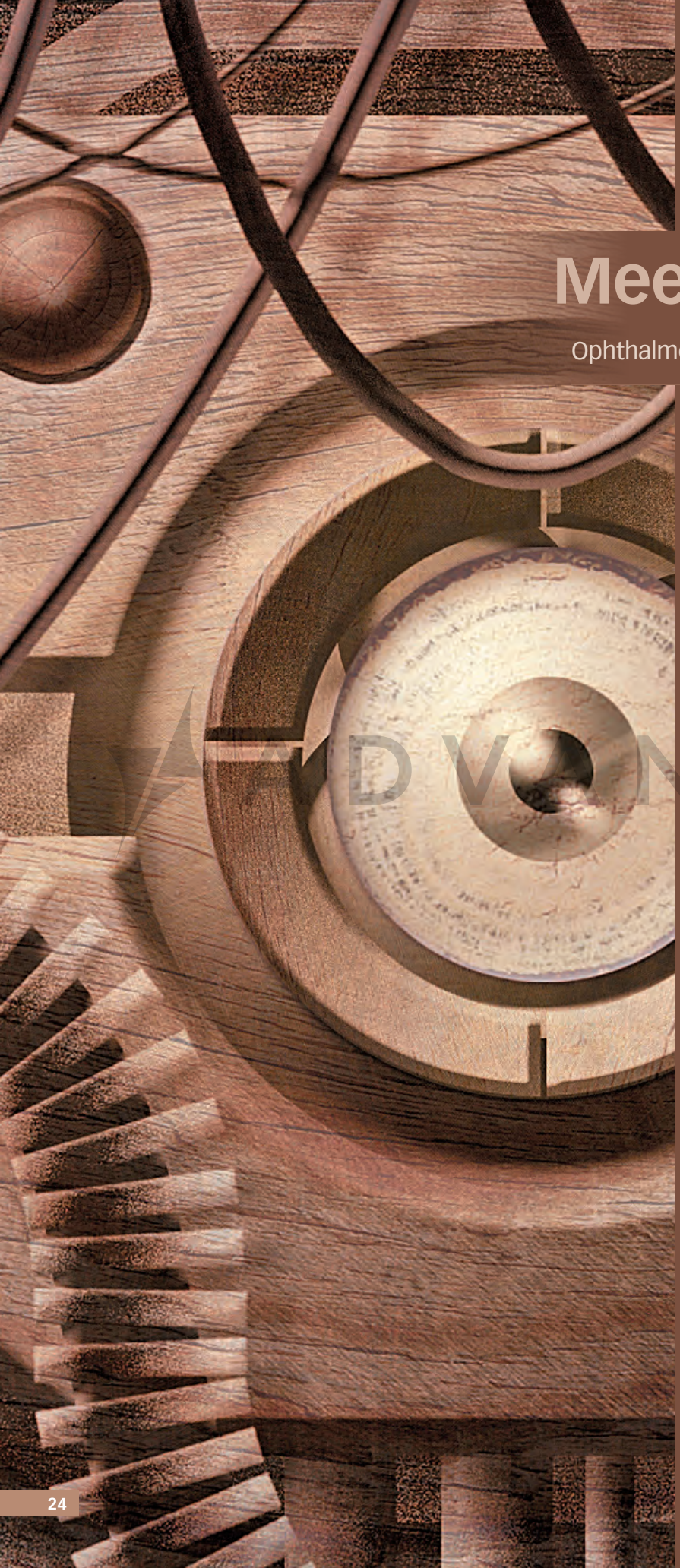

Meeting Review:

Ophthalmology Futures 2012 European Forum

By Felicity Thomas

In its first year **Ophthalmology Futures 2012 European Forum** played host to a diverse panel of key members of the ophthalmology community from industry, academia and financial investment practices, discussing the future of ophthalmological specialities. "This event was really aimed at examining where our specialty is going in the future and providing an opportunity for cross fertilization of ideas and development of ideas," asserted Mr Keith Barton (Consultant Ophthalmologist, Moorfields Eye Hospital, London, UK, and co-founder of the meeting).

The rationale for hosting such an event in Europe was the level of innovation happening within the market. "There's more innovation in ophthalmology and certainly more surgical innovation in Europe than anywhere else in the world," said Professor Kuldev Singh (Professor of Ophthalmology, Director Glaucoma Service, Stanford University, Stanford, USA, and co-founder of the meeting). "We felt there was a need to have such a meeting in Europe."

