



TechTrans Magazine

It's all about people

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This magazine is all about **you!**

For research to have value,
the new knowledge created must be disseminated.

NTNU Technology Transfer AS. "TTO" among friends
- transforms inventions into innovations. We believe
innovation is essential to sustainable development
both nationally and globally.

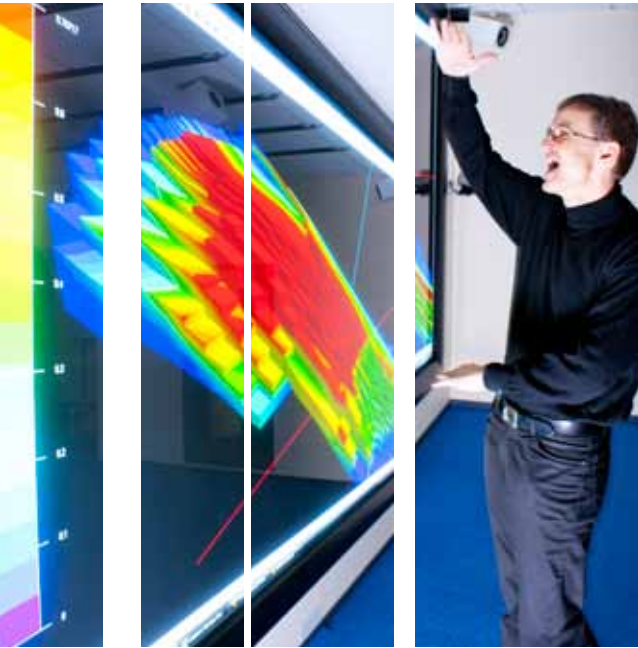
You decide what to do with your inventions. We are
here to help if you want to commercialize.

This magazine is designed to inspire you, inform you,
and entertain you. We have asked faculty, students,
and NTNU alumni to tell their stories and share their
perspectives on dissemination of knowledge.

Read it. Be inspired. Invent.
Come see us!

Karl Klingsheim, Managing Director
NTNU Technology Transfer AS





THE INITIATOR

If there is anything that Egil Tjøland doesn't run out of, it is ideas. His students, his colleagues, the university and occasionally industry, all benefit by them.

It is easy to see that associate professor Egil Tjøland is in his right element. His relationship with NTNU is close, and we are talking about “love” rather than “infatuation.” This love, together with his interest in innovation, implicates that Tjøland and NTNU are a perfect match.

Unfolding his passion for innovation at The Department of Petroleum Technology and Applied Geophysics he claims: “There is an entrepreneurial spirit in the corridors and a creative dynamic that I became aware of on my very first day here; this is something that inspires you to create things yourself.”

“Having an innovative and entrepreneurial mind is widely accepted by both students and staff, and that may well be the most important prerequisite for success. Even non-academic staff has been motivated to create something of their own here,” he adds eagerly.

NORWEGIAN SUPERPOWER

The geophysicist from Sola, near Stavanger, represents a versatile research environment with a world wide potential. He is exuberantly producing new ideas and wants NTNU research staff to accelerate their “added-value” efforts.

“Norway is actually a superpower as far as geophysics is concerned,” he says. “And Trondheim is in a special position; we are like Silicon Valley in this field. Most of the important discoveries are made here, and the atmosphere is extensive. And does Trondheim realise this? The answer from across the table is explosive: “No! I don’t believe it does!”

“There are unimagined possibilities for establishing new companies here, but we need better infrastructure for bringing ideas to the next stages. In this respect, TTO is an important factor,” he says. It is the key to



“I think that researchers have a duty to disseminate knowledge and research in more ways than via academic publications”

reaching out to the markets, and it is professional in the way it takes up ideas, at a speed that is essential today.”

Tjøland also sees that there is a need to optimise predictability and contract terms with industrial partners.

REMAINING BEHIND THE SCENES

“It is not necessary for me to go all the way,” says Tjøland. When the prospect of working full-time for the Geoprobng Technology start-up company emerged, he said “Thank you, but no,” and let Jon Tore Lieng, his partner from the development stage, take their idea on to the next stage. Today, Egil Tjøland is the company chairman of the board, while Lieng is technical director in its subsidiary Deep Sea Anchors AS.

“It did not cross my mind to start a company when I hatched out the idea,” he says. “I had just come back to a new position at the NTNU, and I wasn’t ready to do something else. As it is now I can operate behind the scenes, which I enjoy doing. I am more of a creator of ideas and an initiator rather than an executor,” he claims.

Well, perhaps not just that. He is currently playing with other ideas that have a commercial potential.

Egil Tjøland believes that it is essential to turn NTNU research results into commercial products. “I think that researchers have a duty to disseminate knowledge and

research in more ways than via academic publications. What I mean by that is taking out patents, and perform commercialisation through licensing or by setting up a company. These are tasks for the TTO, and I expect them to be more than just consultants, but also to take responsibility from the very beginning of the process of commercialisation.”

EVERYTHING IS POSSIBLE

Just say “Mission impossible!” to Egil Tjøland, and watch his reactions. That may have been what happened in 2001, when NTNU bought a complete Cave Automatic Virtual Environment (CAVE) system for 3D visualisation. This was where the Department of Petroleum Technology’s long-standing collaboration with industry paid off. This man knows how and where to ask: The Research Council of Norway and Norsk Hydro financed the wonder system to the tune of NOK 20 million. “We were very ambitious, and we simply thought: The sky’s the limit,” remembers Tjøland. Naturally, the fact that apart from NASA, NTNU had the most advanced CAVE system in the world, attracted a certain amount of attention. Discovery Channel itself was soon at the door, asking for permission to make a film. In 2006, the group acquired a new CAVE visualisation room, since the cutting-edge technology of 2001 had become a museum-piece.

