

FutSci and ORUK

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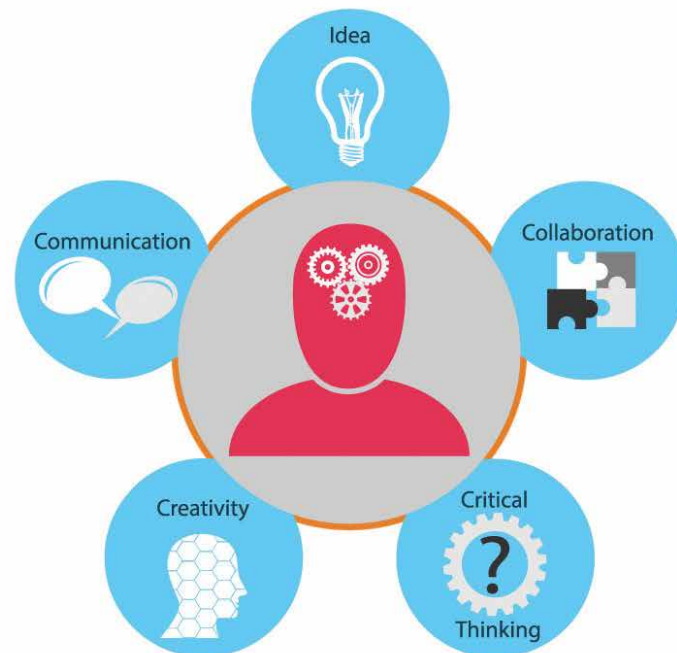
FutSci (www.futsci.com) is a donation-rewards crowdfunding platform dedicated to complement funding for research, innovation and technology within the Life Science arena. At FutSci they have been developing a game-changing solution to three of the biggest challenges faced by the Life Science sector – the scarcity of funding, the growing public mistrust and disillusionment in science and the need to show research impact and justify research investment in a tangible way relevant to everyday lives.



In this exclusive interview, we talk to Dr Deepika Kassen Director and Founder of FutSci and Dr Kaveh Memarzadeh, Research and Communication Manager for Orthopaedic Research UK (ORUK) about the challenges facing science funding, their new partnership and their radical new approach to supporting innovative research. Working with FutSci, ORUK is using crowdfunding to find innovative ways to fund basic scientific research aimed at raising awareness of bone and joint disorders, to find new ways to alleviate pain and to develop new technologies that can enhance movement, mobility and quality of life.

‘Science crowdfunding promotes research to the public and empowers the public to ask direct questions of the researchers.’

CREDIT: ORUK



Dr Kassen, can you tell us a bit about how crowdfunding of science works and why it's important to find new ways to fund innovative research in the future?

The science of the past has improved our lives in a myriad of ways – satellite navigation, the birth control pill, the radio, penicillin, liquid crystals, IVF, stem cells, microwaves, anti-cancer drugs – and this is the short list. None of these examples were part of a targeted effort to innovate – they all arose because talented individuals asked questions about the world in which they live.

In today's science arena, this thinking is curtailed by a number of factors, the biggest of these being limited funding in general but also little or lack of funding for 'Blue Sky' research or research beyond the major disease themes. This leads to a failure to retain highly skilled researchers. This loss of innovation is made worse by low retention rates for women in science and a small appetite for STEM subjects at schools. Our solution is to innovate the way science is funded and the way that scientists engage with the public. FutSci is a crowdfunding platform designed by scientists to support credible science.

At FutSci, accredited researchers, companies, institutes or charities can post any research project in need of funding, at any stage. Backers, worldwide, then select the individual projects they wish to support, with donations in multiple currencies starting as low as £1 and no upper limit. All the research posted on FutSci is peer reviewed (includes any ethics approvals required) for high research quality ensuring that we become a trusted platform for finding quality science research. Crucially, science crowdfunding offers the public the opportunity to contribute directly to individual projects of their choice, an opportunity not often present in traditional science funding models.

What does this approach offer investors and the scientists they fund, that's different from more classical routes of science funding?

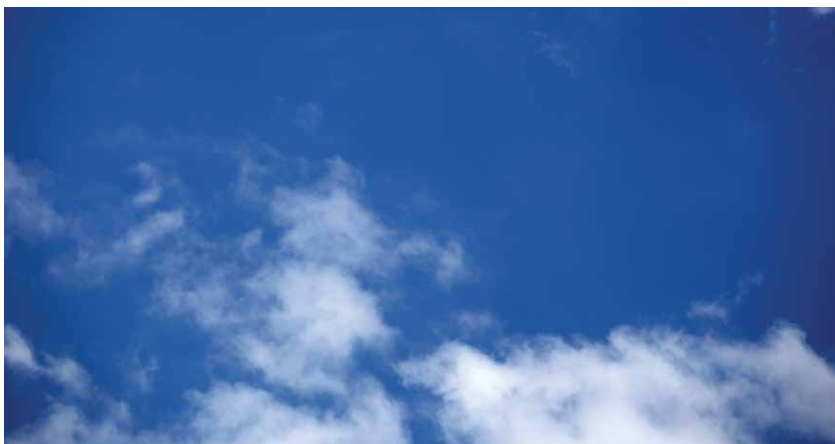
Crowdfunding for Life Sciences lends itself to several unique economic and social benefits. It provides a complementary funding stream for innovative 'Blue Sky' research. This vital research often falls by the wayside as it does not fit into the specific remits funded by research councils and charities.

