Guide to Creating a University Spin-off Venture

University of Cape Town

CONTENTS

CONTENTS

ABBREVIATIONS

CIPC	Companies and Intellection Property Commission
FTO	Freedom to Operate
IP	Intellectual Property
IPAC	Intellectual Property Advisory Committee
IPR Act	IP Rights from Publicly Financed R&D Act
MoI	Memorandum of Incorporation
NIPMO	National IP Management Office
RC&I	Research Contracts & Innovation
SARS	South African Revenue Services
SHA	Shareholders Agreement
SSA	Share Subscription Agreement
UCT	University of Cape Town

This publication was prepared by Research Contracts and Innovation (RC&I) at the University of Cape Town.

Website: www.rci.uct.ac.za
Email: innovation@uct.ac.za
Tel: 021 650 4015

Ver: 2021


BIOPHARM
RESEARCH U

INTRODUCTION

Funders, government and stakeholders have all looked to universities to ensure that society benefits more fully from the research conducted, through effective technology transfer. As a result, researchers have shifted their research focus to develop intellectual property (IP) that has commercial application and societal impact. This in turn has increased the formation of spin-off companies by universities to effectively commercialise the IP, creating new career opportunities for staff and students. UCT strongly supports innovation activity and is increasingly strengthening support systems for entrepreneurship as part of its 2030 vision.

Whilst a company may have been incorporated earlier, UCT recognises it as a spin-off when an IP transaction has been concluded with the university. The total number of spin-offs between 2004 and 2020 was 27 and of these 24 are operational, albeit that in some instances there is limited activity for various reasons primarily related to fundraising, either for operationalisation of the company and/or to fund technology development. 14 companies have earned revenue. Others are still involved with funded technology development, especially when their products are medical devices, etc. that require clinical evaluation and regulatory approval.

This Guide aims to provide a framework for the creation of a spin-off company to commercialise UCT intellectual property. Whilst some of the processes are generic to any company, the guide covers the various approval routes and processes used by the university.

Research Contracts & Innovation (RC&I) fulfil the role commonly referred to as the "technology transfer office" (TTO) for UCT, protecting and managing the university's IP and importantly commercialising it.

RC&I has created a series of guides that this publication is part of. Two relevant Guides are the *Inventors Guide and Bridging the Gap – A Guide to Innovation Funding at UCT*.

These can be obtained from RC&I or our website (www.rci.uct.ac.za). These guides have been produced using funding support from the DSI National IP Management Office (NIPMO), which is greatly appreciated.

OVERVIEW

1.1 What is a University Spin-off company?

We define a spin-off company as a "new venture that is dependent upon licensing or assignment (change of ownership) of one or more university IP rights for initiation." Typically, a spin-off company receives rights to IP from the university and researchers (i.e. postgraduate students, staff normally associated with the IP being commercialised) are the founders of the company and become shareholders in the corporation, sometimes along with the university. The company becomes an investment vehicle to develop further and commercialise intellectual property. In general, a spin-off has the following characteristics:

- Is incorporated by an academic or the university;
- Acquires IP or IP rights from the university intending to develop and commercialise it;
- Creates an investment vehicle for outside investors to provide funding in return for shares in the company;
- Has several shareholders who may include the university, Inventors, and investors;

The movement of researchers and IP from the university into the company either full- or part-time is conceptually the "spinning off". RC&I tend to refer to a start-up that does not have UCT students or staff associated with the IP a spin-off, when it acquires a right to university IP, if it has been formed solely for the commercialisation of UCT IP. An existing company acquiring rights to university IP would merely be a "licensee".

Setting up a spin-off will involve working with different professionals from various practices, beyond the technology area that the founders may be most comfortable with, such as finance, accounting, marketing as well as with customers and/or clients.

RC&I provides a platform to connect the specialist researcher to industry experts, funding tools, and facilities to create a successful venture. Once you decide to bring the technology to market through the New Venture Support Programme, RC&I helps shape the business model to achieve innovation.

1.2 Why Start a Company?

Typically a spin-off company when there is no established company to license / acquire the technology to augment their existing product portfolio, or when the technology developed has clear potential to generate many products or to engage with multiple market sectors – i.e. a "platform technology".

FORMULATING A PLAN

- ✓ It needs to be sound, not solely focussed on the technology - e.g. ensure that aspects such as market research and financials are not neglected
- ✓ Stick to the plan - it needs to be feasible from the outset, so that one does not need to 'reinvent' it when one gets going
- ✓ Do your homework on the 'difficult questions' that you know a funder will ask you
- ✓ Think out of the box with your marketing plan - be creative.
- ✓ Budget for your development carefully and ensure that you have adequate funding for your R&D
- ✓ Use a Gantt chart as a tool to develop and track your project plan.

In the life sciences sector, the pharmaceutical industry has over the past decade or so tended to close in-house R&D centres, favouring a model where universities work in the high-risk, early-stage space, typically using government grant funding to take products through to the preclinical / animal trial stage. At that point biotech spin-offs are often formed to progress through drug development and into early human trials. If efficacy is proven, then the pharma companies will look to purchase the biotech company to fill their product pipeline once much of the risk has been eliminated.

Often companies also want to see some evidence of market interest in a product or service before acquiring / licensing the IP and spin-off companies can fulfil this role.

As part of the IP management process, RC&I's Innovation Commercialisation Managers will generally determine whether the technology will be licensed to an existing company or rely on the formation of a spin-off company to commercialise the IP.

1.3 The Role of the Inventor or Founder Entrepreneur

Inventors' interests in commercialisation of the technology that they they invented differ – some wish to continue with their academic

research, others will seek a part-time or advisory role in a spin-off company formed to commercialise the IP, whilst others (often postgraduates and post doctoral fellows) will leave the university to take up full time positions in the company. RC&I supports all of these options.

Inventors who do not participate by holding equity directly in the company still benefit from successful commercialisation of the IP "behind" the university. They will share in the revenues derived by licensing the IP to the company, or where the university has been given shares in exchange for access to the IP, from dividends or ultimately, cashed-in equity. The distribution is governed by the UCT IP Policy.

As a technical founder, your research outputs represent the often decades of work required to understand and develop the technology. To bring your technology to market requires a different skillset that lies outside the technical skills to build the technology. You will need to assemble a group of people with diverse expertise, gain access to capital and other resources to execute the business plan. Entrepreneurs are typically generalists with experience and knowledge in a breadth of subject matter. RC&I provides a range of educational material, tools and resources to help the entrepreneur to succeed with their start-up, in addition to coaching by the New Venture Support Manager and other members of the team. As a founder, you will gain experience dealing with external funders, recruiting professionals in other disciplines, and managing suppliers and customers to efficiently run your business.

The non-financial benefits of a spin-off company are well known. The inventor will be able to see their technology impact society, possibly create or change an industry's direction, jobs will be created and often new research challenges will be identified. You will gain valuable experience running a business, networking with industry partners, and manage a highly innovative team. The characteristics of a successful entrepreneurial academic researcher:

- The ability to translate a technology into products that are useful for customers that offer value, i.e. meeting their needs, or addressing their "pain points";
- Knowledge of the marketplace and collaboration with users and industry players;
- Integration of multiple fields of research;
- Research excellence;
- Participation in a comprehensive research network and knowledge of competing technologies.

Creating a spin-off represents a significant commitment. The decision will require you to take on challenging, possibly stressful decisions that might distract you from your academic work.

1.4 RC&I's Role in Supporting Innovation & New Venture Creation

In terms of the UCT IP Policy, RC&I is responsible for protecting, managing and importantly commercialising the IP emanating from the university's research. The IP is managed according to a "Stage-Gate" process that is aligned with the different stages of patenting (described in more detail in the Inventors Guide in this series). The roles of the different team members is described below, indicating how they support new venture creation.

