Annual Report 2019

Erasmus MC TTO
Erasmus MC’s TTO Mission is

“Impact on Society, through Knowledge Transfer”

Our Strategic Goals are

- TTO is the partner within the Erasmus MC community for managing valorization
- TTO is an aligned professional team, bringing Erasmus MC derived IP to society
- TTO demonstrates its contribution to Erasmus MC’s socio-economic impact
- TTO shall operate within clear boundaries
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Preface

Normally, we would present here a contribution from our Dean.

However, while finalizing this Annual Report the Covid-19 crisis emerged.

As a consequence, all capacity and attention goes out to managing the medical and educational consequences for Erasmus MC.

Therefore, this year there is no preface from the Dean.

Thijs Spigt
Director TTO

Prof. dr. J.P.T.M. (Hans) van Leeuwen, Dean and Vice-Chairman of the Board
Major achievements in 2019:

- Signature of Collaboration Agreement with Harbour BioMed in Shanghai as part of the 40th anniversary of the city connection Rotterdam-Shanghai

- Harbour BioMed raised another $85 Million in a Series B2 financing round

- photonamic GmbH &Co acquired majority in Photonics Healthcare which created new funds for further development of COMET

- €5,40 Million was awarded to Erasmus MC in the Health Holland TKI funding program for PPP-Allowance

- €0,9 Million was received in royalty income

- 21 license deals were signed

- 1 spin off and 2 spin outs were established
1. Intro

2019 was the first full year with the new mission and strategy for TTO. The implementation of it turned out to be a rough road, not only because of the necessary change in our own attitude, but also because—as a service department—it is very difficult to sell ‘no’ to a customer, that got used to go to TTO for a specific service, without being able to offer an alternative.

Apart from that struggle, three people left the legal team, due to several reasons, while the total workload did not decrease significantly. As a consequence, the waiting times for contract evaluation continued to be long, and grew. But, at the same time, the legal team also welcomed two new members and worked hard to find a way to mitigate the cues by setting up a DIY-CDA and template documents for Health Holland subsidies. Moreover, regular training and professionalization of the team is always required, but even more so while the many changes have an impact on the experience within the technology transfer business. Several members attended regular courses and workshops and one member graduated from the Grotius Academy, specializing in corporate transactions, which shall help to facilitate company formation when appropriate in the commercialization path.

The business development team also saw three people leave TTO, while at the same time they needed to start implementing the strategic goals next to the day-to-day activities. With a stronger focus on bringing projects to the finish line (i.e. either a signature or closure of the project), and a smaller team, other vital elements of the business development process, such as scouting and screening, did not get the attention they deserve as finalisation of license deals needs a lot of concentrated attention.

The support team was stable and supported the whole TTO-team. The team not only got actively involved in the Participatiewet, to support a person with ‘a distance to the labour market’, but also supported new personnel in finding their way, and in parallel was involved in the Erasmus MC-wide introduction of a new Intra- and Internet environment. Therefore, implementation of TTO strategic goals stagnated, and not all plans could be executed according to plan.

A recurring theme is the lack of knowledge of Erasmus MC employees about TTO activities. This is partially due to the fact that Erasmus MC is a large organization involved in diverse matters (research and education on one hand, and clinical care on the other) which makes it difficult to reach all employees and convey a message that facilitates awareness and clarifies the benefits of connecting with TTO. It is still the case that people underestimate the value and potential of their ideas and inventions, for which it is important to connect with TTO in an early stage of development.

From Table 1 it can be concluded that we spent less time on internal awareness in 2019. This has a negative effect on understanding technology transfer business and the awareness of the activities conducted by TTO, and the relevance of such activities to the Erasmus MC community. Therefore, we have decided to develop a communication plan to better streamline and coordinate our awareness activities, and--consistent with our strategic goals-- demonstrate TTO’s contribution to Erasmus MC’s socio-economic impact. A small team was set up to create this plan and to define new initiatives. Priority was given to Erasmus MC’s new intranet and internet, which needed a lot of attention to be filled with correct information. Other aspects are still being developed and include the organization of workshops and symposia, development of new marketing materials such as leaflets and brochures as well as setting up meetings with research teams to provide face-to-face presentations and training.
One event to mention is the first Inventor’s Day, where TTO invited all researchers to drop by for a drink and share with us and each other their valorisation experiences. We will continue to organize such events.