Focusing on glaucoma devices, refractive surgery, cataract and intraocular lens (IOL) technology as well as pharmaceuticals, the full day of discussions enabled professionals to gain an insight into the current innovations and opened up networking opportunities within the growing ophthalmology market.

As official media sponsors, we at *Ophthalmology Times Europe* will highlight some of the many stimulating and interesting discussions that took place during this inaugural meeting in Milan on 6 September 2012 in this Meeting Review.

Glaucoma in focus

Introducing the subject of glaucoma Mr Barton highlighted that, "Glaucoma is the most common cause of irreversible blindness in the world." Affecting a large number of people in both the Western world and developing countries there are still many people who are undiagnosed. "The population at risk of glaucoma will increase by 50% in the next 30 years due to changing population demographics," he continued.

"Elevated eye pressure in the most common type of glaucoma, open-angle glaucoma, is due to resistance

to aqueous humor flow through the trabecular meshwork," said Mr Barton. Currently, the standard practice of treating glaucoma is through pressure reducing medical therapy. However, these sorts of drops are required for the duration of a patient's life leading to compliance issues. Additionally, Mr Barton noted that many patients are unable to tolerate the medical therapy or simply cannot afford it.

"While you could argue with the logic behind our current treatment algorithms, it's quite possible in the future that minimally invasive surgery after medication or laser would obviate the need for more invasive surgery in many patients and will likely provide an alternative to medical therapy in many patients," he said.

Progression of glaucoma surgery

"There has been a slow evolution in traditional glaucoma surgery," added Prof. Singh. "We're doing tubes and trabeculectomies much as we did 10–20 years ago but there's now an explosion of new procedures that are combined with cataract surgery."

This new and exciting development in the field of glaucoma has led to a paradigm shift in the management of coexistent cataract and glaucoma. "Thus we have a slow evolution of the field for the surgical treatment of glaucoma, which is refractory to medical and laser therapy, but a rapid revolution in the treatment of nonrefractory glaucoma, which may be controlled with medications and laser, but cataract surgery offers the opportunity to perform a combined procedure with a novel technique to reduce the postoperative dependence upon glaucoma medications and to better control IOP." said Prof. Singh.

In agreement Mr Greg Kunst (Global Marketing Director for Glaucoma Surgery, Alcon, USA) said, "If you look at the market today there's a big gap that exists between medical therapy and surgical therapy. But clearly there is an emerging space for minimally invasive, safe glaucoma procedures."

Although the entire panel had not acknowledged major changes in their surgical practices over the past five years, there was a general consensus about the interest in new procedures and the potential of increasing safety through these innovations.

"These procedures are fantastic and are extremely tempting for surgeons because you can fall in love with them easily but we need data," said Professor Stefano Gandolfi (Ophthalmology Clinic, University of Parma, Italy). "We need randomized clinical trials that have been performed well and I would in particular encourage companies supporting these trials to comply with the guidelines that the WGA sets out when presenting the data. In this way we can evaluate surgical procedures much better."

A further point to this is the potential of growth borne out of the rising combination market of cataract and glaucoma surgeries. "Looking at markets, such as India and Asia, there is a much higher instance of narrow angle glaucoma, I think that the cataract market will grow dramatically as a treatment for glaucoma," said Professor Gabor Scharioth (Senior Consultant, Aurelios Augenzentrum, Recklinghausen, Germany).

"My concern in the trials with micro invasive glaucoma surgery (MIGS) is that very often they do the combined procedure and it's quite uncommon to see a straightforward comparison between the single procedures versus the companion procedures because the phaco always helps in decreasing IOP," countered Professor Stefano Miglior (Head of the Department of Ophthalmology, Policlinico di Monza, University of Milan Bicocca, Italy).

"So, for a practitioner in the developing world, to be able to address glaucoma in a safe and effective manner, there is certainly a clear need," added Mr Kunst.

Innovative devices

To highlight some of these innovative devices that could be driving factors for the evolution of the field of glaucoma, Mr Barton chaired a session where several companies for the USA and Europe (Implantdata Ophthalmic Products, InnFocus, EyeTechCare, Aquesys, Ivantis and Transcend Medical) showcased their innovations. Technologies included a 24-hour IOP monitoring device, ultrasound circular cyclocoagulation, novel polymer glaucoma stents and MIGS.

