



Power shock

ENTREPRENEURSHIP How a young entrepreneur is turning wasted energy into profit

A quick maths test. If an average passenger car gets 22.5 miles per gallon, but only uses about 15 per cent of the energy from fuel to move the vehicle and its passengers and power its accessories, how far could a perfectly efficient passenger car travel on a gallon of fuel? In case you don't happen to have a calculator handy, the answer is an even 150 miles to the gallon.

Sounds pretty good. But what happens to the other 85 per cent of the energy? Some is lost to heat. Some is lost to aerodynamic drag. And some forms the basis of entrepreneurial opportunity.

IMPACTFUL IDEA

As a student at MIT in Cambridge, MA, Shakeel Avadhany had plenty of opportunity to consider these facts while idling in Boston area traffic. But it was the infamous Boston potholes that launched his current venture, Levant Power. Bouncing down the street, Avadhany realised that these bumps not only cause headaches, they also cost fuel efficiency. The shock absorbers in his car were turning vibration into lost heat. His solution? Capture the energy. Build a shock absorber that is able to generate electricity for the battery or the accessories.

HARNESSING HARVEST

If Avadhany can achieve the midrange of the 1-6 per cent efficiency he hopes for, his idea could cut fuel use by

more than 250,000 barrels in the US alone. Every day. More maths says that if every car in the world was equipped with Levant GenShocks, it would save drivers US\$28bn per year at an oil price of US\$75/bbl). Small solutions to big problems can generate enormous opportunities. And though Levant is still tiny, early results are positive. The firm has already received two rounds of investment during challenging economic times, it is working on a contract with the US military to supply its GenShock to military vehicles, and it received an Innovation of the Year award last year from *Popular Science*.

HARVEST OR CONSERVE?

In addition to potentially smoothing our ride and soothing our wallets, Avadhany introduces us to a larger debate about how to deal with growing energy consumption demands. One option is simply for



Driving profit
Shakeel Avadhany (left) has created the GenShock to harvest wasted energy



people to do less.

Conservation has long been advocated, and in some areas mandated. A driver forced to cut his activity in half by definition also cuts his consumption in half. But the same driver harvesting twice the output from the same amount of fuel also consumes half, and still enjoys his current activity level. The difference? Conservation is a regulatory tool of government. Harvest is the result of successful entrepreneurial activity. And, looking historically at examples from paper recycling to hybrid vehicles, entrepreneurial harvest has achieved both broader adoption and better efficiency results than conservation has.

OPEN ROAD

Should entrepreneurial ideas at the intersection of energy and automobiles intrigue you, it might be interesting to know where the remaining opportunities lie. If universally adopted, Avadhany's GenShock could take half of one per cent out of the 'rolling resistance' figures. That leaves 99.5 per cent of the harvest open to other entrepreneurs with clever solutions. Certainly there will be bumps, but it is the job of the entrepreneur to turn those into opportunity. ●

details

By Stuart Read, professor of marketing at IMD, Lausanne, and Nick Dew, assistant professor at the Naval Postgraduate School, Monterey