Table 1: Exposure

<table>
<thead>
<tr>
<th>Type</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal awareness sessions</td>
<td>34</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>16</td>
</tr>
<tr>
<td>(Inter)national visits and meetings hosted</td>
<td>7</td>
<td>11</td>
<td>10</td>
<td>31</td>
<td>11</td>
</tr>
<tr>
<td>Conferences and Networking events</td>
<td>24</td>
<td>63</td>
<td>54</td>
<td>45</td>
<td>35</td>
</tr>
<tr>
<td>(Inter)national Presentations</td>
<td>4</td>
<td>9</td>
<td>21</td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

Some of the highlights of 2019 are:

At the pre-competition to the Global Entrepreneurship Summit 2019 in The Hague, three spin outs of Erasmus MC were selected to present at the Academic Start up Competition, and one made it to the finals: Amphera. Amphera was invited for an entrepreneurial fact finding tour through Silicon Valley organised by the Consul-General of the Netherlands and accompanied by the State Secretary of Economic Affairs.

TTO, together with Erasmus MC Holding, was involved in the creation of a new policy related to income tax of individual inventors. Researchers may be eligible to get shares in a company as part of their fair compensation regulation. As this might impact their personal financial situation, Erasmus MC is now also offering tax advice to inform those researchers what implications the ownership of shares could have on their income tax.

Another tax issue became apparent and TTO needed to revise the procedure with respect to the inventor’s fair compensation pay-out: in the past, researchers could waive their share in the distribution of revenues in favour of their department, however, because this is seen as part of a researcher’s income, the tax authorities demand that income tax is paid on the inventors.

The Dean requested TTO to support the set up of an entrepreneurship course. Together we came to the conclusion that an entrepreneurship course as such would not fulfil the needs of our audience: a researcher will hardly ever leave his/her academic position to become an entrepreneur. However, the researcher should get a good understanding of the challenges, tasks and duties an entrepreneur will face during the set up of a company. Therefore, together with Rotterdam School of Management Executive Education, we created a two-day programme under the title: “Entrepreneurship Awakening”. The pilot was evaluated very positively. The course will be repeated regularly.

The municipality of Rotterdam celebrated its 40th anniversary of the city link to Shanghai. A large delegation from Rotterdam including Erasmus MC was invited to join the festivities. Mayor Aboutaleb visited the labs of Harbour BioMed and our CEO, Professor Ernst Kuipers, signed an MoU with the President and CEO of Harbour BioMed, Dr. Jingsong Wang, resulting in a stronger collaboration between Erasmus MC and Harbour BioMed (see cover).
TTO Erasmus MC is recognized as an active member within the Technology Transfer community. In 2019, we were invited as a keynote speaker at the Board of Director’s Meeting of the Uniklinik Köln. They wanted to learn from our experience on ‘technology transfer’ as a tool to stimulate innovation. We were also invited to present at a topic day at the LES Benelux, Licensing Complex Clauses: Dealing with Improvements, academic perspective.

Two members of TTO were invited to respectively the Advisory Board for Science and Innovation of the Brain Foundation, and the Board of Licensing Executive Society (LES) Benelux.

Furthermore, TTO was involved in regional and national discussions that are not directly linked to ‘knowledge transfer’, but do have an ‘impact on society’ by improving the infrastructure for valorisation.

- TTO was (and is) actively involved in the discussion for the development of the Erasmus MC Campus
- TTO actively participates in national discussions on Societal Responsible Licensing
- TTO was actively involved in the national discussion on standardizing and balancing the Standard Evaluation Protocol, mainly with respect to valorisation.

Finally, an active group within TTO organizes layman lectures for our own team from professors in the organization on their research topics. In 2019 we had two of those lectures and will continue to organize them in the coming years.

2. TTO

2.1 Business Development

In contrast with 2018, 2019 has been a fairly tumultuous year for the BD team. Three of our team members left the organization in the first six months of the year. This resulted in multiple handovers and increased workload for part of the year. Fortunately, we were also able to hire two new Business Development Managers to bring the team back to full strength. The number of FTEs year end 2018 was 6.3, this dropped to 5.3 in March and with the new hires we reached a total of 5.8 FTE from July until the end of the year.

The number of new Invention Disclosures (IDs) has continued to drop in 2019. The root cause of this decline is difficult to determine, but likely it is linked to the continued stronger focus on making license deals for our existing projects and as such a reduced effort in scouting for new ideas.

As mentioned in the annual report 2018 a further improvement of the pre-selection process is also likely to contribute to this effect, as we no longer register projects that do not require follow-up.

The number of Invention Disclosure Forms (IDFs) with a signature from a department head has also dropped for the first time. Although there is no direct link between the projects in a year and the signed IDFs (as this might happen in different years), the reduced number of signed IDFs requires our attention as these projects are most likely to result in a deal at a later stage.

