Phase 2 Strategy, Final version
- November 2022

2023 - 2027

Note: In all numerical values, this document uses the decimal comma (,) and thousands period (.) separator.
1. Executive Summary

With close to 47,000 cancer-related deaths in 2019, cancer is the leading cause of death in the Netherlands. In 2020, more than 115,000 patients were diagnosed with cancer. Apart from the personal tragedy, healthcare related costs for cancer patients amounted to €5,9 billion (6.7% of the Netherlands total healthcare spend) in 2017. It is obvious that a fundamental understanding of cancer biology is vital to enable the discovery of new drugs and diagnostics to improve the lifespan and quality of life for cancer patients and their families. To address this societal challenge, a new model for valorizing basic cancer research discoveries was envisioned. That vision came to reality in 2017, when KWF Kanker Bestrijding (the Dutch Cancer Society), Top Sector Health Holland, and three Dutch government ministries (Ministry of Economic Affairs; Ministry of Health, Welfare and Sport; and the Ministry of Education, Culture and Science) joined forces with 12 academic partner institutes across the Netherlands to found Oncode Institute. Today, Oncode unites 61 principal investigators (PIs) and around 900 researchers, all focused on bringing innovations in basic cancer research to patients more efficiently and faster.

**Oncode Institute: a unique model for science and valorization for the benefit of cancer patients**

The unique model of Oncode is rooted in the knowledge that major breakthroughs in cancer therapy come from curiosity-driven and interdisciplinary basic research. However, Oncode doesn’t stop there. The true innovation of Oncode lies in the integration of top basic science and dedicated valorization. In the Oncode model, innovations from basic research are actively mined for potential break-throughs in cancer diagnosis and therapy, and the way is paved for those innovations to ultimately reach clinical implementation. As such, the Oncode model is built on three interconnected pillars:

1) **Science:** Providing ‘freedom to explore’ around a shared strategy to a diverse collection of the best cancer research groups in the country by providing substantial, ‘base’ funding to perform ‘high-risk, high gain’ research, plus additional support for setting up new, shared technologies and infrastructures, and training programmes.

2) **Collaboration:** Promoting extensive interaction between research groups, and between research groups and clinicians and industry, to further stimulate innovations and identify medical needs that require novel approaches.

3) **Valorization:** Integration of all valorization activities, including proactive valorization support and access to dedicated funding, enabling the quick recognition, de-risking, and development of breakthrough innovations that could have a positive impact on the treatment of cancer.

Building on these pillars, Oncode has set up an integrated framework of activities to support an optimized innovation chain that ensures early de-risking and faster, more efficient development of new innovations towards clinical implementation. Through this integrated and centralized
approach, Oncode contributes in a unique way to a long-term, sustainable model for valorization of top research in the Netherlands, thereby maximizing social benefit.

**Phase 1 (2017-2022): building the Oncode ecosystem and first evaluation**

During the past five years, Oncode has evolved from an idea on paper to a fully operational institute, bringing together 62 diverse research groups from 12 institutions working together on a shared mission and regularly interacting with clinicians and industry. Oncode's international valorization team has dedicated Business Developers (BDs) that are the first point of contact for Oncode Investigators (OIs) and their research groups. As a result, valorization has become integrated with science, enabling early recognition of potentially useful discoveries and swift identification and activation of suitable valorization channels.

In 2020, three years into its existence, Oncode was evaluated by an International Review Committee (IRC) as being 'Very Good to Exceptional', and on its way to making an impact on cancer patients' lives. The Oncode model is already proving to be successful, with the first results very promising. Oncode has been listed in the ‘Top 25’ life-science research institutes. It has funded 16 clinical proof-of-concept studies, initiated a pan-European public-private partnership with a total budget of ~€15M, supported 5 start-up companies, and attracted ~€23.8M external research funding through its strategic funding programme. Nonetheless, there is still room for improvement. The lessons learned during phase 1, and the urgency to make a difference for patients, have, resulted in the current, revised strategy.

**The next phase and beyond**

The strategic plan for phase 2 (2022-2027) expands on the successful foundation built during phase 1. Oncode will continue its core activities:

- Funding curiosity-driven, high-risk/high-gain basic cancer research by a diverse team of outstanding investigators.
- Supporting the scientific community with research infrastructures, meetings, and supporting programmes.
- Proactive valorization, supported by dedicated programmes and funds for clinical proof-of-concept studies, technology development, and IP protection.
- Close collaboration with the Oncode BV independent investment fund.

Oncode’s contribution to Open Science, Patient Engagement and Affordable and Sustainable Health Care will continue via activities interwoven throughout all core activities.

As the institute evolves into its next phase, Oncode recognizes the urgency to make an impact on patients’ lives. As such, it will further promote the ability of its research community to use the institute’s funds, tools, and network for clinical impact, and will enhance integration with clinical expertise throughout various activities of the institute.

Oncode will in addition seek the financial means to expand its core activities by:

- Initiating and supporting Oncode Accelerator Projects (OAPs) – multi-disciplinary collaborations between OIs, other academic groups, clinicians, and industry to achieve
breakthroughs addressing scientific challenges or unmet medical needs that can only be performed by larger teams, and for which Oncode is uniquely positioned (section 4.1.3).

- Extending valorization support to innovations in cancer research from non-Oncode researchers in our partner institutes, and from a selection of KWF-funded projects (section 5.4).

- Spearheading a national growth fund application (Oncode-PACT) to guide innovations through the pre-clinical development trajectory towards implementation (section 5.6).

- Ensuring an efficient connection to (inter)national academic clinical centres and industry partners to enable fast, focused, mid- to late-stage clinical development.

In the five years since Oncode was established, its efforts and actions have resulted in the emergence and evolution of a promising cancer research ecosystem. It is an ecosystem in which a network of investigators with a wide range of expertise work together on innovative projects, and one in which the interaction between science and valorization is becoming increasingly natural, already resulting in more innovative proof-of-concept studies, new licenses and patent filings, and the launch of spin-off companies (see appendix II). As recognized by the funding partners in the Oncode’s founding memorandum of understanding and echoed by the International Review Committee, Oncode is only beginning its journey towards making a significant impact on society.

Phase 2 will be marked by Oncode’s increased capacity to harvest the results of this ecosystem and translate innovations towards clinical practice, while adhering to its identity as a fundamental research institute and not transforming the institute into a translational research institute. It will continue to be built upon and built out with long-term commitments and investments that will enable the Oncode ecosystem to flourish as a sustainable engine for cancer innovation and impact in the Netherlands.
2. Vision & Mission

Our Vision
To crack the code of cancer for a future in which everyone can survive cancer with the best possible quality of life.

Our Mission
To accelerate breakthrough discoveries and speed up their translation into new accessible diagnostics and treatments for cancer patients.

Our mission is built on three pillars:

World-class Science
Pioneering basic science is essential for increasing our understanding of the origins, progression, and vulnerabilities of cancer. We invest in high-risk, high-impact, basic research and state-of-the-art technologies, paving new roads toward developing transformative therapeutic strategies.

Collaboration
The challenges of cancer push us to go beyond the competitive model of science. We are a multi-disciplinary, collaborative community of world-class oncology researchers across the Netherlands. We work together in national and international partnerships with leading scientists, clinicians, and innovative companies, as well as patients, charities and research institutions.

Valorization
A dedicated team of experts proactively identifies new inventions and facilitates their development into novel therapeutic and diagnostic approaches. With dedicated funding we invest in translational and clinical research, public-private partnerships and the establishment of new ventures. This accelerates the translation of breakthrough discoveries into tangible benefits which are accessible and affordable for patients and society at large.

Our Core Values

Excellence – we strive for excellence in all aspects of our organisation

Collaborative – we seek synergy in collaborations to achieve our goals

Pioneering – we are driven by curiosity and dare to break barriers
3. Science

3.1 Scientific research strategy

Cancer is a collection of multi-faceted and ever-changing diseases, whose core biology enables fast adaptation to or escape from most therapies. As such, a central challenge for cancer researchers world-wide is to better understand cancer cells, their interaction with neighbouring cells in tissues and organ systems, and their response to existing and new therapies.

Outsmarting cancer requires large efforts on better understanding cancer while in parallel using those insights to design and test new therapeutic concepts. To quote Nobel laureate Prof. William Kaelin Jr (Dana-Farber Cancer Institute, USA): “More knowledge about basic cancer biology is imperative before engineering can truly take over”.

This philosophy is at the heart of Oncode Institute. Our research is guided by curiosity about the innermost workings of (cancer) cells and tissues and the mechanisms by which cancer cells circumvent tumour-suppressing controls and therapies. Questions we are passionate about include:

- How are cell proliferation and differentiation controlled in the developing body as well as in adult tissues?
- How do genomic traits and alterations to genomes impact cell identity and behavior?
- Which molecular mechanisms are crucial for vital cellular processes and how?
- Which molecular mechanisms underlie cancer initiation, development, and metastasis?
- How is cancer initiation, development, and metastasis impacted by tissue (micro) environments and the immune system?
- Which molecular mechanisms can we target to eradicate cancer cells?

Core concepts: Answers to these and other questions can come from unexpected directions, greatly enhanced by inter-disciplinary collaborations, and inspired by urgent clinical needs. For this reason, Oncode’s scientific strategy revolves around the following core concepts:

Complementary expertise: A diverse team of researchers with a wide range of expertise, relevant for understanding and combating cancer, including (but not limited to) technology development, genomics, protein biochemistry, chemical biology, molecular cell biology, tissue biology, organismal and organoid (cancer) models, computational biology and artificial intelligence, (tissue) engineering, immunology and clinical oncology.

1 https://www.damonrunyon.org/news/entries/4431/Is%20Everything%20Healthy%20in%20Cancer%20Research
• **Freedom to explore**: Freedom to explore by providing base funding with which OIs can initiate high-risk/high-gain projects (see section 3.2.2).

• **Collaboration**: Stimulating interdisciplinary interactions and training (see section on ‘collaboration’ section 4), including with industry, translational researchers and clinicians.

• **Facilities & Infrastructure**: Facilitating access to world-class technologies and research infrastructures (see section 3.3).

Because it is inherently difficult to predict where innovations will come from, Oncode firmly believes that an environment that facilitates innovative discoveries in basic science benefits from a community with a broad range of expertise. As such, Oncode refrains from restricting its scientific strategy to specific cancer research domains, and will be open-minded regarding which expertise to recruit in phase 2 or which technologies to invest in. Nonetheless, Oncode sees opportunities for research and valorization in domains in which it is uniquely positioned to excel. These domains are:

- Cancer genomics
- Single cell technologies
- Tumour immunology
- Living tissue and cancer models

These are emerging focus areas within the Oncode community, as exemplified by the many high profile publications and prestigious grants awarded to OIs in these domains (e.g. ERC, Vici); by its investment in research infrastructures and access to technologies (e.g. single cell core, academic research license for organoid technology); by the initiation of large public-private partnership networks (e.g. EU-IMI PERSIST-SEQ); by funding multiple Clinical Proof-of-Concept (CPoC) and TechDev projects around these domains; and by the initiation of spin-off companies related to these domains (e.g. Single Cell Discoveries, Immagene, LaigoBio).

During phase 2, Oncode will further strengthen these focus areas through dedicated collaborations (see Oncode Accelerator Projects, 4.1.3), maintenance and/or expansion of facilities, and follow-up routes for successful CPoC and other valorization projects. Oncode may additionally identify new focus areas during phase 2, which will be built out by similar activities in addition to focussed OI recruitment.

To further enhance the potential for impact from basic research discoveries, Oncode will proactively encourage its research community to use the Oncode funds, support and network for discovery research that can be implemented in oncology. To this end, OIs will be expected to seek out interactions with clinicians whenever appropriate and to attend Oncode’s clinical workshops, all of which will be facilitated by Oncode. Moreover, OIs efforts and activities in this direction will be monitored and assessed during the runtime of phase 2 by including specific sections within Oncode’s annual reporting templates on past and future activities contributing to clinical impact, and providing directive feedback on this on a yearly basis.
3.2 The Oncode research team

Within a single institute, Oncode connects many different world leaders in basic cancer research. The basic and pre-clinical research in Oncode Institute revolves around excellence and collaboration. It covers a broad range of topics in cancer research to stimulate outside-the-box thinking and multi-disciplinary interaction. In 2017, Oncode was initially established with a group of 43 founding scientists on which Oncode’s research activities were built. In early 2019, this group of 43 was expanded with 19 new investigators through two rounds of open recruitment. These recruitment rounds were focused on further balancing the OI team in terms of gender, career stage, and research topic. The full cohort of 62 OIs (18:44 junior to senior ratio; 17:45 female to male ratio) are based in 12 Dutch research institutions, and cover topics ranging from technology development in the basic sciences to translational research based on the discovery of new therapeutic opportunities. The 62 OIs lead a combined team of ~900 researchers. Oncode provides its research community with the funds to perform high-risk/high-gain research, the platforms to engage in new collaborations, and the expert support and networks needed to valorize research findings.

3.2.1 Oncode Investigators in phase 2

Oncode considers a group of 50-70 OIs to be an ideal size, enabling diversity at various levels while maintaining a manageable and interactive community. The composition of the group for phase 2 will be based on the phase 1 group evolving due to natural turnover (e.g. retirement) and by selection through careful evaluation. This phase 2 group will then be supplemented with new OIs through a recruitment round. Below is a summary of the steps that will determine the phase 2 OI team composition:

- **Natural turnover:** Four OIs will no longer be part of the Oncode community at the onset of phase 2 due to retirement or career switches. In addition, our community still mourns the loss of one of our OIs, Huib Ovaa, to cancer in 2020.

- **Phase 2 OI selection:** all senior OIs and junior OIs who started in 2017 (in total 43 OIs) have been evaluated via a stringent and transparent review process that involved external reviewers and the Research Management Committee (RMC) (figure 1, assessment 1). OIs were evaluated on a) their scientific excellence and b) their contribution to Oncode’s goals (e.g. valorization, collaboration, community activities). After review of the advice from the International Advisory Board (IAB) and the IRC, the Management board (MB) selected 40 OIs for continuation into phase 2. Positively evaluated junior OIs will be promoted to senior status. The 12 junior OIs who started in 2019 will continue as juniors and will be evaluated after having been with Oncode for 4 years, in early 2023 (figure 1, assessment 2). A full outline of this process can be found in Appendix I.