ON-AND-OFF PERSONALITY

Egil Tjøland is fairly pleased to be the focus

of attention, though not so much for his own sake as for that of his students, and not least for the ideas and solutions that they produce in the course “Experts working as a team.”

“What these students are doing is often cutting-edge technology that virtually no-one knows about.”

Here, the lecturer and the supervisor have a lot of faith in what the students are doing and making, and they like to help to push the ideas out. “I know that TTO is ready to pick up ideas that are worth investing in from here,” he says.

Tjøland is enthusiastic about this; if you ask about his private life you will soon be returning back to NTNU. But his family does get its share of his attention, and he is perfectly happy to take his daughter to watch the Norwegian Rubik’s Cube Championship.

One of my characteristics is that I am a typical on-and-off person. I am extremely passionate in something for a while, and then, after a while, I turn to something else.” At the moment, his focus is on literature, where he is immersed in classical literature, where he aims to read as much as possible of the ancients. “So, given that I have a only limited time available, life is too short to be reading crime novels,” he adds.



STUDENTS & ENTREPRENEURS

Hvaler, Saturday February 19, 2011.

It is six in the morning and Silje wakes up, stiff and sore, wondering “Where am I?” Still confused, she looks around, slowly realizing she is in a car, together with Arne and Marius curled up in the back seat. Dawn starts to break.

NTNU STUDENTS
Silje Rabben, Arne Skeie and Marius Montarou

“We feel very privileged to be able to offer something that we know can be useful. There is quite obviously a need for MOSE (Mechanical Oil-spill Sanitation Equipment), but if we are going to make a commercial success of it we need more legs to stand on.”

Silje Rabben, Arne Skeie, and Marius Montarou are product developers and partners in Kaliber Industrial Design. The troika has cooperated since 2005 when they got together in Trondheim to pursue master degrees in Industrial Design at NTNU. In 2007 they enrolled in a mechatronics course with an assignment to automate an industrial process. The result was a new concept for a “vacuum-cleaner” that treats and removes oil-spills on hard surfaces.

At the same time the MV “Server” was shipwrecked on the island of Fedje near Bergen, spilling hundreds of tonnes of oil on the shore. Norwegian television showed volunteers on their knees, picking up lumps of oil with their bare hands. These tasks were clearly both awkward and extremely labour-intensive, and automating the clean-up process was the challenge that Silje, Arne, and Marius decided to solve.

EXPERIMENTATION

With youthful daring, the team embarked on the challenge and sketched several concepts during the spring semester. An electric drill served as the basis for functional experiments in the lab. “We ended up with a monster of a machine; a mechanical



digger with a sort of mouthpiece at the front that would mix bark with the oil, knead the mixture together, suck it up, and scrub the rocks,” says Silje.

Today they all laugh at the first prototype; it was neither particularly user-friendly nor

practical for actual fieldwork. “We thought of it as we did of most class projects; once it had been completed and demonstrated, that was it. At that time we didn’t realize how valuable it could be,” concludes Silje.

TURNING POINT

Two years later, the team revived the project in order to enter a business plan competition. “We won the regional prize in DnB NOR’s Innovation Awards, and the NOK 200 000 in prize money provided a new impetus. TTO strongly encouraged us to commercialize the concept, and we realized that this was an opportunity too good to be missed,” all three concur.

The project was named “MOSE” (Mechanical Oil-spill Sanitation Equipment) and relocated to Gløshaugen Innovation Centre, where the three entrepreneurs have spent long hours ever since. The orange office sofa has been a good companion: “Each of us has spent many nights here,” admits Silje. “It is simply good fun to be together. Everybody works on all aspects of the project, but each of us also brings special interest and expertise. Working well together with a clear division of responsibility and a sincere commitment has been vital to our progress” ►



The Research Council
of Norway

Dear researcher at NTNU

Every year The Research Council receives great many high-quality project proposals from NTNU and others. I wish we were able to support a lot more of them.

The impact of research on businesses and society at large is gaining increasing attention. The purpose of our new program FORNY2020, is to facilitate dissemination of knowledge by supporting technology transfer offices at all universities in Norway to commercialize results from publicly funded research.

If you find this interesting, or you are simply curious, you should get in touch with the people at NTNU Technology Transfer AS. They work closely with FORNY, and they are both able and willing to work with you to commercialize your ideas.

Contact them today!

Arvid Hallén
Managing Director
The Research Council of Norway



PERFECT MATCH

“TTO has proven to be the perfect partner for us. As students, we received valuable advice and support early on at no cost to us, says Silje Rabben. We have gotten to know the people at TTO, and we have benefited enormously from their expertise in creating international patent applications, legally binding contracts, applications for financing, business modelling, and so on. We have recently expanded our team with Sondre Jacobsen and Kristin Jørstad from TTO, both providing coaching and supervision that we can rely on. It is important for us that TTO is with us for the long haul.”

**STUDENTS
BECOME ENTREPRENEURS**

The three partners have overcome many challenges. Even though they are dedicated and highly qualified innovators with an ingenious product, convincing people of the merits of a student-initiated project is hard. “Many people assume that new graduates have nothing valuable to offer. Instead they

should appreciate our enthusiasm and the potential inherent in looking at old concepts from new perspectives,” says Silje Rabben.

Kaliber Industrial Design identified an unsolved problem in oil-spill contingency planning. “We feel very privileged to be able to offer something that we know can be useful. There is obviously a need for MOSE. We think of it as a life buoy; something that we hope will never need to be used, but that is essential in the event of an emergency. To also turn MOSE into a commercial success, we will need to target other industries with similar spill sanitation needs.”