1.4.1 Intellectual Property Management Team

Inventors will have met members of the IP Management Team from when the initial IP was protected. After licensing IP to a spin-off company, the team will involve the company in decisions regarding where IP should be protected and the costs involved. This is largely driven by the selection of countries that the company has identified as key markets or manufacturing locations and is discussed in the Inventors Guide. Ultimately, although there may be an initial repayment "holiday" whilst the company establishes itsefl, the company will in terms of the license, repay the costs incurred by the university in protecting the IP from prior to the license and whilst an exclusive license is in place.

The company will also be made aware of claim amendment during the patent examination process, which may have an impact on the scope of protection for the company's product.

Even when IP has been assigned to a company, the IP Team can provide input and advice to support decision making. The team can also advise on trade mark protection, which is normally done once the company has been established, although sometimes great product or company names are protected earlier within UCT and then licensed or assigned to the company later.

1.4.2 Innovation Commercialisation Manager

An Innovation Commercialisation Manager will have assessed the market that the technology will be going into and identified that the best mode of commercialisation is spin-off formation. Importantly they also understand, or seek expert advice, regarding a product's specific "route to market", e.g. regulatory requirements. Their role is also seek funding to mature the technology through the various Technology Readiness Levels (TRLs) so that it can ultimately be commercialised.

The Innovation Commercialisation Manager will critically review business plans that are written by the founders and workshop various issues. RC&I will not write the business plan and rather guides the founder

FINDING THE MONEY

- ✓ Investors are investing in the people - ensure that you have a strong team that can cover all the bases
- ✓ Look at what value a particular investor can bring to your business; it should be more than money. It may be access to international markets, or market experience and networks
- ✓ Fight for the value of your company at the outset - don't under value it. Often investors have an idea of the type of shareholding that they want and the money that they want to invest - they merely multiply their shareholding and money up to 100% to determine the value of the company, which is not necessarily the right thing to do! E.g. they invest R5 million and want a stake of 25% so they say the value of the company is R20 million. One needs to look at projected cashflows
- ✓ If your company establishes an international footprint, the overseas company can often access funding available in those countries, which can be really useful
- ✓ There are few funders in South Africa, so make a good first impression
- ✓ Having part of you business that can generate early money, whilst the more advanced products are developed is a key to success. This can often be in the form of providing consulting, or analytical services. This keeps the business ticking over whilst one is trying to get the product to market
- ✓ Investors are interested in cashflow!

team through the process so that if they are queried by an investor during a pitch, they know what has been written and the reason, so can respond to the question!

1.4.3 New Venture Support Manager

The New Venture Support Manager is a role that was introduced in 2020, noting the considerable time that the Innovation Commercialisation Managers needed to dedicate to supporting spin-off company formation and fundraising. Support is provided to develop a business model around the technology and various tools are provided to the founders to work through different aspects of the business – e.g. understanding the market in which it operates, the value chain, the segments that exist, competitors, etc.

The New Venture Support Manager will also help to build the non-technical team and link founders to recommended outsourced service providers (e.g. legal, HR, IT/ webhosting, accounting). A pool of directors is also maintained, so that an appropriate person can be appointed to the Board by UCT (where this is permitted through UCT shareholding), to complement the founders' skills.

1.4.4 Innovation Funds Manager

The Innovation Funds Manager overseas the different UCT seed and investment funds (see Section 3.2) and maintains links with other investors and innovation funders. The Funds Manager works closely with the founder team to develop the financial projections for the company and to get the team and company "investment ready", in conjunction with the Commercialisation Manager and New Venture Support Manager.

1.4.5 Contracts Manager

Contracts Managers, whilst typically concluding research contracts on behalf of the university, also assist with various legal aspects of setting up a company. RC&I will draft an initial Shareholders Agreement (SHA), Share Subscription Agreement (SSA) and Memorandum of Incoporation (MoI) for a spin-off company as well as a License Agreement, Option Agreement or Assignment Agreement to access the IP.

A Contracts Manager cannot act as the legal advisor to the company as they are representing UCT and it is important that the spin-off appoints their own legal representative. RC&I have several contacts of companies who provider services often specialising in the start-up company space. But having initial draft agreements available will save the company costs.

1.5 RC&I's Approach to Setting up a Spin-off Company

Spinning off a company requires a significant commitment of resources from both the founders and the university. The process of spinning out a company typically involves a staged process:

Stage 1: Incorporation of a Spin-off

a. The Commercialisation Manager starts the initial discussion with the Inventors of the technology on possible commercialisation strategies available.
b. The IP Team conducts the initial due diligence on the IP (checking funder terms that may impact commercialisation and noting any third party IP that may be relied on to make the product) and with the Commericialisation Manager confirm whether a spin-off company will be a viable route for innovation.
c. Once the decision is made to incorporate a spin-off company, the New Venture Support Manager assists the

founders' to prepare a business plan. A Founder team will also be identified, as not all of the Inventors may participate in the spin-off company and their maybe others, who were not Inventors, who will drive the business forward from its inception. The share in equity of all founder parties (which mayinclude the university and/or an investor) will be agreed on.

d. When the spin-off will access the IP through a license from UCT, RC&I will negotiate the terms of the license, make the decision and enter into the license agreement. Often, this is preceded by an option agreement which reserves the IP for the company whilst the business plan is being developed and funding is being raised, etc. as discussed in Section 3.3.
e. Where UCT will be taking equity in the spin-off, the business plan is presented to the Intellectual Property Advisory Committee (IPAC) for approval of the deal and the shareholders agreement is signed by the Registrar as the legal head of the university. Occasionally UCT will incorporate a spin-off in which UCT holds 100% of the equity initially and again IPAC has the delegated authority from Council to approve this.
f. The Innovation Funds Manager will assist with fundraising from the UCT Evergreen Fund, or through the University Technology Fund, or other innovation funders.

Stage 2: Structuring the Memorandum of Incorporation (MoI) and Shareholders' Agreement

a. The Innovation Funds Manager structures the university's equity position from an "investment perspective" where UCT is investing money in the company from the Evergreen Fund. An agreement is reached with the founders and other co-investors as to the amount of investment, the relative shareholding, the scope and value of the IP if assigned to the company, etc. Provision may be made to use equity to incentivise a CEO.
b. Once an agreement is reached, the Memorandum of Incorporation and Shareholders' agreement is signed between the university, co-investors, and founders (noting that depending on the deal, not all of these parties may necessarily be involved).

Stage 3: Operationalising the Incorporation

a. This stage represents the most significant commitment of resources from both the university and the founders.
b. The New Venture Support Manager helps the founders identify a team and execute the business plan developed.
c. During this stage, the New Venture Support Manager assists the founder securing service providers to fulfil outsourced tasks such as legal, accounting, and other services.
d. The New Venture Support Manager