- **Recruitment:** The group of OIs selected to continue into phase 2 will be supplemented with new OIs through new recruitment mainly focused on junior principal investigators.

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<sup>2</sup>Oncode Strategic Plan - Version 3.1 clean (d3rkgc73ywyjze.cloudfront.net)
(PIs), not excluding the possibility of recruiting senior PIs. Selection of new OIs will comprise/include:

- Prioritizing excellence and collaborative spirit.

- Complementing the research portfolio by recruiting PIs with expertise that is missing or under-represented in the Oncode community, as determined by the RMC and with additional input from the IAB and IRC (to be decided at later stage). This may include PIs from new basic science domains as well as with translational expertise.

- Balancing diversity (including but not limited to age, career stage, gender, nationality). In practice, Oncode will prioritize diversity whenever choices have to be made between candidates who have (near) equal qualifications for a particular position. Oncode will work towards an equal opportunity policy (in the future to be included as an appendix). In light of Oncode’s current gender balance (male-72% vs female-28%) Oncode feels the obligation to pro-actively counter this disbalance and is therefore committed to ensuring that the majority of the new recruits will be female.

- Exploring possibilities to coordinate recruitment with partner institutions to attract talent not yet operational in the Netherlands. Aligning with potential new partner institutions will be explored.

Figure 1 provides a schematic overview of the assessment and selection of the phase 1 OIs and the subsequent recruitment of new phase 2 OIs. Due to required spreading of the use of available financial funds Oncode is expected to recruit new OIs in 2023.

**Figure 1: schematic overview of assessment and recruitment of Oncode’s research team.**

**Oncode**

### 3.2.2 Base funding

The most impactful innovations in cancer therapy and diagnosis in the last few decades (e.g. targeted therapies, immunotherapy, liquid biopsies) have come from discoveries in basic science on the molecular workings of cellular processes, often from research areas not directly related to cancer research. A vital part of Oncode’s model to accelerate breakthrough discoveries and their translation to societal and clinical impact is the ability to give our world-class OIs the
intellectual and experimental freedom to explore. At the heart of this are substantial base funds that allow the research teams to explore new research avenues and high-risk/high-gain ideas directly or indirectly relevant to understanding or combating cancer. During phase 1, the OIs demonstrably used their base funds to 1) initiate high-risk projects that would otherwise have remained unexplored due to lack of funding instruments for such projects; 2) accelerate research lines; 3) initiate new collaborations; 4) venture into new research areas; and 5) generate preliminary data to support applications for more conventional funding. The IRC concluded: “It is clear that the allocation of “non-earmarked funds”, i.e. base funding that enables high-risk studies, opens the door for rapid testing and implementation of new leads for cancer diagnostics, prevention and treatment, and fills a gap in the Dutch funding landscape”.

To balance a critical mass of OIs and sufficient ability to set-up the innovative research programmes needed to make societal impact, Oncode will offer OIs the following base funding:

- **€200k per year for:**
  - Senior OIs with at least a 0.6 full-time equivalent (FTE) position at one of Oncode’s partner institutions. Senior OIs who reach retirement age (AOW Algemene Ouderdomswet) will be able to remain OI if excellence and potential for impact are positively evaluated and their position at one of our partner institutions is at least 0.6 FTE. Allocation of funds to this group will be contingent on intermediate evaluations.

- **€120k per year for:**
  - Junior OIs with at least a 0.6 full-time equivalent (FTE) position at one of Oncode’s partner institutions
  - A selection of Senior OIs for whom the assessment indicated that specific contributions to Oncode’s goals can be improved.

Base funds are intended to be used for innovative high-risk/high-gain projects focussed on or applicable to oncology. The funds are intended for use on projects that are otherwise unlikely to be funded by existing competitive funding schemes, and they cannot be used to cover OI salaries. OIs are further actively stimulated to use funds, whenever appropriate, to seek opportunities to enhance clinical impact. If an OI has less than a 0.6 FTE position but no less than 0.4 FTE at one of Oncode’s partner institutions, the RMC will evaluate the added value of the OI. If evaluated positively, the level of base funds will then scale with the FTE workload (e.g., a 0.4 FTE position at a Dutch research institute equals 40% of the maximum base funds).

### 3.3 Research Infrastructures

Oncode’s vision is for researchers to maximise their innovation potential in a multi-disciplinary research environment supported by world-class research infrastructures. To this end, Oncode

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IRC-assessment report
will support the research community by providing access to key scientific technologies via the Infrastructure & Technology (I&T) programme (section 3.3.1).

### 3.3.1 The Infrastructure & Technology (I&T) programme

With the I&T programme, Oncode will invest in new infrastructures and technologies that support the Oncode community by providing access to:

- Cutting-edge equipment (similar to, for example, our phase 1 investment in the cryo-EM facility).
- Pan-institute infrastructures and supporting facilities (similar to, for example, our phase 1 investment in a GPU infrastructure for AI or in the Single-Cell Core facility).
- Development of novel technologies (similar to, for example, our phase 1 investment in single cell proteomics development).
- Training in the use of the relevant equipment by organizing scientific meetings and technical workshops.

Importantly, these technologies and facilities are and will continue to be accessible for all researchers in the Netherlands and abroad.

Funding (€2,89M) will be allocated either via open calls to the Oncode community for collaborative, unique facilities, or infrastructures with potential value for the Dutch research community, or via opportunities identified by the RMC. An I&T advisory board will be involved in all decisions. Oncode’s investments are projected to be leveraged by €0,96M cash or in-kind contributions from Oncode’s partner institutions. Furthermore, Oncode will work with its partners to obtain (inter)national infrastructure grants, such as the current activities surrounding the AiNed Investeringsprogramma, for which Oncode is already in the process of coordinating a joint application, or through EU programmes (e.g. the EU mission on cancer initiatives).

### Oncode phase 1 core facilities

As part of the I&T programme, Oncode will allocate additional funding to support the existing seven Oncode core facilities that were established during phase 1 (see box). At the start of phase 2, the facilities will be evaluated by the I&T advisory board to determine if financial support should continue to be provided to these facilities to ensure continued access, or whether their presence can be maintained by different means (e.g. by creating a spin-off company or through inclusion in the core facility programmes of our partner institutions). Oncode’s investments are projected to be leveraged by cash or in-kind contributions from Oncode’s partner institutions for maintenance, depreciation, and personnel costs involved in the operations of the facilities.
Oncode core facilities:

1. Oncode platform for clinical colorectal cancer samples
   Online platform containing all available materials from clinical studies in the field of colorectal cancer that can be used for research purposes.

2. Oncode drug repurposing facility
   Provides access to the Oncode drug repurposing compound library and supports high throughput screening.

3. Proteins4Oncode
   Supports Oncode researchers with expressing, purifying, characterising, and crystallising proteins for X-ray analysis.

4. Oncode Antibody accelerator
   Enables researchers to develop new monoclonal antibodies, suited for specific basic research or clinical applications.

5. Oncode GPU infrastructure
   Provides the Oncode community with access to a GPU cluster, enabling them to apply artificial intelligence for the analysis of large data sets.

6. Oncode Single-cell (epi) genome sequencing facility
   Supports researchers with DNA analysis at the level of individual cells, both for genomic DNA sequencing as well as epigenetic measurements.

7. Proteomics for Oncode
   Provides access to state-of-the-art single-cell proteomics technologies which can measure the full protein and/or metabolite composition of a single cell.

3.3.2 Open Science and data stewardship
Open Science is about making science accessible to scientists and society, thereby stimulating collaboration and the exchange of knowledge with the aim of increasing the quality and impact of scientific research. Oncode embraces the following, generally recognized Open Science principles and will implement them as much as possible in its activities.

- **FAIR data and data management**: Oncode envisions a future of widespread access to its research data and research tools. Building towards this future, it has implemented obligatory data management requirements for CPoC studies in phase 1. In phase 2 Oncode will extend this to all other relevant programmes.

- **Open access publishing**: Oncode endorses Open Access publishing, in line with the Plan S guidelines, and will make submission to preprint repositories (e.g., BioRxiv) obligatory.

Another aspect of Open Science important to Oncode is easy and open sharing of research reagents. In phase 1, for example, Oncode brokered a license from KNAW for its partner institutes to use organoids for academic research. In phase 2, Oncode will seek other

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4 Open Science - FAIR data - ZonMw
opportunities to implement similar types of (subscription) model for sharing data, research tools, and materials between Oncode partner institutes.
4. Collaboration

4.1 Collaboration strategy

Collaboration is a means of creating synergies, venturing in new directions and connecting with other disciplines, with the aim of enhancing innovation and breakthrough in science and valorization. For this reason, collaboration is woven into all aspects of Oncode – from interactions between researchers (section 4.1.1), patients (section 4.1.2), the clinic (section 5.6) to interactions with industry (section 5.4.1).

In phase 2, Oncode’s goal is to increase these interdisciplinary interactions even further, through Oncode Accelerator Projects (OAPs, section 4.1.3) and by strengthening its connection to international collaborative initiatives (section 4.1.4).

4.1.1 Events, and training programme

Oncode builds bridges between disciplines and fields of expertise and is dedicated to training and supporting the next generation of scientists and group leaders. To create a cohesive and synergistic environment within Oncode and with external parties (clinics, industry, and academia), in which all researchers and group leaders have ample opportunities to excel, Oncode will continue the following diverse set of activities implemented during phase 1:

- **Scientific conferences and meetings:** Oncode will continue to organize scientific meetings throughout the year for the whole community and/or smaller sessions on specific topics. This will include large, open conferences with invited international speakers, internal meetings in which Oncode researchers will have the opportunity to share their data, and small-scale focused meetings on a specific theme (e.g. clinical workshops around a certain tumour type or in-depth workshops on a basic science topic). For details on clinical workshops and industry engagement activities, see sections 5.6.1 and 5.4.1 respectively.

- **Training programme:** Oncode will continue and further develop the training programme that was set up in phase 1. We will offer a combination of (mostly open) short masterclasses and courses and seminars customized to the needs of PhD students, postdocs and OIs, focused on:
  - Scientific and technical masterclasses built around scientific and technological challenges and innovations in the field. Organization of these masterclasses is aligned with advances in Oncode’s I&T programme.
  - Awareness and education of valorization-related topics, tools, and processes. Organization of seminars and courses will be aligned with Oncode’s valorization funds and programmes.
4.1.2 Oncode Patient Engagement (PE) programme

Cancer patients have vital first-hand knowledge that can inspire research through novel ideas, perspectives, and discussions. At the same time, Oncode strives to inform patients about the achievements, challenges and plans of the institute. To promote this 2-way interaction with patients, Oncode initiated its PE programme during phase 1, dedicated to incorporating the patient’s perspective into the Oncode Institute and its research teams. For phase 2, we will build on and continue the activities carried out successfully during phase 1, including:

- **Patient representation in Oncode’s governance and review processes:** Oncode will maintain its phase 1 representation of patient representatives in its Supervisory Board and Clinical Advisory Board.

- **Introduction of patients to the Oncode labs:** In phase 1, 11 (ex-)patients were paired with six Oncode research groups, meeting regularly to discuss their activities and experiences. In phase 2, we will expand the number of participating patients and Oncode research groups.

- **Building a Patient Engagement network:** Oncode will reach out to other institutions, (UMCs, funders, patient organizations, and KWF walk-in centers) to collaborate on the topic of patient engagement. Wherever possible, we will align with existing initiatives and/or discuss potential shared new initiatives. Additionally, we will use these contacts to recruit patients for user boards and patient panels when needed.

4.1.3 Oncode Accelerator Projects

Since its start, Oncode has invested in building an interactive research community in the strong belief that the establishment of interactions between scientists, across different disciplines and expertise, can act as the driving force for new research questions and approaches. This has contributed to the initiation of many new collaborations, shared technologies/facilities, publications and grants. To capitalize on the unique network built in phase 1, Oncode is building out its research programme with the launch of OAPs. These OAPs will seek to increase synergy not only by bringing OIs together in a single project, but also by uniting OIs with non-Oncode researchers, clinicians, and industry to form a multi-disciplinary team that can uniquely address an unmet medical need or scientific challenge identified by the Oncode community through innovative high risk, high reward approaches.

Through stringent selection (see Appendix III) of OAP proposals from the OI community, Oncode has currently identified three projects as exciting opportunities for achieving synergy and concrete progress on important topics (see box below). (Note: OAP participation will not be taken into account during phase 1 OI assessments). Funding for OAPs will initially be sought through external funding opportunities. If no external funding sources can be found and if Oncode’s core funding allows, OAPs can be financed in a co-financing construction in which Oncode funds up to 60% of the required budget with a maximum of €3M per project. The remaining funds will come from the base funds of the participating OIs (each OI will match their projected OAP funding with 30% of their base funds) and from external public or private partners. OAPs are furthermore supported by Oncode’s scientific and technological capabilities (e.g. facility and infrastructure) and expertise (Oncode network, valorization team), and have...
the ambition to achieve concrete progress and results during the course of phase 2. They are high risk, high reward but benefit from a detailed project plan, including a clear overview of go/no-go milestones and decision making. OAP projects will be assigned to a dedicated business developer, who will support the team with valorization expertise.

The initiation of OAPs has been very well received both within and outside of the Oncode community, which has resulted in initial success in attracting external funding (see box below). Oncode therefore expects to be able to initiate a new call for proposals for OAP during phase 2.

BUDGET FOR THE OAPs: the total budget is €14,4M, of which €7,8M has been secured from leveraged private donations, €1,6M through matching from participating OIs. The remaining €5M will be sought from leveraging external parties possibly with base fund matching, resulting in €0 currently projected to come from Oncode core funding.