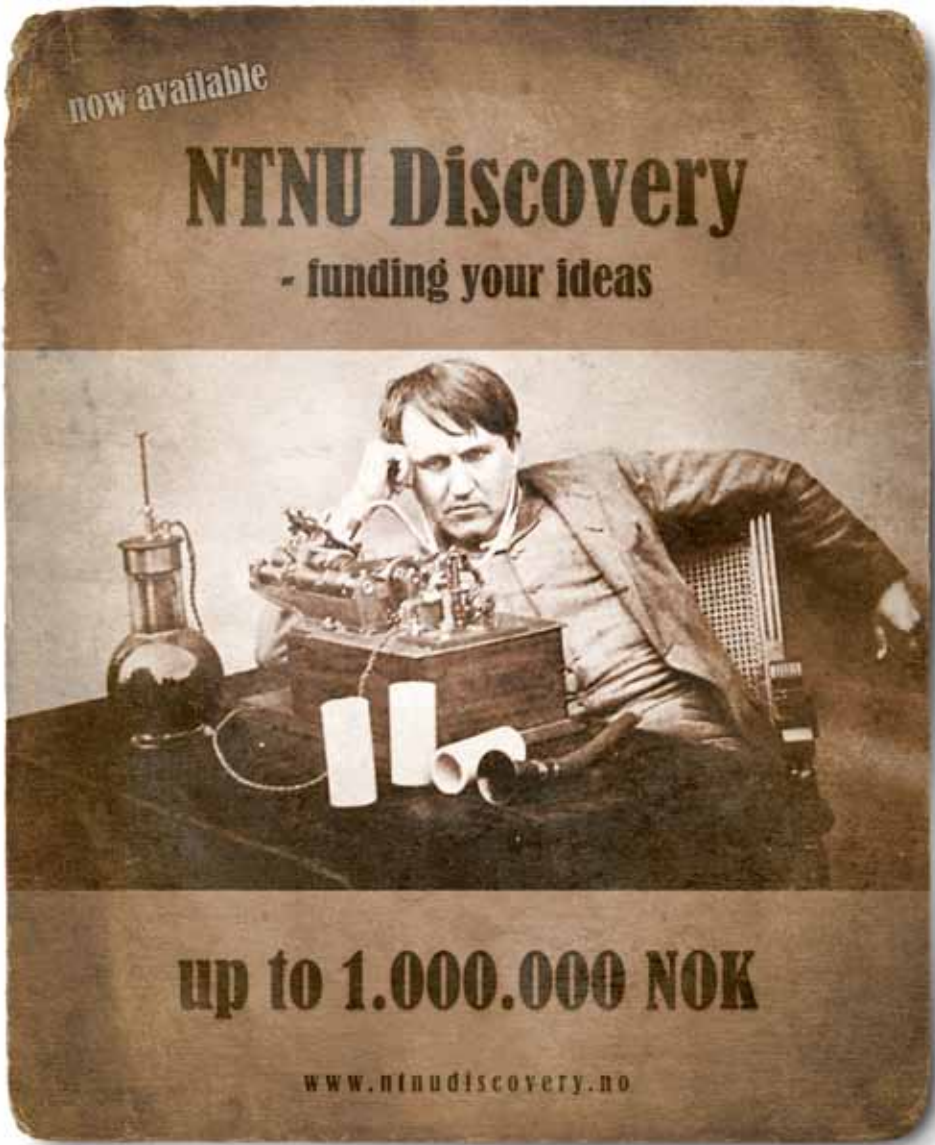
Silje, Arne, and Marius recently submitted in their respective MSc dissertations in Industrial Design based on MOSE. So far so good! From now on it’s all about business – and business is all about people!

HVALER

Fast forward to Hvaler, early Saturday morning February 19: Silje is shivering in a car

outside a supermarket. Two days before, the Icelandic cargo vessel “Godafoss” with 800 tonnes of oil on board had run aground on an island in the Oslo Fjord. Last evening, the three partners at Kaliber Industrial Design spontaneously decided to drive 700 km to Hvaler in order to experience firsthand the exact challenges that MOSE must handle in order to become a success. ■

Kaliber Industridesign AS was founded in July 2010 by Silje Rabben, Arne Skeie, Marius Montarou and NTNU Technology Transfer AS. The Company Product MOSE (Mechanical Oil Spill Sanitation Equipment) is a handheld device for chemical spill sanitation on hard surfaces. Its first application is oil-spill cleanup on rocky shores. Development is being funded by NTNU Technology Transfer AS, NOFO and Innovation Norway, with additional support from the Norwegian Coastal Administration.



Theory and practice

Someone has to cover the bases, set some hairy goals,
roll up their sleeves, and then dare to say out loud “Let’s do it!”

Marte Aurstad Aspnes is such a person. She doesn’t enjoy complacency, neither at work nor at home. If it is too comfortable, she becomes restless and starts looking for new challenges. Consequently, her job as managing director of the high-tech start-up company CerPoTech seems only appropriate. On the domestic arena, she recently gave birth to her second child.

She is currently on maternity leave, and she arrives for our interview with two-month-old Sigrid in her pram. “I was here yesterday too,” she admits, “but of course I soon realised that it was the wrong day. She laughs, blaming her “mommy brain.” Provided the

pram is kept moving, Sigrid sleeps through the entire interview.

FOCUSED AND GOAL-ORIENTED
“Sometimes I regret it when I look at all the tasks I have taken on, but at the same time they do help to focus me. I like to let myself in for challenges that may be a bit more than I believe I can manage at first.”

She has always been like that. She was curious and hungry for knowledge even when she was just a little girl in Skogn in Nord-Trøndelag. She went to Italy on an exchange programme at the age of 17. Just before her master thesis was due, she had

her first baby, and now, while on maternity leave with the second, she is sewing a christening gown for the first; it is 15 years since she last sewed anything.