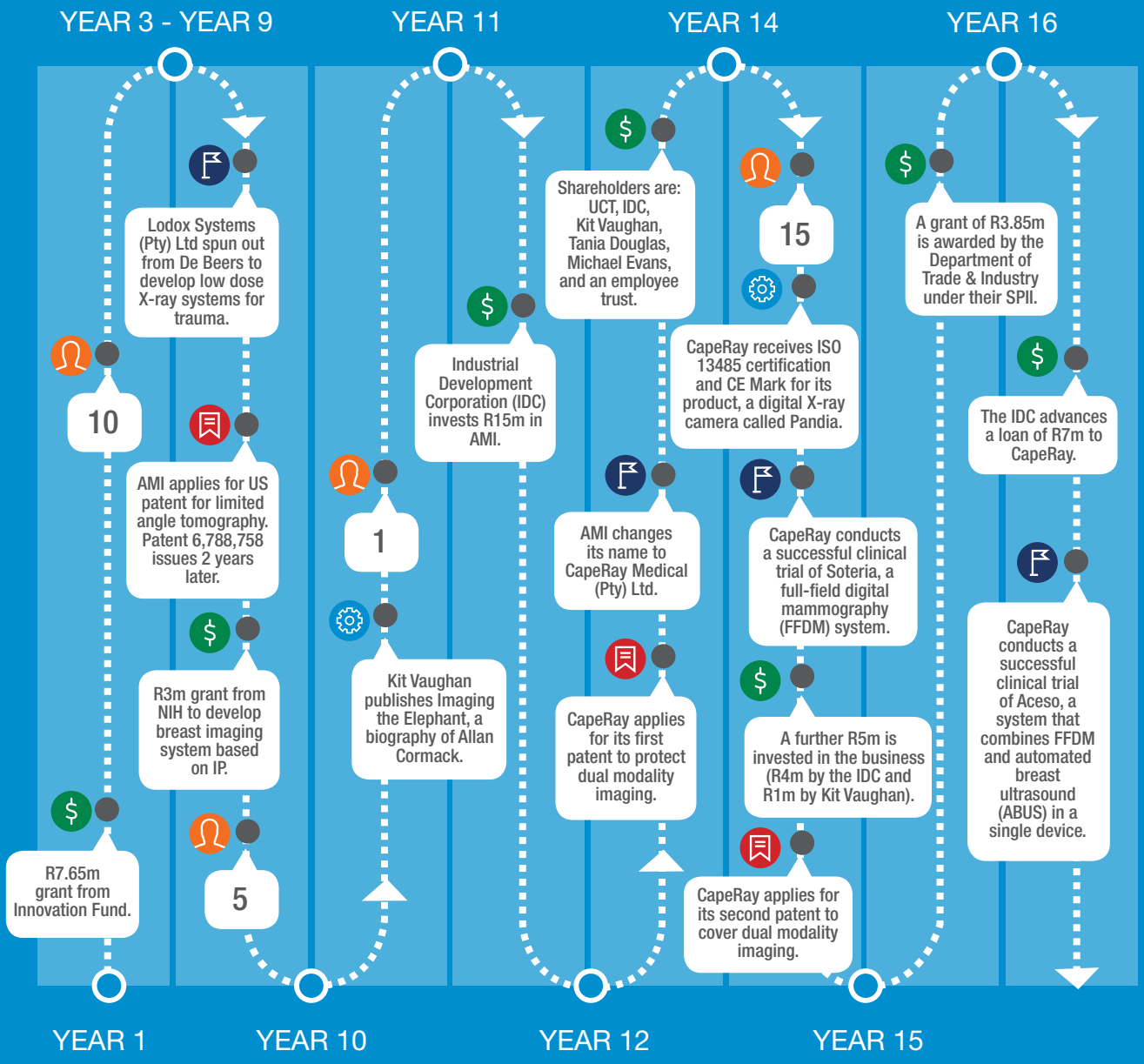
assists in appointing the university's non-executive director to the spin-off board and the initiation of the first board meeting.

FINDING THE PEOPLE

- ✓ One often starts with friends. One needs to be sure that they have the right skills and are actually the right people long term
- ✓ Look far and wide - its amazing who is out there when you look - and look slowly
- ✓ Get a mentor - external review is important. Don't use the investor as your mentor, look for somebody else and try and get them onto your Board
- ✓ The wrong people create issues and divert attention! This is particularly bad news when they are a shareholder or partner

Stage 4: Ongoing Management of the Company

a. During this stage, the management team of the spin-off is well established and starts to generate sales.
b. There is the possibility of requiring additional funding in debt or equity to expand the spin-off and the Innovation Funds Manager will often be involved in subsequent rounds of fundraising.
c. The UCT appointed director provides annual feedback to IPAC on the company's status and where UCT has invested in the company, the Innovation Funds Manager will also monitor the investment and maintain close contact with the CEO and UCT appointed director.
d. Finally, the university starts to discuss the "exit strategy" to recoup the principal investment. UCT seeks to foster spin-off companies in their early stages, but does not envisage remaining a longterm shareholder, but rather re-investing returns into the next spin-off companies. An exit generally comes at an investment round, when an investor is either wanting to purchase the company outright, or to consolidate their position by buying out minority shareholders.


YEAR 3 - YEAR 9
YEAR 11
YEAR 14
YEAR 16
Lodox Systems (Pty) Ltd spun out from De Beers to develop low dose X-ray systems for trauma.
10
AMI applies for US patent for limited angle tomography. Patent 6,788,758 issues 2 years later.
R3m grant from NIH to develop breast imaging system based on IP.
R7.65m grant from Innovation Fund.
5
1
Industrial Development Corporation (IDC) invests R15m in AMI.
Kit Vaughan publishes Imaging the Elephant, a biography of Allan Cormack.
Shareholders are: UCT, IDC, Kit Vaughan, Tania Douglas, Michael Evans, and an employee trust.
AMI changes its name to CapeRay Medical (Pty) Ltd.
CapeRay applies for its first patent to protect dual modality imaging.
15
CapeRay receives ISO 13485 certification and CE Mark for its product, a digital X-ray camera called Pandia.
CapeRay conducts a successful clinical trial of Soteria, a full-field digital mammography (FFDM) system.
A further R5m is invested in the business (R4m by the IDC and R1m by Kit Vaughan).
CapeRay applies for its second patent to cover dual modality imaging.
A grant of R3.85m is awarded by the Department of Trade & Industry under their SPII.
The IDC advances a loan of R7m to CapeRay.
CapeRay conducts a successful clinical trial of Aceso, a system that combines FFDM and automated breast ultrasound (ABUS) in a single device.
YEAR 1
YEAR 10
YEAR 12
YEAR 15
KEY
FUNDING
PEOPLE IN COMPANY
TECHNICAL MILESTONE
IP/ PATENTING
MISC. EVENT

CAPERAY MEDICAL (Pty) Ltd

CapeRay designs, develops, manufactures and supplies medical imaging equipment for breast cancer diagnosis. Through expertise in various branches of engineering - including biomedical, computer software, electronic, mechanical and industrial – CapeRay has designed and developed the PantoScanner.

The prefix “panto-” comes from Greek and means “all”. The PantoScanner will be produced and sold in three variations:

1. an entry-level system, known as Soteria (the Greek goddess of deliverance from harm), which is a full-field digital mammography (FFDM) system based on an X-ray scanner;
2. a dual-modality system, known as Aceso (the Greek goddess who personifies the healing process), which combines an FFDM X-ray machine with automated breast ultrasound (ABUS) technology; and
3. a top-of-the-range system, known as Aegle (the Greek goddess who personifies the glowing health of the human body), which combines FFDM, ABUS and digital breast tomosynthesis (DBT), thus enabling the simultaneous capture of 3D images of the breast using an X-ray machine and an ultrasound machine.

A clinical trial was done with Aceso model during April and May 2014.

The founder of CapeRay is Prof Kit Vaughan, a tenured professorship at the University of Virginia, and 14 years as the Hyman Goldberg Chair in Biomedical Engineering at the UCT.

Founder

Prof Christopher (Kit) Vaughan

ENGINEERING

HPT
HOT PLATINUM™

CAPECAROTENE
FISH FOOD

DRONESAR

HyPlat

tuluntulu

Elemental
NUMERICS

LUMKANI
PROTECTING AGAINST FIRES

Cell·Life

ATTRI
ADVANCED TUMOUR & TRAUMA RECONSTRUCTION IMPLANTS

CAPE catalytiX

HEALTH SCIENCES

SAT
STRAIT ACCESS TECHNOLOGIES

sonic

AngioDesign
Next generation therapeutics

Antrum Biotech
Healthcare Innovations

CapeRay

curitbiotech

Dream Haven (Pty) Ltd

SCIENCE

Cape Bio Pharms
Proteins made in plants. Just better.

