Tel Aviv team that included an MBA student, a marketing professional, a graphic designer and Prof. Ben Ami Ballin, a pediatrics specialist at Holon’s Wolfson Medical Center.

The challenge tackled by her team involved finding a technological solution to monitor food and milk intake among infants six to eight months old.

Malnutrition among children is a prevalent trend in India, where almost 30 percent of children up to age five are underweight. A critical window of opportunity for fixing the problem is during the two-month period between the ages of six and eight months when an infant begins eating semi-solid and solid foods. At that juncture, it becomes crucial that the right type of nutrition is added to the diet.

Heymann’s team devised a solution that involves developing a simple SMS system that can be used by village shopkeepers, who would weigh the babies and send the information to the families and the company. If the children are determined to be underweight, the company provides dietary advice to the families.

“Shopkeepers tend to be literate and they already have experience with scales,” explains Heymann. The shopkeepers would be compensated for their time, and provided with digital scales if needed, she says.

Heymann’s Israel-based team is currently negotiating with a business incubator in India – a contact established during the hackathon.

Hyderabad-based Dr. Meghana Kambham’s team took on the hackathon challenge of finding a way to prevent anemia – low levels of hemoglobin in the blood – a condition that is highly prevalent among ad-

olescents in India and can be treated through drugs and dietary changes. Periodic hemoglobin measurement often is not conducted on a large scale because of the cumbersome and expensive aspects of current methods, which are not available in rural India.

The founder of a start-up known as Carengrow, which is developing an electronic platform for improving children’s health habits, Kambham is familiar with this type of challenge. The Carengrow system enables school teachers to keep track of children’s health through low-cost monitoring technology.

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“One thing that hit me hard when I was studying medicine was how, in India, so many people suffer from preventable diseases,” observes Kambham.

Despite her general experience in this area, prior to the hackathon, Kambham had not yet delved into the anemia field. “The hackathon was exactly the kind of opportunity that I was looking for,” she says, noting that her team worked around the clock and that she got less than three hours of sleep during the weekend.

Her prize-winning team developed the concept for a sensor device that can monitor hemoglobin levels without having to prick the finger to draw blood. The team also drew up a nutrition plan that prescribes iron-fortified foods with variations adjusted to three different levels of family incomes, including those earning as little as 500 rupees (\$18) a month. “The basic food element is a locally grown millet that has to be prepared in a certain way,” explains Kambham, who adds that she and her team members tried out different recipes with families during the hackathon weekend.

LIKE MANY of the Indian participants, Kambham says the hackathon, opened her eyes to opportunities for working with Is-

raeli industry. As part of her preparations for the event, she read “Start-up Nation,” the best-selling book that outlines the achievements of Israel’s hi-tech industry, which was distributed at the last minute to many of the Indian participants by the hackathon organizers.

“We originally thought that our reputation would precede us,” says Belman Inbal, indicating an apparently mistaken belief that Israel’s reputation as a hi-tech hothouse is known worldwide. “As it turned out, a large part of our role was telling them [Indian participants] about the Israeli hi-tech scene and the numerous opportunities for collaboration and partnership.”

When asked why there was no attempt to create binational teams, Belman Inbal points out the difficulty of launching a new venture without people being able to work together in person.

“In order to create a successful start-up, the challenge is to find people who both fall in love with an idea and fall in love with the team. That’s hard to do if they are only communicating via Skype. But the teams did have access to cross-border mentors in both India and Israel,” she says.

Belman Inbal also stresses that the hackathon is being followed up with another stage aimed at nurturing binational collaboration. “Some of the winning Indian teams will be hosted in Israel for a week of intensive mentoring and business development. They will have a chance to meet firsthand with Israeli companies in their field and potential investors.”

Similarly, she says some of the Israeli teams can be expected to join the Pears Challenge, a four-month ideation program, slated to begin this December, in which about 25 Israeli startups will be given the opportunity to travel to India and get acquainted with the Indian business community and market.

Whether the ideas generated at the hackathon will actually lead to commercial development remains to be seen, but one person who is watching developments closely is Ophir Shahaf. Speaking at the hackathon’s prize-awarding ceremony, the vice president of business development at eHealth Ventures, a consortium formed by the Israeli HMO Maccabi and the well-known Cleveland Clinic to invest in new digital health technologies, Shahaf described the increasing interest being shown by investment groups in innovations targeting the developing world.

“The door is open,” he told the winners. ■