4.1.4 International collaboration
The collaborative spirit which runs through the institute is not limited by borders. It is Oncode’s belief that international collaboration is an essential means to creating meaningful synergies through which novel connections with new disciplines can be forged both within science and valorization. OIs naturally partake in numerous international collaborations with both public and private collaborators, ranging from small scale bilateral projects to multi-partner pan European initiatives (e.g. CRUK grand challenges, ERC Synergy grants, SU2C consortia). In addition to (groups of) OIs, Oncode has directly engaged with the international community. This is exemplified by successful development of the EU-IMI PERSIST-SEQ project, as well as Oncode’s participation in an EU-wide network for the preparation of UNCAN.eu, an initiative of EU’s Mission on Cancer programme.

In phase 2, Oncode aims to increase its international recognition as partner for strategic initiatives in Europe and beyond. It will actively seek strategic collaborations with foreign scientific institutes and networks when that can create mutual synergy and specifically build bonds with international clinical networks and trial centres. Through the Strategic Funding Support programme (section 5.4.2), Oncode will seek collaborative funding opportunities within the Mission on Cancer5 and Innovative Health Initiative6 programmes of the European Commission, and the CRUK Cancer Grand Challenges7. Oncode will also further deploy its international network using its industry engagement programme (section 5.4.4) to build partnerships with public and private organizations abroad. Furthermore, the international venture capital (VC) community will be targeted to invest in emerging Oncode spin-offs. Oncode Bridge Fund (section 5.3.3) will play a crucial role in shaping investment opportunities to become attractive for larger VC-funds. Through collaboration, Oncode will be able to connect with policy makers, and with (inter)national governmental programmes, to collectively contribute to the discussion and development of affordable and sustainable healthcare solutions.

5 Conquering cancer, mission possible | European Commission (europa.eu)
6 European Partnership on Health Innovation - Horizon Europe
7 https://cancergrandchallenges.org/
Oncode Accelerator Projects:

**OAP 1: Finding regulatory mutations in the non-coding cancer genome**

**Team:** Oncode: 8 groups from NKI-AvL, Radboud University, UMC Groningen, UMC Utrecht, Amsterdam UMC.

**Non-Oncode participation:** Academia: TBD, Industry: Annogen

**Goal:** To establish the overall importance of non-coding mutations in cancer, and to develop a powerful genomics pipeline for screening and functional interpretation of such mutations, with the ultimate goal of developing tools that support clinical decision making.

**Financing:** €4.4M for 5 years.

Status: Fully financed through (leveraged) private donation.

**OAP 2: Curing tumours difficult to treat with immunotherapy by mobilizing innate leukocytes**

**Team:** Oncode: 11 groups from Leiden UMC, NKI-AvL, UMC Utrecht, EMC, Amsterdam UMC, Radboud UMC.

**Non-Oncode participation:** Academia: TBD, Clinic: TBD, Industry: TBD

**Goal:** To learn more about the role of myeloid cells on immunotherapy - when and how can myeloid cells be successfully mobilized and stimulated for anti-tumour activity, in cancers resistant to immunotherapy.

**Financing:** €5M for 5 years.

Status: Fully financed through (leveraged) funding €3.4M from private funder (KWF) including matching from participating OIs €1.6M OIs.

**OAP 3: PERIMET - A multi-dimensional research programme to improve treatment of peritoneal metastatic disease**

**Team:** Oncode: 10 groups from Amsterdam UMC, NKI-AvL, Hubrecht Institute, Sanquin, Erasmus MC, UMC Utrecht.

**Non-Oncode participation:** Academia: TBD, Clinic: TBD, Industry: TBD

**Goal:** To force a breakthrough in treatment of patients with peritoneal metastatic disease (PMD) from pan-cancer origin. PMD is a disease with an extremely poor prognosis and the disease is rarely successfully treated. The approach is to uncover the key molecular characteristics and mechanisms that drive PMD, identifying vulnerabilities and developing new treatment strategies.

**Financing:** €5M for 5 years. Funding will be sought from external parties, but may come from Oncode core budget if funds allow it.

**Status:** Not yet financed.
5. Valorization

5.1 Valorization Strategy

One of Oncode’s core goals is to accelerate the translation of new therapies and diagnostics from lab to clinic. Valorization is therefore one of its critical activities, because it is the mechanism through which the research findings of OIs are translated into sustainable products with societal and economic impact. Excellence in valorization, delivered by an agile, professional, and highly proactive team with a singular focus on oncology and with access to a wide range of financial tools, has confirmed the validity of the unique Oncode approach to valorization. In the Oncode model, innovations are developed in the most effective and efficient way, and the model therefore constitutes a unique and sustainable nationwide valorization system. The IRC assessed Oncode’s valorization activities to be “very good & exceptional”. By the end of phase 1, the Oncode Valorization Team had outperformed most of the projected yearly valorization indicators defined in the phase 1 Strategic Plan (see Appendix II, table 2). More importantly, Oncode has successfully engaged OIs in the valorization process, as can be seen by the increase in OIs involved in interactions with the clinic and industry, patent filings, submissions of invention disclosures, and the launch of spin-offs (see Appendix II table 1, 2 and 3). These achievements were also recognized by the IRC: “There is good awareness of, and engagement in, the valorization agenda by both senior and junior researchers.”

Key to Oncode’s valorization strategy is the Valorization Team (VT, section 5.2) – a team of international business experts who provide proactive valorization support by closely interacting with the Oncode labs. The Oncode VT has access to a broad array of financial instruments to support and accelerate the translation of Oncode research findings. These funds enable it to protect Oncode innovations (IP fund, section 5.3.1), add value (TechDev fund, section 5.3.2) provide early-stage clinical validation (CPoC programme, section 5.6.2), and ensure continued development of successful Oncode projects by setting up spin-offs (Bridge fund, section 5.3.3) or by partnering with public and private partners (Strategic funding support, section 5.4.2, Clinical follow up programme, section 5.6.3, and Industry engagement, section 5.4.1).

Oncode’s valorization approach as established in phase 1 has been clearly recognized as an example of thematic technology transfer in the Netherlands. For phase 2, it is Oncode’s ambition to become internationally recognized as a European leader in translating fundamental oncology research to support the development of effective and accessible diagnostics and therapeutics for cancer patients. This requires a step up in quality of the support provided and a

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focus on increasing valorization outcomes with a clear goal to belong to the top 10% of European Technology Transfer Offices (TTOs) by 2027. The strategy is built on the following key elements:

- Ensuring a clear mandate for Oncode Institute from our Partner Institutions to manage and exploit all IP generated in the OI labs.
- The phase 1 affiliation agreement will be amended to improve efficiency and working relations with partner institutes. A working group to undertake this work has been assembled, including Oncode and an NFU appointed representative of the Partner Institutes.
- Further professionalization of the valorization team, to optimise efficiency and effectiveness of the efficient set-up and execution of appropriate valorization strategies (section 5.2).
- Dedicated funding to support the protection, early de-risking and value creation of Oncode research findings through Oncode’s dedicated valorization tools (IP fund (section 5.3.1), TechDev (section 5.3.2), CPoC programme (section 5.6.2) and Oncode Bridge fund (section 5.3.3)).

Furthermore, in phase 2 Oncode aims to extend its activities in valorization and translation to further ensure the advancement of research findings towards clinical implementation, through:

- Building strategic (inter)national partnerships and alliances with public and private partners to enhance the scope and capacity of translational activities, such as setting up collaborations with relevant clinical trial infrastructures in (inter)national academic medical centres (section 5.6.2 and 5.6.3), and with parties having more translational development expertise and capacity (section 5.4).
- Securing additional funding from other sources than Oncode’s core funders to enable further downstream development of research findings and to stimulate collaborations with pharma and biotech companies (section 5.4.1), while contributing to affordable and sustainable health care (section 5.7).
- Acting as a nation-wide expertise centre for oncology valorisation, by making the Oncode valorisation expertise accessible to oncology research labs and projects that are not part of Oncode (section 5.5) and by spear-heading the Oncode-PACT growth fund application (section 5.5.2).

5.2 The Valorization team

During phase 1, Oncode recruited a diverse international team of business developers (BDs) with extensive expertise in business development, new company creation, IP management, grant writing, large public funding programmes, international collaborative research, and knowledge transfer. Oncode’s thematic focus on business development and the critical mass of BD professionals it has assembled are a critical part of Oncode’s valorization success. At present, one Oncode senior BD services on average 15 OIs. Additionally, junior BDs also support activities such as education and training, strategic funding support, and industry engagement.
that help Oncode to achieve its valorization objectives. The Valorization Team currently comprises 4 senior and 3 junior business developers, 1 fund manager, and 2 support staff. Oncode additionally hires ad-hoc specialist support for activities such as (foreign) patent prosecution and legal advice. In phase 2 the current team size will initially be maintained, but might grow depending on the workload and success in securing additional resources. Oncode will continue to invest in the further professionalization of its valorization staff, by encouraging staff to attend specialized technology transfer courses as organized by international organizations such as LES, ASTP, AUTM or alike and by offering internal training on the job. Oncode will also consider accreditation of its valorization staff through internationally recognized mechanisms, such as the registered tech transfer professional status awarded by AUTM.

Additionally, Oncode has established a network of external experts to bring in unique expertise as required. Oncode’s Entrepreneurs in Residence (see section 6.2.4), members of its Oncode Exploratory Development Expert Support (OEDES) team (see Section 6.2.4), and other consultants bring specialized and hands-on experience in areas such as company creation, (pre-)clinical drug development and Health Technology Assessment (HTA). For phase 2, Oncode will expand this network internationally and will pay special attention to having access to a diverse set of clinical expertise, which is currently provided by the Clinical Advisory Board (CAB, see section 6.2.4). Clinical expertise will be further expanded and internationalized and tapped into more broadly to integrate the clinical perspective throughout the entire spectrum of valorization activities.

5.3 Valorization tools (funds and programmes)

Effective valorization requires dedicated funding to ensure adequate protection of intellectual property rights (IP Fund) and early validation of innovative research findings by addressing scientific, technical, and business issues (TechDev Fund, see section 5.3.2), and early clinical de-risking (CPoC Programme, see section 5.6.2). Furthermore, Oncode supports its OIs in obtaining additional funding (Strategic Funding Support), building a network with private partners (Industry Engagement Programme) and establishing a new venture (Oncode Bridge Fund) to bridge the gap to later-stage translational capabilities (see sections below).

5.3.1 IP Fund

The IP Fund enables the Valorization Team to protect IP generated by OIs and their labs by filing, prosecuting and maintaining patent applications, thereby forming the basis for industry collaborations, licensing, and company creation. The IP fund covers patent fees and attorney expenses, as well as personnel expenses which are demonstrably linked to protection of intellectual property rights, with a limitation of a maximum amount of 32K€ to be spent on a single patent family and a limitation that prosecution is not supported beyond national phase of a patent application. The IP-fund is repayable over a period of 15 years from revenues generated from IP commercialization.

Within the Oncode labs, currently 0.59 invention disclosures are generated for each million € of total research funding spend. This is well above the average of 0.33 invention disclosures per
42% of invention disclosures are converted into new patent applications, resulting in 0.31 new patent applications per million € research funding spend. This is slightly below the average of 0.21 new patent applications per million $ research expenditure as reported by AUTM. Oncode will closely monitor the evolution of these numbers and benchmark these versus international reference data (see appendix II).

To maintain and extend a healthy patent portfolio, Oncode will allocate a budget of €2M for building and maintaining a patent portfolio based on inventions generated in phase 2. An attention point learned from phase 1 is that Oncode desires more flexibility on deciding on a case-by-case basis whether entering national phase makes sense for a particular patent family, as it may typically take longer to find a suitable licensee. Much effort is put into finding suitable development partners for patented inventions. Currently, only 20% of Oncode’s active patent portfolio is licensed or optioned. It is our ambition to at least double that percentage by 2027 (also see appendix II).

5.3.2 TechDev Fund

The TechDev Fund (TDF) is a critical tool for the Valorization Team to help address specific scientific, technical and business issues relating to Oncode inventions. Investments from the fund are aimed at increasing the likelihood that inventions can be licensed and further developed in spin-offs or in partnerships with third-party pharma/biotech companies. The early success from the TechDev Fund in phase 1 (several research collaborations with industry, clinical trials and Oncode spin-offs were based on technologies that were validated with TechDev funding) demonstrate the value of this type of funding. The specialized activities covered by the TechDev fund are not easily funded through traditional funding programmes, or do not exist at the necessary scale and scope within the Tech Transfer Offices (TTOs) of Oncode’s partner institutions. In phase 2, the TechDev fund will be managed and employed similar to its phase 1 set-up:

- a dedicated coordinator manages the fund.
- projects need to be directly associated with an Oncode invention disclosure.
- funding requests are submitted at initiative of and by BDs, in close interaction with the involved OI.
- investments up to €150K can be made.

Within this scope, the TechDev fund can address projects such as drug target validation, validation on clinical samples, limited compound screening, initiation of medicinal chemistry, basic toxicological studies, regulatory advice and Health Technology Assessments. The most promising projects can subsequently be directed towards the Nationaal Groeifonds project Oncode-PACT for further downstream development at larger scale. Oncode will focus on performing critical validation experiments with the TechDev fund. Oncode aims to be able to

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partner at least two thirds of TechDev-supported technologies for further development, but also recognizes that the fund inevitably will contribute to technologies failing fast. TechDev-funding is repayable from licensing revenues.

5.3.3 Oncode Bridge Fund

Establishing new ventures is an indispensable tool for ensuring further development of innovative research findings, which are often too novel and too immature to be partnered straight away with more established pharma or biotech companies. Start-ups are also an engine for local knowledge economy. During phase 1, Oncode has established 7 spin-off companies, based on intellectual property generated by Oncode Investigators. In recent years, Oncode could establish 0.33 spin-offs per 10 million € of research funding, this is well above the average of 0.13 per 10 million $ as reported for US institutions by AUTM. Oncode wants to maintain high quality standards for establishing spin-offs and aims to continue to establish spin-offs at a pace of 2 to 3 companies per year (see appendix II). In phase 2, Oncode will pay more attention to enabling and assisting start-ups in raising substantial follow-on investments from reputed international VC investors that are required for further development.

