Power of the Crowd

Be it for charity, science or sport, volunteers from around the world working together are making a huge impact

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KEVIN SCHAWINSKI, 24, a graduate student in astronomy at the University of Oxford, began sorting through one million photos of galaxies, part of his research on star formation. At the end of a week, working to the brink of exhaustion, he had classified just 50,000 images. There had to be a better way.

He and fellow astronomer Chris Lintott designed a website they dubbed Galaxy Zoo, posted the photos and gave instructions on how to identify three galaxy types by their shape. By the next day, the site was receiving 70,000 classifications per hour. At the end of the first year, 150,000 volunteers had done 50 million classifications. It was July 2007 and little did Schawinski and Lintott realize they were on the leading edge of what has come to be known as a new era of citizen science, where internet volunteers make significant contributions to discoveries in fields ranging from astronomy to zoology.

Eighteen-year-old Nadav Ossendryver* has always loved Kruger National Park, a few hours drive from his home in Johannesburg, South Africa. At two million hectares [five million acres] it is one of Africa's largest wildlife preserves and is laced with over 3000 kilometres of roads. Finding wildlife such as lions,

* Names changed on request.

cheetahs or leopards, can sometimes be frustrating.

Nearly three years ago, the teenager set up a website called Latest Sightings *(www.latestsightings.com)* in which he asked people to post what animals they had seen and give their locations. Now Latest Sightings carries snapshots and videos from visitors, offers a virtual tour of the park and enables the Endangered Wildlife Trust to carry out projects from tracking eagles and leopards to wild dogs. Already it has 100,000 followers.

In March 2013, a 33-year-old British engineer named Jonathan* happened to read about a new medical website called FindZebra in *The Guardian.* The new interactive database of 31,000 articles from expert sources covering 7000 rare diseases had been getting results nothing short of miraculous when it came to identifying hitherto mysterious medical conditions and diseases.

From childhood Jonathan had been diagnosed as asthmatic. But asthma medications did little to alleviate a relentless cycle of lung infections, sinus infections and fatigue. In his twenties more tests showed he did not have asthma, but no one could tell him what he did have. He was desperate.

Jonathan typed his symptoms into FindZebra. The site posted 20 possible diagnoses. Number 19 was mastocytosis, an excess number of mast cells that produce histamine. Jonathan showed the results to his doctor who prescribed a regimen of antihistamines and the

result was a complete cure. "I had been ill from birth. Now for the first time in my life I feel good," he says.

Welcome to Crowd Power

Today, everyone from online businesses to scientific researchers has discovered a formerly untapped internet resource: people-time. When you consider that in any given month an estimated 1.23 billion individuals log on to Facebook, or there are 100 billion Google searches, there is a lot of attention there to be channelled.

The word for this: *Crowdsourcing*. It describes the process of completing a big task by breaking it down to manageable pieces to be done especially by online helpers.

For scientists the crowd has been an especially important ally for dealing with Big Data, or too much information. Oxford astronomer Chris Lintott sums it up: "We scientists have become very good at collecting information, but there are not enough of us to process it."

That's why he and Kevin Schawinski got so excited about Galaxy Zoo. What began as single online experiment has today evolved into an ensemble of 20 science projects collectively called Zooniverse *(www.zooniverse.org)*, with an online crowd of nearly a million citizen science volunteers.

As South African teenager Nadav Ossendryver discovered, the crowd can be a valuable ally when the large-scale problem is one of geography. As well as

Latest Sightings, he has since launched a Facebook page, got a Twitter account and even built his own iPhone app to record game sightings, or "tings." Kruger Sightings gives locations of every animal except one. "We never ever post rhino locations," Ossendryver says, explaining that rhino poaching is a huge problem in Kruger.

Jonathan in the UK, whose asthma-like symptoms were finally diagnosed through FindZebra, has Dane Ole Winther to thank. Associate professor of Cognitive Systems at the Technical University of Denmark and an expert in Bioinformatics at the University of Copenhagen, Winther had the idea to construct a site where doctors and medically astute patients could search respected online sources when trying to diagnose rare diseases. Two graduate students, Radu Dragusin and Paula Petcu, agreed to take it on as their project. When it came time to name the site, Dragusin recalled a medical aphorism: "When you hear hoofbeats, think horses not zebras," meaning the most likely diagnosis is probably the correct one. He suggested FindZebra. Launched in 2012, it has had 67,000 hits since.

Meanwhile, Neelvara Ananthram Aravind, PhD, fellow scientist at the Ashoka Trust for Research in Ecology and the Environment (ATREE) in Ban-

> ## The crowd can be a valuable ally when geography is a problem.

galore, and Roshmi Sarma, a research scholar there, are using crowdsourcing to help with an ongoing research project on frogs in the Western Ghats. Sarma trawled websites where researchers and nature photographers visiting the Ghats would upload photos of frogs on environmental forums like India Nature Watch and social media sites. These pictures, authenticated by ATREE specialists, would then be added into a database. "In the absence of other information, it's the best data available," says Sarma. "I've collected 5000 location reports so far and social media has contributed about 50 percent of the data since 2012." Sarma says this has helped her determine how frogs are distributed in these Ghats—important information, as any change in the environment may affect the amphibians and this helps with conservation. "Given the large geographical area, few scientists and not many fund-raising opportunities in India, crowdsourcing is the most cost-effective way of gathering such data for conservation efforts," says Aravind.