Nurture Restore Innovate
"Ecological solutions for landscapes and livelihoods"

abalobi

PST SENSORS

COMMERCE

NAUTILUS

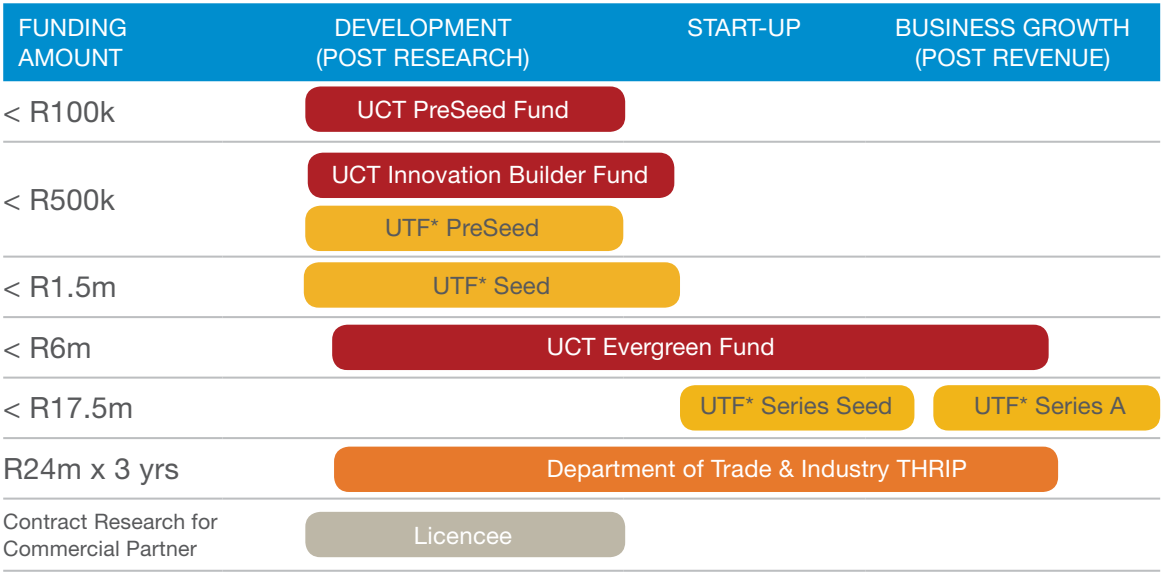
2 ESTABLISHING A SPIN-OFF COMPANY: UCT SPECIFICS

Setting up a spin-off company is a complicated endeavor. The academic spin-off faces the problems associated with traditional new start-ups, with the added complexity of developing and scaling completely new technologies. During the early stages of a start-up, the company faces typical issues centered around access to funding, forming a team, and other commercial related difficulties such as access to markets, regulation, and value chain associated activities. The Innovation team focuses on uncovering the following key areas:

KEY AREAS	RC&I SUPPORT
Cost factors	Understanding the costs associated with the transition from research to operations within a company (commercial licenses, overheads, infrastructure, cost of sales, etc.).
Market factors	The Innovation team helps researchers understand the market factors and the role the technology will play in the industry. The team assists in identifying both demand and supply factors that will influence the university spin-off. The team plays a larger role in price points and other key financial metrics to ensure sustainability.
Regulatory factors	Regulation often requires the most support, often via specialist consultants in RC&I's network, to navigate regulatory factors in a particular industry and/or country.
Incubation	RC&I will steer the spin-off to an appropriate incubator, in close proximity to UCT, but generally spin-offs find business parks that suit their specific space, manufacturing and location requirements. Where access to specialist UCT facilities are required, companies can be incubated within a UCT department for a short period. RC&I are also creating linkages with incubators in Europe and the USA, to aid spin-offs with soft landings there. Increasingly these options need to be considered for market access and/or access to funding.

2.1 Funding

UCT is fortunate to have a number of internal and special external funds (e.g. the University Technology Fund) that it can use to support projects and early-stage spin-off companies.



** University Technology Fund*

RC&I advertises the different funding calls, but many are ad hoc and you can obtain current information on our website or by contacting the Innovation Funds Manager or Innovation Projects Coordinator at RC&I.

Details of the UCT funding landscape are available in another booklet in this series: Bridging the Gap – A Guide to Innovation Funding at UCT.

2.2 Accessing the Intellectual Property

There are different manners in which a spin-off company can access the university's IP, ranging from merely having an option to enter into a license agreement, through to transfer of ownership of the IP from UCT to the company, i.e. assignment. These are discussed in more detail in the following sections.

2.2.1 Option Agreement

An Option Agreement is entered into to reserve the IP for a spin-off company, especially whist they are fundraising. Typically a spin-off will be required to provide RC&I with:

- an acceptable business plan;
- evidence of funding that has been raised; and
- that there is a core team that will be capable of driving the technology commercialisation,

in order to exercise their right to negotiate the terms of a license agreement with RC&I.

Option Agreements are put in place for relatively short periods of time, e.g. six months. They are useful during fundraising as funders can see that the university is willing to make the IP available. Generally the exact terms of the license agreement are not included in the Option Agreement, but sometimes a maximum royalty rate may be included as well as some key terms, so that funders have some surety and can develop financial models.

UCT continues to pay for the maintenance of the IP.

2.2.2 License Agreement

A License Agreement provides rights to a spin-off company to manufacture and sell products or services that are protected by the IP, which may include specific terms such as:

- **Exclusive or non-exclusive rights,** i.e. where either one or multiple parties can use the IP respectively. For supporting "process" IP such as a general method or processing aid such as a plasmid, only a non-exclusive license is required, but a specific product would most likely be licensed under an exclusive license to give the company a competitive advantage.
- **Field of use.** In certain instances where the IP can be used to make products in a range of fields a license may provide exclusivity to the one field in which the company is focussing on and UCT would license the rights to the IP for another field to a different company. UCT inventors created an ultra-hard platinum alloy which could be used to create "compression fittings" for diamond engagement rings (that platinum is not strong enough for) as well as knife blades. The rights to the alloy for these two different applications could be licensed to different companies.
- **Territory.** Where patents are held in a number of different countries, rights can be granted to specific countries in one License Agreement whilst the others can be licensed separately. Generally though a company will license the entire patent family, but its is import for the company to ultimately get to the position where it will fully exploit the IP.

INTELLECTUAL PROPERTY

- ✓ Patenting is important, but one needs to look after the cost. IP needs 'love and care' like a product
- ✓ If you don't have the ability to defend your IP it's a problem - budget for defence, its costly
- ✓ Beware of solely focussing on the IP and neglecting the development of the actually product and marketing it. Else you will land up with great patents, but there will be few years of protection left by the time your product reaches the market and you will not reap the rewards that you should have
- ✓ Ensure that you have the freedom to operate - i.e. that you are not infringing other people's patent/IP rights
- ✓ Your PCT International Search Report and Written Opinion is very important for VC/ funding. It's the first external assessment of the potential strength of your patents/IP

- **Term or duration.** License Agreements can be annual, often with a right to renew them on the same terms for a number of periods by mutual agreement of the parties. Others can run until the patents expire. Once the patent has expired, royalties stop, although a lower royalty related to "know-how" may still apply.

From a financial perspective a number of different elements may be used to 'construct' the deal:

- **Upfront payment or Signing Fee.** This is an amount that is due immediately on conclusion of the License Agreement. This is generally not used with spin-off companies as they cannot afford an upfront payment.
- **Milestone payment.** This is a payment that is made once a specific milestone has been achieved, e.g. the granting of a US or European patent, or Phase 1 clinical trials have been completed, etc.
- **Royalties.** This is a percentage, based on the norm for a particular business sector, of the nett revenue. Nett revenue is a term that is defined in the license agreement and indicates the specific deductions that can be made from the company's gross revenue from selling the products / services based on the IP. A royalty is pegged to income that is readily auditable, e.g. invoiced sales, rather than profit which can be manipulated through accounting techniques.
- **Minimum Annual Royalties.** As the name suggests this is a level of royalty that is set that must be paid annually; they are deducted from total royalties paid. These provide an incentive to the company to develop their market and exploit the IP and are often based on the company's business plan.

- **Patent Expenses.** When an exclusive license is signed, the company picks up the ongoing IP protection costs (if the license is non-exclusive then a minimum royalty is used). Provision can also be made for the historical patent costs incurred by UCT up until the point of signing the license to be repaid over a specific period.
- **Payment Holiday.** Depending on the business plan, UCT may offer the spin-off company an initial period during which they do not need to pay royalties and/or IP maintenance costs. These may accumulate as a shareholder loan if UCT is a shareholder in the company. There is a time or performance (sales volume, profitability) trigger after which payment commence.