The Oncode Bridge Fund (OBF) is an investment fund, aimed at supporting the creation and development of new enterprises. OBF1 (with investment period 2019 – 2025) is managed from Oncode B.V, a 100% daughter of Oncode Institute. It enables Oncode to provide pre-seed and seed financing to help spin-offs translate research ideas into market-ready investment opportunities. Based on the success of the uniquely positioned OBF1, Oncode will continue to invest during phase 2 in commercially viable enterprises from OIs through OBF2, which will be extended in size and scope and will be established as an independently operating fund with close links to Oncode Institute.

Based on the phase 1 investment flow, a large majority of the investment is directed towards therapeutic and diagnostic opportunities rather than service companies, the former typically being more capital-intensive. Larger investment placements are therefore required to sufficiently de-risk the opportunities to attract venture capital to step in at a later moment. It is also recommended that when venture capitalists do get involved, the fund co-invests alongside them (under the same conditions but with more modest amounts) so that it is in a better position to generate returns for the fund. This will help early-stage spin-offs to bridge the ‘valley of death’ and create more value, before needing to reach out to third parties for funding, a need that is identified in the Government Strategy Strengthening Research and Innovation Ecosystems (Kabinets strategie versterken van onderzoeks- en innovatie-ecosystemen).

With Oncode’s growing ambitions and expanding pipeline of potential spin-offs, we envisage the OBF-2 fund to have a total fund size between €10M and €30M, of which maximum 50% (with a nominal maximum of €10M) is expected to be derived from Oncode core public funding and the remaining funds to be obtained from private and/or international public partners. To allow for sufficient deal flow and to align with Oncode’s nationwide valorization ambition (section 5.2),

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10 Kabinetsstrategie Versterken van onderzoeks- en innovatie-ecosystemen | Kamerstuk | Rijksoverheid.nl
the scope will be slightly extended to reach broader than solely companies founded by OIs or based on research generated by OIs, while maintaining the focus on oncology. Also, a unique link with Oncode Institute as a rich source of deal flow and a wealth of disease biology knowledge should be maintained (e.g. through a first right of negotiation on any investment opportunities arising from Oncode research).

Divergent from OBF1, OBF2 aims not to have Oncode Institute as its sole shareholder, but to also attract external capital based on deal flow and successful track-record of investments in OBF1. Potential targets as providers of external capital are the European Investment Fund, high net-worth individuals, banks, pharma companies, private trusts, etc. At least 2 dedicated and experienced fund managers should manage OBF2.

Oncode will also expand its support activities for (future) spin-off companies, for example, with an increased number of Entrepreneurs in Residence (EIR, see section 6.2.4) with different experience to guide entrepreneurs, and access to consultants and non-dilutive funding support, allowing Oncode’s spin-off companies to achieve a greater level of success.

**Note:** OBF2 will not be initiated before the end of the investment period of OBF1 (ultimately in 2025) and will run past the end of phase 2.

### 5.4 Enhancing translational capacity with strategic alliances and leveraging funding

As a fundamental research institute with a clear translational mission, Oncode will always fall short of having sufficient internal translational capacity. Rather than shifting gears and re-allocating larger parts of the core budget to translational activities, there will be a clear focus in phase 2 on establishing (inter)national alliances with public and private parties that have more extensive translational or development capacity. Alliances with clinical research centres (section 5.6.3), with international academic partners who have better established drug discovery and development capacity (section 4.1.4), with biotech and pharma companies (section 5.4.1) or in specially crafted public-private consortia like Oncode-PACT (section 5.5.2) will help Oncode to bridge the ‘valley of death’ between bench and bedside.

#### 5.4.1 Industry engagement

To enable efficient translation of Oncode research findings into better treatments and diagnostics for cancer patients, Oncode promotes interdisciplinary collaboration with industrial partners and continuously invests in building long-lasting relationships and identifying opportunities for collaboration and exchange with industry. To facilitate public-private collaborations, Oncode will continue to build an extensive (inter)national network of industry partners through its Industry Engagement (IE) programme, involving organization of meetings between OIs and companies and participation in business meetings and events. This network can be readily tapped into by Oncode business developers when opportunities for collaboration or licensing arise.
In phase 2, Oncode is further incentivized to conclude public-private partnerships, as it will be entitled to receive a specific subsidy (PPS-toeslag) on research collaborations between any OI and an industrial party. Oncode targets to raise at least 20 M€ in additional research funding secured from industry parties over the course of phase 2.

5.4.2 Strategic Funding Support

The Strategic Funding Support (SFS) programme was designed in phase 1 to guide and support OIs in the national and even more in the international research funding landscape. It provided support in 1) building long-term funding strategies; 2) hands-on grant writing support and review; 3) consortium building; and 4) non-dilutive funding support for Oncode spin-offs. In phase 2, activities to leverage core funding available from funders will be intensified and Oncode will particularly increase its efforts to secure additional international and public-private funding. To finance these activities, Oncode aims at (in consultation with its partner institutes), charging overhead expenses on funding secured through Oncode’s efforts. It is expected that during phase 2, €1M could be obtained in this manner, thereby providing Oncode with the opportunity to hire dedicated grant writing support and strategic funding expertise, including the appointment of specialised consultants for certain complex strategic and large-value grant applications (e.g. at IMI level), in addition to the business development team, which is focusing on industry sponsored research.

5.5 Towards a nation-wide centre of expertise for oncology valorisation

5.5.1 Valorization support beyond Oncode

Oncode has developed an efficient, oncology-focused, valorization infrastructure that is successfully accelerating the translation of innovative research towards economic and societal benefits. The potential of the thematic valorization approach is now widely recognized in the Netherlands as successful and potentially transferable to other research/therapeutic areas. However, most Dutch research institutions do not have access to an Oncode-like valorization infrastructure. As a result, innovative oncology research from non-Oncode labs is often not exploited to its full potential. It is for this reason that during phase 1, Oncode started to provide curated valorization support to non-Oncode research labs and projects on a limited scale. Building on the lessons learned from these pilot projects, Oncode has the ambition to gradually but steadily increase valorization support beyond Oncode in phase 2 and make its valorization expertise accessible to the wider Dutch oncology research ecosystem. Oncode’s ambition to provide valorization support beyond Oncode addresses the issues identified in a recent report.

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Advisory council for Science, Technology and Innovation (AWTI Adviesraad voor wetenschap, technologie en innovatie ) study13, and the Government Strategy Strengthening Research and Innovation Ecosystems (Kabinetsstrategie Versterken van onderzoeks- en innovatie-ecosystemen)14 and aligns with the recommendation of the Action Programme ‘New Opportunities for Top Sector Life Science and Health (Actie programma, nieuwe kansen voor de Topsector LSH)14 to further stimulate (thematic) valorization.

The reach and pace of extending valorization support will be demand-driven and limited by available funds and the ability to hire specialized professionals.

In phase 2, Oncode intends to invite with priority the following stakeholder groups to access Oncode’s valorization expertise:

- **KWF**: KWF provides funding to support the activities of researchers throughout the Netherlands but relies on local technology transfer offices for valorization support. KWF & Oncode propose to deploy Oncode’s valorization capacity in support of curated basic oncology research projects funded by KWF to successfully accelerate the results of their research to the clinic/industry.

- **Partner Institutions**: Oncode’s partner institutions are host to a great variety of oncology-focused research groups that can benefit from Oncode’s valorization expertise and infrastructure. If access to such expertise and infrastructure is requested by these partner institutions, Oncode will evaluate what it can do to offer assistance, in collaboration with existing TTOs if desired, and based on available resources and capacity.

- At a later stage, Oncode will also explore options to provide valorization support for oncology research performed in institutions and organizations currently not affiliated with Oncode and which may have no, or limited, TTO support - for example, KNAW, NRG, non-academic hospitals such as the Isala Clinics and Maxima Hospital Veldhoven/Eindhoven, and foundations such as Kika, Villa Joep, Maag Lever Darm Stichting, and the Hersenstichting.

In order to provide expanded valorization support to oncology researchers throughout the Netherlands, several prerequisites will need to be fulfilled on a case-by-case basis, including the existence of a legal and financial framework agreement, granting Oncode the necessary rights to act as valorization partner with the associated terms and also providing the necessary resources to be able to handle increased volume of activities.

**BUDGET FOR VALORIZATION SUPPORT BEYOND ONCODE**: Phase 2 budget and restrictions associated with valorization funds does not allow to allocate budget specifically to extend valorization support beyond Oncode. The expertise of the VT can initially be deployed beyond Oncode if workload permits, but associated funding and additional workforce is required to provide such support at a meaningful level. Such funding will be sought from different sources.

13 https://www.awti.nl/documenten/adviezen/2020/10/07/advies-beter-van-start---de-sleutel-tot-doorgroei-van-kennisintensieve-start-ups
14 https://www.tweedekamer.nl/kamerstukken/detail?id=2020D53571&did=2020D53571
5.5.2 Oncode-PACT: a preclinical accelerator for cancer treatment

While the Dutch LSH-ecosystem holds most of the attributes required for successful translational of basic research innovations into new therapeutics, too few of these innovations ever make it to the clinic due to a long and challenging preclinical development process in a fragmented landscape. This forms a bottleneck for unlocking this potential and further developing the ecosystem. Academic researchers and start-up companies in the Netherlands currently have insufficient access to the expertise, facilities and capital required for preclinical development, and the current process is too slow. Additionally, the current process is not good at selecting candidate drugs that will be ultimately effective in patients (de-risking). As a result, the vast majority still fail later in the clinical development process, resulting in high development costs. This means that the potential for the economy and health remains unused.

Oncode is therefore together with partners spearheading a large-scale product development platform called the Oncode Preclinical Accelerator for Cancer Treatment (Oncode-PACT) through an application to the ‘Groeifonds’. Oncode-PACT will be set up as a nationwide translation and development infrastructure for the accelerated clinical readiness of innovations in oncology. Oncode-PACT will speed up the R&D process for oncology innovations by offering state-of-the-art facilities and services from industrial partners along the development process, while simultaneously pioneering and implementing novel technologies which will greatly improve the preclinical development processes. The platform will be accessible to both Oncode and the wider Dutch oncology community. To develop and launch Oncode-PACT, Oncode requires funds far greater than it can currently access. As such, it has submitted an application to Groeifonds, which is capable of financing such an initiative at the required level. The set-up of Oncode-PACT aligns with one of the actions put forward in the ‘New Opportunities for Top Sector Life Science and Health’ Actieprogramma; Nieuwe kansen voor de Topsector LSH) report, namely the set-up of a national overarching organization to stimulate the translation of research results as well as the recently published KNAW study “efficiency gains through innovation in medicines development: how can science contribute?” which proposes coordination at national level to support researchers. And make drug development faster and more effective and give patients better access to new therapies Lastly Oncode-PACT aligns with the goals and ambitions of the FAST programme16, by facilitating accelerated, focused development of promising innovations across Technology Readiness Levels (TRLs).

5.6 Links to the clinic

Oncode’s mission is to accelerate the translation of academic research findings into better treatments and diagnostics for cancer patients. To support this ambition, Oncode will; 1) stimulate interaction between basic scientists and the clinical community throughout its different activities (section 5.6.1), 2) provide dedicated funding to assess the clinical potential of research


16 FAST Impuls voor innovatieve therapieontwikkeling | Rapport | Rijksoverheid.nl
findings at a very early stage (section 5.6.2) and 3) ensure a fast and efficient continuation of successful clinical research by building partnerships with (inter)national academic medical centres and biopharmaceutical companies and helping to provide access to third party funding resources (section 5.6.3 Clinical follow up).

5.6.1 Stimulating interaction between scientists, clinicians and patients

Effective translation of basic research findings into clinical practice requires a close connection and mutual understanding between basic scientists and the clinical community. Oncode stimulates interaction between basic scientists, technology experts and clinicians by organizing clinical workshops around specific tumour types. By doing so, Oncode facilitates dialogue about clinical challenges and how scientific insights can contribute to solving them. In phase 1, these workshops, organized by OIs and clinicians, have already contributed to building an ecosystem in which basic scientists and clinicians can easily interact, share research insights, and collaborate. The success of the clinical workshops will be continued in phase 2 by organizing 4 workshops/year, which will be open to the Dutch research and clinical communities.

In addition and comparable to the entrepreneurs in residence, Oncode will establish a diverse group of clinicians in residence (see section 6.2.4), who can be approached on a regular basis to provide input to basic scientists and their business developers on the medical need and on how research findings can be translated into clinical practice. Furthermore, through the patient engagement programme (see section 4.1.2), Oncode Investigators are coupled with patient partners to have regular interactions to make sure the patient perspective is equally taken into account.

5.6.2 Clinical Proof-of-Concept programme

In phase 1, the Clinical Proof-of-Concept (CPoC) programme proved to be an effective tool for evaluating the potential of Oncode research findings at an early stage. The programme accelerates the transition from discoveries in basic research to validation in a human setting, as recognized by the IRC: "the efficient and rapid access to CPoC funding does benefit translational research". The programme enables OIs to move innovations into investigator-initiated clinical trials, or to test research concepts on clinical samples/data. The programme also allows Oncode to increase the value and/or de-risk an asset, thereby moving it to the next inflection point of value creation. The programme funds high-risk, high-gain proof-of-concept projects, which due to their early stage and uncertain nature are unlikely to be funded through conventional funding mechanisms. As such, the CPoC programme fills a critical gap in the funding landscape. Additionally, through the programme Oncode is able to fund trials into orphan or rare oncology diseases which are traditionally difficult to finance and/or not often pursued by big pharma/biotech due to limited financial benefit. Oncode will reserve a budget of €5M for the CPoC programme in phase 2, furthermore an additional €5M is expected to be raised through KWFs Major Donor Programme. The CPoC programme is managed and supported by a dedicated programme manager, with a background in clinical medical research and/or clinical trials.