The eventual result is a lack of innovative thinking and scientific discovery, an emerging threat to scientific innovation echoed by a recent quote by Sydney Brenner on Fred Sanger (two Nobel prize winners in science) in an issue of Science in January 2014, 'a Fred Sanger would not survive in today's world of science...We no longer have a culture that allows individuals to embark on long-term – and what would be considered today extremely risky projects.'

Crowdfunding for Life Sciences offers the opportunity to fund both innovative science and researchers, groups, startups and companies who may otherwise fall by the wayside. These include early career scientists looking to establish themselves within the scientific arena, high quality, peer-reviewed projects identified by major funding bodies (government funded and private) for which they do not have sufficient funds and projects that fall outside the major themed calls from traditional life science funding bodies.

In addition, crowdfunding can provide potential funding for university spin-offs, start-ups looking for early phase funding, start-ups currently in the funding 'valley of death' and scientists looking for funds for pilot research before applying for larger grants. Importantly, crowdfunding offers the opportunity to raise funds for any aspect of research, be it equipment, travel or research itself.

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Science crowdfunding promotes research to the public and empowers the public to ask direct questions of the researchers. After all, the public will only fund a project if they are happy with their communication with the researchers. The public can access researchers far more directly through FutSci which gives them a transparent window into who is doing what research and where, making it a more personal cause and creating a community of research advocates.

FutSci’s recent call for funding is with Orthopaedic Research UK. Dr Memarzadeh, as Research and Communication Manager for ORUK, can you tell us what you are seeking from applicants and why it’s important to provide new sources of funding for innovative research into bone and joint disorders?

We are asking creative individuals to focus on specific topics that matter most to patients. These topics revolve around pain, post-surgery complications and innovative devices. As a species, humans are living longer, and this means an increasingly ageing population.

This phenomenon has led to the rise in demand for therapies and medical breakthroughs for bone and joint disorders. Despite this demand, the field of orthopaedics has been somewhat more conservative in innovating new ideas. Therefore, finding and funding novel ideas often demands a novel approach.

Dr Kassen, can you describe some of the other areas of research you are currently supporting at FutSci? Tell us about a specific project that has been successful or is particularly promising.

The FutSci platform, www.FutSci.com, was launched in July 2015. Our crowdfunding campaigns have been supported by donations worldwide (16 countries to date) reflecting the power of this new means of engaging the public.

Our first successful project raised £54,247.66 funding (top-up fund) for a Phase II Bowel Cancer Trial in just 45 days (<https://www.futsci.com/project/antimalarial-cancer>) and was run together with St George’s, University of London (NHS Trust, <http://nearttrial.org/>). The campaign was well received by the public and appeared in several newspapers and online magazines (<http://nearttrial.org/news.html>). We worked closely with the researchers to develop and launch this campaign. The trial has now opened and is at the stage of recruiting the first patients.

We understand the Life Sciences environment, particularly what it means to work within the public sphere such as the NHS – we are aware of what the ‘public’ want to know, what affects them and what they care about. This was demonstrated by the biomedical research themed campaigns we have run. For example, the APODD foundation campaign (<https://www.futsci.com/project/child-brain-cancer>) raised £10,489.28 from 97 backers for preclinical research to identify drug targets for treatment of aggressive brain cancer in children.

Although the campaign for research to test the link between Alzheimer’s disease and aluminium (<https://www.futsci.com/project/the-aluminium-alzheimer-s-disease-hypothesis-what-is-the-role-of-aluminium-in-alzheimers-disease>) did not reach its funding target, it did raise £34,559.39 from members of the public highlighting the potential for the crowdfunding model as it applies to Life Science.

As well as supporting research projects, tell us how you work to encourage scientific communication and collaboration.