“I have never come across a challenge that I haven’t coped with,” she says rather thoughtfully. Of course it can be frightening to be faced with something when you don’t know just what it involves, but then I think to myself that if other people have managed to deal with it, so can I.”

FROM TTO TO CEO
That is presumably what she was thinking when she signed up to be the founder and



“TTO has a lot of entrepreneurial experience and continue to attract people who are both able and willing to launch and support startup companies”

first Chief Executive Officer of CerPoTech, which is short for Ceramic Powder Technologies.

“It is bit like becoming a mother for the first time; you don’t know what you are letting yourself in for, but you just use whatever experience you have and take things as they come. The feeling of being able to cope is something that we all enjoy.”

Her first job after graduating from NTNU was with TTO. The mission of transforming research to profitable products and services very much appealed to Marte. With a master’s degree in chemistry, she soon became a core member of the initial CerPoTech project team.

The project was based on the research of three prominent NTNU professors, none of which had any desire to leave the university. “And I don’t think we should ever expect them to do so. It has been demonstrated many times that it is entirely possible to combine active involvement in a commercialisation process with pursuing an academic career at the same time.”

“I had never planned to be an entrepreneur, but I gradually came to realise that with CerPoTech I could be the one to take on the exciting challenges involved in launching a brand new company.”

She had already been working closely with the scientists. “We get on well together, and

they have shown that they have plenty of confidence in “little” me, which I think was nice of them.”

NETWORK DEVELOPMENT

Another contributing factor was the encouragement from colleagues at TTO. She also knew what sort of help and support she could expect from TTO after spinning off the project as a new legal entity.

“TTO has a lot of entrepreneurial experience and continues to attract people who are both able and willing to launch and support start-up companies. Since 2006, at least seven people have transitioned from project managers at TTO to CEOs in start-up companies. This is one of the strengths of our TTO, and it was a contributing factor in my decision to leap into the uncertainty and excitement of life as an entrepreneur.”

Once again, well-trained ears pick up a sound from the pram, but the little angel sleeps on.

STAYING THE COURSE

The personality characteristics needed to stay the course are many, and Marte is a winner on many fronts. She is fearless and systematic, and can focus on several different things simultaneously. When the going gets tough she doesn’t become at all stressed, but simply gets to grips with the situation.

“At first, I did get slightly stressed, but I have

gradually become self confident. As head of a start-up with three employees I have to work out things at short notice and deal with unexpected problems. In such situations, one mustn’t be afraid to ask for advice.”

She emphasises the importance of her network with other TTO alumni entrepreneurs; many of them have taken the same road. “They have helped a lot and provided an important sense of security. It’s all about networks, and networks are all about people.

The thirty-one year-old is not sure what the future will bring, but for the time being it’s all about CerPoTech. “It is really a bit embarrassing, but I still don’t know what I am going to be when I grow up.” She laughs: “At the same time, it is wonderful that my course is still not completely charted. That would really have been stressful,” she says.

CerPoTech AS is short for Ceramic Powder Technology and was established in 2007 by Professor Tor Grande, Kjell Wiik, Mari-Ann Einarsrud and NTNT Technology Transfer AS. CerPoTech develops, manufactures and sells advanced and customised ceramic powders for an international market. The powders are used for R&D purposes within technologies such as fuel cells, ceramic membranes and electronics. CerPoTech AS plans to establish new and scaled up production facilities in order to serve also the industrial market with high quality powders.



MARTE AURSTAD ASPNES
Managing director
CerPoTech AS

DEDICATED. FOR ACTION.