2.2.3 IP Assignment

Assignment involves the transfer of ownership of the IP from UCT to the company. This poses a risk as should the spin-off fail, the IP will be an asset within the company and creditors will take control over it. For this reason, UCT often builds an assignment trigger in a License Agreement so that when certain revenues have been achieved and the company is operating stably, the IP is assigned.

Often investors will want the IP to be assigned to the company so that a) it is indeed an asset of the company and something that their investment is secured against and b) to exchange a royalty arrangement with UCT for one in which UCT holds equity and shares in the risks associated with the company's growth. Royalties have to be paid regardless of how well a company is actually doing at a particular point in time.

Assignment may be in return for equity in the company, or a once-off fee may be paid. UCT is also amenable to putting terms usually found in license agreements, like milestone payments, etc. in an Assignment agreement.

The assignment needs to be recorded at the different patent offices and the fees are borne by the assignee (company). The assignor (UCT) and assignee often enter into a short agreement recording or confirming the assignment that is used for patent office purposes, i.e. that does not disclose the terms of the actual assignment deal publicly.

In terms of the IPR Act, UCT is required to seek approval from NIPMO for the assignment. RC&I manages this process and submits the forms and motivation that are required. NIPMO have 60 days in which to consider the assignment. RC&I has successfully achieved this for a number of spin-off companies. One needs to motivate why assignment is necessary and that an exclusive license agreement is insufficient.


IMPULSE
rethink medical devices

2.3 Incubation within UCT

A number of spin-off companies have been incubated within departments on UCT campuses, especially where shared access to specialist facilities or equipment is required. Proximity of the start-up to the researchers' offices and research team's laboratories is also advantageous during the early stages of operation. Ultimately the company needs to establish itself off campus and incubation may be limited to a short period due to the shortage of available space within departments.

RC&I will be involved in the discussions with various authorities regarding the incubation and may assist with agreements that may need to be drawn up so that everyone is clear as to the approved arrangements, fees involved, permitted activities and duration of the incubation.

From a financial perspective, where a company has not yet been incorporated, a fund may be established within RC&I for the company to be run off, i.e. clearly separating it from research activity, faculty overheads, etc. and ensuring that appropriate overheads for rental, ICTS support, etc. are being recovered by UCT. The incubation can also begin to provide insight into what the company's financials will look like too.

A proposal should be drawn up to fully describe the activities of the business that will be incubated, as the basis for discussions and approvals.

2.3.1 Approvals

It is important that approvals are sought from the:

- Head of the research group whose facilities are being used or shared. Often they will be quite familiar with the proposed spin-off activity.
- Head of Department (HoD). The HoD will have broader oversight regarding issues such as support staff, shared equipment, space, safety, etc.
- Dean. It is important that the Dean is aware of the incubation activity and the Dean will appoint Faculty Finance to determine specific rental costs / enter into a rental agreement.

2.3.2 Considerations

In thinking through the incubation requirements, a number of different issues need to be considered and defined in the proposal.

2.3.2.1 Space

Whether space will be shared with other researchers, or specifically allocated to the incubatee. The size, how it is accessed, secured and whether it includes laboratory and office space.

2.3.2.2 Non-UCT Staff

Non-UCT staff that are employed by the company would need to either be performing services as consultants to a funded project, or appointed as contractors. Contractors will need to comply with UCT HR policies. If the company has been incorporated, then the staff can be employed by the company, but UCT access cards will need to be obtained to ensure that authorised access is properly authorised from a security perspective. An existing staff / student card cannot be used by another person to gain access to the building.

2.3.2.3 Use of Students

Students who are requested to perform tasks for the incubatee need to be compensated for their work and their supervisor's approval should be obtained upfront. It should be ensured that this employment is permitted in terms of bursaries that they may hold.

2.3.2.4 Safety

Safety is a key consideration. The head of the departmental safety committee should be notified of the proposed incubation. One needs to ensure that the incubatee is not bringing in new chemicals or materials (e.g. Genetically Modified Organisms) that are not used by the "home" research group. Additional permits may be required, or risk assessments. For example, genetically modified materials produced at the incubatee's other facility may need to be brought onto campus and the appropriate approvals, permits and safety considerations need to be complied with.

DEVELOPMENT PARTNERS

- ✓ Ensure that the work that you outsource is important to that service provider. Don't let it land up at the back of their queue, because in their eyes you are not particularly important (they have larger, established clients with big orders!). For success, you need to ensure that your development moves at an efficient pace, as you will burn your money whilst you wait
- ✓ Contract with clear milestones and deadlines
- ✓ Try and do as much as you can in-house - it will then be your top priority and you will come first!
- ✓ Its highly competitive out there, develop your products as fast as possible

2.3.2.5 Support Staff

The incubatee / company may rely on various support staff, such as: laboratory and office cleaning; procurement; administrative; and technical staff. This is where the HoD will play a role in determining whether any of the support staff would be unduly overloaded and also to ensure that their time was recovered. E.g. the company could bring high levels of glassware use, leading to a heavy burden on laboratory cleaning staff. The timing of the duties to be performed by the support staff need to be considered too.

2.3.2.6 Equipment

Certain equipment and (especially) software may only be permitted for research use in terms of purchase agreements and the company may need to purchase its own resources so that they can be used for commercial purposes.

The load on specific shared equipment needs to be clear and approved as research activity cannot be jeopardised. Mechanisms for the prioritisation of research / company work need to be established, along with booking procedures. Equipment use may extend to multiple research groups across a department.

The company may purchase certain equipment too. This should be properly secured, insured and comply with safety requirements, etc.

2.3.2.7 Consumables

The company needs to ensure that all its consumables are purchased and that the research group's consumables are not relied on.

2.3.2.8 Phone, Internet, Software

ICTS will be able to quote for phone and internet support (generally post incorporation of a company) as there are different rates that need to be applied for non-academic use in terms of license agreements.

As mentioned, certain software packages may need to be purchased that permit commercial use – these can cost significantly more that academic-use licenses and need to be budgeted for carefully (e.g. SolidWorks for CAD)

2.3.2.9 Confidentiality

Consider confidentiality. Students and staff who have been part of a research group are used to speaking freely about their experimental work, sharing reagents, etc. and giving tips on latest breakthroughs. The company may be developing patented technologies further and developing their own proprietary technologies. One needs to maintain a level of confidentiality especially where the incubatee has already been incorporated so that future patents (on both sides of the 'fence') are not jeopardised.

The research group may also be developing new technology that has not been licensed to the spin-off company, or protected through patenting yet.

2.3.2.10 Insurance

Post incorporation, the company needs to ensure that appropriate insurance is in place for personnel and equipment. RC&I can facilitate discussions with UCT risk management.

2.3.2.11 IP Ownership

In terms of the IPR Act if the university's resources are used at below "full cost" by default UCT owns the IP emanating from the research. Ensure that all budgets are on a full cost basis to ensure that the company owns the IP that is created.

2.4 UCT Equity

In 2020 UCT held equity in nine spin-off companies and receives this equity via three different routes:

- firstly, in return for the assignment (transfer of ownership) of the UCT intellectual property to the company (any revenue from this equity is distributed according to the IP Policy and rewards IP creators);
- secondly, through investment by the Evergreen Fund (this revenue provides a return on investment to UCT);
- finally, as a co-investment alongside the University Technology Fund (UTF) (again, this provides a return on investment to UCT).

Note that UCT can hold equity due to IP assignment as well as investment in a single company. Where UCT does not hold equity, the IP is licensed to the spin-off.

UCT does not have a set 'formula' that determines the amount of equity that UCT will take in return for IP and this is evaluated on a case by case basis. When investments are made we tend to derive some company valuation on which to base the equity share, but this is often difficult and the UTF and UCT's Evergreen Fund investments use a Convertible Preference Share mechanism where one makes the investment and the Preference Shares convert into Ordinary Shares at some future valuation date (typically the next investment round). This is dealt with in more detail in the Funding Guide.