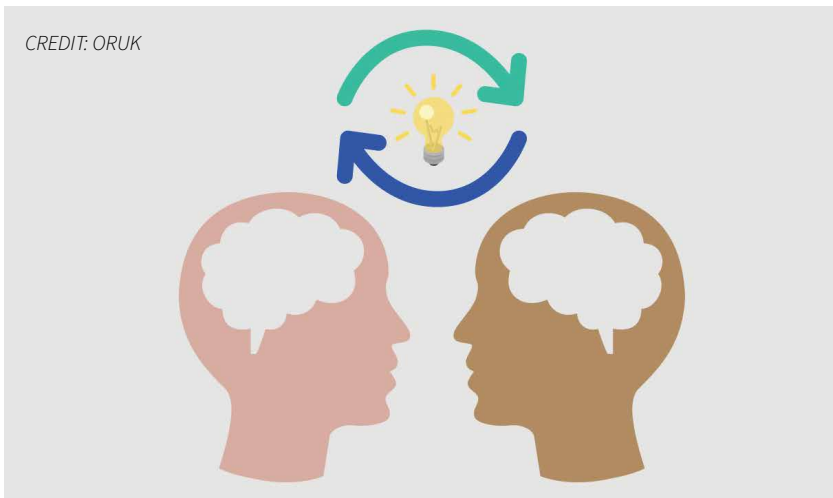
The outreach that goes hand-in-hand with science crowdfunding has huge transformative potential for all science and research based services. The current political climate has seen a worrying increase in the public mistrust of science and a dismissal of the need for experts. This is partly due to a perceived aloofness of the science establishment compounded by a failure of scientists to communicate effectively to address the emotional and cultural issues impacting perceptions of science. Developing and maintaining an open and communicative relationship with the public is a vital piece of the jigsaw required for engagement.

FutSci therefore is more than just a means to finance science but also a means for scientists to engage directly with the public and provide visible evidence of scientific impact on their lives. The platform engages and interacts with the wider public through the use of social media (such as twitter, facebook and linkedin) providing news on the latest science research, updates on crowdfunding campaigns and addressing any questions or feedback that may arise.

At an individual level it gives everyone a voice to support research that is personal to them. It makes scientists more approachable allowing everyone easy access to ‘the experts’. For scientists (often funded by the tax-payer), the platform serves to showcase their research. This is a very visual means of highlighting the potential research impact on everyday lives and a means for organisations, particularly public sector bodies, to showcase their research investment, strengthening public trust of the science establishment.

'We envision a future where constant and honest conversation is held between the public, funders and scientists.'

CREDIT: ORUK



Dr Memarzadeh, how do you think crowdfunding can encourage scientific communication?

The word encourage is key here. Scientific crowdfunding has much potential, but the current methods of funding provide a much more convenient and easier path for researchers. These paths offer 'bulk' funds for the researcher to carry out their research. Within this framework, the researchers are not obliged to convince many that their project is worth the fund.

Within this system there are only a handful of people who review and accept the application. This process is by and large fair but very subjective. A scientist who has a strong vision will take up the challenge and have no fear of the outcome, they will share their passion and knowledge with the public and stand out. This is where we come in. By choosing emotive, creative and potentially influential projects and individuals, we identify and encourage the researchers to think differently.

This involves leaving their comfort zones and communicating their findings in a different way to a new audience. Finally, a quote by the great Carl Sagan always resonates with us and it has science communication at its heart, 'not explaining science seems to me perverse. When you're in love, you want to tell the world.'

Dr Kassen, what do you see as the biggest challenges facing science funding in the next ten years? Tell us about FutSci's longer-term plans to tackle these challenges.

Traditionally, research councils, local and central government are key sources of funding in Life Science, investing at each new cycle of the research process. The problem facing researchers is that funding applications have to meet restrictive themed funding calls that change yearly and have low success rates.

A concurrent problem faced by funding bodies is having a limited funding pot with which to fund and promote high quality research. Our analysis of the Life Science arena reveals there is an absence of grants and funds for research into less well-known diseases and conditions, and a dearth of small-scale grants and funds for early stage projects. Funding for early stage researchers is falling year on year, and is strongly weighted against research led by women.

Outside of academia, startups and university spin-offs are left in the 'valley of death' to prove themselves while looking for investors. Crucially, failure of tax-payer funded research to reach the next stage in the funding cycle equates to a loss of investment in both people and research on the part of the funding body. The cumulative effect is a loss of scientific knowledge and failure to investigate promising areas of research resulting in an overall long-term loss of innovation to the economy.

There is public appetite for giving through the very recent advent of online crowdfunding. The rise in popularity of social media means that the ability to reach 'the crowd' has increased exponentially. FutSci is an exciting, innovative solution which capitalises on these opportunities, developing existing technology to engage a wide audience providing new avenues for public engagement, raising awareness of research and importantly meeting the financial needs of the Life Science sector.

Finally, Dr Memarzadeh what do you see as the biggest challenges facing science funding?

The biggest challenges facing science funding are multifaceted and they range from political and financial instability around the world to the astonishing rise in demand for funding from highly skilled individuals who are unable to secure a suitable position.

For funders, the main challenge remains the presentation of impact and how their funded research highlights any short and long-term benefits for the society as whole. At present, the conventional funders operate almost on a concept driven model.

While most of the funding streams are designed with patients in mind, most do not involve patients in the decision-making process and if they do, they have a limited say on the outcome. The bridge between science and public is almost non-existent and because of this, the scientific way of thinking does not resonate well with the general public, and this should change.

We envision a future where constant and honest conversation is held between the public, funders and scientists. An educated public who has an understanding of the importance of science and technology is highly valuable for societal progression.



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