Oncode’s clinical portfolio will be actively managed by the MB with guidance from the CAB & RMC. The OEDES team will be reinforced to include more diverse expertise, such as
biostatisticians, experts in regulatory requirements, CMC, drug development, diagnostics development et cetera (section 6.2.4). In a flexible composition, established to meet the required expertise for a particular CPoC-project, the OEDES-team will act as a mandatory sparring partner to the Oncode Investigator, his/her respective business developer and the clinician involved. By challenging the initial proposal and suggesting amendments, the proposal is being crafted to get the most out of an initial clinical study that is to be performed with limited means. Similar to phase 1, selection of CPoC projects will be based on a transparent and clear two-step review process. In phase 2 Oncode will be even more critical to fund high quality projects that:

- Are grounded in innovative findings from Oncode labs
- Address unmet clinical needs
- Have a viable valorization perspective
- Are executed in collaboration with and most appropriate national or international clinicians and clinical centres
- Have clear milestones with go/no-go decisions

Oncode will actively seek to establish partnerships with clinical centres that are spearheading innovative clinical trial designs, such as the DRUP study, anticancer fund and other national and international initiatives. Similarly, the use of Real World Data (RWD) and whole genome sequencing will be encouraged within the CPoC programme, if applicable.

### 5.6.3 Clinical follow up

The CPoC programme serves as a steppingstone towards creating clinical impact. Fulfilling Oncode’s ultimate aspiration of translating basic research findings into benefits for patients requires effective follow up of successful CPoC projects.

While Oncode does not have the expertise or funding to execute on its own behalf late-stage clinical development, its valorization team and programmes are well equipped to ensure proper follow up of CPoC projects, namely through:

- Building partnerships with (inter)national academic medical centres and biopharmaceutical companies, thereby providing OIs with access to specialized knowledge, infrastructures, and resources necessary to move research forward and closer to clinical implementation.
- Strategic funding support, thereby providing OIs and their collaborators with the funding needed to execute small-scale, late-stage clinical trials.

Currently, one CPoC project has been partnered to ensure future development beyond the CPoC funding. It’s our ambition in phase 2 to ensure future development for at least half of the CPoC-portfolio.
5.7 Affordable and Sustainable Healthcare

Oncode operates in an ecosystem directed towards improved understanding, detection, and treatment of cancer and aims to effectively and efficiently translate basic research discoveries into innovative treatment solutions. Oncode operates upstream in the drug and biomarker development process, and is therefore inherently limited in its ability to influence the final market price of such products. Nevertheless, Oncode is dedicated to contributing to the affordability and sustainability of cancer healthcare solutions and aims to do so in those activities where Oncode has specific expertise and is able to provide meaningful impact.

In phase 2, Oncode will integrate Affordable and Sustainable Healthcare (ASHC) within its scientific, collaborative and valorization strategies. Each pillar of Oncode contains specific attributes/elements through which Oncode can support and stimulate the development of affordable healthcare solutions and stimulate sustainable economic activity in the Netherlands. Oncode will contribute to ASHC by:

- **Creating awareness**: Oncode has an educational role in creating awareness about affordability and sustainability by:
  - Promoting a ‘fail fast’ attitude within the Oncode research community.
  - Educating the Oncode community on principles, such as cost effectiveness and performing early Health Technology Assessment (HTA), that will provide early guidance on the cost effectiveness of a novel diagnostic or therapy before being further developed within Oncode or by one of its (SME) partners. HTA measures the added value of a new treatment compared to the existing standard of care. It evaluates whether a new drug works better, equally well, or worse than existing alternatives, based on therapeutic effect, potential side effects, influence on quality of life, and means of administration. In addition, it also assesses the cost implication of a new treatment for the patient and its impact on the organization of healthcare systems. HTA is typically used by authorities and policy makers as an evidence-based auxiliary method to decide on reimbursement of new treatments and is therefore usually only implemented by drug developers in the late stages of development. Traditionally, it has not been taken into account at earlier stages. Incorporating HTA at earlier development stages can help to shape further development into cost-effective new treatments with a strong data package to ultimately become reimbursable.
  - Abortion of a novel diagnostic/therapeutic avenue at the research stage dramatically reduces the cost of failure. At the same time, stimulating the use of FAIR data and open collaboration can enhance efficiency of drug development – as has been witnessed by the development of covid vaccines – and therefore also positively contribute to reduced cost of failure.

- **Patient stratification**: Patient stratification aims to avoid giving a drug to a patient who will not benefit from it, thereby reducing the cost of failure at an individual patient level. The more our knowledge about cancer increases, the more obvious it becomes that cancer is a large collection of rare diseases and, as such, should be treated with
personalized medicines. Oncode promotes patient stratification by providing access to Oncode base funds (section 3.2.2) and through its CPoC programme and TechDev programme (section 5.6.2 and 5.3.2), which supports clinical validation of novel biomarkers and diagnostic technologies.

- **Drug repurposing**: The cost of failure can also be reduced by discovering novel medical uses for existing approved drugs, because these drugs have already successfully passed preclinical, early, and late stage clinical (safety) development hurdles. Approved drugs that are off-patent offer a further opportunity for affordability if they are generically available or can be locally and sustainably produced at reduced price. Oncode will continue to support drug repurposing by:
  
  - Providing continued access to its Drug Repurposing facility (section 3.3.1) and, if deemed necessary by the I&T advisory board, the drug repurposing library will be extended with newly available compounds.
  
  - Financing and supporting CPoC studies focused on drug repurposing (section 5.6.2) and via collaborations with (inter)national programmes and initiatives such as the ‘Goed Gebruik Geneesmiddelen programme’¹⁷ and the DRUP study¹⁸.

While drug repurposing offers great opportunities to bring new therapeutic solutions to the patient at accelerated pace, and Oncode will do everything in its power to leverage the opportunities of repurposed drugs for faster clinical implementation, it is important to note that clinical development and regulatory approval can still take many years and such activities fall outside the scope of Oncode’s activities and expertise. It is for this reason that Oncode stresses that stakeholders should have realistic ambitions and expectations with regard to drug repurposing.

**Advanced de-risking**: The cost-of-capital for innovative medicines is especially high because they are mostly developed by VC-backed spin-offs. Acquisition by established biotech or pharma companies generates a financial return for the VCs involved. The expectations for return-on-investment are high because VCs have to counterbalance the high risk of failure for some spin-offs in their portfolio. Advanced de-risking of innovative products with alternative financing is considered a possible solution to reduce cost-of-capital¹⁹. In phase 2, Oncode intends to deploy advanced de-risking for selected opportunities within the Oncode Bridge Fund (section 5.3.3), and at larger scale in the Oncode-PACT Groeifonds-initiative (section 5.5.2).

**Socially Responsible Licensing**: It is not within Oncode’s financial capabilities to bring a novel diagnostic or therapeutic to the market by itself. To achieve this, Oncode will always need to enter into agreements with established or newly created corporations that will manage and finance mid- to late-stage product development and ultimately product sales. In doing so, the goal is that an Oncode partner is contributing to sustainable economic activity in the Netherlands and striving to make innovative

¹⁸ https://www.cpct.nl/drup-drug-rediscovery-protocol-studie/
¹⁹ The-cost-of-opportunity-Gupta-Strategists.pdf
medicines based on Dutch research broadly accessible to Dutch citizens. Oncode believes that it is Oncode’s responsibility to ensure that its business partners comply with the same standards of fast, affordable (accessible for those in need), and sustainable drug development that Oncode is committed to. Oncode also recognizes that excessive pricing for novel therapeutics is not sustainable for a healthcare system.

Oncode has therefore integrated Socially Responsible Licensing (SRL) into its licensing activities. It is Oncode’s belief that ensuring compliance of its business partners with SRL is a joint responsibility in a true partnership, not as a list of obligations that Oncode imposes on its business partners to make life more difficult for them in a highly competitive environment. In a debate that is currently highly polarized, Oncode wants to unite rather than divide, emphasizing that SRL should nevertheless not impede a profitable business model with Oncode’s partners, because that would be unsustainable per se.

To improve the implementation of SRL principles in real-life valorization activities, Oncode proposes to act as a field lab. It explicitly incorporated SRL principles in its template license agreements during phase 1 and will continue to do so in phase 2. Furthermore, Oncode will keep close track of which principles come under pressure during negotiations with SMEs, their investors, or future pharma partners. In each case, we will strive to find workable commitments to ensure genuine ASHC compliance. We will also actively monitor executed license agreements for compliance with agreed commitments.

Oncode will connect (inter)nationally with other organizations and initiatives to learn and exchange best practices and make sure to convey best practices to Dutch funding bodies to harmonize SRL nationwide. Oncode is also willing to act as a conversation partner with public funding bodies, regulators, and payors to define suitable mechanisms to stimulate ASHC policies.

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6. Organizational Structure and Governance

6.1 Organizational Structure

6.1.1 Funders: agreements and contributions
OncoDec is financially supported by a coalition of public and private sector funding sources: KWF Kankerbestrijding, three government Ministries (EZK, OCW and VWS), Health Holland, ZonMw and the partner institutions. The relationship between OncoDec and its funders is set out in bilateral contribution agreements. During phase 1, the funders agreed to common reporting and communications requirements, integrated representation on the OncoDec Supervisory Board, and key performance areas and evaluation processes. Having bilateral agreements allows the specific needs of individual funders, such as additional information to support the funder’s internal and public accountability requirements, to be addressed. In addition to the formal reporting requirements, OncoDec convenes a group meeting of all funders twice per year to review activities, address challenges, and identify opportunities.

6.1.2 Partner institutions and affiliation agreement
In phase 1, the OncoDec community comprised 62 OIs from 12 research institutions (figure 1). Members of the phase 2 research team (section 3.2) will continue to work from their home research institutions (the OncoDec Partner Institutions) and in all cases they are employed by their home institution and subject to the policies, procedures and collective agreements of that institution.
OncoDec has developed an overarching valorization strategy to speed up the translation of new insights in cancer biology into tangible applications for patients, society, and the oncology community. Key to our valorization strategy are the affiliation agreements with our Partner Institutions, which grant OncoDec the exclusive right to manage and commercialize the intellectual property (IP) rights developed by an OI and his/her lab, regardless of that lab’s home affiliation. This effectively means that over 900 OncoDec researchers work together to execute a single strategy focused on oncology and receive proactive support to bring their discoveries/inventions to patients and society. The phase 1 affiliation agreement with our partner institutes will be subject to small alterations and improvements in order to improve the efficiency and working relationship with them. To achieve this, a working group will be assembled comprising the OncoDec VT members and representatives from the partner institutes and the NFU. The working group will specifically be tasked with identifying and removing/adapting terms within the affiliation agreement that currently slow down the valorization process.

6.2 Governance

6.2.1 Legal structure
OncoDec was established on July 27, 2017, as a legal entity in the form of a foundation, ‘Stichting OncoDec Institute’. The foundation explicitly does not aim to make a profit or advocate
commercial interest. The foundation has a Managing Board (MB) and a Supervisory Board (SB) as its sole corporate bodies. Oncode Institute holds 100% of the shares and voting rights of Oncode BV, a limited liability company that was established on September 21, 2018, to accommodate the activities of the Oncode Oncology Bridge Fund. Oncode BV’s Supervisory Board has an identical composition to Oncode Institute’s Supervisory Board, but it has its own Managing Board comprised of its Fund Managers.

6.2.2 Good Governance, transparency, audit and control

**Good Governance:** To ensure good governance, Oncode has developed a good governance charter based on the rules laid out in the Dutch ‘corporate governance code’ and the ‘good governance code’ for charities (SBF-Code Goed Bestuur). The Oncode good governance charter constitutes the regulations of its most prominent and influential boards and committees and encompasses key policies. The charter is published on the Oncode website and is periodically updated.

**Transparency, audit and control:** Oncode strives to be transparent both within the organization and to the outside world. Information flow from the SB and MB to Oncode researchers is managed primarily through the RMC. Monthly newsletters provide the entire community with updates, while bi-weekly Oncode staff meetings keep Oncode staff up to date. Formal reporting includes an Annual Report that highlights Oncode’s activities and achievements in the preceding year. A full version of the Annual Report is shared with all stakeholders, and a summary is shared with the general public and Oncode’s academic and business contacts. In addition, quarterly meetings are held with each of the Institute’s stakeholders, with each of them receiving additional reports tailored to their respective regulations and requirements.

Oncode Institute established an audit committee comprising two subject matter experts from the SB. The audit committee meets with the Valorization Director and the Head of Finance prior to each SB meeting. ShareImpact acts as an independent external auditor, performing a full audit of the financial reporting and internal processes for Oncode and Oncode BV, and reporting directly to the respective SBs.
6.2.3 Leadership: SB, MB, RMC

Oncode is set-up as a virtual institute with a small team providing programme management, valorization services, general management, and support to all Oncode researchers across the different partner institutions. Oncode’s staff is guided and supported by its board and committees (Figure 2).

Managing Board

Oncode is run by its Managing Board (MB) which consists of two members, a Scientific Director (SD) and a Valorization Director (VD). The SD serves as Head of the Institute and is required to run his/her own research group within one of the partner institutes. The SD is responsible for the execution of scientific strategy decisions and leads the RMC, and is responsible for the execution of Oncode’s targeted programs by the CoRe team and communications. The VD is responsible for execution of the valorization strategy and leads the valorization support team, and is responsible for execution of finance, HR and IT. Oncode’s MB is responsible for all major decisions pertaining to the institute. The MB reports to the SB. In weekly meetings, the members of the MB decide on allocation of resources in accordance with the budget, on the launch of new initiatives and on the review and content of institutional reports, prepare meetings with the SB and individual stakeholders, and discuss operational matters. To strengthen the clinical perspective within the MB, the chair of the CAB will be invited every 3-4 months to the MB meetings. Furthermore, twice a year the MB convenes to discuss progression towards the institute’s strategic objectives and upcoming major proceedings.

The Managing Board of Oncode BV consists of two fund managers, who are responsible for identifying and evaluating investment opportunities suitable for the Oncode Oncology Bridge Fund. The fund managers meet at least once a week.

