Interviews

University-Business Collaboration in the Faculty of Veterinary Medicine

Business Collaboration Accelerator 2019

foreword

Dear reader,

In your hands is a collection of eleven interviews comprising the Faculty of Veterinary Medicine's experiences cooperating with businesses. Our Faculty had the privilege to pilot an accelerator program with Helsinki University's Business Collaboration Team.

During the program, the team interviewed researchers about their experiences with university-industry collaborations in order to learn more about the community involved. Besides describing the current state of affairs, an important intention was to encourage junior scholars into action by showing that cooperating with businesses can be simple when uniting the interests of science and commerce. The accelerator program included several coaching events touching on various topics. Sometimes, it was difficult to convince the audience that the events were worth attending. But, despite the skepticism, good ideas and enthusiasm flourished as peers shared their experiences.

Before a new drug is introduced to the market, its efficacy must be verified by clinical trials preceded by thorough planning and prudent laboratory work. Often, patients of clinical trials have access to certain experimental medications before the general public. Such was the case when the Faculty of Veterinary Medicine served as a 'guinea pig' during the trial program. I would gladly recommend the Business Collaboration Accelerator to other faculties.

Antti Sukura
DEAN, FACULTY OF VETERINARY MEDICINE

foreword

The mission statement of the University of Helsinki emphasizes vivid interaction with the society and enhancing the impact of research. Even though the goals are intangible and very difficult to measure, the University has strived systematically to educate its researchers in impact and business collaboration and in commercialisation efforts.

The University's faculties and independent institutes vary in their experience and traditions in business collaboration. Unlike many other faculties, the Faculty of Veterinary Medicine has a long tradition in collaborating with companies. Despite this dean Antti Sukura and vice-dean Olli Peltoniemi were willing to try the business collaboration accelerator pilot in order to deepen the collaboration with their long-term partners and also to find new possibilities.

The aim of the pilot was to map the faculty's current business collaboration situation and make the most of the underutilised potential. Throughout the pilot the Business team interviewed several researchers at the Faculty of Veterinary Medicine to collect success stories. These stories have been gathered here to encourage and inspire all the researchers. Stories can also be found at https://blogs.helsinki.fi/andaction/

Maarit Haataja
HEAD OF BUSINESS COLLABORATION

contents

A RACE AGAINST TIME: ANTIMICROBIAL RESISTANCE IN THE FOOD CHAIN

Interview with Annamari Heikinheimo
University Lecturer, Division of Food Hygiene and Environmental Health

Annamari Heikinheimo studies antimicrobial resistance (AMR), the ability of some microbes to fight drugs such as antibiotics. This is a phenomenon parallel to climate change in severity. Resistance develops at an accelerating rate because antibiotics are used so much in today's world.

I meet Annamari in a coffee room in the EE building in Viikki. A PhD student is tapping away on a PC in the corner. "We need the space", Annamari says matter-of-factly, and with the same tone continues: "In 2050, we'll all know people who have died of infections immune to any medicine. Then, more people will die of these superinfections than of cancer". We will have entered a post-antibiotic era, she says.

A little stunned, I listen Annamari explain that bacteria are everywhere on our planet. Some are indispensable for us, some are harmful. Many antimicrobial resistance but the ones that can cause diseases are the problem. Antibiotics spread in the environment as well, and this is why harmless bacteria have had to develop resistance. People transport these bacteria indoors, in hospitals, for instance, and the resistance gene can then end up in hospital bacteria. "People also get these bacteria to their intestines via eating food.

When falling sick, entering hospitals and receiving antibiotics, these gut bacteria may become a problem to the patient", Annamari explains.

What kind of collaboration do you do with companies?
"I produce information about resistant bacteria and their entry routes to companies on farms, slaughterhouses, in meat industry. I may look at samples of meat, egg, milk, honey, and so on and study prevention measures."

The topic is extremely sensitive and a huge issue globally. We are used to thinking that we are safe here in Finland, but the phenomenon is highly complex and influenced by the mobility of people, food, and animals.
People can also bring the bacteria with them to farms and thence they can end up in food products and finally to humans. On the contrary, resistant bacteria may develop on the farms when using antibiotics on farms.

Antimicrobial resistance predates humans
"Resistance to antibiotics has been around for a long time. Bacteria can even give resistance genes or traits or fight one another with it", Annamari explains. Bacteria reproduce by dividing themselves.

DNA is duplicated, a cell divides in two and the daughter cell is a copy. In addition to the one chromosome, there is extra-chromosomal material called plasmids, integrons and other mobile genetic elements.

“Plasmids often control properties that are not entirely indispensable for the survival of the bacterium, such as AMR. These plasmids and the skill set that goes with them can be lost or given away, even to another bacterial species”, Annamari says. Why on earth would a bacterium want to help another species like that? “A good question. Well, bacteria often live in communities with several species, and if they are under a threat, weapons are shared with everyone!”

If we stop using antibiotics, resistance can fade. But not always. It is clear that some bacteria have a permanent capability for it. So if we resume the use of antibiotics, the resistance will spread yet again. ”But an individual person can, in principle, bring a resistant bacterium from abroad and then get rid of it if he/she doesn’t use antibiotics for a long time”, Annamari concludes.

From environment to animals to food

The research on microbes and AMR conducted in the Faculty of Veterinary Medicine is vital also for humans. Animal microbes transfer AMR to bacteria that cause diseases in humans as well. And some of the disease causing bacteria are common to both humans and animals. These bacteria can spread in a direct contact or through the food chain. “I would really stress the importance of the food chain”, Annamari says. ”There can be a hundred-fold difference in the use of antibiotics in meat production in different countries. They can be used as growth-enhancers for perfectly healthy animals.

” We are not without problems here in Finland, but globally, the situation is really severe. ”In China, there are bacteria that are immune to any antibiotics – and we all eat foreign food.”

How to fight the resistance?

Antibiotics are not the only antimicrobial substances. Sulphonamide is another, discovered at the same time as penicillin. Other protozoans and viruses exist and phage therapy – viruses attacking bacteria – is a promising field of study. Promising antimicrobial peptides have been isolated from crowberries n the University of Oulu.

Annamari emphasises the work of veterinarians together with farmers and producers: ”Our collaborative work has been crucial for public health. Inspection legislation for milk and meat, pasteurization, ensuring the safety of the whole food chain are examples of it. Now the food chain has diversified. It is not a chain anymore, but rather a net, and the work continues to inhibit the development and transfer of antimicrobial resistance and find ways to prevent infections.”

How does company collaboration help your research?

”We get funding and a means to have an impact. The purity and safety of Finnish food is well known internationally. Together, researchers and companies can make sure that they stay that way. But researchers must be able to raise difficult questions, too, if it seems that things are moving to a bad direction”, Annamari thinks.

Industry collaboration has taught Annamari’s team a lot about Finnish food production. They have received plenty of material support: access to farms, good experimental conditions.