MARTE AURSAND ASPNES, CEO
CERPOTECH AS
DEPARTMENT OF MATERIALS SCIENCE AND ENGINEERING

KRISTIAN RATHE, CEO
INITIAL FORCE AS
DEPARTMENT OF HUMAN MOVEMENT SCIENCE

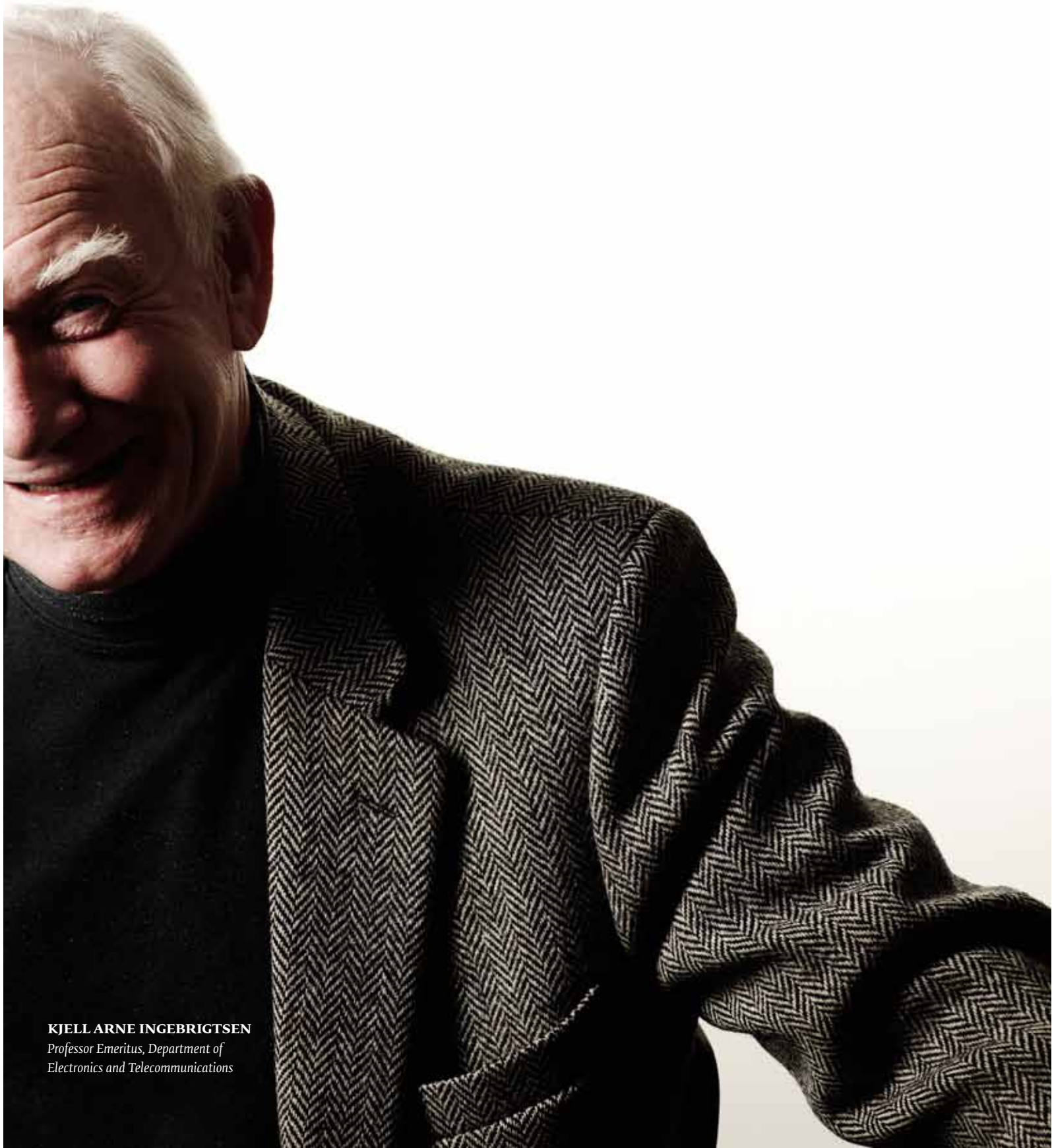
GØRIL FORBORD, CEO
MEMFOACT AS
DEPARTMENT OF CHEMICAL ENGINEERING

GISLE ØSTERENG, CEO
DYNAMIC ROCK SUPPORT AS
DEPARTMENT OF GEOLOGY AND MINERAL RESOURCES ENGINEERING

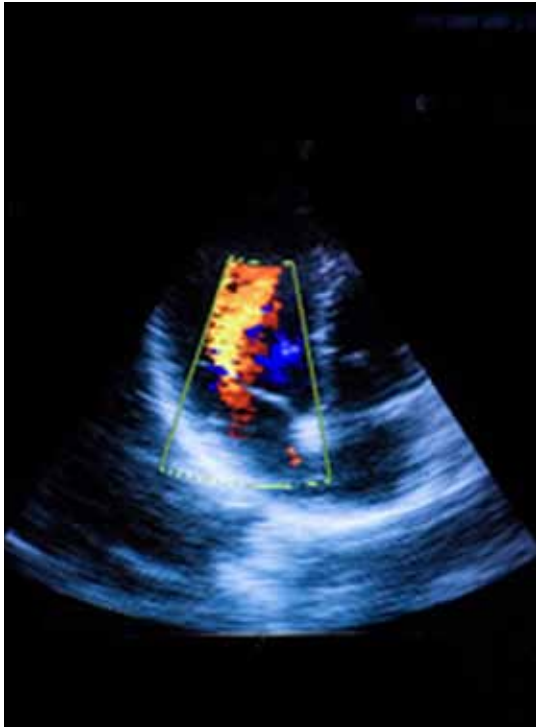
ÅSMUND FURUSETH, CEO
CHAPDRIVE AS
DEPARTMENT OF ENERGY AND PROCESS ENGINEERING

 **NTNU**
Technology Transfer as

PROVIDING ENTREPRENEURS

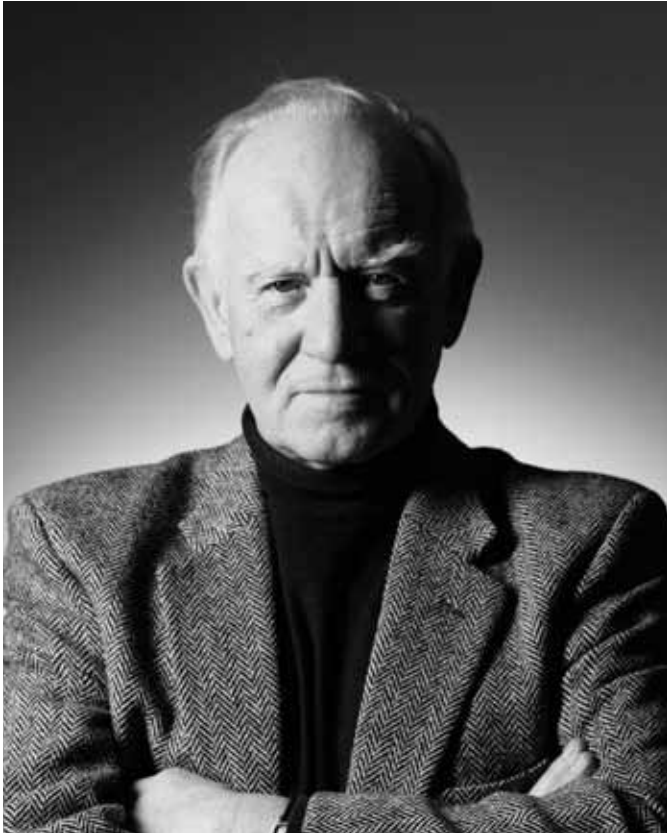


KJELL ARNE INGEBRIGTSEN
Professor Emeritus, Department of
Electronics and Telecommunications



THE INSPIRER

“Inspirer – someone with ideas;
an individual who is always on the lookout for new solutions.”