One might assume that, if the number of IDF’s goes down, also the number of patent applications would go down. Although there is no direct link between an IDF and whether or not such invention would be patentable, it is uplifting to see that the number of patent applications has gone up slightly (+1).
Table 2: TTO-Business Development KPIs

<table>
<thead>
<tr>
<th>Key Performance Indicator</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invention Disclosures (IDs)</td>
<td>96</td>
<td>113</td>
<td>85</td>
<td>75</td>
<td>62</td>
</tr>
<tr>
<td>IDFs Signed</td>
<td>23</td>
<td>34</td>
<td>29</td>
<td>29</td>
<td>21</td>
</tr>
<tr>
<td>Patent Applications</td>
<td>14</td>
<td>20</td>
<td>11</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>Patents Granted</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Total Patents in Portfolio</td>
<td>61</td>
<td>80</td>
<td>82</td>
<td>74</td>
<td>91*</td>
</tr>
<tr>
<td>New Licenses</td>
<td>17</td>
<td>11</td>
<td>13</td>
<td>16</td>
<td>21</td>
</tr>
<tr>
<td>Royalty Income</td>
<td>€ 507,865</td>
<td>€ 392,624</td>
<td>€ 278,137</td>
<td>€ 2,139,377</td>
<td>€ 900,573</td>
</tr>
<tr>
<td>Additional Added Value</td>
<td>€ 3,135,770</td>
<td>€ 11,515,425</td>
<td>€ 1,208,866</td>
<td>€ 781,510</td>
<td>€ -</td>
</tr>
<tr>
<td>Spin-off companies</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
from the group of Roland Kanaar. One of these resulted in a European patent application in July. The other invention is still under evaluation.
Following the filing of a patent application in connection with the invention disclosure from Miao-Ping Chien in 2018, the inventor, Erasmus MC TTO and Oncode participated in the Venture Challenge of Life Science@Work in 2019.

2.1.2 ZorgInnovaties010
Together with the municipality of Rotterdam we have partnered to develop ZorgInnovaties010. The goal of this program is to disseminate knowledge from Erasmus MC to society. ZorgInnovaties010 activities span a wide range from scouting and screening to commercialization of innovations in care. Awareness on bringing care innovations to TTO is growing more and more every day. Apart from our awareness sessions, we also gained a lot of exposure in 2019 via Erasmus MC’s Strategy Days (Koers23), intranet and LinkedIn. Furthermore, positive feedback from employees who were supported by TTO with their IP questions, contributed to the increase of new care innovations. Last but not least, the official opening of the Create for Care lab in June 2019 also helped tremendously to boost attention for care innovations.

The impact of ZorgInnovaties010 is increasingly visible as approximately 30 percent of new licenses that were signed in 2019 came from this line of Business Development. Moreover, two spin-outs were established based on know-how from care innovations. Ideas for care innovations are mainly in the field of low-tech tools for nursery and software solutions.

2.1.3 Spin-offs and Spin-outs
Within TTO we clearly differentiate between a Spin-off and a Spin-out: a spin-off is a company formed having Erasmus MC participation as a shareholder, whereas a spin-out is a company that is established with the goal to develop and further commercializing Erasmus MC’s IP, but without Erasmus MC as shareholder.

This year TTO supported the establishment of 1 spin-off and 2 spin-outs.

**Surguide - Improving Surgical Oncology**

SurGuide is a MedTech company, developing a platform technology for tumor resection control. The platform, MarginGuide, is based on Raman spectroscopy, which can distinguish tumor from healthy tissue. MarginGuide will be used during surgery to inspect if there is any tumor tissue close, or on the surface, of the resected tissue. Having access to this immediate information, a surgeon can decide whether s/he needs to cut away more tissue to get to a better result.

Erasmus MC O&O Holding holds shares in the company.
Tap2clean - SMART alcohol dispenser

Preventing bloodstream infections through better hand hygiene. Research within Erasmus MC has shown that hand hygiene protocol is not always properly complied with. The compliance with the protocol for cleaning hands is often too short or incorrectly executed. This results in a chance for bloodstream infections in patients. In collaboration with researchers from the Erasmus Medical Centre, a feedback system has been developed to make doctors and nurses aware of the hand hygiene protocol and its implementation. The end goal is that better hand hygiene prevents infections through the hands of doctors and nurses. TTO provided start-up Tap2clean with an exclusive know-how license to commercialize this hand hygiene product.

Trackcura - Track, Trace and Tackle

Current research shows that in the field of dermatology approximately 50% of referrals by 1st line care (general practicioners) is not optimal. In 25% of the referrals there are serious deviations that actually have an adverse effect on the quality of care for the client. Erasmus MC department of dermatology has developed a tool that performs automatic analysis and processing of referral data. The general practitioner is offered concrete and relevant feedback and support (tailor made educational material) to improve his or her referrals in dermatology. TTO provided start-up Trackcura with an exclusive know-how license to commercialize this tool.