Annamari has also seen the difficulties of working with someone's livelihood. The interests of the companies and researchers are sometimes different. "On average, companies are very responsible in this, it's about risk management for them. I would like to give positive feedback to Finnish food industry that they have established and maintain Animal Health ETT (Eläintautien torjuntayhdistys ry) which is funded by these companies and working very effectively to maintain Finnish food safety."

Annamari thinks that negotiating contracts can be challenging. "You have to know how to define background and result material, responsibilities, risks, trade secrets and all that. The legal team does help us with this but still I am at the centre of it. As a researcher, I would like to have full understanding of what I'm committing myself and my team to, what I can do and what I cannot do, and what the company and we expect from each other. It's really quite complicated. Training would be necessary!"

Advice for other researchers interested in business collaboration?

Annamari wants to encourage researchers to do business collaboration but at the same time she reminds them to stay sharp. "It's important to define your own boundaries and to value your own work and that what you do is useful for the company. You can trust that if you really know and understand the fields of animal disease and food safety, companies will always have enough questions and knowledge-based aims for win-win situations", she says.

A well planned research project, a clear hypothesis, a good experimental setup, keeping the company involved throughout the project are safe starting points for fruitful collaboration. "Both parties must understand that they can never be sure about what they will discover. They may find resistance risks that no other company knows about yet and they can be far-sighted and responsible and turn the finding into an asset", Annamari concludes.

WHEN COMPANIES WORK WITH SCIENTISTS, THEY WANT THE TRUTH

Interview with Outi Vainio, Professor of Veterinary Pharmacology
Department of Equine and Small Animal Medicine, Faculty of Veterinary Medicine

"I study dogs but I'm actually a cat person" exclaims Outi Vainio in her office located at the small animal hospital in Viikki. "We have over 800 000 dogs in our homes in Finland and only now have we started to scientifically understand them. Dogs have become important members of our society and they have a very close bond with humans. During our convergent evolution, dogs have evolved to read humans and understand our signals. This is something that usually only primates can do and it makes dog behavior a very interesting topic for research. So even though I personally like cats, dogs are still amazing to study."

What kind of experience do you have in business collaboration?
"The roots of my career go back to the pharmaceutical industry where I studied and developed new veterinary medicine drugs. This was many years ago but some of the sedative drugs I developed back then are still on the market today. As a result of this long career in the private sector, it is easy for me to work with businesses as I understand the business language as well as their way of thinking", Outi explains.

After 15 years of working in the private sector, Outi moved to the university. Her line of work continued together with a post doc in the US with whom she collaborated closely. "We wanted to change the characteristics of a drug that I had previously developed. The drug was as a sedative with some undesirable cardiovascular effects which we wanted to alleviate. The company who owned the drug molecule agreed to provide us with the compounds for scientific purposes which helped us get started. Through our modifications, we found a new compound and were able to show a reduction of cardiovascular side effects. The rights to that compound were then sold to a Finnish pharmaceutical company who applied for two patents on the use of the molecule." Outi is listed as an inventor on the patent and the drug is now being developed for clinical use.

"I also have experience in working with non-pharma firms in a Business Finland (BF) project called Turre. This project involves several companies and aims to develop new technologies and digital services for dogs such as activity meters and heartrate monitors. Next, we will test the ideas and technologies on patients and look at how these results can be commercialized."

Why do you work with companies?
"It forms part of the input I provide to society and the field of veterinary medicine. It allows me to put my results to use in the real world. It is also a good way of engaging society with research."

Outi finds it very motivating to see that companies take an interest and value her research. She continues: "It is an opportunity to create useful networks and get introduced to people working in the same field of research and innovation. Business collaboration always starts from having a personal contact and one company can help open the doors to meeting others."

What benefits have you received from working with companies?
"One of the big benefits is funding for my projects. This is important for me because I cannot compete against basic research when it comes to traditional academic funding. The main academic funding sources do not fund my type of applied research. However, companies value what I do and are willing to provide the resources for my studies."

How do you go about finding companies to collaborate with? How does it all start?
"I usually go to google! I search for companies in my field of interest, visit their websites and give them a call to find out if they are interested in my project. It is also a good idea to network and attend seminars. We actually organized a seminar of our own a few weeks ago as part of the Turre project. It was called Tech4Dogs. We utilized social media to get in touch with companies and market the event. It ended up being a big success! We had a full house and made many new company contacts. Social media is an important tool when wanting to make new connections with businesses."

What advice would you give to other researchers interested in business collaboration?
Outi emphasizes the importance of making contacts with companies. "You need to find the right person in the company who gets excited about your idea and can make the decision to take your proposal forward. Large businesses can be more difficult to work with as the decision-making process takes time and finding the right people to contact is not always easy. The bigger the company, the more important it is to find the right person", Outi continues, "Smaller companies tend to be easier to talk to. You can usually directly contact the CEO and they are less bureaucratic. However, the downside is that they do not always have the funds available to support your project."

"You also need to have some sales skills, although I am not so good in that but I have been lucky!" Outi laughs. "Saying you have a good idea won't take you far. Companies don't usually like to take high risks so be prepared to convince the company with scientific evidence and know something about your competition."

"Competition isn't all negative", Outi comments. "There are over 100 international companies working in the same field as our Turre project. This means that the field is extremely competitive but it also assures that there is a market need and business potential in this area. Competition is something you have to accept. It requires you to believe in your own idea to survive."

According to Outi, it is also important to remember ethics of research. “You should not make any bold statements without supporting studies or overestimate/underestimate the results just because a company supports your project. I have never had an issue in this regard myself. In my experience, usually when companies work with scientists, they want the truth!”

Has your collaboration resulted in societal/economic impact?

“Yes, I believe so. We have developed new drugs which have helped vets in their work and improved the welfare of animals. Our work has also produced economic benefits for the companies as some of the drugs we developed in the 80s are still market leaders today.”

Do you think your faculty has untapped potential for business collaboration?

“I think there is a lot of potential to further our contacts with companies and build closer networks. All of my previous collaborations have been based on personal contacts. If the university can facilitate networks for researchers it could lead to increased collaboration. Also, company collaboration should support researchers’ careers. At present, it has no effect on the evaluation of your research. Researchers need more incentives from the academic world to put more resources and time into collaborating with businesses.”

FROM ECOLOGY IN A BOX TO REDUCING FOOD WASTE

Interview with Johanna Björkroth, professor, Department of Food Hygiene and Environmental Health, Faculty of Veterinary Medicine

Packaged food is a man-made ecological niche for spoilage bacteria. The microbial community within it follows ecological succession, a phenomenon more familiar to most of us in the context of a forest: the process of change in the species structure of an ecological community over time. A slice of fresh meat is home to a million species of bacteria, approximately 10 000 individuals per gram. This microbial community begins to grow the minute the meat is packaged in protective gas. The carbon dioxide atmosphere inside the package blocks the growth of 90% of the species. When the food is spoiled, there are 100 million microbes per gram but only less than a thousand microbial species have grown. Because the food is stored at cool temperatures, the remaining species are cold-tolerant lactic acid bacteria, enterobacteria and a few others.