2.4.1 The Role of the IP Advisory Committee

Our Intellectual Property Advisory Committee (IPAC) has the delegated authority from Council to approve spin-off company formation, where the university holds 100% of the equity, or to make a decision on the amount of equity that the university will hold in a company, either from the assignment of the IP to the company (some investors insist on this), or due to investment made by our Evergreen Fund. IPAC comprises the DVC Research & Internationalisation (chair); Executive Director: Finance; the Chief Operating Officer; an external member and currently, the Registrar.

IPAC is also authorised to approve the term of an investment made using Evergreen Fund money. Investment opportunities may be referred to the Private Equity Advisory Group (PAG). PAG, whose members include some from IPAC and additional volunteers who have significant private equity investment experience, will make recommendations to IPAC on deal terms and whether or not to invest in an opportunity.

2.4.2 UCT-Appointed Director

Where the Shareholders Agreement and UCT's equity holding permit the university to appoing a Director to the board of a spin-off company, UCT will select a Director who ideally compliments the strengths of the existing board.

The UCT appointed Director may be from within the university or external and the New Venture Support Manager maintains a pool of potential Directors who can be deployed. UCT also attempts to ensure that the Directors have undergone formal training on the duties that they will be required to perform and in particular to be clear on the differing roles of shareholder, director and management of a company.

A potential Director is interviewed by RC&I and a recommendation made to IPAC regarding their potential deployment. IPAC will select from a list of potential candidates. The person will then be asked to engage with the spin-off company and conduct

their personal due diligence on the copy. If they accept the appointment, and the company does not raise strong objections to the candidate, then the Vice Chancellor is approached to formally appoint the person as a director.

Professional Indemnity Insurance for the UCT appointee is covered by UCT.

Whilst the director is appointed by UCT, their responsibility is to act in the best interests of the company first.

Appointed Directors report to the VC on an annual basis on the overall company performance, key events, funding and financials and risk analysis. The report is submitted in June/July along with the latest signed Annual Financial Statements.

2.4.3 UCT's Shareholder Representative

By default, the Registrar as the legal head of the university is the UCT Shareholder Representative. It is important to note that the role of UCT-appointed Director and Shareholder Representative are two distinct roles and the Director cannot fulfil the Shareholder role.

Due to the number of spin-off companies and their complexity, the Registrar is unable to be the Shareholder Representative for each spin-off and the Registrar will appoint a person as a nominee. Generally the nominee will be able to sign off many routine shareholder resolutions, but where a resolution is particularly significant and may have an impact on UCT, then the Nominee will touch base with the Registrar and/or the IP Advisory Committee ahead of the shareholders meeting / signing of the resolution.

2.5 Founder Equity

This section deals with several aspects related primarily to UCT staff holding equity in spin-off companies.

2.5.1 Double Dipping

Our IP Policy is currently being revised and the issue of "double-dipping" will be dealt with in more detail. Benefits to Inventors can accrue either through their share of the revenue that is received by UCT from successful commercialisation (could be royalties / milestone / once-off payments or the disposal of equity or dividend) as well as their shareholding in a company.

When an Inventor leaves the university and goes into the company in which they hold equity and actively drives the commercialisation the Inventor may "double-dip" and receive income via both streams. They should be putting work into the company and experiencing a level of risk. This does not mean that they need to be work for the company full time. For our

academic posts up to 20% of their time may be used for private work / consulting and with the permission of the HoD / Dean, this can be devoted to their spin-off company. Our Professional and Support (PASS) Staff would need special permission for the company to buy their time out from the university.

For Inventors who do not participate in the spin-off company (but may receive equity from the company for being an Inventor and perhaps some initial assistance provided) and remain in their full-time university job,

REGULATORY

- ✓ Be aware of what regulatory requirements your industry has
- ✓ If you need CE Marking, then focus on getting the systems in place from the start. It is easier to get them working when you are small and starting out. It adds value (which will impress the investor). Its difficult and costly to retrofit a quality system at a later stage

the Inventors need to decide as to whether they want to benefit via the equity, or via a share of the revenues that will come in to UCT. If they opt to take the equity, they will need to formally waive the royalty right via UCT (which is provided for in the IPR Act). This is also taken into account when negotiating the terms of the UCT IP transaction with the company.

The rationale is that where an Inventor leaves the university or sacrifices salary and takes risk in actively commercialising the technology, then they should be rewarded both through revenue coming into UCT to reward their "inventiveness" as well as from the equity held in the company to reward their "entrepreneurship, effort and risk".

2.5.2 UCT Staff and Executive Positions in Spin-offs

UCT is increasingly supporting "entrepreneurial" academics who value the opportunity to participate in this dimension of research impact. With academic staff we do, however, generally require them to give up executive roles once the company achieves certain targets (e.g. turnover) indicative of the level of work that will be required, i.e. reaching a level that this will impede their research and teaching duties. So a Professor may be a CEO, or hold an executive position, for the initial phase of the company's life, but thereafter the professor would take up a non-executive advisory role or board position.

A leave of absence can also be requested so that a staff member can fully focus

on a spin-off venture, but this may delay progress with their academic career if they are still working towards achieving professor status. One also needs to consider HR-factors like pension, medical aid, etc. Increasingly, however, there is a drive to recognise achievements in the innovation space.

2.5.3 Managing Conflicts of Interest

UCT has a Conflict of Interest policy (http://www.uct.ac.za/main/about/policies) that should be referred to for full details, but a couple of areas that may lead to a conflict of interest in relation to spin-off companies are discussed in this section.

The best way to deal with a conflict of interest is to declare it and then decide how to manage it!

2.5.3.1 Research Contracted back to UCT

Spin-off companies may require certain research or services (especially analytical) from the university and typically these will be provided by the research entity that the company arose from. The head of group may also be involved in the spin-off venture and conflict of interest arises when quoting for the work, invoicing, scope and delivery, etc.

For this reason, an independent person, who may be the Head of Department or Dean, would be appointed to monitor the contracting, work done and the financials objectively and ensure that everything is done “at arms length”.

Typically RC&I would be involved in the conclusion of a research contract, along with the Faculty Finance Office. Also note the requirements of the Higher Education Act discussed in section 3.5.4.4.

2.5.3.2 Use of Students

It is important that students are made aware of any work that they may be doing for a spin-off company associated with a research group and that they are compensated by the company should this be outside the scope of their own research activity. This is something that supervisors need to watch carefully as there have been instances where students have been exploited inappropriately.

Note that a student may have been allocated a research project that may ultimately be of use to the company, but this research should be aligned with meeting the student’s degree requirements.

2.5.3.3 Annual Conflict of Interest Declaration

Whilst “doing business with” the university is discussed in section 3.5.4.4 as specific Council permission is required, where a UCT employee hold more than 5% equity

in a company, this needs to be declared on the annual Conflict of Interest declaration. The spin-off company may not necessarily be doing business with the university, but a founder is likely to have more than 5% equity in the company.