2.2 Legal

Despite a difficult year with many personnel changes, the number of contracts evaluated (reviewed and/or negotiated) by the legal team at TTO results in a total of 1353. This includes both cases submitted by the research community, but also support to our Business Development team in drafting and negotiations legal terms of license agreements on Erasmus MC’s intellectual property, as well as input in the shareholder agreements for spin-off companies established as a result of the valorisation activities of our office, and provide advice on matters related to licensee compliance. Furthermore, the legal and BD team partner in several occasions as a result of research contract discussions that result in a business opportunity related directly or indirectly to Erasmus MC IP.
### Table 3: Production of TTO Legal team

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clinical Trial Agreements</strong></td>
<td>184</td>
<td>214</td>
<td>320</td>
<td>287</td>
<td>245</td>
</tr>
<tr>
<td><strong>Material Transfer Agreements</strong></td>
<td>107</td>
<td>198</td>
<td>205</td>
<td>184</td>
<td>169</td>
</tr>
<tr>
<td><strong>Confidentiality Agreements</strong></td>
<td>117</td>
<td>141</td>
<td>141</td>
<td>157</td>
<td>143</td>
</tr>
<tr>
<td><strong>Grant/Consortium Agreements</strong></td>
<td>122</td>
<td>95</td>
<td>198</td>
<td>216</td>
<td>209</td>
</tr>
<tr>
<td><strong>Research Agreements</strong></td>
<td>82</td>
<td>130</td>
<td>140</td>
<td>214</td>
<td>198</td>
</tr>
<tr>
<td>- <strong>Inter-institutional</strong></td>
<td>-</td>
<td>59</td>
<td>85</td>
<td>106</td>
<td>108</td>
</tr>
<tr>
<td>- <strong>Commercial</strong></td>
<td>-</td>
<td>71</td>
<td>55</td>
<td>108</td>
<td>90</td>
</tr>
<tr>
<td><strong>Consultancy Agreements</strong></td>
<td>68</td>
<td>56</td>
<td>54</td>
<td>54</td>
<td>61</td>
</tr>
<tr>
<td><strong>Data transfer/database/processor's agreements</strong></td>
<td>-</td>
<td>32</td>
<td>31</td>
<td>83</td>
<td>127</td>
</tr>
<tr>
<td><strong>Other agreements</strong></td>
<td>299</td>
<td>305</td>
<td>414</td>
<td>229</td>
<td>201</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>979</td>
<td>1171</td>
<td>1503</td>
<td>1424</td>
<td>1353</td>
</tr>
</tbody>
</table>

* “Other agreements” are for example letters of intent/commitment, service agreements, speaker agreements and amendments to existing contracts.

#### 2.2.1 Team and Results

During the last 2 years the legal team of TTO has faced personnel issues, and by the end of 2019 of a total of 9 counsels (of which 2 started in 2019) 3 left within a short period. This created a bottleneck with respect to the workflow and a delay in responses. Furthermore, the seniority in the team has changed and new members are either at junior level or come from different business fields despite of their experience. Therefore, the new members of the team require training and coaching to get up to speed; and that takes away capacity of the remaining people; resulting in yet longer waiting times.

With the support of external counsels we managed to continue to provide support, but with heavy difficulties on timely responses. Upon evaluation of the circumstances, the office has changed the approach to hiring more senior staff, and at the same time defining standard templates for simple contracts (like CDA’s) that departments can use themselves, in order to speed up the evaluation process.

This new approach shall facilitate addressing the expected increase in demand for contract reviews and negotiations in the coming years.

We expect to reach a stable situation by end Q2 2020 when the team will be completed, up to speed, and some standardization in documents of frequent use start to roll smoothly.

One measure to alleviate the workflow and facilitate processes, is the implementation of a template for the mutual exchange of confidential information, the so called CDA (Confidential Disclosure Agreement). The locked template covers standard clauses and only a few fields are open to be filled in. A manual has been prepared to provide training to project managers at the department level. This is intended to be implemented as a pilot in 2-3 departments during Q1 and launched later for any department that may be interested to align in this process along the year to disseminate broader use of such template.