I meet Johanna Björkroth, award-winning professor of food hygiene, in her room on a summer day on Viikki campus. What is so exciting about spoiled vegetables and meat?

“If you eat meat or vegetables packaged under protective gas, you are consuming bacteria identified and described by my team. Our work has a huge impact on the everyday life of us all and on the food industry”, Björkroth begins.

“The science is fascinating in itself but it is also extremely motivating to be able to do something about food waste and sustainable food production. Our work is strongly linked with sustainable development.”

If microbes spoil the food, why don’t you just kill them before enclosing the food in a package?

“It’s impossible and not even sensible to eradicate all microbes from foods. That is why understanding how microbial communities work is essential. Ecologically, we want to control the community and those species that cause most of the spoilage changes. Our aim is to keep the total concentration of microbes under one million per gram”, Björkroth explains.

Very little is known about how different microbial species interact. DNA sequencing can reveal which species are present, but even within one species there are strains that spoil food and strains that do not. The reason behind this variability is genetic diversity and differences in gene expression – the regulation of the activity of genes so that they work only when necessary and not all the time. RNA is the best reporter of how the genes connected with food spoilage are functioning. This information can then be linked to sensory quality, that is, what we humans taste and smell.

“Today, we have rapid tests for the total number of microbes or for the presence of a particular species. What we do not have, however, is a test for predicting the accurate rate of spoilage. We can only estimate an average shelf-life for food products, 12 days, for instance. That’s what the store owner has to live with and a lot of perfectly good food goes to waste or reaches consumers almost spoiled”, says Björkroth.

“It would be great to develop sensors that would observe the microbe community in real time and use it to calculate an accurate safe consumption time. But we are very far from that target. It doesn’t help that each foodstuff is home to a different community of microbes.”

How did you get started in business collaboration? What’s in it for you?
”I did my PhD in collaboration with the food industry”, Björkroth says. “I found and tracked the contamination of spoilage microbes in production environments. The work went well and spawned more collaboration later on.”

The benefit for professor Björkroth’s group is the opportunity to conduct high-level sampling experiments. The companies give her access to their processing facilities. When one batch of product spoils quickly and another more slowly, Björkroth’s is the go-to team.

“The situation with champion mushrooms lately is a typical example and we cracked it. We found that even if the mushrooms were stored in brine and in a cold room, certain microbes were still able to grow and all did not perish in later heating. We were able to give advice on how to improve the preparation of the canned products. Simple but effective.”

Björkroth’s latest Tekes project recommended avoiding oxygen in certain packaging. In the presence of particular foodstuff, oxygen leads to compounds that we sense as rancid. “It really is exhilarating in a way to be able to solve practical problems on top of basic research. Problem-solving is always fascinating”, Björkroth smiles.

Does business collaboration help your research in practical ways?
Björkroth waves an imaginary fruit in the air and says: “Well, we can buy our sample from the grocery store. Even for a longitudinal study, we only need 60 packages. Our work is not like clinical research where you need huge numbers of patients and their data: what we need are ecological niches and we prefer to build them ourselves. We conduct controlled experiments with standardized products. “

However, if the group needs samples of the product in an earlier stage of production before they hit the stores, they need collaboration partners and access to slaughterhouses and the spaces used for packaging, slicing, and cutting. One of the plans of her team is to collect a fresh carcass from a slaughterhouse, package it in the lab, keep it out of the company’s own cold chain and then see how the resulting microbiome differs from those in the regular products. ”In order to get access to somebody else’s facilities, you have to have a good relationship and mutual interest and motivation”, Björkroth outlines the requirements.

Any challenges in working with industry?
”We haven’t really had problems to speak of. We’ve always had joint interests and none of our partners have wished to avoid good or bad news”, Björkroth explains. Many of the quality directors in food industry are alumni from the University of Helsinki and some professor Björkroth’s former students. “However, company leadership may be a different story. The company’s quality department has to fight for resources to use in food hygiene studies. It’s quite natural that in a big company there is competition among different units – quality is always an expense”. This means that any research collaboration must have immediate relevance for business.

Industry collaboration is based entirely on private funding in professor Björkroth’s group now. ”We do microbial ecology. If the case a company is offering is interesting to us scientifically, we go for it. But we need to able to use the results in our own work.” Björkroth always has a contract for each project. “We keep it simple and crystal clear. When you clarify exactly what you can do and what the knowledge you produce can be used for, there’s no conflict of expectation – that’s absolutely essential.”

Companies have not stood in the way of publishing results as long as they are anonymous. They do not want the articles to lead readers to their products. They do not even want to be mentioned in acknowledgements. Usually the most eager collaborators have the best quality monitoring and it would be unfair to think that they have the worst problems.

What advice would you give researchers that are considering business collaboration?
“Firstly, if you don’t really want to do a project, don’t do it. Nothing good comes out of it. If the pricing is off or if the question isn’t quite the kind you think you can answer, leave it. Be aware of your own strengths and what you can offer”, Björkroth recommends.

“Secondly, try to think about the question from the company’s point of view. Why would the company order research from you? There has to be a positive impact on their productivity. I can get super-excited about a metabolic route in a spoilage bacteria community and tell all about it to a company quality director who knows me very well. Most likely she will say : “Great, Johanna, that’s wonderful. But what can you DO about it?”

And finally, trust. Trust is essential. ”The partner must be able to trust that you won’t publish a study saying that the products of Company A have more bacteria than those of Company B. You have to use time and effort in building trust. Networking in conferences is one good way. It’s also fun, our collaboration partners are really nice people and experts in this field”, Björkroth says.

Is there unutilised potential for business collaboration in the faculty?
Björkroth thinks a minute. “Perhaps the clinical research in the animal hospital could provide good opportunities for young researchers to grow and work with different businesses. I know that they already do a lot but perhaps there is still more potential there“. The Viikki Animal Hospital is the only research facility working with patient data in Finland. That is why Björkroth thinks that there is a lot of potential there for expanding.

“Our students are more and more interested in the applicability of our research. Especially our PhD students are really serious about having an impact in the world. Sustainability means a lot to them”, Björkroth points out.

What lies in your own future? What are you excited about now?
”There are so many exciting things going on. The base tray of packages could be replaced with cardboard, but biodegradable barriers have issues with gas retention and fish and meat packaging can only let through so much oxygen. And of course humidity is always a challenge for bio-based materials. Nevertheless, good material could come out of sugar cane, for instance. We are always also interested in the anti-microbial properties of plants, rosemary, chili peppers, lignin. We’ve done some work on it previously, too.”

In a few years, professor Björkroth’s own core research might also take the crucial steps towards the ultimate target – quantitative markers of RNA expression of spoilage bacteria. ”We need an industry partner to develop the test based on our research and to provide technological platforms for commercializing our products. However, we need a few years of basic research for proof-of-concept testing first”, Björkroth muses.