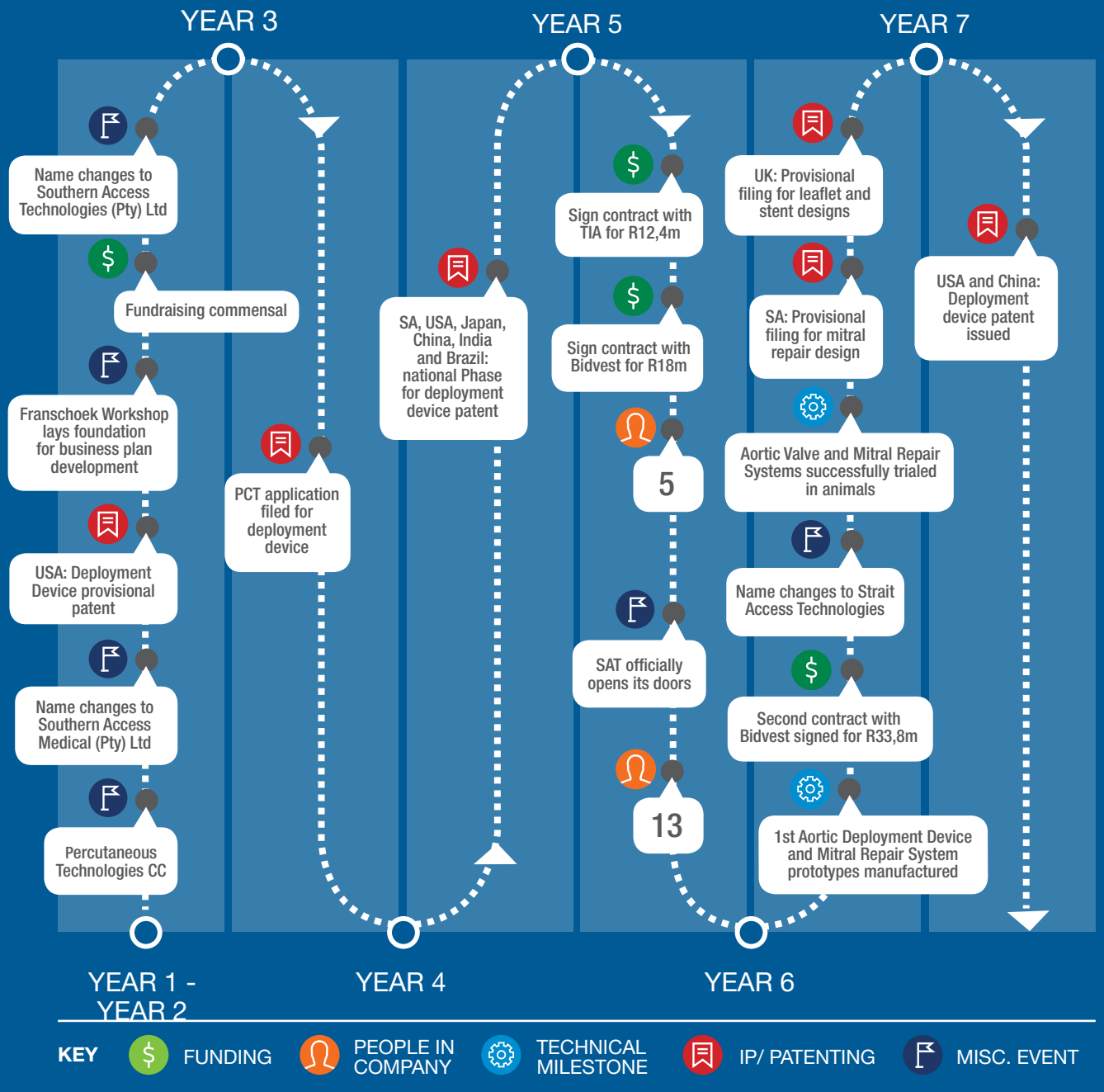
2.5.3.4 Higher Education Act

In terms of the Higher Education Act and Council needs to approve contracting between the university and a spin-off company. To comply with the requirements of the Act: the product or services must be unique; the supplier the sole provider; and it is in the best interest of the institution. Generally due to the nature of the IP or work these requirements are readily achieved, but this cannot automatically be assumed. RC&I can assist with the motivation, which is taken to IPAC for support ahead of the Registrar taking the matter to Council for approval.

The Higher Education Act (HEA) prescribes certain conditions that need to be should a university employee hold equity in a company that wishes to do business with the university. Clause 34(5) provides three conditions that must be met if there is a conflict of interest.

> 34. Appointment and conditions of service of employees of public higher education institutions
>
> (5) An employee may not conduct business directly or indirectly with the public higher education institution at which he or she is employed that entails or may entail a conflict of interest with the public higher education institution unless the council of such public higher education institution is of the opinion that-
>
> (a) the goods, product or services in question are unique
>
> (b) the supplier is a sole provider; and
>
> (c) it is in the best interest of the institution.

Currently the UCT Conflict of Interest Policy is more stringent than the HEA in that it omits the pre-requisite that there is indeed a conflict of interest before performing the three-point test.


YEAR 3
YEAR 5
YEAR 7
Name changes to Southern Access Technologies (Pty) Ltd
Fundraising commensal
Franschoek Workshop lays foundation for business plan development
USA: Deployment Device provisional patent
Name changes to Southern Access Medical (Pty) Ltd
Percutaneous Technologies CC
PCT application filed for deployment device
SA, USA, Japan, China, India and Brazil: national Phase for deployment device patent
Sign contract with TIA for R12,4m
Sign contract with Bidvest for R18m
5
SAT officially opens its doors
13
UK: Provisional filing for leaflet and stent designs
SA: Provisional filing for mitral repair design
Aortic Valve and Mitral Repair Systems successfully trialed in animals
Name changes to Strait Access Technologies
Second contract with Bidvest signed for R33,8m
1st Aortic Deployment Device and Mitral Repair System prototypes manufactured
USA and China: Deployment device patent issued
YEAR 1 - YEAR 2
YEAR 4
YEAR 6
KEY
FUNDING
PEOPLE IN COMPANY
TECHNICAL MILESTONE
IP/ PATENTING
MISC. EVENT

STRAIT ACCESS TECHNOLOGIES (Pty) Ltd

Founders

Prof Peter Zilla

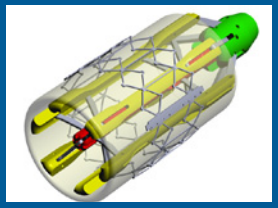
Prof David Williams

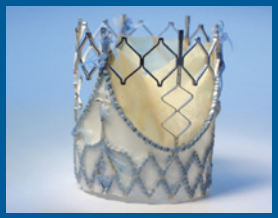
Strait Access Technologies (SAT) has designed a delivery device that can implant heart valves without the need for complicated surgery or high-tech operating theatres with advanced imaging systems and surgical teams. This percutaneously-delivered heart valve can be implanted in the simpler operating theatres common in many African countries. The device is the subject of multiple patents and, whilst it is ideal for the developing world, it also has tremendous potential in the developed world where higher prices can be achieved.

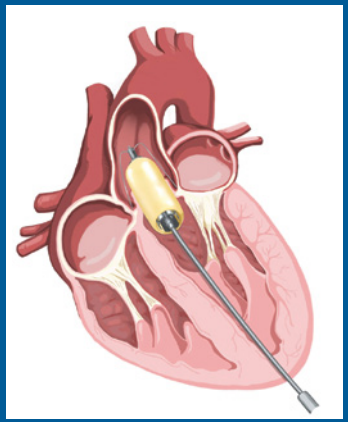
Assoc Prof Deon Bezuidenhout

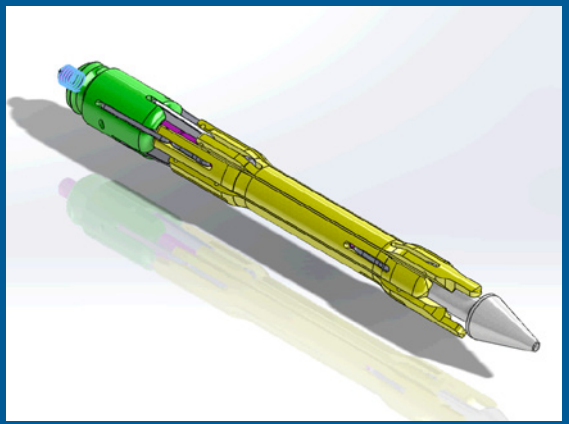
In addition to the device discussed above, SAT has also developed a plastic heart valve which is ideally suited for young patients as it will last longer in their bodies. It is also cheaper to manufacture than the currently available valves made from animal tissue.