A well-known variation of crowdsourcing is crowdfunding, a buzzword usually used to describe sites like Indiegogo *(www.indiegogo.com)* or Kickstarter *(www.kickstarter.com),* where entrepreneurs go online to solicit seed money for everything from electric

skateboards to music and films.

Pawan Kumar, director of the Kannada film *Lucia,* released in September last year, raised ₹51 lakh through 110 investors in just 27 days using his blog and Facebook page. Kumar promised the biggest donors (those who gave above ₹50,000) returns on their investment. Sarthak Dasgupta also collected about ₹10.2 lakh on the crowdfunding platform *Catapooolt.com* for his recent Hindi film *Cutthroat.*

Meanwhile, 24-year-old Oslo native Jonas Borchgrevink saw it serving another purpose: to make sure money given to a good cause gets where it's supposed to go. It all started when he was nine years old. He took his clarinet and a friend took his trumpet and played music on an Oslo street corner to raise money for an international charity. They raised several hundred Kroner that Borchgrevink mailed to the organization. "I never found out what happened to it," the 24-year-old says, still clearly annoyed. "That problem stuck with me."

In 2009, when he was in business school, he created a site he called MyGoodAct *(www.mygood-act.com).* Here individuals can post their own fundraising project, much as people go on Kickstarter to plead for business donations. In April 2013 his site got international attention because

of a fellow Norwegian, 20-year-old Nathalie Krantz.

Nathalie had seen in an online newspaper a heartrending photo of a little girl named Roona Begum in a northern Indian village, who had a devastating case of hydrocephalus. A massive buildup of cerebrospinal fluid had enlarged her head to a horrific size. Surgery to correct it would cost about $1600 (₹100,000) but her parents could not afford it. Krantz posted a photo of Roona and told her story on My-GoodAct, asking for enough money for the operation. Within two hours she got more than double. And the money kept coming.

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> **Pages created on Ketto collected more than ₹25 lakh for floods in Kashmir.**

Borchgrevink contacted the Fortis Foundation, the charitable wing of the leading health provider, which had offered to fly Roona to one of their hospitals and operate on her free of charge. But Roona's case turned out to be more complicated than doctors initially expected and when costs skyrocketed, MyGoodAct sent $30,000 to help fund the operation. And when Roona returned for more surgery earlier this year, My-GoodAct supplied another $30,000 of funding. Following surgery, doctors noted the playfulness of Roona's behaviour and that she was able to move her head more easily. When it is pointed out to Borchgrevink that no

one in this story has met each other, he shrugs. To him that is the power of social media.

Ketto, a Mumbai-based crowdfunding platform for social causes, is the brainchild of former financial analyst Varun Sheth, former product manager Zaheer Adenwala, and actor Kunal Kapoor. Anyone can sign up at *ketto.org.* Simply enter your own details, choose your cause, explain your reasons for doing so and select the amount of money you want to raise. Ketto then creates a page for you, which people may share with their social networks. Anyone may donate as little as ₹10 through cash, cheques, PayPal or credit/debit cards.

An NGO called Yuva raised funds through Ketto for a tribal girls' football team from rural Jharkhand. The 18 girls were struggling to arrange for the ₹50 lakh they needed to participate in the USA Cup. The results were astounding: ₹51.86 lakh was raised in a month, and the girls won a bronze medal in Spain. Last year, Shiva Keshavan raised over ₹10 lakh to buy a world class luge sled and train for the 2014 Sochi Winter Olympics through Ketto. Discus thrower Vikas Gowda and air-rifle shooter Ayonika Paul netted ₹1.74 and ₹6.2 lakh respectively via Ketto, money they used to help fund their equipment and training. Gowda won a gold medal and Paul a silver at the recent Commonwealth Games in Glasgow.

Recently, pages created by some

celebrities on Ketto also collected more than ₹25 lakh for floods in Jammu & Kashmir, according to Sheth.

And on to Hollywood

But not everything in the world of crowdsourcing has to be serious. What about remaking a movie classic? In 2009, American web developer and *Star Wars* fan Casey Pugh broke down the first *Star Wars* movie "A New Hope" into separate 15-second scenes, posted them on his website "Star Wars Uncut" and invited people to recreate each one of the more than close to 500 scenes any way they chose. Fans in over 20 countries—from Germany to Japan—sent in 15-second videos. Pugh posted them online, asking everyone to vote for their favourite. The finalists were edited together into a feature length movie *(www.starwarsuncut. com/newhope)* for the world to view.

The result is a Dadaesque mélange of 15-second bits that is goofily unpredictable and fun to watch. Characters are variously portrayed by grown adults wrapped in aluminium foil (as the *Star Wars* robot C-3PO), by costumed children, by costumed cats and dogs, by paper sacks, even by sock puppets. One actress playing Princess Leia attached two bagels to the side of her head as part of the famous hairdo. The movie won an interactive media Emmy, and a sequel is in the works *(www.starwarsuncut.com).*

So the message is clear: may the force of the crowd be with you. ℞