REPRODUCTION RESEARCH SERVES BOTH ANIMAL WELFARE AND BUSINESS

Interview with professor Olli Peltoniemi, Department of Production Animal Medicine, vice-dean for research, Faculty of Veterinary Medicine

What kind of research do you do?
"Looking at the last 10-15 years, our group's main focus has been on mammal parturition (birth) and the physiology related to it. We are looking at the biology of fertilization and embryo development and all that follows, the birth and early lactation", professor Olli Peltoniemi, vice-dean of the faculty, explains over morning coffee in the Viikki EE-building restaurant.

Most of the team's projects are about pigs. "They are just so interesting and dynamic from the point of view of reproduction physiology", Peltoniemi smiles. And indeed, so they are. Among mammals, pigs reproduce efficiently. They have a high rate of success in many ways: they bear a high number of piglets in a litter that usually survive well. However, with purposeful breeding also problems have arisen. As many as 30% of the embryos are now lost in the uterus. During parturition, losing one fetus during the process of birth and one over the next few days is typical. "Our team looks at the reasons for these losses. We also aim to influence the immunology of the newly born piglets."

How is industry involved in your work?
Meat production companies, pharmaceutical industry, and veterinary clinics are interested in the findings of professor Peltoniemi's group of twenty researchers. "We always approach companies with a purely science-based idea. Companies can comment and help with the formulation of the questions. They have been interested and some have funded us on a continuous basis. What happens is that a partnership, a trust gets formed quite naturally. This work is done on a person to person – basis", Peltoniemi says.

Olli Peltoniemi does not need to think long about the impact his work has had on the industry: "We've been able to provide improvements that have had a surprisingly strong influence. We formulated a simple indicator, the duration of the birth from the first fetus to the last, and identified factors that affected it. Claudio Oliviero did his PhD thesis on this with Suomen Rehu (now part of Hankkija) and his work is still highly cited." The secret behind the popularity of the team's results is that the measurement systems they develop are easily repeated.

Peltoniemi's group meets companies regularly in events and meetings. This keeps applicability on the table. "Being able to apply our findings is a strong motivator for our group. It brings impact. We usually find a joint intention for a project through an iterative process with the company but of course there are situations where we have to agree to disagree and move on without the company", Peltoniemi describes.

How has your research or group benefited from working with companies? Have you faced challenges?
Peltoniemi has always held his business partners in high esteem. "They have hard expertise and valuable vision that we need", he says. Companies have also supported the group's PhD students by financing parts of the work while other parts have been funded by public funding sources, national as well as international. "It is also quite typical in our field that companies recruit our PhD students once the thesis is ready", Peltoniemi points out.

Sometimes a company may have supported important infrastructure and participated in building experimental setups. One important benefit is data: "Companies have provided us with data about drugs: what kind of drugs are used and how much. A related issue is antimicrobial resistance. Companies feel that this is mutually important and join our projects with their data."

There were challenges with some companies in the beginning. If they were new to research collaboration, they did not always understand how research works or what they could reasonably expect from it. "There were some disappointments about schedules", Peltoniemi remembers. "

Research is so long-term and it takes so much time to analyze material…sometimes we need to repeat some tests over again. But when you've built the trust, everybody knows the name of the game and there is mutual understanding how things work." Peltoniemi continues that there are more and more experts in companies who are at the forefront of the field and also read scientific articles.

Peltoniemi's group has never had to refrain from publishing anything they wanted, but sometimes it has taken some discussion. "Our results are not always positive for the companies and they don't necessarily like the idea that we will publish them. But we have made clear that publishing is a prerequisite for collaboration", the professor emphasizes.

What advice would you give a researcher considering business collaboration?
"It's vital to keep a clear focus in your own research and not to expand where you do not want to go. Companies have all kinds of ideas and interests but you have to be honest and tell them where your limits are." This is where the partnership and trust comes in. When there is respect and trust, it is easy to outline the conditions for collaboration. "You can be clear and say that our group cannot serve as your company's R & D department and that unfortunately we see no scientific interest in your idea. And the other way around: if the company doesn't see any benefit for themselves in our idea, that's fine also", Peltoniemi concludes.

Peltoniemi also has a tip for new PhDs considering a post-doc period abroad. "A post-doc period within an international company is a good choice. Just like abroad, you get a fresh, external view on things.

We've had a number of people work in a company for two or three years and then come back, stronger than ever!"

Peltoniemi continues: "I also always try to point out to my students the possibility to apply for the European Board of Veterinary Specialisation (EBVS). It consists of 27 colleges that produce internationally recognized veterinary specialists – on the same EQF (European Qualifications Framework) level as a PhD thesis (8). It is a great way to build a network of colleagues and to build a reputation with companies that fund parts of the programme."

Do you see untapped potential for business collaboration in your faculty?
"I certainly do. We've had all kinds of projects and initiatives coming and going but there is much more potential in our faculty than we've utilized. Also companies are now more interested in investing in research – after a really long dry period. We should take advantage of the momentum!"

Peltoniemi points out the OneHealth PROFI research profiling project called "1HEALTH". An idea there is to increase the level of digitalization in health data that other researchers, not just veterinary scientists, could use it. "I trust and hope that we will be able to start new, large-scale EU initiatives on this through H2020 and other such funding programs", Peltoniemi says. "Small-animal internal diseases are a growing field. We could model epidemics of respiratory diseases across species borders and look at the behaviour of the pathogen on a population level. Anti-microbial resistance is another important field as well as the transfer of viruses from one species to another", he summarizes.

Finally: together with Hannes Lohi, professor Peltoniemi shares a passion for founding new companies and investing in promising start-ups. We finish our coffees and end our interview talking about Hannes Lohi's idea of a mentoring network within the faculty. "I for one volunteer to be a mentor in it as well to help commercialize the work of young graduates that wish to base their business on science!"

COMPANIES SHOULD GET TO SEE THE BENEFITS OF RESEARCH!

Interview with Mari Nevas, Head of Department, University Senior Lecturer
Faculty of Veterinary Medicine, Department of Food Hygiene and Environmental Health

Mari's research is based on evaluating food control measures, which are the actions taken by the food control authorities to make sure that the food business operators (FBOs) are fulfilling the requirements set by legislation to reduce and eliminate food associated risks. These measures involve all stages in the food chain; primary production, processing, packaging, storage, transportation, and retail. This type of research requires close collaboration with both private and public organizations working in the field of food business. Mari is also conducting research on other fields related to control performed by veterinarians, e.g. animal welfare control or the ways of using antimicrobials on food production animals.

Why is company collaboration important in your field of research?

"As an example; we utilize the information gained from FBOs; such as questionnaires, on-site observations and the data collected by central authorities as the material of our studies. We may e.g. inquire about their opinions on the benefits of food control procedures and evaluate the knowledge they have on food hygiene issues. When combined with other related material on the FBOs in question, this provides us with important information on the food safety evaluation processes as well as the benefits and challenges associated with these. With this information, we may then proceed in thinking about solutions on how to improve food control. "

Is collaboration important when it comes to teaching?