The legal team also participated actively in the Erasmus MC TKI-Health Holland calls, and provided support in advising Erasmus MC TKI-Health Holland back office in arranging documentation for each call,
and provided input in the regulation documents facilitating the process. TTO has actively coordinated actions to create templates for the commitment letter required by the commercial partners and an Erasmus MC TKI consortium model. These templates were posted in the website together with the call regulations to make the process of application run smoothly for our researchers. This new procedure also facilitates post award discussions based on such a template that was tailor-made for the Erasmus MC TKI-Health Holland call and pre-approved by Health Holland. In order to achieve this, the legal team, connected with the top sector Health Holland and the Erasmus MC TKI-Health Holland back office on a regular basis and will continue to update as rules for this grant program may change.

The legal team has been heavily involved in the collection of information and preparation of the (grant) application for the program reserve to the Health Holland-TKI to provide the organization with next year’s base funding to serve the TKI-Erasmus MC calls for grants. In 2018, the process was led by a BD manager with the support of the legal team. In 2019, with the departure of the BD manager, the legal team became responsible for this task, and with the support of the financial advisor in the support team, the work has been carried out. Final preparations continue in Q1 2020 for the program application due in March 2020. (see chapter 3.1).

Next to the evaluation of agreements, the legal team has also been involved together with Erasmus MC Holding BV in arrangements to facilitate the liquidation of Sophia Research BV in 2020.

2.2.2 Collaborations
In cooperation with the Research Development Office (RDO) some processes have been streamlined for grant applications. Any guaranty declaration or Declaration of Honour for grant applications no longer requires review or processing via TTO, but follows an automated route via the SigPro system implemented by RDO. SigPro was fully implemented by RDO in October 2019 and we are pleased that the process of Declarations of Honour and guaranty declarations can be facilitated this way. It speeds up the evaluation process and we expect to see an effect in alleviating some of the work pressure in TTO during 2020.

TTO and Legal Affairs (responsible for privacy, insurances, purchasing, liabilities etc) have had many discussions to find better ways to clarify the distinction between TTO’s tasks and Legal Affairs’s tasks. For privacy-related issues we have come to a good arrangement in which the privacy knowledge office (PKO) has prepared standard clauses that TTO can implement in the templates, but when significant deviations are required, the privacy counsels continue to provide direct support and are responsible for the evaluation of those articles.

On other subjects it seems hard to find alignment between the core task of TTO and how Legal Affairs’ role may be in connection with any other legal matter concerning research activities. This may be due to the general confusion in the organization that TTO serves research activities, while in fact the legal team of TTO is a specialized group of legal counsels that should concentrate on supporting valorisation activities and those contracts dealing with research activities having intellectual property elements affecting Erasmus MC’s background IP, or results in Foreground IP, which is consistent with the strategic goal of operating within clear boundaries. This discussion continues in 2020.
2.3 Incubator & Life Science and Health Hub

The majority of the Erasmus MC Incubator’s activities are related to supporting Erasmus MC’s start-up companies by offering affordable laboratory- and office space in our Incubator in the Rotterdam Science Tower (RST), as well as access to the knowledge, network and expertise of TTO and Erasmus MC.

2.3.1 Erasmus MC Incubator

In 2019 Erasmus MC Incubator was the home of:

- **RiverD International BV** offers a unique range of custom-designed microscope objectives for use in near-infrared Raman microspectroscopy. ([www.riverd.com](http://www.riverd.com))
- **Surguide BV** is a spinoff from RiverD International and Erasmus MC. Surguide is working on a medical device to improve cancer care by supporting surgeons in their aim for complete tumour resection. ([www.surguide.nl](http://www.surguide.nl))
- **Sensius BV** is developing the HyperCollar3D, based on technology that was developed in Erasmus MC. HyperCollar3D steers the heat to the tumour while avoiding sensitive organs. ([www.sensius.biz](http://www.sensius.biz))
- **Delta Diagnostics BV** (a spin-off company from TNO) is working on care diagnostics. They are developing a biosensor to predict heart attack or an infectious disease. Delta Diagnostics collaborates with several departments within Erasmus MC. ([www.deltadiagnostics.nl](http://www.deltadiagnostics.nl))
- **IMcoMET BV** is a start-up in the field of skin cancer treatment. Their focus is on the tumour microenvironment. ([www.imcomet.com](http://www.imcomet.com))
- **EpiExpressions BV**. The mission of the EpiExpressions team is to create impact on society through Experience based Education and Exploration (Research). ([www.epiexpressions.com](http://www.epiexpressions.com))
- **Allerotherapeutics BV** develops next generation immunotherapies for allergic and autoimmune disease patients. Its proprietary SOMIT (Specific OroMucosal ImmunoTherapy) technology is designed to induce long-lasting antigen-specific tolerance. ([www.allerotherapeutics.com](http://www.allerotherapeutics.com))
- **TrackCura BV** gives GPs (General Practitioners) insight into their dermatological referrals. ([www.trackcura.nl](http://www.trackcura.nl))
- **ExoVectory BV** packages oncolytic virus genomes in exosomes, tiny lipid vesicle secreted by cells that can travel to all corners of your body. ([www.exovectory.com](http://www.exovectory.com))