Refractive surgery

"I think there will be a sustained population personally for refractive surgery and that's going to influence what we do in terms of refractive surgery," said Professor Sheraz Daya (Chairman and Medical Director, Centre for Sight, London, UK) when introducing the topic of the future of refractive surgery.

"So, where are we now? Laser vision correction is fantastic but is not for every patient," he continued. "There are customized treatments, some better than others, and overall I don't think anyone would argue about outcomes being excellent. So, is it really as good as it's going to get?"

What does the future hold?

"I think the best is yet to come," said Professor Julian Stevens (Consultant Ophthalmic Surgeon, Moorfields Eye Hospital, London, UK). "What has been interesting over the last few years is there's been a move away from laser refractive correction for those in their 50s to lens implants, as these have addressed presbyopia, offering something that laser refractive can't or is more difficult to deliver. However, one of the key things I think is that technology is continuing to progress."

According to Professor Michael Knorz (Medical Director, CEO, FreeVis LASIK Group, Mannheim, Germany), "The most important tool to introduce right now is the femtosecond laser

for refractive lens surgery or cataract surgery, because with this tool we will improve tremendously on the outcome prediction of the IOL. What we still need and what I think will develop in the future is improvements in IOL technology."

Professor Gerd Auffarth (Consultant, International Vision Correction Research Centre, University of Heidelberg, Germany) was also in agreement with the rest of the panel. "I don't think refractive surgery has reached its peak," he said. "It has become mature, accepted and has evolved to a point, but it will further develop and evolve. We have a variety of possibilities, which are completely different — lens based, corneal based, laser based — so we have diversified this field of refractive surgery and this will diversify even more."

However, one point that Prof. Auffarth stressed was the need to look at patient attitudes towards refractive surgery. "There is a different attitude towards eye surgery compared with the first generation of patients that underwent refractive surgery and I think this is an ongoing process. It's influenced by technology and the demands of patients and, of course, by economics," he said.

Customization of treatment was highlighted as being important in the future of refractive surgery and as such, diagnostic tools were discussed. The whole panel agreed that biometry accuracy needs to improve and incorporation of diagnostic tools should be considered necessary for the femtosecond laser.

Finishing off the session Prof. Daya broached the subject of economics and its relationship with the refractive surgery market. An interesting point raised by Prof. Auffarth was the commoditization of LASIK. "We should learn from plastic surgeons for example, who have pretty high prices but have much more growth in numbers than we see with LASIK. So, part of this issue is actually not really correlated to the economy but to mistakes we make as not being professional in understanding what drives the market," he said.

Corneal inlays

"The idea of adding tissue rather than removing tissue in order to achieve refractive change has been of great interest but has never been mainstream. It has never found commercial success because of issues with the biocompatibility of materials, an understanding of the necessary optics and difficulty in precise, repeatable surgical placement," said Prof. Stevens. "However, these have all been addressed recently."

Presenting how the corneal implant sector has evolved in a number of different avenues were specialist companies working in this area including AcuFocus, Refocus Ocular Europe and ReVision Optics. All aimed to allow better focusing of light onto the retina and an improved range of vision.

Cataract innovation

"As we have heard from the refractive session, we know that people are moving away from using lasers quite so much in many patients," said Professor Richard Packard (Senior Consultant, Prince Charles Eye Unit, Windsor, UK). "So, we want to have great lenses out there to offer to our patients."

IOL technology

In response to the need to improve lenses, while AkkoLens International, Anew Optics discussed their innovative lens options. Technolas Perfect Vision highlighted the advancement in enabling technology, which improves surgical accuracy and precision especially in what was agreed to be the growth market, senior presbyopia.

Reimbursement: Driving the industry?

"I think innovation improves lives but you also want a return on your investments so ultimately there has to be a willing payer," said Professor Paul Rosen (Consultant Ophthalmic Surgeon, Oxford Eye Hospital, Oxford, UK). "So, what you have to do is appeal to the common funded system. I think if there's a country with co-payments that makes life a lot easier and perhaps maybe essential for new product introduction."

To debate this a panel of both surgeons and manufacturers were asked how they would introduce a new technology into a healthcare system and what are the challenges of such an introduction?