Ingebrigtsen himself was inspired by two people in particular at the beginning of his career. “My first professor, Andreas Tonning, was a wonderful man. Arne Wøien, who founded the company that was my workplace for 15 years, also inspired me. He was the one who dragged me out of SINTEF/ NTH and into an exciting existence as both researcher and salesman.”

Office B411 on Gløshaugen campus says very little of Ingebrigtsen’s private life. A coat hangs by the door, but otherwise the room is barren of clues; mementoes of hobbies and travels, family, even of professional achievements.

Conversations with those who know the inspirer Kjell Arne Ingebrigtsen soon reveal the connections between the man, ultrasound and microelectronics; a potential that none could anticipate when he was growing up in post-war Tromsø. At the age of 19, he

put away his football, ski-jumping career and trombone, headed for Trondheim and started his studies at NTH.

“Applied research is for me meaningless without an application”

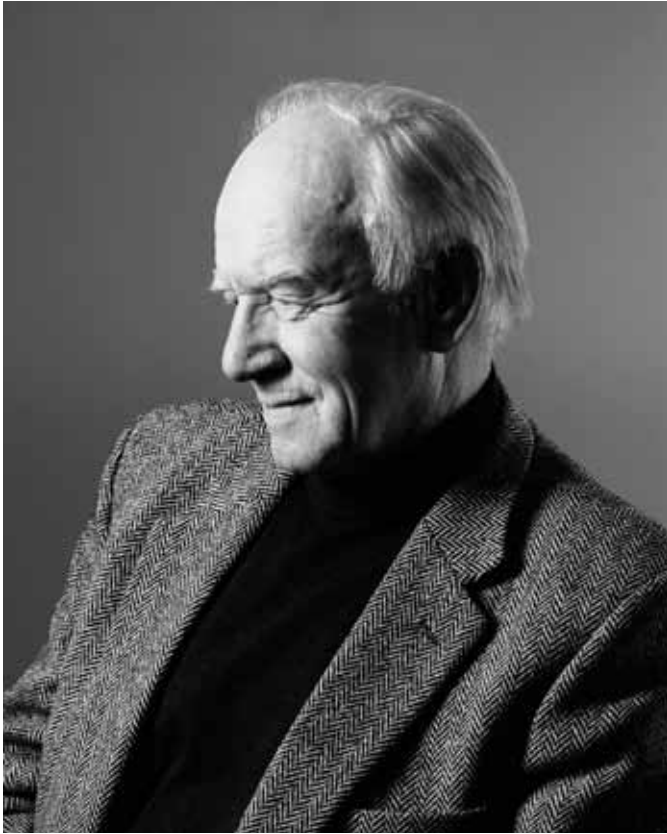
“My future wife came with me, and in the course of my second year of studies we had our first child. Eventually there were three, and all of them have luckily chosen their own paths of professional careers; none of them have followed in my footsteps,” he says.

The idea that he would still be at Gløshaugen at the age of 73 surely never occurred to him at 19. Career opportunities were queuing up, as he points out.

His own career in research began when he was doing his military service at the Norwegian Defence Research Establishment at Kjeller. “We were all very enthusiastic back then. This was at the very beginning of the transistor age, and we were participating in a paradigm shift in electronics.”

After earning his dr. techn. in 1970 he became a reader at NTH and later on also a director of research at ELAB, Sintef. In 1985 he left ELAB/NTH to become chief executive officer of Vingmed Sound, which originated from applied research in ultrasound technology at NTH. Kjell Arne remained with the company through three rounds of acquisitions, first Diasonics, then Sonotron and, ultimately, GE Ultrasound.

General Electric acquired the company in 1998 and Ingebrigtsen continued as managing director until 2000, when he returned to NTNU.



It wasn’t entirely by chance that I was welcomed back here; I brought some research funds with me,” he smiles.

Today he occupies the same office on Gløshaugen that he left 30 years ago. “At least they’ve painted it. In fact, only half of it is mine,” he makes clear.

Kjell Arne Ingebrigtsen has a long list of achievements, although he is reluctant to speak of them himself. But he nods in recognition when a couple of his inventions/ discoveries are mentioned. “Apart from surface waves, I am proud that I was part of the initiative to construct integrated circuits, together with Einar Johan Aas and Oddvar Aaserud. This is now a significant industry in Trondheim.”

“Applied research is for me meaningless without an application,” says Dr. Kjell Arne Ingebrigtsen, and over the years I have been

more and more occupied by the application potential than with the research itself.

But Ingebrigtsen is not the man to rest on his laurels. “I am more interested in making something that has never been made before than in refining something that has already been invented.”

In 2004, Dr. Ingebrigtsen encouraged his PhD students to redefine the field of invasive ultrasound technology. He is also the sort of person who takes great pleasure in achieving things together with others.

In January 2011, at the age of 73, Ingebrigtsen and his project team came to NTNU Technology Transfer AS (TTO) with the a new invention; Capacitive Micromachined Ultrasound Transducer, CMUT. The grand idea is to do ultrasound imaging inside the blood artery walls, producing high-quality images. This could materially improve the

quality control of surgical procedures.

“There is no other competition as fierce as the marketplace,” he says, “and there is no victory as rewarding as a success in the market.”

“TTO is the fast way to market; there’s no doubt about that. I brought our idea to TTO to draw up a patent application and protect the concept. It has been a smooth process and they have been very competent.”

He has been down this road before. “Why did I never retire? Well, I am always looking for challenges and I love competition, so perhaps I can still be part of the final solution.”