Supervisory Board

The Supervisory Board (SB) supervises and oversees the implementation of Oncode’s overall strategy and the general course of its affairs. It consists of eight members: an independent chair (unattached to any stakeholder), four members each nominated by one of the Oncode stakeholders (KWF, the Ministries, the affiliated research institutions, and the UMCs), two
members with expertise in valorization and operations, and a patient representative. The SB meets at least four times a year to discuss and, if applicable, formally approve the plans and strategies of the MB. The SB also approves the budget proposal in yearly cycles and is responsible for the appointment and dismissal of MB members. New members of the SB are recruited and appointed by the SB. The members of the SB are appointed for a period of four years and may be reappointed only once for a period of four years.

Research Management Committee

The Research Management Committee (RMC) advises the Scientific Director, and thereby the MB, on research related topics such as the development and execution of Oncode’s scientific strategy, assessment, and selection of OIs. As a rule, the Managing Board does not decide on scientific/research related topics unless these are discussed with the Research Management Committee beforehand. The RMC consists of at least 7 OIs (including the Scientific Director) and is complemented with the chair of the Clinical Advisory Board to ensure clinical perspectives throughout all discussions on research strategies. A fair balance of representations should be reflected in the constituency of the RMC, taking into account the following criteria: Research expertise, partner institutions, gender and age.

The RMC meets at least 8 times a year, and at least twice a year the MB will attend an RMC meeting. The RMC also convenes once a year for a 1-day retreat to discuss progression towards the institute’s scientific objectives and upcoming major proceedings.

6.2.4 Advisory Committees

The International Advisory Board (IAB): The IAB supports Oncode by providing advice to the MB. It annually provides input on Oncode’s progression towards its strategic objectives on the basis of the Annual Report during a virtual or on-site meeting. In addition to the annual meeting, Oncode consults individual IAB members throughout the year.

The Clinical Advisory Board (CAB): The CAB provides guidance and advice to the MB and RMC on clinical research related themes, such as clinical strategy and implementation of Oncode’s research programme, clinical projects, and appropriation of Oncode’s CPoC fund. Upon request, the CAB provides advice to Oncode researchers to increase the likelihood of successful clinical development of their research. The CAB meets at least three times a year. The chair of the CAB will be joining the MB every 3-4 months to discuss clinical matters at a strategic level. A representative of the MB will join the CAB at least once annually for outlining and discussing strategic directions.

The Investment Advisory Committee (IAC): The IAC advises the fund management of the Oncode Bridge Fund (Oncode BV). The role of the IAC is to review and make recommendations on investment proposals presented by the fund managers. Initially, it consists of three members and will gradually expand to five members with diverse early-stage venture experience in the field of life sciences. The members of the committee have a mixture of technical, scientific, business, and investment experience in building and growing therapeutics, diagnostics, and service-focussed oncology companies.
The Oncode Exploratory Development Expert Support team (OEDES): The OEDES team provides guidance and advice on translating Oncode’s fundamental scientific insights into new diagnostics and therapeutic strategies. Together with our scientists, the OEDES optimizes the design of the most efficient and effective (pre-)clinical strategy for early assessment of the benefits profile of Oncode inventions. This includes the definition of a quantitative Target Product Profile and associated CPoC decision criteria as well as the identification of biomarkers with relevant predictive value. The OEDES has extensive experience in exploratory development in both major pharmaceutical companies as well as in small biotechs across a wide range of indication areas. In addition and comparable to the entrepreneurs in residence, Oncode will establish a diverse group of clinicians in residence ((CIR) see below), who can be approached on a regular basis to provide input to basic scientists and their business developers on the medical need and on how research findings can be translated into clinical practice, these CIR can also take seat in the OEDES team if their particular expertise is required.

The Valorization Advisory Board (VAB): The aim of the VAB is to advise Oncode’s MB on valorization matters. It is being established, aiming to tap into the expertise and network of a diverse group of leaders in industry, academic valorization, and oncology care.

Entrepreneurs-In-Residence (EIR): The Oncode Oncology Bridge Fund appointed three EIRs: Markwin Velders, Allard Kaptein, and Dirk Pollet, in an advisory role. The EIRs are seasoned entrepreneurs who have seen companies through from concept to successful market entry. They have access to an extensive network of investors and business professionals. In the pre-incorporation phase, they are available for consultation with the research groups to increase their understanding of new enterprise creation realities. Once the Bridge Fund has invested, the EIRs can provide ongoing coaching and mentoring support to portfolio companies.

Clinicians-In-Residence (CIR): In phase 2, Oncode will appoint CIRs in an advisory role. The CIRs are seasoned clinicians who have been involved in- and led clinical research from proof of concept into clinical practice. At an early (pre)clinical stage, they will be available for consultation with the research groups and valorization team to increase their understanding of new concept and clinical implementation realities. They have access to an extensive clinical network including key experts in specific therapeutic area’s and leading clinical trial centres. Once research has entered into the clinical stage, the CIR can provide ongoing coaching and can be consulted upon further clinical development. CIRs, will on a regular basis interact with the valorization team and can be requested to partake in OEDES workshops to provide their clinical expertise.

6.2.5 The Oncode support teams
Oncode relies on a diverse team of professionals to ensure the realization of its strategy. Under the supervision of the SD and the VD, approximately 20 people work closely with Oncode’s research teams, partner institutions, and funders.

Community and Research (CoRe) support team: The CoRe team supports the realization of Oncode’s mission through the management of supporting programmes, events, and activities – for example, the ‘Technologies & Infrastructure’ and ‘Patient Engagement’ programmes, and the organization of small- and large-scale meetings and events.
Valorization Team (VT): Oncode has recruited a diverse international team of business developers that address the valorization needs of the Oncode community. Under the guidance of the VD, the VT members contribute their extensive expertise in business development, new company creation, IP management, large public funding programmes, international collaborative research, and knowledge transfer. Furthermore, Oncode has engaged several external experts to bring in unique expertise as required. Oncode’s EIRs, CIR as well as members of its OEDES team will become more readily available to the VT in phase 2. Lastly, a wide range of specialized consultants can bring specialized and hands-on expertise if required.

Finally, Oncode’s general organization support comprises communication, IT, finance, HR and administration professionals.

6.3 Monitoring & assessment

6.3.1 Monitoring procedures

Annual progress report: The Managing Board, with the assistance of the Research Management Committee, monitors the progress of Oncode. In phase 1 Oncode has put systems in place that supports reporting from the OIs, its targeted funding programmes and its valorization activities. Based on these inputs Oncode provides its International Advisory Board (IAB) with an annual progress report covering the overall performance of the preceding year and within Oncode’s Key Performance Areas (KPAs). During an annual meeting with the IAB, the progress will be discussed with members of the MB and optionally RMC members and/or OIs. This institute progress report including the financial reports will be officially approved by the Supervisory board before release to Oncode’s funding partners, including the partner institutions. This annual institute progress report will be accompanied with a report of the assessment of the International Advisory Board.

Annual monitoring of OIs: Subject to the affiliation agreement OIs will annually provide an annual OI progress report, in which they provide an update on ‘base fund’ research projects, future plans funded targeted programme projects and their valorization and translation/clinical activities. The RMC will annually monitor the progression of the OIs and assess whether reported activities adequately contribute to Oncode’s strategic ambitions. If deemed necessary the RMC will provide feedback to OIs who’s progressions are judged to be unsatisfactory.

6.3.2 Assessment procedures

Oncode’s horizon stretches well beyond phase 2, it is therefore Oncode’s intend to ensure the continuation of the Institute beyond 2027. To ensure that Oncode’s current & future funders can commit to a new funding term Oncode will, similar to phase 1, set up an assessment procedure through which Oncode’s performance will be assessed against its progress in achieving its ambitious strategic objectives. Oncode’s assessment procedures entail both an Institute assessment as well as the individual OI assessment.
Institute assessment: The Institute assessment should confirm Oncode’s phase 2 performance against the objectives set out within Oncode’s KPAs. For this an Independent Review Committee (IRC) consisting of national and international renowned experts will perform an institute wide review. On institutional level, Oncode’s performance will be assessed against its progress in achieving its strategic objectives which are described in the strategic plan and will be further detailed within the KPAs. In the first year (2023) of phase 2 Oncode will, in discussion and agreement with its funding partners, update the phase 1 KPAs to match the ambitions described in the strategic plan. The institute assessment, including an assessment of Oncode’s strategic plan for the future will be planned ultimately by September 2026, providing Oncode and its current and future funding partners ample time for the realization of the continuation of Oncode beyond 31 December 2027.

OI assessment: Individual OIs will be assessed on their past performance in Oncode and their potential contribution to the Oncode’s future strategy. For this an assessment procedure will be set up similar to the phase 1 OI assessment procedure, including assessment of excellence in the domains of science, collaboration, valorization, and (potential for) patient impact. The procedure will be performed in a fair, transparent manner with independent reviewer input. The OI assessment outcomes will be evaluated by Oncode’s IAB and IRC. Selection of the OI research team by the MB will be based on the assessment outcomes, IAB/IRC recommendations, strategic considerations and available budget.

6.4 Financial Plan

6.4.1 Phase 2 (2023 - 2027) highlights
For phase 2, Oncode has set out an ambitious plan in which it is continuing phase 1 activities and initiatives, in accordance with the Total Budget as described in Appendix IV.

The total secure new revenues for phase 2 are forecasted to be €87,5 M, with an additional €4,5M (specifically for the bridge fund) being carried forward from phase 1, and the non-secure revenues are forecasted to €71.8M, which means the total revenues are forecasted to be €163M. The sources of Oncode’s revenues are described in section 6.4.2.

The total expenses based on the secure revenues from phase are forecasted to be €91,7M. The allocation of these funds is described in this strategic plan and briefly in section 6.4.3. Expenses are made in the following proportion:

- Research & community €49,230M (54%)
- Valorization €19,444M (21%)
- Oncode Bridge Fund €13,002M (7%)
- General €10,025M (11%)

6.4.2 Revenues
KWF Kanker Bestrijding:
KWF Kanker Bestrijding has expressed the intention to provide Oncode with a financial contribution of €60M in total for Oncode phase 2 (line 1a, in overview below), €20M of which still has to be secured through the KWF major donor programme throughout the runtime of phase 2. In case the revenues of the Major donor programme exceed the expected target of €20M, Oncode will in coordination with KWF ensure proper allocation of additional funds.

Ministry of EZK:
The ministry of EZK has expressed the intention to provide Oncode with an additional subsidy of €12,5M in total for Oncode phase 2. Remaining funds from phase 1 will be carried forward to phase 2. This is particularly important for the current Oncode Bridge Fund, for which €4,5M are still available from phase 1 to be used in the current fund with an investment period running till 2025. Funds will be entirely acquired from the Toekomstfonds, which has a revolving character, meaning that the subsidy is repayable under certain conditions.

Topsector Life Sciences & Health (Health Holland):
The TKI Life Sciences and Health ("TKI-LSH") has expressed the intention to provide Oncode with a subsidy in the order of magnitude of €20M in total for Oncode phase 2. The subsidy is to be provided to Oncode through a combination of a tailor-made programme agreement with TKI-LSH and competitive PPP-project financing. The total subsidy amount will be a combination of PPP allowance: 1) to be generated through existing grondslag for an amount of €6,6M and 2) to be generated in the future through Oncode institute or in collaboration with members of samenwerkende gezondheidsfondsen (SGF) (estimated to yield to €4,4M), potentially in combination with strategic funding (€2M) directly provided by TKI-LSH. Lastly Oncode expects to receive ~€7M from competitive calls subsidizing PPP-projects.

Ministry of VWS:
The ministry of VWS has decided to provide Oncode with a financial contribution of €11,5M in total for Oncode phase 2. The funding from this ministry consists of two different funding flows, firstly a 'direct' contribution of €10M, which will be made available through ZonMw to Oncode. In addition, the ministry has, through ZonMw, reserved €1,5M under their ‘Goed Gebruik Geneesmiddelen’ programme. These funds will be used to support the Drug Repurposing efforts within the Clinical Proof-of-Concept programme.

Ministry of OCW:
The ministry of OCW has expressed the intention to provide Oncode with a financial contribution of €12,5M in total for Oncode phase 2, which will be entirely acquired from the Toekomstfonds, which has a revolving character and therefore the subsidy needs to be repaid under certain conditions. Since the funding is taken from the Toekomstfonds, it is administered through RVO.

Partner institutions:
The financial contribution of the partner institutions to Oncode is calculated as a 5% share of any funding the partner institutions receive from Oncode.
6.4.3 Expenses Oncode Core funding

Expenses for Research and community support
The base research funding provides annual grants to each OI (senior OIs - €200k, junior OIs - €120k). €45M will be allocated to support OIs, the majority of this will be allocated to OIs who have been selected from the phase 1 OI group to proceed into phase 2. Additionally, a portion of this budget will be reserved for the recruitment of new OIs as of year 2 of phase 2. Partner institutions are permitted to charge a maximum of 10% of these funds in support of the indirect costs of research.

Oncode’s community support is aimed at promoting collaboration and enhancing the research capacity and effectiveness of Oncode researchers. These activities include:

- Equipment and Infrastructure (including core facilities):
- Institutional Initiatives, including Patient Engagement, Open Science and Data Stewardship programme, organization of meetings and events, workshops, training and mentoring programmes
- Support by dedicated CoRe personnel

Valorization expenses
Oncode valorization expenses consist of the valorization programmes and funds (€11M secured funding) and further includes also the operational expenses of the Valorization Team (€9M).

Oncode’s valorization programmes and funds include:

- IP fund €2M
- TechDev fund €4M
- Clinical Proof of Concept €5M - to be further extended if funding allows

The Valorization Team consists of an international team of business development experts directly employed by Oncode, as well as a broad network of consultants and external experts. Its total operational expenses over the 5 years period are budgeted at €9M.