"We focus on evaluating the food safety mainly from the authorities' point of view, so FBOs are not actively involved within the teaching, but the local veterinarians and food safety authorities often participate in teaching to share their knowledge and expertise with students. At the university, we might not be aware of all current issues that are taking place in the local food control area, so when it comes to training the hands-on stuff, it is very useful to have external stakeholders involved. These local experts can tell about the real-life conditions to join the theory with the practice. It is also very useful that we can co-operate with experts from the Finnish Food Safety Authority when teaching control practices within very narrow and highly specialized fields such as food labeling or food additives.

Also, by having the Ministry of Agriculture and Forestry involved within teaching, we can update the students on current trends and upcoming changes in legislation."

Has any of your projects resulted in societal or economic impact?
"We try to share with the central authorities our understanding on research based knowledge of affecting the policies that improve food control procedures. Certain actions have also taken place in developing the food control actions that have been encouraged and supported by our studies. We also actively participate in commenting the draft laws in this sector, based on the research findings.

What kinds of challenges do you face in company collaboration?
"It can be difficult to convince FBOs, such as restaurants or food plants to take part in our studies, and respond to the questionnaires or interviews besides their normal duties, especially, in case they do not recognize the benefits for themselves. It might be difficult to see the benefit, as the results may realize after a long period, e.g. through impact on legislation or other decision-making. Although we have also done some hands-on inspection studies by visiting different restaurants and observing the hygiene procedures, getting closer to see the actual working practices is not easy, as these visits may be seen as an inconvenient from the FBOs point of view."

How could we motivate more companies to collaborate with researchers in your field?
"The outcomes of the research should be made more prominent to the companies. We should share trade journals and short papers with inspectors and food related companies to transfer the important messages of our results. Hopefully, these reports would also be picked up by the local food units and have an effect on how food control is carried out. Also companies could gain positive publicity by having an interest in science and participating in our studies so that new knowledge can be created. This message should be emphasized with companies."

FOOD SAFETY FROM FARMS TO OUR PLATES

Interview with Professor Maria Fredriksson-Ahomaa
Faculty of Veterinary Medicine, Food Hygiene and Environmental Health

Maria's research focuses on bacteria that can grow in our food. Her studies involve especially bacteria transmitted through contaminated meat that can cause human illnesses. This work is depend on collaboration with the food industry and impacts the safety of the food on our plates.

Why is company collaboration important in your field of research?
"If you want to solve problems in my field of research, it has to be done with food businesses" begins Maria Fredriksson-Ahomaa. Meat inspection practices have changed more towards a risk-based approach. Rather than focusing on the end product at the retail level, food safety already starts at the farms level. Maria continues, "Everything from animal health and zoonotic diseases to the use of antimicrobial drugs has to be taken into account by veterinarians, as not only do these affect the quality and safety of the meat but also affects the meat inspection practices at the slaughterhouse."

Maria works with the industry when it comes to surveillance of foodborne pathogens. This includes the study of microorganisms at the farm level as well as the evaluation of hygiene processes in the food chain and the safety of the end products.

She explains, "Often food companies want us to check products in order to assure food safety. In slaughterhouses and meat processing plants, it is most important to evaluate the hygiene processes starting from the live animals and ending up with packed meat."

At times, Maria has started joint company collaboration projects based on her own ideas and research questions, with the aim of solving a particular problem affecting the industry. However, according to Maria, "The subject of our research can be a sensitive matter for businesses. No company wants to find bacteria that can cause human illnesses in their meat! Therefore, the research questions that need to be solved often tend to come from the companies themselves."

What about teaching, is business collaboration important when it comes to training?
"Yes, very!" exclaims Maria. Typically, slaughterhouses don't come to mind when people think of veterinary medicine. Many students who apply to the veterinary program are surprised that meat inspection and slaughterhouse practices are obligatory courses for all veterinary students. Maria explains, "This type of training requires tight connections with the slaughterhouses. These contacts can also be useful for the students.

Not only do they get practical experience for their future careers but they also gain networks and connections with the industry. Many students end up getting hired by the companies."

You mentioned that your research can be a sensitive matter for companies. How do you convince companies to collaborate with you?
"By being aware of potential risks, businesses can take action early. We try and communicate to companies the benefits of pathogen surveillance. Even if the results are not always positive, the knowledge gives you an opportunity to react and do something about the problem."

What type of challenges do you face when seeking out collaborative partners?
It can be difficult to find the right company interested in solving a particular problem. Maria emphasizes, "Any partnership has to be based on mutual interests. Sometimes we would like to base our research question simply on our own curiosity, for example the surveillance of pathogens, which may not always be of interest for the business. Other times a company might have a problem to solve which can be a big issue but not interesting in terms of the research aspects."

What advice would you give those interested in starting business collaboration?
"Networking and building personal relationships are vital. Usually companies find us or we find them through our existing network. Also, researchers want to publish, it is therefore important to consider and agree about the intended use of the results early on. For this, communication skills and building trust are very important. You have to be able to communicate your research needs however you also have to find out what interests the companies."

BUSINESS COLLABORATION: FROM FUNDING TO KNOWLEDGE AND MATERIALS

Interview with Janne Lundén, Senior Lecturer in Food Control
Department of Food Hygiene and Environmental Health, Faculty of Veterinary Medicine

Janne is a University lecturer and researcher in food control. He teaches all matters to do with food control authorities, food control practices and their effectiveness.

Why do you collaborate with companies?
"Well, in the first place, food businesses are the subject of my research so it is very natural to involve them in my studies. However, I also do it to increase the impact of my research results. It is easier to get results into use in society if you collaborate with companies. Moreover, I believe it is important to have discussions with all kinds of stakeholders from the authorities to the industry and get their views and opinions on the subject of our research. This gives us an understanding of the overall picture of where our field is headed, the research needs and leads to new research questions."

What benefits do you get from working with companies?
Like many, Janne recognizes that company collaboration can yield external funding. He has himself worked on a project funded by the industry. This involved studying food control in slaughter house. The intention was to identify areas of overlap in food regulation and effectiveness of inspections, with the aim of making these cheaper, easier and more flexible.

However, Janne sees the value of business collaboration beyond funding. "Companies in the field of food control usually have very little resources available for research, most don't have any R&D budget at all, therefore it can be difficult to attract funding. However, this doesn't mean that companies and universities are not able to collaborate. An important part of company collaboration is sharing knowledge and materials, mutual participation in workshops and also teaching."

Janne has good experiences of knowledge-based collaborations. One of his studies involved interviews and surveys with six different focus groups. Company representatives contributed to these working pools with their own knowledge, time and at their own expense. Getting access to such subgroups can be pricey, so this case allowed the university to perform the study at a much lower cost.

"It is also beneficial to keep in mind that, even if the company cannot provide funding for your project themselves, it can be beneficial to have a positive statement from the industry when trying to apply for public funding. This shows support and a need for your research project in society."

You mentioned teaching. Why is business collaboration important when it comes to training?
"We sometimes use industry professionals as lecturers for graduate and post-graduate students. This allows for open discussion on the topics we teach, good understanding of where the field is going and we also get their opinion on food control and how it should be developed in their opinion"

Do you believe your research has had some impact on society or the economy?
"I believe so. At least the Food Control Authority, EVIRA, has stated numerous times that they have got a lot of useful information from our studies. They have read final reports and publications of our research, going as far as assigning a specific person to go through the conclusions and outcomes. I believe the knowledge has helped to identify which aspects of food control need changes and further development."

