

Company's Success after Winning 'Entrepreneur of the Year' Award

Interview with Olga Kubassova, MD by Greg Write, Yorkshire Post

Published Date: 15 July 2008

YOU have masters degrees from universities in Finland and Russia, and a burning desire to use mathematics to make the world a better place. So giving instructions to a Yorkshire taxi-driver shouldn't be a huge stumbling block.

But, as Olga Kubassova discovered, there's a vast difference between the English of academic text books and the streets of Leeds. Scribbling down an address at Leeds University for the perplexed taxi-driver, she was about to embark on a journey which would change her life, and potentially the lives of millions of arthritis sufferers.

Four years later, Kubassova, 27, has been crowned Yorkshire's top scientific entrepreneur after co-founding a company that could speed up the treatment of rheumatoid arthritis, a crippling condition that affects two per cent of the population. Her company – Image Analysis – could give medics a vital "window of opportunity" to treat arthritis in its early stages. It revolves around an arithmetical procedure, or logarithm, understood by a select few.

Kubassova has always been in a hurry. She was born in the town of Ust-Kamenogorsk, in Kazakhstan, in 1980. A talented mathematician, she was sent to the Republic Physics and Mathematics Boarding School in Almaty, Kazakhstan's former capital. After being drilled relentlessly in the art of understanding logarithms and equations, she headed for St Petersburg State University, in Russia, to take a BSc and later MSc in applied mathematics and mechanics. Then she reached a crossroads.

"I realised that doing a maths degree wasn't going to get me a job," she says. "People were doing six years of maths and ended up working in call centres or shops. All we knew was maths, we didn't know the business aspects. To be honest, we couldn't do anything except solve really hard mathematical tasks. So I decided to take a second masters degree in computer science, in Lappeenranta, in Finland, which was about four hours away by car from St Petersburg.

"I convinced a couple of friends to come with me because I didn't speak much English and I didn't know computer science, but I thought I should give it a try. I didn't want to stop studying at St Petersburg State University after four years of struggle. So I was doing two masters and travelling backwards and forwards from Finland to Russia for two years.

"If there was an exam, we would be driving all night from Finland to Russia to sit it in the morning. Then we would drive back because the exams would be held at exactly the same time. All of us who were in that situation became great friends."

With masters from both universities in the bag, she worked in a lab in Finland, but was hungry for a new challenge. She recalls: "I spammed all the universities I could find on the web. I contacted maybe 100 universities, and I got a few replies, including one from Leeds." She'd never visited Leeds before, but successfully applied for the Dorothy Hodgkins Postgraduate Award in 2004, a scholarship that enables outstanding

researchers from overseas to study in the UK.

Kubassova recalls: "I went to a university in Copenhagen and they said they would think about it. Leeds contacted me and said that I had actually got the award. "So now I had to pass an English exam. I had a book with all the rules about the English language, and I tore it apart. I put pages of that book all over my room. But this was an exam without any accents.

"It took me a year to get used to the Yorkshire accent. My nightmare was that somebody would ask me a direct question and I couldn't answer." Although the language was a stumbling block, she sailed through her PhD in computer science, picking up the Sir Peter Thompson award for enterprise on the way. The course unleashed her entrepreneurial potential. Her research led to the creation of Image Analysis, a Leeds-based company which produces software products for Magnetic Resonance Imaging (MRI) equipment. It enables doctors to establish more quickly whether a patient is suffering from arthritis, and reduces the chances of human error.

Says Kubassova: "If you read images for eight hours a day, in the eighth hour, there's a danger you might make a mistake. The software we are now marketing can significantly improve data quality to help clinicians in their diagnostic decisions. "Until a few years ago, all the diagnosis for rheumatoid arthritis was done with X-rays. Five years ago, people started looking at MRI. An MRI unit allows you to see much more information.

"An X-ray will show you the bones, while an MRI will show you the tissue around it. Rheumatoid arthritis is all about inflammation around the joints, and inflammation is best shown on MRI scanners.

"But MRI scanners are expensive. They might cost £1.5m but this can be solved by using low-field MRI scanners which cost 100,000 euros (£79,816). The problem with low-field scanners is that the data quality is not as high. That's where the algorithms help. It gives you as much information as if you were using a high-field scanner."

Time is of the essence when diagnosing arthritis, and Kubassova believes her company can dramatically speed up the whole process.

She says: "The problem is that to go through every single image and look at every single bone will take one or two hours. Only eight people can be processed in a day. With our algorithms, you can diagnose and look at the information in minutes.

"If a patient gets an MRI scan today, they have to wait three weeks to get results. In rheumatoid arthritis, if you are diagnosed quickly enough, there is a window of opportunity where the doctor can inject a really powerful drug and actually prevent the rheumatoid arthritis from progressing."

Kubassova's vision is to create a system where people considered to be most at risk can have regular tests to speed up the diagnosis, and the treatment, of arthritis. The cost savings to the NHS would be incalculable.

"If you don't treat rheumatoid arthritis, your bones erode and you become disabled," she says. "Let's say everybody in your family got rheumatoid arthritis. Why don't you have an annual MRI scan?"

Says Kubassova: "If the Government allow us to do that, they would save so

much money later on. It's a long-term condition. There are four hospitals in Europe taking our technology on board. Our software is going to be put into use in Italy, Copenhagen, Poland and Vienna."

She hopes to seal contracts closer to home, after boosting her reputation by winning the entrepreneur of the year award at the recent Yorkshire Forward Yorkshire Bioscience Awards, for her work with Image Analysis.

"The ultimate goal is to have a great company that has links to universities, clinics and is still bringing commercially viable products into the everyday life of hospitals. This is what we are working towards."

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Image Analysis Ltd

Image Analysis Ltd a new Innovative Company (www.imageanalysis.org.uk), which specialises in developing computer-aided algorithm for MRI data analysis This is of particulate interest in early diagnosis, quantitative evaluation of patient progress and treatment effect. Main applications for the algorithms are in rheumatology, cancer and general immunology. The company's core product Dynamika is currently being used in RCT, R&D projects, and clinical research. Dynamika allows automating clinical workflow and improving data quality, which lead to the increase of productivity of staff, reduction of costs and elimination of human bias from the evaluations. There are number of appealing features such as advanced visualisation and automated reporting system, which give doctors statistical and visual results in a speedy manner.

For information on Image Analysis please contact: Dr Olga Kubassova, Managing Director, Email: olga@imageanalysis.org.uk Phone:+447985939915 or Jeremy Nettle, Chairman, Email: jeremy.nettle@imageanalysis.org.uk Phone:+447774962333