A characteristic understatement indeed.

art + computers = love

The text on the poster on Professor Letizia Maria Jaccheri's wall leaves me in no doubt as to where her heart is at – as far as work is concerned, that is.

“La professoressa,” as Italian students would have addressed her, while Norwegians would mumble Letizia, invites me into her office and offers me a cup of tea. It's a minimalist office, with not much more than a poster to remind visitors that her field is computer technology. And even less that reminds us of art.

Technology and art; an unfamiliar combination for most of us, but for Letizia Jaccheri it is perfectly obvious that they belong together.

“Although as far as research is concerned, this didn't happen until I had really grown up; past 40,” she smiles and brings the tips of her fingers together. “That was when I became brave enough to go my own way.”

We are used to artists asking technologists for help, but Letizia Jaccheri thinks in the opposite direction. “I am a technologist who approaches the artists for cooperation: “I want something more than faster, cheaper

and better “things.” I want to use technology for other purposes – to convey messages; even art.”

Her focus on the cross-over between technology and art is something that she brought with her from the University of Pisa, where she studied in the 80s, and where there is a long tradition of studying humanities-oriented informatics, a field that broadly speaking encompasses language, data, music, electronics and art.

*“I want to use technology
for other purposes.
To convey a message;
even art.”*

GOING HER OWN WAY

“Innovation and social change don't happen only through the creation of new “things,” as she points out. As a technologist and

scientist, Letizia wants to be involved in generating new industries based on the potential of the new media.

“This means that it is too short-sighted simply to work together with existing industry and public-sector bodies. We are still just in the starting phase”; which is why she is wandering off in her own direction and asking different questions: “What I want is that ICT should be a discipline in its own right rather than just a tool for other disciplines!”

In this context, Letizia is an innovator at NTNU's Department of Computer Technology and Information Science. Working alone achieves nothing; she emphasises, and points to the importance of cooperation and networking. “I am very grateful for my professional contacts with colleagues here at the department, but also with like-minded “art technologists” like Andrew Perkins and Arne Rønning, as well as research groups such as Art and Media, and Musical Technology.





Her ambition is to set up a centre for art, culture and technology at NTNU, where PhD and MSc students and their professors could work together.

CULTURE CLASH

The telephone rings. She glances at the number and says that she should answer; it is her Norwegian husband, calling from the USA. Naturally it was love that brought Letizia to Trondheim. She first came to the city as a 24-year-old exchange student because of the snow: “I love skiing.”

For an Italian, the professor is rather quietly spoken, almost careful in her way of expressing herself as we talk – in Norwegian. But beneath this, another culture bubbles up. This was a factor when they decided to settle in Trondheim. “I said to my husband that living in Italy would be the death of him! Living in a foreign culture is always difficult. My husband would have had problems in adapting to Italian industry. He can scarcely get a word in edgeways at my family’s dinner table.” She smiles; their own family of two have become four, and she has to juggle the tasks of being a professor, wife and mother.

– As a student in Pisa my professors came

from all over the world, and half of them where women, and they where role models. Looking back at my time in Norway I realize that being a woman and Italian has been an advantage for me.

SOFTWARE IS POWER

Most people has the impression that computing is mathematics, but this is a misunderstanding according to Letizia. She profoundly believes that software is culture and therefore important. “Software has power; software is power.” It is fantastic to be able to understand how software works, and how it has helped to create the IT revolution. Software is like the words in a universal language.”

*“Software has power;
software is power.”*

To Letizia, the implication is that should be distributed freely, and she is passionate about open standards source code. “When I was studying information technology at the University of Pisa we were the only people who talked about open source code. Nowadays, more and more people

are thinking in the same way as we did then. Open source code is a key element of progress.”

“This is where we challenge TTO, which in many ways is doing just the opposite: applying protection and patents in order to create added value. Many people believe that the Technology Transfer Office exists to make you rich, but that is not always the driving force behind commercialisation.” She herself is an example of this. In other respects, she regards TTO as a supporter, and hopes that it will help when the centre for art and culture gets going, by providing start-up support for new companies based on our scientific results. This is a self-confident lady who faces me.

The telephone rings again. “Excuse me,” she says as she takes it. “Dimmie, Roberto?” she says in her gentle Italian. When she hears what her ten-year-old son wants, she goes back to speaking Norwegian. “Can’t you get on the Internet? Well, you need to turn the router off and on again. If that doesn’t work you will have to wait until I come home.”





LET’S TALK ABOUT TECHNOLOGY TRANSFER

NTNU’s academic staff of 2500 produces new knowledge
and interesting inventions. To what extent do these results actually
create benefits to society?

“Not nearly enough,” claim Karl Klingsheim and Eivind Andersen of NTNU Technology Transfer AS (TTO). Both have a proven track record in transferring research results into active use – rather than leaving them passive in a report or in the brain of a scientist.

Their mission is reflected in the name; Technology Transfer. TTO’s mandate is to bring knowledge generated by NTNU’s researchers into society in the form of new products and services that will make the world a better place. The premise is that innovation is the key to sustainable development.

WARM WELCOME

The door to TTO is wide open. True, you have to ring the doorbell to be let in, but that takes only a couple of seconds. Once you are inside, a cup of freshly brewed coffee and an enthusiastic listener await you. “We are partners, not consultants,” Andersen emphasises. “A consultant might spend a couple of hours on your project and then invoice you; we will stay with you for two or three years if necessary, and there is no charge.”

“Unfortunately, some people think they need a proven concept or a market-ready product before they can come to us. That is so wrong,” says Klingsheim with total conviction. “Actually, it is quite the opposite. You should come here with your idea when your mind is full of excitement and before you start considering all the obstacles. That’s

when you grab your lunch-box and walk over to TTO. We are always interested in new ideas, and we are happy to share our experience in a discussion about opportunities and potential. We cannot guarantee success, but no matter what eventually happens you can be sure of a cup of coffee, a pleasant chat and inspiration to keep going.”