What advice would you give to other researchers considering business collaboration?
"Everything starts with a good research question as well as the establishment of personal relationships within the company. Firms need to think your research question is important if you intend on getting support from them. You also need to build a culture of trust as the subject of our research can be a delicate matter for the company, so take confidentiality seriously. Additionally, networking at different events and conferences is very important for stimulating and inducing collaboration."

Finally, as many others, Janne emphasises the importance of scientific integrity. One should never promise anything regarding the results. Food safety always comes first and company collaboration should not have any effect on the outcomes of the research.

YOU NEVER KNOW WHAT POSSIBILITIES ARE BEHIND THE DOOR

Interview with Claudio Oliviero, Adjunct Professor, Production Animal Medicine, Faculty of Veterinary Medicine

”In this work, I always appreciated the possibility not only to satisfy my scientific interest but also to make a wider difference”, begins Claudio Oliviero in a meeting room in the Viikki animal hospital. Focused on the physiology of sow (female pig), Dr Oliviero’s research looks at the factors influencing successful birth and the survival of the newly born piglets. “Our work is important for the health and welfare of the animals and for the ensuing production. Today sows are having more piglets than in the past. If the piglets do better and grow well and require less treatment with, for instance, antibiotics, there are economic benefits for the production companies and health benefits for the consumer”, Oliviero explains.

Dr Oliviero’s group is involved in several PhD projects and research projects, many of which are funded by the Ministry of Agriculture and Forestry and private companies in the fields of animal feed, meat, and drugs. Not all company input is in the form of significant funding: sometimes they offer technical support for an instrument or a product for testing.

Oliviero’s work has contributed to policy as well. More than ten years of research on parturition of pigs has led to bigger awareness and possibly in the near future to a change in legislation: researchers have proved that sows require a particular environment to help in parturition. “When I tell people what I do, they think – a pig. Why? But really, it’s not only about pigs, it’s about affecting the everyday life of people through animal health and food production.”

Why do you work with companies?

“Having an impact helps a lot in funding applications but it also increases my personal satisfaction. I like to go further in my thinking and stimulate myself with new ideas. I’ve never been afraid to ask companies to join my projects. They are usually open to different types of collaboration – it’s up to you to decide where you want to go”, Oliviero says. Companies can be open to things one might not expect, and on the other hand, they sometimes say that the researcher’s idea is not a match with their core business and they have to decline.

Modern funding instruments also push researchers to think more about societal impact. “Yes, we have also been guided by funding instruments. You have to do this nowadays. We also see that in this new university field, we need industry involved or we will struggle.”

Applied clinical research requires access to production farms. This is one important reason to work with companies. “If I go to the farms as a veterinarian and ask to take blood samples of their sows, I’m going to get a “no”. But if Hankkija decides to support our project, they can open the doors to their farms for us.” Companies also co-design the projects by offering their complementary knowledge about, for instance, the feeding process on farms. That way the researchers can make their research plan compatible with real-life conditions.

“Researchers should open their eyes because you don’t know exactly what the industry can offer. You can always ask and decide whether you accept what they might be able to offer. Same for the company, they can decide to accept or not. “

How did you get started?
“Just before finishing my PhD, I had two years of experience in pharmaceutical industry. That was the best thing I could have done to understand how business works. As a researcher, you only see the outside of business, not the inside. Working there helped me understand. Of course industry has their own interests but so do you. You need to be smart about it and be very clear at the outset of what you need and want and what they need and want.”

Finding partners often happens as a snowball effect. You start with a small project and it grows. “Recent example: I was running a ministry-funded project. A few months in, we found that one big company could have an interest to be involved more: they wanted to test some products. After negotiations, they gave us access to four big farms to do the testing in and funded part of the project by 70 000 €. Finally, a Dutch partner company of theirs also got very interested and we did another trial on a Dutch farm. We compared an open farrowing pen and a classical farrowing crate, something we wouldn’t be able to do easily here in Finland.”

How to work successfully with companies?
Through his work as a veterinarian, Dr Oliviero knows the farms, feeding companies, medical companies, and slaughter houses. He knows the people and they know him. Long collaboration has built trust. “Trust is fundamental. You cannot make a deal with someone you don’t trust. With trust, you know that people will fulfil the deal“, Oliviero explains. Researchers must be in contact with stakeholders of their research field, nowadays it’s not possible to conduct research hiding in your office room.

Oliviero has never had problems with publishing the results of his studies, not even if they are negative for the company. Putting forward a research plan that is academically interesting but also close to the company’s core business has given him free hands. The idea is to include something in the project that can be useful for the company. If the company sees that the project can lead to something good for them, they are usually willing to fund it.

“We usually go with the team. Our group works a lot as a team, we have different interests that we combine in the project. This strengthens funding applications and also negotiations with companies. It’s also psychologically a good message to go with a team, it strengthens your standpoint.”

Collaboration often leads to careers for the participating PhD students. This opens up new possibilities for research collaboration since the company employs people intimately in the know of what goes on in their original research group.

Do you think your faculty has untapped potential for business collaboration?
Oliviero thinks that cross-disciplinarity has huge potential in the faculty. The PROFI initiative OneHealth is a good platform for this because it includes topics that are important for human health, animal health, and the environment. For instance, decreasing antibiotics in animal care has immediate effects on human health and the environment.

“The big problem is that we don’t know enough what is happening in our faculty. I wish we could join our interests and resources, then we would have more success both in funding applications and in business collaboration. For instance, I would like to know more about what is being done in food hygiene, and I’m sure they don’t know all that I do. Even more important would be to discuss together about what we are each planningto do. Joining forces would get us better business collaboration deals. “

What would you tell colleagues thinking about business collaboration?
“Do it! You never know what possibilities are behind the door. I’ve never had any problems hearing ”no” from a company – so what! Ask the next person. You might get some yes’s. Don’t be afraid but be very clear about what you really need and want, and what they really need and want. That’s your recipe for success.”

COMPANIES GIVE YOUR INNOVATION A LIFE!

Interview with Hannes Lohi, Professor in Molecular Genetics
Department of Veterinary Bioscienes, Faculty of Veterinary Medicine
Research Programs Unit, Molecular Neurology, Faculty of Medicine

Dogs share a similar gene and disease heritage with humans with a unique population history and breed structure. They also share the environment and even the same lifestyle as family members. This makes them great models for genetic research because identifying genes for complex diseases is possible from a much smaller collection of samples than in humans.

First in the world, professor Hannes Lohi together with his partners in the Genoscoper company developed a genetic test for dogs analyzing more than a hundred diseases and traits and the genetic structure with just one sample. This innovation opens up possibilities for better understanding of disease mechanisms and for improvements in diagnostic methods for veterinarians, treatments and drug development. Professor Lohi has started and developed numerous spin-off companies and helped find investors for other researchers' companies as well.