**ViroClinics Biosciences BV** is an established diagnostic company, offering testing services and clinical trial operations services. VCB rents two floors in de Rotterdam Science Tower, but temporarily needed some more lab space. We leased laboratory space to them. ([www.viroclinics.eu](http://www.viroclinics.eu))

**Labhotel BV**: our neighbours in RST also needed extra space for two companies who are now renting space in Erasmus MC Incubator (ECT Solar and PXL). ([www.labhotel.nl](http://www.labhotel.nl))

2.3.2 Life Sciences & Health Hub

Together with the Municipality of Rotterdam, Erasmus Centre for Entrepreneurship and LIFE010 consortium, we launched in 2017 the Life Sciences & Health Hub (LS&H Hub). The LS&H Hub houses start-up companies in the healthcare sector that only need office space in the RST. The LS&H Hub is increasingly creating a community where parties working in the LS&H field can network with each other. In 2019, the renovation of the ground floor of the RST started and this promises to be a great new event- and community space!
Events in the Rotterdam Science Tower in 2019:
600 + events/ delegations/ meetings in the Rotterdam Science Tower; almost 200 in the LSH hub
Housing of new LS&H companies, creating new jobs
500+ students involved
200+ matches care companies & start-ups
150+ Erasmus MC scientists involved

Highlights of events held in the Rotterdam Science Tower in 2019:
Dutch Hacking Health (3 days)
Rotterdam ‘eHealth agenda’ events with innovation safari (REHA)
Meet up Little C (www.littlecoolhaven.com)
‘Course23’ events with the Board of Directors and Department Heads of Erasmus MC
Successful yearly ‘Healthy Funding’ event
Four breakfast meetings, a.o. with alderman Sven de Lange
Science Gallery Rotterdam
Closing 21st lustrum Science meets City

2.4 Proof-of-Concept

2.4.1 ErasSupport
By the end of 2019 we received approval from both Erasmus MC Board of Directors as well as Ministry of Economic Affairs (RVO) to start ErasSupport.
ErasSupport is a pre-seed fund where Erasmus MC employees with an idea in a very early stage can apply for a maximum of € 20,000 (loan) to further explore whether this idea would fit in a spin off. With this fund we can bring more ideas/products to follow-up financing or directly to the market/patient. We will hire a new employee to help us make ErasSupport a success. More to come!

2.4.2 UNIIQ
UNIIQ was founded in 2016 by Erasmus MC, Leiden University, TU Delft and Innovation Quarter, and was granted European funding. UNIIQ, with a total budget of € 22 million, invests in companies in the proof-of-concept phase in order for them to overcome an important hurdle towards traditional venture capital. UNIIQ signed 10 investment deals in 2019, totaling € 2,35 million in commitment. This brings the total number of investments for UNIIQ to 38, of which 13 have secured a follow-on investment to date, raising over € 35 million combined. Since its inception, UNIIQ has invested in two Erasmus MC spin-off companies: Sensius and Numeric Biotech.

2.4.3 Swanbridge Capital
Swanbridge Capital was also founded in 2016 and has an investment period of five years. As of year-end 2019, the fund has drawn down € 2.0 M of its € 6.5 M budget (30,88%). Swanbridge Capital is a closed-end venture capital fund that invests in early-stage Life Sciences companies. In particular, the fund invests in companies developing novel therapeutics, diagnostics, or medical devices. In addition to providing seed capital, the fund actively supports the management teams to help establish preclinical Proof of Concept for their technology and bridge the equity gap towards clinical studies.
In 2019, Swanbridge Capital made one new investment, thereby adding a fifth company to its portfolio (Allero Therapeutics). In addition, the fund also secured its first independent follow-on investment in a portfolio company.