Oncode BV, managing the Oncode Bridge Fund
From Oncode BV the current Oncode Bridge Fund is managed, for which still €4,5M can be invested in Oncode-related start-up companies. A new Oncode Bridge Fund II will be prepared for which €6,5M is reserved in the Toekomstfonds.

The operational expenses of the BV, including the fund managers, are budgeted at €1,5M over the entire period of phase 1.

General Management support and administration expenses
Oncode has budgeted in total €10M for management, support and administration expenses.
Oncode relies on a diverse team of professionals to ensure the realization of its strategy. Under the supervision of the MB, Oncode’s support personnel will ensure proper execution and management of the phase 2 strategy.

The General Office expenses cover costs such as accommodation, communication, IT, insurance, travel, meeting, consultancy and advice.

**Expenses related to repayment of Toekomstfonds loans**
As part of the current conditions for subsidies originating from the Toekomstfonds revenues generated from IP (reimbursement of patent expenses and licensing revenues) are used to repay over a 15-year period the subsidies received from the Toekomstfonds. The additional subsidies originating from the Toekomstfonds will be provided under the condition that 50% of these subsidies will be repaid over a 15-year period starting in 2023.

**6.4.4 Financial risks & risk mitigation**
- A part of KWF Kanker Bestrijding’s contribution - €20M - needs to be raised during the runtime of phase 2 through the KWF major donor programme. The major donor programme might result in a decreased or delayed annual income for Oncode and thereby impact Oncode’s ability to make required financial commitments.

- The TKI-LSH contribution partly relies on an agreement with the Partner Institutions to be able to raise PPP-allowance based on existing PPP-projects and on Oncode’s ability to attract private investments. In addition, the mechanism of PPP-allowance in itself is subject to revision. Therefore, the precise amount of PPP-allowance that Oncode will be able to secure, is uncertain. The core budget only takes into account a contribution by TKI-LSH, which is based on historic (up to 2021) PPPs for which the amount of PPP-allowance has been secured.

- The Oncode phase 1 Affiliation Agreement is used as a template for the phase 2 Affiliation Agreement, it is expected that no material changes are required. Any large fundamental changes could potentially have far-reaching implications.

**6.4.5 Financial sustainability**
Oncode was set up to create a new model for innovation and valorization with the ultimate goal to accelerate the translation of innovative research findings for the benefit of society and cancer patients. When initiating Oncode, its founders realized that accomplishing Oncode’s goals requires a long-term vision. It is for this reason that Oncode’s funders ensured financial stability for at least the first ten years of operations. However, reaping the societal and economic fruits of the investments made in Oncode requires Oncode to stay in operation for far longer than ten years.

Oncode is modelled on the Flemish Institute for Biotechnology (VIB), which has been operational for over 25 years. Throughout its existence, the VIB has relied on funding from the Flemish government (~49% in the past 5 years). Additional funding is acquired through
(inter)national research grants, private investments, and to a lesser extent through license income. The VIB model of basic research and valorization has been internationally recognized as very successful and has had a major impact on Belgian society and the Belgian economy. A recent study on its economic impact calculated an 11-fold return on investment for government investment in VIB\textsuperscript{21}, spurring the Flemish government to increase funding every 5 years.

After 5 years of operations, Oncode is already creating tangible return on investment for Dutch society and the Dutch economy. Start-up companies have been created, which in turn have created employment opportunities, raised investments, and generated revenues. Similarly, Oncode’s innovative research has resulted in top tier publications, patents, follow-up research funding, public and private collaborations, licenses, and clinical trials. These first years of operations have shown that Oncode is able to create an impact that is felt far beyond the institute itself. In time, this impact from Oncode’s integrated engine of innovation and valorization will grow, leading to a return on investment on par with VIB. Like VIB, Oncode will continue to require, at least in part, abiding financial support from its core funders. We also foresee that Oncode will be able to increase revenues from its licenses, (inter)national research grants, and contributions from public and private third parties, both national and international. We envision that financial stability from our core funders, together with these additional revenues, will establish a powerful VIB-like model that will ensure Oncode’s sustainability and place it in the optimum position for success. As a result, during phase 2, Oncode and its funding partners will set up the framework for a sustainable financial model that will ensure Oncode’s future well beyond the end of phase 2.

6.5 Policies and procedures

Note: In conversation with our funders we want to work towards commonly shared policies and procedures. As these conversations are ongoing, the policies and procedures for phase 2 have not yet been detailed.

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Appendix I

OI assessment and selection procedure

Version as used for OI evaluation in 2022.

1. Goal

The goal of OI assessment and selection is to select the team of OIs continuing into phase 2 via a transparent and efficient process. All senior OIs that would like to continue into phase 2 need to take part, as well as junior OIs who joined Oncode from 2017 onwards. The junior positions are 5 years and therefore the purpose of the junior OI assessment is twofold, 1) continuation into phase 2, and 2) promotion to a senior position.

2. Assessment process

- **OIs will be assessed on two criteria:**
  1. *Scientific excellence*
  2. *Contribution to Oncode’s goals* – including 1) sharing/collaboration; 2) valorization (including CPoC, Open Science and providing facilities); 3) participation in Oncode meetings/boards/committees)

- **Input from OIs for assessment**
  Assessment will be done on the basis of a 5-year ‘progress report’ and CV in which specific activities will be described by the OIs, including research, impact, and achievements. In addition, Oncode will prepare a file with an overview of Oncode activities (name: ‘Oncode activities overview’). Before sharing this file with the reviewers, it will be sent for approval to the OIs.

- **‘Scientific excellence’ assessment**
  The ‘scientific excellence’ section of all the OI progress reports (including RMC members and the Scientific Director) will be assessed by independent international reviewers. Senior OIs will be reviewed by three reviewers, junior OIs by five reviewers.

- **‘Contribution to Oncode’ assessment**
  The ‘Contribution to Oncode’ section will be assessed by the RMC based on 1) the progress report; 2) the Oncode activities overview; and 3) the Valorization Score provided by the Valorization Team and external valorization experts.
  - Valorization Score: the VT will review, as a team, the OIs for their valorization activities and contribution, and provide a review report including a score per OI and a narrative substantiating the score for each OI. Parameters to be included by the VT are IDFs, patents filed, agreements entered into (associated €), spin-off companies formed, as well as softer metrics such as engagement with industry (eg. discussions with industry as part of marketing activities). The report will be reviewed by 2 independent external valorization experts. The RMC will include clinical activities, open science, AHC, in their assessment.

The RMC will integrate the reviewer report and assessment of ‘Contribution to Oncode’ and distil an overall score per OI.
3 Scoring criteria

3.1 Scientific excellence

The reviewers will be asked to score the OIs according to the following criteria:

### Senior PIs

*Note: since PIs were selected to join Oncode Institute based on prior excellence, we assume all of them are at least ‘Good’ and hence have not defined a category lower than ‘middle tier’. If a PI nonetheless score’s lower, it will be indicated in accompanying reports.*

Overall: considering the past performance and future plans, is the senior PI:

1. **Highest Top tier.** Outstanding PI. Proven track record of (or potential for) equivalent of HHMI investigator/ERC-AdG awardee, would be worthy of getting recruited to your country’s top institute. Extremely high potential for high impact innovations or break-through discoveries in the next 5 years.

2. **Top tier.** Excellent PI. Very strong track record, clear leader in his/her broader field (e.g. immuno-oncology, genomic instability, cancer biology, cancer genomics, etc) or someone who has a large impact on several fields with a specific technology or platform. Makes regular discoveries with high impact* (e.g. two or more in the past 5 years). Very strong recent indicators-of-excellence. High potential for high impact innovations or break-through discoveries in the next 5 years.

3. **Sub-top tier.** Very good PI. High quality science, competitive in his/her broader research field. Good recent indicators of excellence. Makes discoveries with high impact* occasionally (e.g. one in the past 5 years) but not frequently. Some potential for high impact innovations or break-through discoveries in the next 5 years.

4. **Middle tier.** Good PI. Good track record. No or a few recent good indicators-of-excellence. Solid science but no high impact* discoveries in the past 5 years. High impact innovations or break-through discoveries are not likely in the next 5 years.

### Junior PIs

Overall: considering the past performance and future plans, is the junior PI:

1. **Highest Top tier.** Outstanding young PI. Proven track record of (or potential for) equivalent of HHMI early career / ERC-CoG awardee. Well on his/her way to become a prominent scientist impacting multiple broader research fields. Extremely high potential for high impact innovations or break-through discoveries in the next 5 years. Would be worthy of getting recruited to your country’s top institute.

2. **Top tier.** Excellent young PI. Very strong track record, on his/her way to become a leader in his/her broader field (e.g. immuno-oncology, genomic instability, cancer biology, cancer genomics, etc. etc.) or someone who has a large impact on several fields with a specific technology or platform. Very strong indicators-of-excellence. High potential for high impact innovations or break-through discoveries in the next 5 years.
Would have a good chance of getting a tenured position at a top institute in your country.

3. **Sub-top tier.** Very good young PI. High quality science, competitive in his/her broader research field. Good recent indicators of excellence. Some potential for high impact innovations or break-through discoveries in the next 5 years. Would be worthy of a tenured position at an excellent institute in your country but may not make it at your country’s top institute.

4. **Middle tier.** Good young PI, good track record. No or few recent good indicators-of-excellence. Solid science, middle of the pack in his/her broader research field. High impact innovations or break-through discoveries not likely in the next 5 years. Has a chance of getting tenure at an excellent institute in your country, but not certain.

*) Impact does not necessarily relate to impact factor of the journal the discovery was published in. Please consider how the findings impact on the broader research field(s).

### 3.2 Contribution to Oncode

Contribution to Oncode will be evaluated based on the progress report and overview of Oncode contributions. The report details the narrative CV, non-scientific achievements, contribution to and benefit from Oncode, and an overview of indicators (patents, CPoC projects, collaborations, panel and committee memberships etc).

The Valorization team and external valorization experts will score:

**Valorization:**

**Excellent.** Played a key role in starting an innovative company and/or in getting research findings into innovative (proof-of-concept) clinical trials and/or attracted substantial industry funding and/or created a substantial societal impact in another manner (e.g. open science, policy, communication to lay person/patient audiences).

**Good.** Filed patents, and/or was involved in starting a company, and/or in developing (proof-of-concept) clinical trials, and/or attracted industry funding and/or created societal impact in another manner (e.g. open science, policy, communication to lay person/patient audiences). The major difference between ‘good’ vs ‘excellent’ is qualitative, not quantitative. This category also includes those who show clear interest in valorizing their science whenever possible. (e.g. frequently seek interaction with their BD, volunteer to engage with lay/patient audiences, etc).

**Poor.** No or little concrete affinity with valorization or working with BD.

The RMC will score:

**Participation in Oncode events & Contribution to institute (panels, meeting organization, engagement activities, running facility, training and mentoring):**
**Excellent**: e.g. very frequently involved in Oncode activities, takes initiative, very responsive to requests

**Good**: e.g. regularly involved in Oncode activities, passive contribution, responsive to requests

**Poor**: e.g. rarely involved in Oncode activities, relatively invisible, not very responsive to requests.

**Collaboration** (career stage taken into account):

**Excellent**: Central figure, many high-quality collaborations with OIs, also outside of the home institute. Is also involved in collaborations that strengthen the science of other Oncode PI.s. His/her research/technologies clearly important for research or valorization of a substantial number of OIs.

**Good**: Several new high-quality collaborations with OIs, some also outside of the home institute.

**Poor**: Some collaborations, but mainly within home institute.

The RMC will give a final Impact on Oncode score and corresponding argumentation.

### 3.3 Final scoring Contribution to Oncode (E = excellent; G = good; P = poor):

1. **Top tier.** E/E/E or E/E/G or E/G/G (irrespective of which category). Clearly a must-keep member of the community.
2. **Upper middle tier.** E/E/P or E/G/P or G/G/G (irrespective of which category). Good member of the community.
3. **Lower middle tier.** E/P/P or G/G/P (irrespective of which category). Somewhat contributing member of the community.
4. **Low Tier.** G/P/P or P/P/P (irrespective of which category). Does not contribute substantially to the community.

### 4. Selection process

Final scores for science and contribution together with possible strategic considerations, will result in proposal for yes/no continuation of OIs for phase 2, to be evaluated by the IAB. IAB advice will then be considered by IRC. The IRC will formulate a final advice to the MB for yes/no continuation of OIs for phase 2, taking into account the RMC report and IAB advice. The MB will make the final decision.

#### 4.1 Selection criteria*:

- Science score 4 AND/OR Contribution score 4 = not invited to phase 2
- Science score 3 AND Contribution score 3 = not invited to phase 2
- Any other combination = invited to phase 2
*outcome selection criteria subject to change, depending on final phase 2 budget and possible strategic considerations.*

5. **Assessment of the RMC members**

The full progress reports and review reports of RMC members, except for the Scientific Director, will be assessed by the IAB and the IRC. The IAB will produce an overall score and formulate advice for phase 2 and submit this to the IRC for review. This will be part of the final report to the MB.

Oncode’s Supervisory Board will decide on continuation of the Scientific Director into phase 2 based on the review reports.

**External reviewer**

- **Fields of expertise**
  
  The research portfolio will be divided into 6 fields of expertise for 2 reasons: 1) to recruit a group of reviewers covering the full breadth of Oncode research; 2) to give OIs the opportunity to indicate which field(s) they would like to be associated with so that they can be matched with at least 3 reviewers with corresponding expertise. In this set-up, OIs will be reviewed by different combinations of reviewers.

  Fields of expertise:
  
  1. (Tumour) immunology
  2. Genomic instability
  3. Biochemistry/chemical biology/technologies
  4. Genomics/transcriptomics
  5. Cancer biology
  6. Pre-clinical/translational

- **Mandate external reviewers**
  
  Reviewers will be asked to score the scientific excellence of OIs. No ranking will be requested. Reviewers will be notified that the review is like a ‘site-visit’ and meant to identify which OIs fit the Oncode criteria of excellence (to be made explicit in reviewer score sheets – still in preparation).

- **Conflict of interest**
  
  The Oncode Conflict of Interest policy for reviewers applies.