“The most important thing is to come here early on,” chorus Andersen and Klingsheim. Neither of them is particularly scary; nor are any of their 16 colleagues.

ACCEPTING RESPONSIBILITY

Technology transfer is a complex but concrete task. If the idea you are incubating has commercial potential, TTO’s task is to find the smartest way of developing it. “We bring in industry and investors, and we interact with the people who will subsequently adopt the concept. This demands familiarity and credibility with provider and receiver both, which means that networks and personal relationships are keys to our mission; this is a matter of people more than technology. Unlike consultants, we accept responsibility and jump onboard with the researcher. We take on roles and obligations that academics don’t have time nor the inclination for. And we do this without reducing their control of the project.”

IS ALL THIS REALLY NECESSARY?

“Why all this fuzz about commercialis-

ing research results?” Eivind Andersen asks rhetorically. “The answer is that research has little value unless it benefits society in the form of new products and services. In most cases, this requires asserting ownership rights to our own ideas through patenting and pursuing cooperation with industry.”

If you agree with this sentiment, and you want to give your idea a chance to have a positive impact on others, TTO is waiting to hear from you.

“Of course you will have to spend time educating us about the idea and the technology behind it. We need to get to the core of it, because only then can we evaluate it properly,” says Klingsheim. “Needless to say, these discussions take place in strict confidence and the inventors run absolutely no risk by talking to TTO. If your idea gets the thumbs up in the initial screening, TTO will allocate resources and ramp up the pace,” says Klingsheim as he leans back in his chair.

A MEANS TO AN END

The first step may very well be to develop and file a patent application. “It is important to understand and appreciate that the patent system has been created with the sole objective to encourage and facilitate innovation,” Andersen explains. “Patent protection is a means to an end, that of providing sufficient competitive advantage to attract the resources needed for product development.”



Many researchers believe that patent applications cannot be combined with publishing their findings, but that is a misunderstanding. Both objectives can be achieved, provided the patent application is submitted before the results are published. This is precisely why Klingsheim and Andersen are so keen to avoid delays in the academic publishing by encouraging scientists to bring their inventions to TTO as early as possible. It often takes time to produce a good patent application. “To come here the day before you publish in ‘Nature’ is pushing it a little,” smiles Andersen.

COME RAIN OR SHINE

The two enthusiasts bubble with energy, just like the rest of TTO’s staff. Their task is to add energy to the process from the very first moment so that ideas are kept alive and inventors receive the support they need. “We are very careful not to drain energy from the researchers and then disappear,” explains Andersen. “We will still be here tomorrow, and the day after, come rain or shine. We stay with you until everything is ready to go, sometimes even longer, several years if need be. Conversely, in the event a project has to be terminated, for whatever reason, we will provide a detailed rationale behind TTO’s decision.”

THE DEAL

The end game of all projects is to close a deal, i.e. to convince an external partner to adopt the technology. “That is when we have to choose the most appropriate strategy: we either find a company willing to enter into a license agreement, or we establish a new company ourselves to commercialise the idea.”

TTO’s focus is always on maximizing the impact of research, so that the results benefit as many people as possible. “Of course, we do have to focus on financial aspects as well, but we never simply sell to the highest bidder unless we can be sure of the buyer’s genuine intent to bring the technology to market. We have to generate enough profit to cover the operational cost of TTO, but never at the expense of the dissemination of knowledge,” assures Klingsheim. Technology transfer costs money, and is a perpetual challenge to obtain funding for prototyping, patenting, marketing and sales activities.

“Despite our friendly appearance, we can be tough in negotiations with external customers and investors,” Klingsheim smiles into his white Father Christmas beard: “We make the extra effort and are always on the side of the researcher.”

FINANCIAL GOLDMINE?

The driving force behind technology transfer is not profit maximisation, neither for TTO nor for the inventors. “We have found that the driving force to most researchers is to be recognised by their peers and for their research to have an impact in some way, shape, or form,” says Klingsheim. That said it is, of course, both possible and desirable to make money from technology transfer, and net profits from successful projects are shared equally among the inventors personally, the research group involved, and TTO. Since most universities worldwide employ a similar practice, it is generally considered fair and reasonable.

NO STRINGS ATTACHED

“Our biggest concern is that the researchers hold on to new ideas too long before they come to us. An idea doesn’t have to be more than exactly that – an idea – to be evaluated, and talking to us doesn’t cost anything. Researchers don’t need to know anything about markets, patentability, etc – those are our areas of expertise,” Klingsheim points out. “You have the invention – we know the road.”



YOU HAVE THE INVENTION



WE KNOW THE ROAD





TTO AT CAMPUS

A few months ago TTO moved back home to Gløshaugen after several years "off campus." The new office is located on the top floor of Chemistry Block 1, offering a broad perspective on campus, Trondheim and beyond.



The benefit from physical proximity to NTNU's research is already noticeable, and the new work space is designed to inspire and energize both body and soul. In every aspect, TTOs new premises provide a fertile environment for nurturing ideas and transferring knowledge to the outside world.

18 employees at TTO represent a wide range of knowledge, experience and networks. What these people share is genuine curios-

ity and a strong sense of achievement every time they succeed in closing a deal with external investors or customers.

Chemistry Block 1, third floor. Waiting for you.

After six years of operation, roughly 25% of NTNU's faculty members are working with

TTO. TTOs ambition is to get in touch with the other 75%.

Everybody is welcome. There are no formalities or prerequisites – and a high tech coffee machine serves free drinks with no strings attached.

Chemistry Block 1, third floor. Waiting for you.



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