"It's very interesting when you think about the introduction of a technology because it really goes back to what that individual technology is designed to deliver," stated Mr Andy Stapars (Director, Reimbursement and Market Access, Abbott Medical Optics, USA).

To iterate his point, Mr Stapars described a decision by Medicare in 2005 which enabled patients to have a basic cataract procedure paid for but if they wanted to have a presbyopia correcting lens implanted the patient would need to pay for the difference themselves. "That policy has actually been very important to help drive the penetration of the market to the current levels of about 8% in the US. So, it's an understanding of the market and of what the medical needs are that are served by the technology and then it's balancing those two factors," he asserted.

According to Prof. Daya, "There are two different categories. There are ones that are used for medical need and vision restoration, and another group of products that are nice to have in addition to the medical need or as a purely elective procedure for vision correction purposes. So, in terms of the industry approaching a marketplace, I don't think that co-payments are a good way to go at all. I think they mess up the whole system."

For Professor David Spalton (Consultant Ophthalmologist, King Edward VII Hospital, London, UK) the benefit to the patient should be the overriding factor when introducing a

new product not the benefit to the surgeon.

"I think the more precise question is what shall be paid? I always say innovation shall be reimbursed in the price level that reflects the value they bring and the innovation they bring," affirmed Mr Frederic Ernst (Director Market Access Europe, Santen, Germany).

In discussing the introduction of femto phaco in France, Professor Beatrice Cochener (Professor, Chairman, Ophthalmology Department, University Hospital Brest, President, French Academy of Ophthalmology, France) stated that the culture must be changed first.

"We are faced with first and foremost the need to define what is refractive surgery, what is true cataract surgery, what will be the place of premium lenses, what will be the place of femto to our government and we realize that the definition of cataract needs to be addressed also," she emphasized.

The situation in Finland is slightly similar to that of France according to Professor Kaarina Vannas (Hospital Mehiläinen, University Eye Hospital, Helsinki Private Eye Hospital, Helsinki, Finland). "Nowadays, the problem is that the technology and real life goes in different or opposite directions. We have all these new technologies but then we have less and less money," she said.

"I think that co-payment is the only way of promoting innovation because otherwise if we wait for the government finances it will take years and years and years," added Professor Boris Malyugin (Professor of Ophthalmology, Deputy Director General (R&D, Ed), S. Fyodorov Eye Microsurgery State Institution, Russia).

Summing up the session, Prof. Rosen said, "I think that the role of co-payments may be very important but perhaps controversial. When we are introducing a new technology we have to consider whether it's a medical need or it's a nice product to have but ultimately, whatever you do, it has to be shown to work."

Ophthalmic pharmaceuticals

The pharmaceutical industry faces challenges not only in the form of generics but also in 'off-label' uses, noted Professor Carlo E. Traverso (Professor and Chairman, Clinica Oculistica Di.N.O.G.M.I., University of Genoa, Italy and President of the European Glaucoma Society), in his introduction to the pharmaceutical focused session.

Again in this session a combination of academics, surgeons and industry discussed the challenges facing pharmaceutical innovation in a competitive world.

Challenges

"I guess the main cause of the lack of innovation has been the introduction of prostaglandins and the general feeling that this was the ultimate solution to glaucoma and the problem was fixed," said Professor Ingeborg Stalmans (Head of the Glaucoma Unit, Ophthalmology Department, University Hospitals, Leuvens, Belgium).

Dr Schalon Newton (VP, Strategic Marketing and Business Development, Santen, USA) discussed the industry point of view of the challenges in the industry. "We have to look at who we are innovating for and what is the innovation we are seeking. So, there's the element of science delivering new, effective therapeutics that meet unmet medical needs, but we have to understand that we have to take into account who pays and who benefits," he said.

There is the added issue of the ageing surgeons, noted Prof. Traverso, as there is a lack of money being invested in training ophthalmologists. "This is indeed a challenge," said Professor Anders Behndig (Professor, Department of Clinical Sciences/ Ophthalmology, Umeå University Hospital, Umeå, Sweden), "Perhaps I'm overly optimistic about this but I think that good healthcare and good ways to treat these difficult diseases will eventually become available to people over time."

Professor Gabor Holló (Professor of Ophthalmology, Semmelweis University, Budapest, Hungary) interjected, "In many European countries in the European Union, of course, generics are pushed because of the low price but at the same time they are not sufficiently controlled for quality. They are considered equivalent but the evidence for that is limited."