3. Financials

Table 5: Overview of Financials

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Erasmus MC Contribution to TTO</td>
<td>€ 876,600</td>
<td>€ 1,176,887</td>
<td>€ 1,397,416</td>
<td>€ 1,522,097</td>
</tr>
<tr>
<td>Licensing Income</td>
<td>€ 392,624</td>
<td>€ 278,137</td>
<td>€ 2,139,377</td>
<td>€ 900,573</td>
</tr>
<tr>
<td>Other Realized Value</td>
<td>€ 11,515,425</td>
<td>€ 2,530,304</td>
<td>€ 3,528,578</td>
<td>€ 5,400,650</td>
</tr>
<tr>
<td>AAV (on CTAs, MTAs, etc.)</td>
<td>€ 11,515,425</td>
<td>€ 1,208,866</td>
<td>€ 781,510</td>
<td>€ -</td>
</tr>
<tr>
<td>TKI</td>
<td>€ -</td>
<td>€ 1,321,438</td>
<td>€ 2,747,068</td>
<td>€ 5,400,650</td>
</tr>
<tr>
<td>WBSO</td>
<td>€ -</td>
<td>€ 476,373</td>
<td>€ -</td>
<td>€ -</td>
</tr>
<tr>
<td><strong>Total added value for Erasmus MC</strong></td>
<td><strong>€ 11,031,449</strong></td>
<td><strong>€ 1,631,554</strong></td>
<td><strong>€ 4,270,539</strong></td>
<td><strong>€ 4,779,126</strong></td>
</tr>
</tbody>
</table>

Table 5 shows the total overview of TTO’s financials in 2019. “Total added value for Erasmus MC” is calculated as “Licensing Income” + “Other Realized Value” - “Erasmus MC Contribution”.

AAV, or “Additional Added Value”, is the added value due to (re)negotiating of contracts or to better budgeting. By offering our economic and business advice, in the past TTO BD Managers were able to add value to previous versions of budgets. The difference between the original budget and the new budget is calculated as AAV. Over the past few years, TTO has been actively involved in these activities that support financial return. These sources of income were well-appreciated, but have mostly dried up as departments are now more aware and educated, and involve TTO in an earlier stage. Although this is very much welcomed to ensure the process will go as efficient as possible, this has created a situation in which TTO no longer has a ‘starting point’ to calculate the Additional Added Value. We therefore have decided to discontinue AAV as a KPI from 2019 onwards.

The additional cash revenue to Erasmus MC research derived from TKI (see Chapter 3.1), is also labelled under “Other Realised Value”.

In multiple ways, TTO has assisted in the achievement of financial returns in innovation and collaboration for Erasmus MC. Traditionally, and because this is the core task of TTO, TTO’s most consistent source of financial return comes from licensing income. While this income is highly volatile and it often takes many years to develop any income after out-licensing, the impact of this activity for Erasmus MC is huge.

3.1 TKI Program and PPP Allowance

The TKI Program is a funding program initiated by the Netherlands Enterprise Agency (RVO) and the Top sector Life Sciences and Health (TKI-LSH), also commonly known as Health-Holland, to stimulate Public-
Private Partnerships. This program establishes a reserve for each research organization by matching the collective income from all private funding received in the preceding year by 25%. The TKI-matching can be used specifically for new R&D projects in collaboration with industrial partners and is called the PPP Allowance.

Since 2019, this reserve is no longer held by Health-Holland but is allocated to Erasmus MC for its direct administration via an internal grant call. Erasmus MC is responsible for the internal organization of the Erasmus MC-TKI-Health Holland calls, in accordance with the rules set out by RVO and the selection for award is made upon evaluation by an external committee under the process discussed and approved between Health Holland and Erasmus MC.

Not only the management has changed, but also the content of the TKI program has changed over the years, with alterations being made to the applicable project-types as well as the applicable funding parties. This is of significant influence on the expected TKI income for the coming years. As funding sources such as charitable organizations can now apply for TKI themselves, expectations are that Erasmus MC’s income from TKI may decrease in the coming years. This is despite the fact that we have evaluated much more contracts than in years before (increase from 2030 in 2018 to 3800 for 2019).

Table 6: Results of Erasmus MC’s application to the TKI program for the TKI reserve

<table>
<thead>
<tr>
<th>Type</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of projects received</td>
<td>1684</td>
<td>2030</td>
<td>3800</td>
</tr>
<tr>
<td>Number of projects not eligible for funding from TKI-LSH (after initial screening)</td>
<td>1099</td>
<td>1042</td>
<td>1998</td>
</tr>
<tr>
<td>Total number of projects evaluated</td>
<td>585</td>
<td>988</td>
<td>1802</td>
</tr>
<tr>
<td>Percentage of projects eligible</td>
<td>127 (22%)</td>
<td>401 (41%)</td>
<td>285 (16%)</td>
</tr>
</tbody>
</table>

The TKI reserve of program applications has been managed by TTO since 2016 and it has provided an opportunity to benefit applications for new projects by Erasmus MC research groups and companies. The TKI reserve application reached € 5,40 million in 2019 and was almost equal to the € 5,45 million that was contributed in 2018 (see Table 7).