How did you become such a successful researcher-entrepreneur?
"It all started about ten years ago. I didn't know anything about business but founded a small DNA diagnostics company with my friend. First two years was just trial and error", Lohi laughs.

However, Lohi had some bigger ideas. "Later, I happened to hear about a guy who was an avid hunter, had founded and succeeded with several companies and was potentially interested in doing something related to hunting dogs as a business angel. I picked up the phone and told him about my vision and the potential. After a few months, we were in business."

Lohi found entrepreneurship interesting. He also felt it necessary to offer something back to the dog owners who kindly donated samples for the research, and he rented some space at Biomedicum for his work. It was all very small-scale at that point, and soon Lohi realized it would be wise to work together with another, bigger company in the same field.

"At that time, we and other companies tested only individual genes. I thought that what was actually needed in future was a gene panel test: a test that would look at all the possible known genetic variants from the genome with just one sample for roughly at the price for a single gene test."

Lohi arranged a business angel to finance the work. “Tekes (now Business Finland) has also been a part of this from the start. The story continued with the first panel gene test for dogs – a cheek cell sample or a blood sample that is used for the analysis of hundreds of different genes: size, colour, type of fur, diseases, breed heritage for mixed-breed dogs, level of inbreeding and so on.”

The gene panel test caught attention worldwide and was licensed to the US-based company Mars in 2014 and later sold to them at the end of 2017. Altogether, it took about ten years to build the project to its current commercial level. Hannes Lohi believes that the gene panel test will be developing into a world-wide standard for hereditary analysis in dog and cats now in Mars’ hands. A test anyone can do at home and send for analysis.

By now, Lohi has founded several companies and has wider networks in the business. “Everything I’ve done has happened more or less naturally through my basic research, there’s been a natural demand for it all. In canine and feline genetics, research is based on motivating pet owners to participate. As part of the research program, only a few hundred dogs were tested from samples available in the biobank for publication purposes and with the first results out, there was an instant demand from the rest of the owners and breeders globally to get their dogs tested as well. That’s how the innovation was born”, he tells.

Researchers are not usually very keen on commercialization. Why do you think that is?
“Commercialization is not a well-known area to researchers who are not used to it. There are millions of questions: what does it take, where can I find the right people, how do I start a company. What about funding, collaboration contracts with the university, invention disclosures… what exactly is an “idea”, who owns it, how much time will it all take, will it take too much time from publishing, will I end up doing everything badly?”, Lohi lists common fears.

Researcher doesn’t have it easy, Lohi continues. The university should somehow produce instruments and measures for valuing and appreciating work that brings in private funding and produces concrete impacts in society. “At the end of the day, I am pretty much evaluated only based on my publication record and you must consider how much you spend time and prioritize other activities.“ Some researchers want focus only on research, some do more teaching, and some are researcher-entrepreneurs that also need incentives, indicators and merit.

Lohi thinks that the number of invention disclosures, patent applications, accepted patents, the number of companies you work with, the number of spin-off companies you’ve founded could be better integrated as evaluation indicators and merits when filling up positions. “Researchers need a clear message from the University that the time spend for commercialization is valued and important”.

Research potential from business collaboration
Lohi has a dog biobank of 70 000 samples of different breeds and diseases that he started collecting in 2006. This is a very interesting resource for different types of companies and has opened enormous research opportunities. Partially with companies' support, Lohi has been able to maintain a larger research group and to generate more publications. High-level publications have then leveraged more funding.

"My research group participated in a major study with Mars where we looked at the genome of more than 100 000 dogs. Without them, as a mere academic group, we could never have reached such numbers. Collaboration opens up new potential. Also the scientific and commercial aims have matched so well that we have never felt any pressure to steer away from our scientific goals", Lohi explains.

Lohi's research collaboration continues still further. Now his group is helping PetBiomics to develop a new type of blood sample test that looks at over a hundred biomarkers such as amino acids, glucose, fatty acids. With this information, veterinarians and researchers can soon try to identify new disease-related biomarkers and monitor the effect of treatment and diet with unprecedented accuracy. These new markers can tell whether the heart, liver or some other organ is stressed or give answers about chronic illnesses where genes may have less to say. "Genes don't change – biomarkers change even during one day. Blood biomarker monitoring tells what is happening right now inside the body. In human medicine, similar inventions are transforming the diagnostics and treatment of chronic disorders such as diabetes, for instance", tells Lohi. The invention is soon ready for commercialization.

How would you describe the impact of your research outside science?
Lohi's genetic test – and potentially later also the wide range metabolomic blood test – are among the major innovations in veterinary diagnostics, becoming testing standards and concrete tools to help the work of veterinarians and other stakeholders in the field such as breeders. "We've produced a genetic test that is on its way to a global standard. Soon the work day of a vet will start by looking at a list of gene results of the pet on the screen. The work helps to diagnose, treat and even eliminate diseases from pets – what could have more impact?".

What would you tell a fellow colleague interested in starting a company?
Lohi gets excited: "Companies give your innovation a life!I would absolutely encourage anyone with an idea to contact us who already do business collaboration and work as entrepreneurs. We can have coffee and mentor you, perhaps we can even come up with some new ideas and help you out." One thing a scientist may have difficulties with is selling their own product. In business, you have to stand behind your work and have the courage to sell even the first version. The product will develop and improve during its journey.

"It's easy to get really deep in all this but then do remember that evening meetings, teleconferences, events, they all take quite a lot of time. Between research and family, you need to consider carefully how you balance everything. For these reasons, I have not been in the operational side of the businesses. You need other type of skills there", Lohi says and smiles.

INDUSTRY COLLABORATION CAN TAKE SCIENCE FORWARD

Interview with Antti Sukura, Professor of Veterinary Pathology,
Dean of the Faculty of Veterinary Medicine

“Did you have breakfast today?” is what Antti Sukura responds to our question regarding the role of veterinarians in today’s society. “If you did, you have used the services of veterinarians. The whole food chain process from farm to fork is controlled and monitored by professionals of veterinary medicine.”

The typical picture people have about veterinarians is the neighbourhood vet that takes care of their pet. However, food and environmental safety are at the core of the profession, as is animal well-being, whether in food production, nature, or homes. These two basic pillars of veterinary medicine open many channels and opportunities for business collaboration.

“What motivates me in industry collaboration are, first and foremost, the interesting real-life research questions. Industry has also provided practical resources and financing for my research.” But the collaboration hasn’t been without surprises: sometimes a good idea arrives at the wrong time from industry’s perspective.

“Many years ago, we had an idea to create a toxoplasma-free production chain of meat, figuring that pregnant women would prefer to eat food that was 100% safe. However, the meat production companies we approached declined, saying that faced with a choice of “safer” meat, consumers would think that all other meat is unsafe. But nowadays we have ”antibiotics-free chicken” in every corner shop.”