Off-label use of drugs is a major problem in Prof. Holló's opinion as even though there are potential advantages there are risks associated with it, such as mistreatment or poor business.

"So, certainly one great help would be political pressure to get funded for things that are shown to be effective," agreed Prof. Traverso.

"I think we need to target minimally invasiveness with the pharmacological products that we use," said Professor Jorge Alió (Section Head, Institution Ophthalmology of Alicante, Vissum, Spain) in describing his perception of the innovation in the future of pharmacology. "We need to target better compliance by patients, so there is a need for medications that will only require one drop a day. In my opinion, evidence based use of the medication is the way that doctors have to move in order to benefit the patients."

Currently available innovations

In response to the threats of generic competition, company representatives from Alimera Sciences, Amakem Therapeutics and Ocular Therapeutix highlighted new modes of action and delivery methods showing that there are advancements to be made.

The challenge, as raised by other companies and ophthalmologists in other sessions, to giving patients access to these advancements — regulatory barriers and reimbursement quandaries.

Regulatory environment

"We all agree that a regulatory system is necessary and it clearly has the right ideals but unfortunately the implementation is part of the system that really needs addressing," affirmed Professor John Marshall (Frost Professor of Ophthalmology, Institute of Ophthalmology, University College, Moorfields Eye Hospital, London, UK).

"The medical device industry is turning more and more risk averse," said Mr. Jim Mazzo (President, Abbott Medical Optics, Senior VP, Abbott). "If we remain fearful of this risk and of an increasingly litigious environment, we will continue to see sharp declines in the pace of innovation."

However, the panel also agreed that Europe had changed significantly over the years. "We always used to look at Europe as the opportunity, from a company perspective," continued Mr Mazzo. "However, the belief that once you have approval in Europe you can automatically launch it is a fallacy because you still need to go to the individual countries."

Prof. Rosen agreed with Mr Mazzo implicitly. "People assume that Europe is one unified market and it's not, it's a very heterogeneous market," he said.

"For most companies the best market is still the US when you talk about pharmaceuticals, whereas for surgical devices, like IOLs, it is probably the opposite," asserted Dr Baldo Scassellati Sforzolini (VP Global Drug Development, Bausch + Lomb, USA). "European countries really need to implement regulations the way they are written rather than interpreting to local law. Hopefully there will be a single clinical trial application that makes starting studies in Europe easier."

This opinion was mirrored by that of Mr Steve Pakola (Chief Medical Officer, Amakem Therapeutics, Belgium). "I have to say that over time the upsides of working with the FDA have become very apparent to me in different settings. Certainly from the medicines side there is a certain assurance of simplicity of having one main regulatory body for that region you can work within a very prescribed fashion," he said.

Sharon Tonetta (VP of Global Regulatory Affairs and New Product Development, Bausch + Lomb, USA) added, "I think there may be two caveats and if you are a larger company and you have a well established clinical and regulatory department within various countries, it gives you a few more options."

In Prof. Alió's opinion there are many more pressures now on clinical studies as a lot more money is invested and more obligation from the hospital or centre is required both towards the company and patients. "So, obviously studies have to be well controlled, and regulated with an ethical perspective of the practice and they need to be more cost effective. With this in mind, it is becoming more and more difficult in Europe to perform good clinical studies," he added.

Speaking about growth in emerging markets, Mr Mazzo stressed there are perils. He noted that in China there is favouritism towards local companies and in India there is the potential issue of manufacturing and being a local supplier of employees, so there is more local competition. "The challenge now is that we do launch in Europe but it's not as fast as it once was. There's no such thing as unregulated Asia Pacific markets. The US is pushed back farther and Japan hasn't accelerated its growth," he said. "So, the pace of innovation is challenged by getting the products approved, reimbursed and all the while the patients are getting older. How do we introduce products to meet the physicians' needs?"

Prof. Rosen questioned the issue of intellectual property (IP) when a project is funded to which Prof. Marshall replied that it is a huge issue. "IP is a huge problem and it varies in different countries. Welcome Trust has taken a more realistic attitude and it depends on the grant. It either says no IP, or it's up to the developers and the university. I'm sure that if you have a huge success then they will want their share. So IP division is a real issue that needs to be addressed with startups," he asserted.