**Phase 2 considerations for OI positions**

- In phase 2, Oncode will continue the setup with junior and senior positions. Base funding for juniors will be 60% of that for seniors. Junior positions are for a maximum of 5 years, with promotion from junior to senior requiring an assessment. Juniors who started in 2017 will be assessed both for continuation into phase 2 and promotion to a senior position.

- Junior OIs who started in 2019 will continue into phase 2 without the need for immediate assessment and will be assessed in 2023.
• OIs will need to have at least a 0.5 FTE contract with an affiliated partner institute to be eligible for the full base fund amount. If an OI has less than a 0.5 FTE position at one of Oncode’s partner institutions, the RMC will evaluate the added value of the OI. If evaluated positively, the level of base funds will then scale with the FTE workload (e.g., a 0.4 FTE position at a Dutch research institute equals 40% of the maximum base funds).
• Base funds will be reduced to junior level (€120k)
• Base funds cannot be used for the salary of the OI.
Appendix II

Phase 1 accomplishments

Clinical activities:
Table 1: Overview of clinical activities of OIs during the baseline period, 2018, 2019, 2020 and 2021.

<table>
<thead>
<tr>
<th>Year</th>
<th># involved in clinical studies (# of OI involved)</th>
<th># CPoC studies awarded by Oncode (# OIs involved)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg Baseline</td>
<td>3,6 (3)</td>
<td>-</td>
</tr>
<tr>
<td>2018</td>
<td>8 (6)</td>
<td>6 (5)</td>
</tr>
<tr>
<td>2019</td>
<td>14 (10)</td>
<td>3 (3)</td>
</tr>
<tr>
<td>2020</td>
<td>14 (13)</td>
<td>4 (4)</td>
</tr>
<tr>
<td>2021</td>
<td>15 (9)</td>
<td>4 (4)</td>
</tr>
</tbody>
</table>

Valorization indicators:
Table 2: Overview of valorization indicators during the baseline period, 2018, 2019, 2020 and the 2021. (*Please note that legacy patents and invention disclosures have been included in this table.)

<table>
<thead>
<tr>
<th>Year</th>
<th># licenses</th>
<th># patents*</th>
<th># invention disclosures*</th>
<th># new spin offs</th>
<th># FTE employed at Oncode spin offs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg Baseline</td>
<td>4</td>
<td>8</td>
<td>n.a.</td>
<td>3</td>
<td>n.a.</td>
</tr>
<tr>
<td>2018</td>
<td>0</td>
<td>22</td>
<td>45</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2019</td>
<td>2</td>
<td>25</td>
<td>41</td>
<td>1</td>
<td>5.8</td>
</tr>
<tr>
<td>2020</td>
<td>17</td>
<td>27</td>
<td>48</td>
<td>2</td>
<td>17</td>
</tr>
<tr>
<td>2021</td>
<td>9</td>
<td>38</td>
<td>36</td>
<td>2</td>
<td>17</td>
</tr>
</tbody>
</table>

Industry engagement indicators:
Table 3: Overview of industry engagement indicators during the baseline period, 2018, 2019, 2020 and 2021.

<table>
<thead>
<tr>
<th>Year</th>
<th># Agreements with industry</th>
<th>£ TKI grants</th>
<th>£ Industry grants</th>
<th># co-publications with industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg Baseline</td>
<td>n.a.</td>
<td>n.a.</td>
<td>1.4M£</td>
<td>36</td>
</tr>
<tr>
<td>2018</td>
<td>37</td>
<td>0.2M£</td>
<td>3.5M£</td>
<td>36</td>
</tr>
<tr>
<td>2019</td>
<td>122</td>
<td>1.1M£</td>
<td>3.6M£</td>
<td>77</td>
</tr>
<tr>
<td>2020</td>
<td>117</td>
<td>2.0M£</td>
<td>2.8M£</td>
<td>71</td>
</tr>
<tr>
<td>2021</td>
<td>172</td>
<td>2.0M£</td>
<td>2.7M£</td>
<td>70</td>
</tr>
</tbody>
</table>

Strategic funding support programme:
Table 4 Overview of strategic funding activities during 2018, 2019, 2020

<table>
<thead>
<tr>
<th>Year</th>
<th># grant application submitted</th>
<th>Success rate</th>
<th>Total Funding secured</th>
<th>Funding secured for spin offs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018 &amp; 2019</td>
<td>21</td>
<td>38%</td>
<td>1.7M£</td>
<td>96K£</td>
</tr>
</tbody>
</table>
Phase 2 valorization targets

Oncode has set itself ambitious but realistic goals for valorization outcomes expected in phase 2, based on past performance and expected size of the research community and available research funding.

<table>
<thead>
<tr>
<th>Oncode Outcomes</th>
<th>Avg. '19 – '21</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
<th>2026</th>
<th>2027</th>
</tr>
</thead>
<tbody>
<tr>
<td># OIs</td>
<td>61</td>
<td>61</td>
<td>50</td>
<td>55</td>
<td>55</td>
<td>58</td>
<td>58</td>
</tr>
<tr>
<td>Research personnel</td>
<td>896</td>
<td>896</td>
<td>735</td>
<td>808</td>
<td>808</td>
<td>851</td>
<td>851</td>
</tr>
<tr>
<td>Research funding</td>
<td>€73M</td>
<td>€73M</td>
<td>€60M</td>
<td>€66M</td>
<td>€66M</td>
<td>€69M</td>
<td>€69M</td>
</tr>
<tr>
<td>Intellectual property</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indicators</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Invention disclosures</td>
<td>40</td>
<td>40</td>
<td>35</td>
<td>37</td>
<td>39</td>
<td>41</td>
<td>43</td>
</tr>
<tr>
<td>- Patents</td>
<td>16</td>
<td>20</td>
<td>17</td>
<td>19</td>
<td>20</td>
<td>21</td>
<td>22</td>
</tr>
<tr>
<td>- Licenses/options</td>
<td>9</td>
<td>10</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>- New Start ups</td>
<td>1,3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Oncode benchmarked its past performance against the outcome of the survey of technology licensing and related activity for US academic and non-profit research institutes (AUTM). These outcomes are normalized for total research expenditure\(^\text{22}\). The table below shows Oncode performance normalized per 10M€ research expenditure.

<table>
<thead>
<tr>
<th>normalized per 10M€ research expenditure</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>new disclosures</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oncode</td>
<td>4,92</td>
<td>4,63</td>
<td>5,84</td>
<td>5,90</td>
</tr>
<tr>
<td>AUTM</td>
<td>4,31</td>
<td>3,66</td>
<td>3,84</td>
<td></td>
</tr>
<tr>
<td>new patents</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oncode</td>
<td>1,38</td>
<td>1,71</td>
<td>2,08</td>
<td>3,11</td>
</tr>
<tr>
<td>AUTM</td>
<td>2,80</td>
<td>2,30</td>
<td>2,52</td>
<td></td>
</tr>
<tr>
<td>licenses/options</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oncode</td>
<td>0,00</td>
<td>0,24</td>
<td>2,21</td>
<td>1,48</td>
</tr>
<tr>
<td>AUTM</td>
<td>1,53</td>
<td>1,40</td>
<td>1,42</td>
<td></td>
</tr>
<tr>
<td>start-ups</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oncode</td>
<td>0,15</td>
<td>0,00</td>
<td>0,26</td>
<td>0,33</td>
</tr>
<tr>
<td>AUTM</td>
<td>0,18</td>
<td>0,14</td>
<td>0,15</td>
<td></td>
</tr>
</tbody>
</table>

\(^{22}\)https://autm.net/surveys-and-tools/surveys/licensing-survey/2020-licensing-survey
## Peer group comparison
(Herd rank 4: $46,2M – $102,8M)

<table>
<thead>
<tr>
<th></th>
<th>Herd rank 4</th>
<th><strong>Average</strong></th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>New disclosures</strong></td>
<td></td>
<td>30.8</td>
<td>29</td>
</tr>
<tr>
<td>Oncode ‘20</td>
<td></td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>Oncode ‘21</td>
<td></td>
<td>36</td>
<td></td>
</tr>
<tr>
<td><strong>New patents</strong></td>
<td></td>
<td>15.3</td>
<td>8</td>
</tr>
<tr>
<td>Oncode ‘20</td>
<td></td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Oncode ‘21</td>
<td></td>
<td>19</td>
<td></td>
</tr>
<tr>
<td><strong>Licenses</strong></td>
<td></td>
<td>57.8</td>
<td>5</td>
</tr>
<tr>
<td>Oncode ‘20</td>
<td></td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Oncode ‘21</td>
<td></td>
<td>9</td>
<td></td>
</tr>
<tr>
<td><strong>License income</strong></td>
<td></td>
<td>$1.2M</td>
<td>$200K</td>
</tr>
<tr>
<td>Oncode ‘20</td>
<td></td>
<td>25K</td>
<td></td>
</tr>
<tr>
<td>Oncode ‘21</td>
<td></td>
<td>10K</td>
<td></td>
</tr>
<tr>
<td><strong>Start-ups</strong></td>
<td></td>
<td>1.4</td>
<td>1</td>
</tr>
<tr>
<td>Oncode ‘20</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Oncode ‘21</td>
<td></td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
Appendix III

Oncode Accelerator Projects selection procedure

Goal
The aim of the OAPs is to address specific unmet medical needs or scientific challenges in a dedicated project, with a team of OIs and supported by additional funding. Projects need to have concrete goals, have a synergistic approach, and provide clear examples of the added value of Oncode (e.g. available expertise, network, facility support, industry involvement).

Assessment Process
- **Initial call & feedback cycle**
  During the summer of 2020, Oncode initiated a call to collect ideas for potential OAPs, which were discussed within the Oncode community during several OI meetings. All applicants were granted the opportunity to integrate the feedback they received and officially submit a 2-page pre-proposal.

- **First selection round**
  The RMC, together with additional OIs, reviewed the submitted pre-proposals (20 in total) on the following criteria:
  1. **Quality of science**: is the proposal grounded in innovative and sound science?
  2. **Uniqueness & feasibility**: does the proposal use synergy between unique capabilities of OIs not found elsewhere in the world, and can the proposed work be done in 5y?
  3. **Potential impact**: when successfully completed, are the results likely to be transformative, either for major scientific challenges and/or clinical challenges?
  4. **Fit with strategic direction of phase 2**: does the proposal fit with the focus areas as described in section 3.1
  Five of twenty proposals survived this selection and the OI teams were invited to provide a full and detailed proposal including financial budget, milestones and deliverables.

- **Second selection round**
  The five full proposals were reviewed by the IAB & the RMC, the IAB used the following criteria:
  1. **Quality of science**: is the proposal grounded in innovative and sound science?
  2. **Synergy**: does the proposal use synergy between capabilities of participating OIs not found elsewhere in the world
  3. **Feasibility**: Can the proposed work be done in 5 years and its underlying goals be achieved.
  4. **Potential for impact**: when successfully completed, are the results likely to be transformative, either for major scientific challenges and/or clinical challenges?

  The RMC used the following criteria:
  1. **Fit with strategic direction of phase 2**: does the proposal fit with the focus areas as described in section 3.1 of strategic plan phase 2

The IAB and RMC scores were combined to give final ranking. Based on the final ranking the RMC provided the MB with an advice for the selected AOPs which would potential eligible for funding during phase 2 of Oncode.
- **Conflict of interest**
  The Oncode *Conflict of Interest* policy for reviewers applies.
Appendix IV

Total budget
## Cash flow statement Phase II (Oncode Institute & BV)

(all amounts in € x 1,000)

### INFLOW

<table>
<thead>
<tr>
<th>Funding type</th>
<th>Agreement</th>
<th>Contract</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
<th>2026</th>
<th>2027</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. CORE FUNDING</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contribution KWF</td>
<td>Grant</td>
<td>Non-restricted</td>
<td>Contribution</td>
<td>8.000</td>
<td>8.000</td>
<td>8.000</td>
<td>8.000</td>
<td>8.000</td>
</tr>
<tr>
<td>Major donor KWF</td>
<td>Grant</td>
<td>(Non)-restricted</td>
<td>Contribution</td>
<td>600</td>
<td>600</td>
<td>600</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Major donor KWF</td>
<td>Grant</td>
<td>(Non)-restricted</td>
<td>Contribution</td>
<td>400</td>
<td>3,400</td>
<td>4,400</td>
<td>5,900</td>
<td>3,900</td>
</tr>
<tr>
<td>Contribution ZonMW - VWS</td>
<td>Grant</td>
<td>Restricted</td>
<td>Secure</td>
<td>2,000</td>
<td>2,000</td>
<td>2,000</td>
<td>2,000</td>
<td>2,000</td>
</tr>
<tr>
<td>Contribution ZonMW - GGG/VWS</td>
<td>Grant</td>
<td>Restricted</td>
<td>Secure</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>Revolving subsidy ministry OCW (through EZK)</td>
<td>Loan</td>
<td>Restricted</td>
<td>Secure</td>
<td>2,500</td>
<td>2,500</td>
<td>2,500</td>
<td>2,500</td>
<td>2,500</td>
</tr>
<tr>
<td>Repayable subsidy ministry EZK Pillar I</td>
<td>Loan</td>
<td>Restricted</td>
<td>Secure</td>
<td>400</td>
<td>400</td>
<td>400</td>
<td>400</td>
<td>400</td>
</tr>
<tr>
<td>Repayable subsidy ministry EZK Pillar II</td>
<td>Loan</td>
<td>Restricted</td>
<td>Secure</td>
<td>800</td>
<td>800</td>
<td>800</td>
<td>800</td>
<td>800</td>
</tr>
<tr>
<td>Repayable subsidy ministry EZK Pillar III</td>
<td>Loan</td>
<td>Restricted</td>
<td>Secure</td>
<td>-</td>
<td>500</td>
<td>1,500</td>
<td>2,000</td>
<td>2,500</td>
</tr>
<tr>
<td>Repayable subsidy ministry EZK Pillar III from phase 1</td>
<td>Loan</td>
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<td>Secure</td>
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