In his research, Prof Sukura looks at parasites and the ways they get around the immune system of an organism. Business collaboration provides his group with early-stage information about upcoming medicines and about the way anti-parasitic drugs are used in Finland. In the 90’s, he built a highly specialized training programme with a large pharmaceutical company. “It is in the interest of the employer to cover part of the costs of specialists that they later can employ. This is not the only occasion of training collaboration with industry. The animal hospital works quite a lot in this field. This sort of collaboration has led to successful recruiting of our students.”

A joint, interesting research question is important but equally important is to weigh the realistic potential of the collaboration and make sure that it is useful and productive for both the company and the researcher. “Just today I turned down a collaboration offer from industry because the project would not have led to publications. Analysing the set-up, we realised that we would not be able to find suitable groups of patients and controls in this country.“ Prof Sukura emphasizes the need to think thoroughly through the input-output ratio of the project. “Do your homework and do not make promises lightly. There’s no point to work for a hundred grand and then get ten thousand back. It is also important to agree on a realistic schedule and stick with it. That saves you a load of trouble.”

Veterinary medicine is a field well connected with industry. People know one another well and requests for collaboration can stem from either side. This doesn’t mean that you should talk with company representatives unprepared. “Don’t go alone. A company typically sends 3-4 people in a meeting. In negotiations, you’re immediately on a back foot if you don’t show up in similar numbers.”

One of the basic things you should understand is the annual cycle of budgeting in a company. Companies have varying rules about the maximum sums the CEO can decide about within the annual budget. If you’re asking for more, it usually requires a decision in the general company meeting. In these cases, it is wise to start negotiations many months before. The decisions about donations and R&D often go through separate routes, too, and you need to be aware of how this all works.

Looking at business collaboration in the Faculty of Veterinary Medicine, the dean sees space for improvement. “We are already doing smart things, but I also think there is potential for more impact and for more resourcing from industry. Industry collaboration can take science forward and it’s also great to see how insights made in basic research can be tested in real-life field conditions.”

The Faculty of Veterinary Medicine was the first to take on the opportunity to pilot our new service, the Business Collaboration Accelerator. Why did you request our help?
”For me, widening the scope of research funding, increasing societal impact, and taking care of career opportunities in our faculty is important. Business collaboration has its own rules and risks. You don’t need to be overly cautious about it but you do need to know what you’re doing and when you do, it’s no different from basic funding from the Academy – it’s just for different purposes.”

WORKING WITH THE INDUSTRY CAN HELP PRODUCE IMPACT FROM RESEARCH RESULTS

Interview with Anna Valros, Professor, Faculty of Veterinary Medicine, Department of Production Animal Medicine & Research Center for Animal Welfare

Anna's expertise is in the field of animal welfare. She mainly works with pigs and poultry. Her studies typically look at the interaction between the housing, environment or handling of animals, and their welfare level. This involves behavioral and physiological measurements taken from animals on, for example, farms and at slaughterhouses. The main aim of her research is to identify challenges in animal welfare and help find solutions that benefit animals as well as are feasible for the industry.

What is your experience with business collaboration?

"I have good connections with the pig industry. I mostly work together with farmers, slaughter houses and feeding companies. Some of these have provided funding for our research and others have purchased research from us. We also get provided with materials for our studies, for instance experimental feeds, or access to animals. In other cases, our collaborations have focused on studies related to pain, together with pharmaceutical companies. These firms have, for example, supported the project by providing us with pain alleviating compounds for our research."

What type of collaborative projects have you worked on?

"We often set-up our laboratories on farms. Farms give us access to the facilities and animals. They allow us to run our experiments and collect the resulting data. We get feedback from the farmers and ask about their practices. We can then evaluate possible ways of ameliorating animal welfare through improving housing or management."

Anna's collaborations have sometimes been initiated from a specific question or need that companies wish to answer, she explains, "We had one project in which a company hired us to research the transportation of turkeys when it comes to animal welfare. Animal welfare can be important for a company's public image. The firm wanted to know whether they could grow larger turkeys without having to change to bigger transport cages. They asked us to evaluate the effect the cages would have on the larger animals. We conducted the study and concluded that there would be a negative impact on the welfare of the turkeys, and the company did take our advice seriously. "

Why do you do business collaboration?
"My research requires access to animals and farms. We do not have experimental farms for pigs and poultry at the University and therefore it is impossible to conduct our research without industry partners. It is also important for us to work with farms to get feedback for our experimental plans and whether these mimic the real-life scenarios. This makes our studies more applied and helps us achieve impact through our research results."

How do you find your industry partners?
"More or less everyone working in the animal product industry in Finland knows each other so it's easy to identify potential partners. However, when looking for a collaborator I usually go back to my existing network. I tend to contact the people I know. It is easier to work with a partner that you have already collaborated with as they understand what research is about and how it works."

What challenges do you experience when collaborating with the industry?
"The biggest challenge for us is to find motivated farmers that would be willing to take part in our studies. Farmers are generally under high pressure and work long hours. It can be difficult to get them interested in utilizing their own time for our research. It also takes time to build an understanding of how research works. Maintaining scientific integrity and right to publish are crucial aspects in research-business collaboration. You have to carefully go through with partners how things will be done in the study plan and how the results will be utilized. These matters need to be agreed on prior to the start of the study as they can be sensitive issues."

Have these collaborations resulted in any impact for society?
"My research has impact on animal welfare. However, I would also like to think that my work has changed attitudes on the industry side and that our studies can provide benefit to both animals and companies. For example, we had one study that looked at enrichment objects for pigs. These are objects used to provide farm pigs with something to do. The aim of the study was to identify cheap and good objects for pigs to fulfill their need to explore and chew with. We tested different types of objects and ended up concluding that fresh wood from for example birch tress was the best option. This is cheap, it's readily available on many farms and improves the welfare of the animals. We therefore found a simple and easy solution which benefited both animals and farmers. After that study was published, wood logs started being regularly used on many farms."

Anna continues, "I also work with tail biting pigs. When stressed, pigs tend to bite each other's tails. To solve this issue, their tails are cut off. This practice is not legal in Finland but is still widely practiced in other parts of EU, and the rest of the world. We therefore were interested to find out how do Finnish farmers deal with the issue and see whether the same practices might successfully be used abroad as an alternative to tail cutting. We sent a survey to Finnish farmers to find out how do they handle long-tailed pigs. The study gained a lot of international attention, and I was invited to talk about the issue abroad."

Do you have any tips for other researchers when it comes to business collaboration?
“You have to build trust and understanding with the industry. This is extremely important when you want to sell your research idea to a potential partner. Open communication and discussing with honesty is very important. Additionally, you should never underestimate the knowledge the industry has and to what extent they can contribute to your research.”

What do you think could be further improved or developed at your faculty in order to support business collaboration?
“It would be beneficial to build long term lasting relationships with the industry when it comes to scientific projects. Currently our projects tend to be short collaborations that last only a few years, or less.” Anna continues, “I think we could also make use of more training and advice when it comes to business collaboration. For example, we could use assistance with how to deal with the publication of research results, how to work together without risking the science and how to communicate with companies when it comes to sensitive matters.”