Gaining traction in the ophthalmic industry

"It always amazes me how in relation to startups, the innovators blame the environment and the environment obviously looks to the inadequacies of the innovators," said Prof. Marshall. "Over the years, it seems to me, there have been certain key elements in terms of raising funds and getting a startup to a point where you go to trade sale. The first obvious element is funding."

Funding for private companies

Speaking about his experiences in raising private funds Mr Michael Mrochen (Founder and CEO, IROC Science to Innovation, Switzerland) explained the importance in believing in the product. "The biggest problem at the beginning was everyone told us that's the most stupid thing we ever heard doing corneal crosslinking. So, there was a big concern that you know you have to believe in the product you're going to deliver," he said. "Also, we had the situation that corneal crosslinking as a basic application has no IP so it's publc knowledge. So, IP protection, freedom to operate is key."

For Mr Ed Peterson (President and CEO, AcuFocus, USA) the route to gaining funding was very different. "We came up with the Innovation Factory," he added. "We went to three different venture groups and said would you like to join us? We'll create the product we'll keep the same engineers and research people, and so on, so we don't have to hire people each time." He noted this approach was successful as it didn't involve going out and finding new people to believe in the group.

"I believe innovative startup companies will need to find different ways to getting financed in the medium term as what is left of venture capital money is shifting towards bargain hunting or later stage companies," added Mr Jean-Marc Wismer (CEO, Sensimed, Switzerland). "And some radically innovative projects will have a very hard time getting finance at all in the future. It's not only money. It is also the longer and more complicated route to market, compounded by slower adoption due to tougher economic conditions, which requires even more money and strong capabilities in industrialization, regulatory, clinical trials, reimbursement or distribution. In order to survive in this environment, the innovator will need to attract and to finance people who have done it. That's a whole different spectrum of competencies that you need to get on board than just the founding team. The transition from the initial innovator to a professional management team covering all these operational functions is key for all companies but even more so for a radial innovation company."

Acquisitions: The ins and outs

"A key business plan and exit strategy for many small companies has been acquisition by one of the bigger companies so the product is marketed and distributed to the widest possible market. Nowadays, with the big hurdle of cost of obtaining FDA approval and also international approvals globally, it's very hard for startups to do that through organic growth," said Prof. Stevens. "So, acquisition has become more and more important as the hurdle of international approvals has gotten higher and higher."

According to Mr Leonard Borrmann (Divisional VP, Research & Development, Abbott Medical Optics, USA), the track record of a CEO is important. "A venture capital, when they're looking to make an investment they're looking for someone who has a track record in raising money, a track record in creating a vision, a track record in being able to build a team that can be successful and to move it forward," he said. "So, the CEO, from the point of view of keeping the management team together, holding that vision and managing the team through that transition is critical. The people are part of what you're investing in, not just the technology."

"I really think the talent of management and specifically the CEO is critical but what really matters, is innovation, because companies look for this but are less and less willing to pay for incremental innovation," emphasized Ms Johanna Knospe (VP Business Development and Product Planning Europe, Santen, Germany). "And basically then to look how has it been validated? Is there a clear pathway to approval? Can we actually see milestones for the journey? Then thirdly, is the IP solidly protected? Actually it's about alignment and acquiring the company's view and the startup company's view because if there is some big mismatch in these perceptions then I really think it will be a difficult journey after the deal has been done."

A great event, one to be repeated in Amsterdam 2013

The meeting was brought to a close by Mr Barton and Prof. Singh. Mr Barton summed up the views of many of the attendees, "I've learnt a lot about the industry. Really lively panels today. A lot of questions asked. We've had some answers."

And in reference to next year's event, Prof. Singh expressed that while the **Ophthalmology Futures European Forum** will evolve… "Our goal is not necessarily to be as big as possible but rather keep the quality and informality of the discussions that made this year's event so informative and enjoyable for those who attended."

We look forward to the 2013 event in Amsterdam.

A special thanks was given by Mr Barton and Prof. Singh at the end of the day to all the participants in the event, particularly the chairs and panellists, and all the sponsors. Thanks were also given to the organizational group including Abigail Mackrill (Operational Director, Ophthalmology Futures, UK), Brigid Barton (Director, Vision Futures, UK) and Louise Richards (Managing Director, Williams Blake Reay, UK) and her meeting support team.