Table 7: TKI Program statistics of TTO's involvement in the program

<table>
<thead>
<tr>
<th>Year</th>
<th>No of applied projects</th>
<th>Applied TKI Program</th>
<th>Awarded reserve</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>32</td>
<td>€ 3.996.808</td>
<td>€ 760.620</td>
</tr>
<tr>
<td>2017</td>
<td>127</td>
<td>€ 12.705.062</td>
<td>€ 2.180.000</td>
</tr>
<tr>
<td>2018</td>
<td>401</td>
<td>€ 24.632.267</td>
<td>€ 5.451.600</td>
</tr>
<tr>
<td>2019</td>
<td>285</td>
<td>€ 23.764.171</td>
<td>€ 5,400,650</td>
</tr>
</tbody>
</table>

Changes in the use of the reserve are reflected in Table 8, which shows that out of the 16 projects that have applied for TKI-funding, Erasmus MC has granted 8 (50%).

In the past, Erasmus MC application were screened prior to application which facilitated a higher award rate. With the TKI management now within Erasmus MC, projects apply now internally and the pre-evaluation process is no longer considered. Applications increase 2 folds, which explains that success
rate of application is relatively lower, while the same number of projects have received more funding in total. Despite Erasmus MC TKI External Committee is now responsible for the grant award, all projects will be ultimately audited by Health-Holland.

Table 8: Statistics on the PPP Allowance for 2019

<table>
<thead>
<tr>
<th>Year</th>
<th>No of applied projects</th>
<th>Awarded projects</th>
<th>Awarded PPP Allowance</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>8</td>
<td>3</td>
<td>€ 1.063.704</td>
</tr>
<tr>
<td>2018</td>
<td>8</td>
<td>8</td>
<td>€ 2.747.068</td>
</tr>
<tr>
<td>2019</td>
<td>16</td>
<td>8</td>
<td>€ 3.299.682</td>
</tr>
</tbody>
</table>

4. Erasmus MC Holding

Introduction
Erasmus MC Holding B.V. offers a transparent, organizational framework for healthcare-related legal entities with a link to Erasmus MC. The Holding supervises 32 subsidiaries, offers insight into their performance, and provides management support. All of this in close collaboration with TTO. Erasmus MC Holding BV is a 100% subsidiary of Erasmus MC and is therefore guided by the interests of the Erasmus MC group. Erasmus MC Holding holds the shares or memberships of affiliated legal entities. By definition these legal entities are related to the core tasks of Erasmus MC: patient care, education, research or valorization.

Core activities
The Holding defines the objectives of each company within the Holding, monitors the results and -if necessary- adapts and changes the plans and processes. In addition, we conduct active risk management aimed to control risks in the areas of continuity, finance and reputation.
Also we manage and supervise the subsidiaries, but we also provide management support to both the Erasmus MC Board of Directors and the management of the participations. Support consists of management, financial and tax advice. We assist the companies in hiring consultancy such as valuation specialists, legal advice and notary services. The Holding consists of a small staff of 4 employees only.

€ 100 million
In the past few years, Erasmus MC Holding has grown in size spectacularly. Turnover increased from € 74 million in 2018 to € 100 million in 2019. This was mainly realized by the health care companies. Four new entities added to the Holding in 2019:

- Haven Services, a real estate company
- Zorgwinkel Erasmus MC, a shop with health care products for clinical patients
- Surguide BV, a medical device enterprise with the goal to improve the quality of surgical care for cancer patients
- Genome Scan, a joint venture that offers sequencing products covering DNA and RNA applications.
5. Outlook 2020

2020 will be a year in which we will work towards a strong focus on ‘technology transfer’. While the growing years for the department are over, we need to create clear boundaries. A mission and clear strategic goals are important, but that is not enough. We need to implement these goals, because TTO is, and shall continue to be, in the centre of innovation within Erasmus MC. In 2020 the challenge is to actively transition those activities that do not fall within the scope of the TTO boundaries.

In 2020 the Business Development team will grow with the hiring of a new junior Business Development Manager specifically for care innovations. With more capacity to screen and scout we expect an increase in the number of new care innovations.

The legal team will continue hiring personnel to replace those that departed and shall educate, support and professionalise staff at the department level in understanding the scope of TTO. Furthermore, we shall work on redirecting non-TTO contracts, and invest in DIY-contracts.
The support team will be expanded with a Business Analyst to support the growing needs for administration within TTO and the need to better understand the raw data that is used for reporting.

As a result of business development activities in 2019 we expect at least two new companies in 2020: Kaminari Medical, which combines ultrasound and optical imaging for coronary imaging and a NewCo that focuses on a novel treatment for chronic sarcoidosis patients.
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