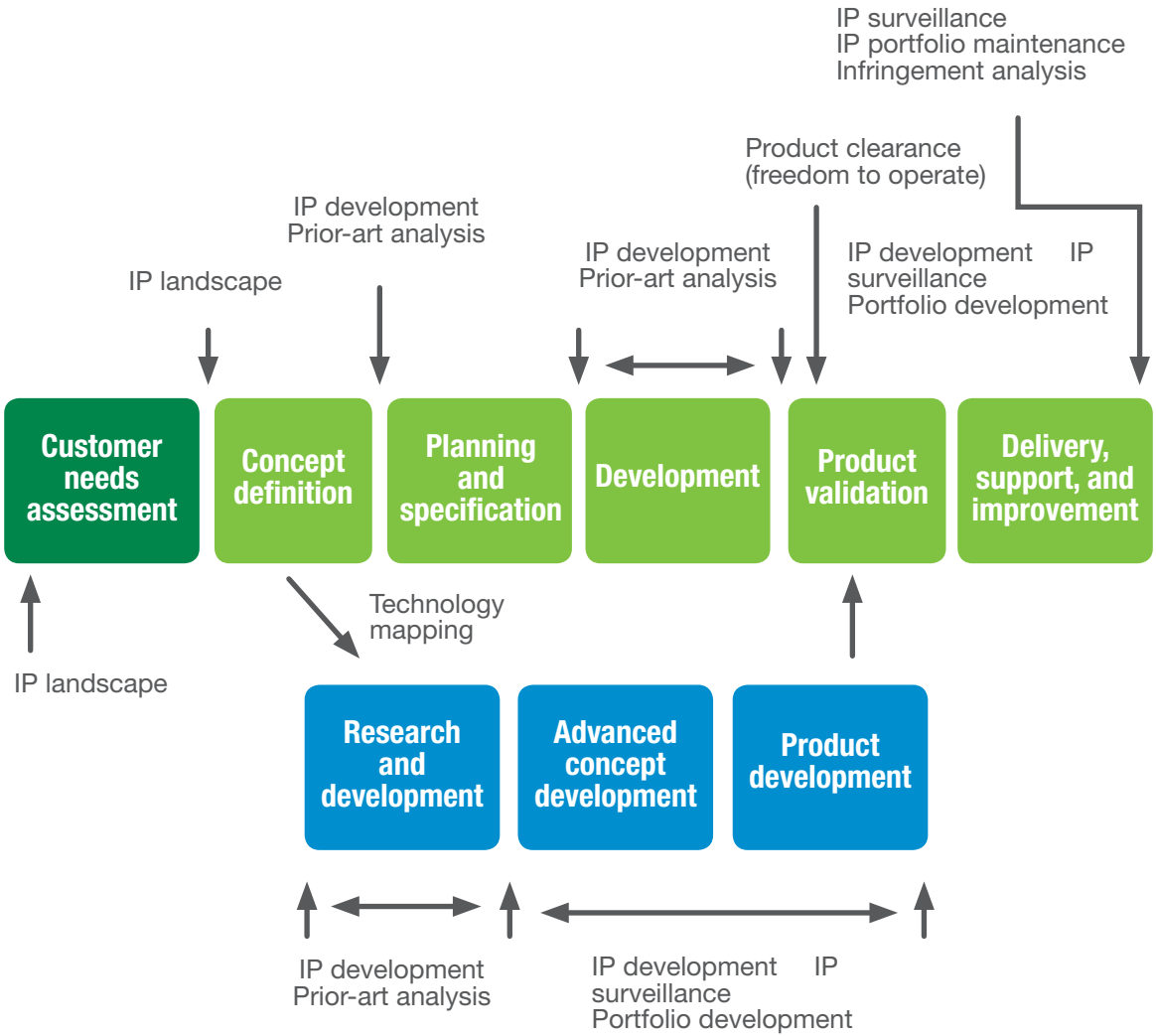
The key people behind SAT are all acknowledged world leaders in their fields. Prof Peter Zilla is head of the Department of Cardiothoracic Surgery at UCT. Assoc Prof Deon Bezuidenhout is a polymer scientist who specializes in biomaterials. The third founder of the company is Prof David Williams who is one of the world's leading experts in biomaterials and implantable medical devices.











Burdon, J. (2007) IP Portfolio Management: Negotiating the Information Labyrinth. Handbook of Best Practices, p 1201

3 FORMING THE COMPANY

This section looks a the various elements that are needed to form a company, understand its business and customers as well as the roles of directors and shareholders. Key agreements such as the Memorandum of Incorporation, Shareholders Agreement and Share Subscription Agreement are discussed as well as company registration with the Companies and Intellectual Property Commission and South African Revenue Services.

3.1 The Business Plan

During the initial consultations with founders, the New Venture Support Manager will help develop its business plan. The business plan is a written document that describes the current state of the technology and the anticipated future of the spin-off company. Business plans serve as an essential communication tool to your employees, shareholders, and possible future investment required.

Wikipedia defines a business plan as: *"a formal statement of a set of business goals, the reasons why they are believed attainable, and the plan for reaching those goals. It may also contain background information about the organisation or team attempting to reach those goals."*

Wikipedia go on to describe it further: *"The Business Plan is a vehicle that investors and funders use to get a 'snapshot' of a business opportunity, taken from a number of different angles. But, it can also be used internally within a company to communicate direction and goals and ensure that they are aligned with financial commitments. It is used both for start-ups as well as operating companies (often associated with their budget cycle).*

It is a 'living' document that needs to be updated as circumstances change within the business' environment and often looks at a view of between three and five years ahead."

An excellent business plan does not guarantee success but provides a clear path to profitability, highlighting material risks during the journey. Given the technology's novelty, a business plan is an essential tool to communicate the spin-off business model. A concrete business plan consists of the following:

- A summary of the technology describes what the technology is, what it does, the advantages, and the current patent status.
- Describe the vision of the spin-off company, the culture of the venture, and corporate governance.
- Provide a comprehensive marketing analysis that identifies the current and future market opportunities and competition.
- Compute the projected sales, pricing, and distribution of the value proposition.
- Detail the operations of the company, the methods used, costs, capacity, and implementation timeline.
- Describe in detail the roles and responsibilities of the management team.
- Produce a financial projection, return on invested capital and free cash flow to the firm (FCFF), and free cash flow to equity (FCFE).

The business plan can feel opaque to founders with a non-business background, and the New Venture Support Manager will guide you through the process. It is important to note that the business plan during the conception of a business is not a granular, rigid assignment, but rather that it is updated quarterly or semi-annually as we discover new information through the journey.

See Annexure 1 for a detail list of the components of a business plan that was developed by the Investment Development Corporation.

3.2 Transitioning from New Product R&D to a Sustainable Business Model

Business models have the following functions:

- Articulate the value proposition that is created for users by the offering based on the technology
- Identify the market segment in which the technology is useful and for what purpose
- Define the structure of the value chain within the firm required to create and distribute the value proposition
- Estimate the cost-structure and profit potential of producing the offering, given the value proposition and value chain structure chosen
- Describe the position of the firm within the value network (chain) - this links the suppliers and customers, including the identification of potential complementors and competitors
- Formulate the competitive strategy by which the innovating firm will gain and hold advantage of rivals.

3.3 IP Due Diligence and Valuation

The perspective that one takes on IP changes throughout the stages of identifying a product that may have a market (analysing the existing landscape) through the development of that product (looking to create protectable IP) to ensuring that the final product which may contain other technology components does not infringe third-party IP to maintaining the IP portfolio around the product(s) and checking that others are not infringing the company's IP. This is shown in the Burdon diagram on page 32.

Ahead of fundraising it is important for the company to conduct its own due diligence on the intellectual property on which it is based. The university will not, in line with global practice, warrant that the IP is fit for use, nor that it will not infringe the IP rights of others, i.e. that there is "freedom to operate". Freedom to Operate is discussed in more detail in section 4.2. The primary reasons for this position are firstly, the university is not always sure of the final application that the IP will be used for and the fact that it is almost impossible to conduct a sufficiently detailed prior art search to ensure that there has been no mention of the invention anywhere, or that there is a component of a patent that one may infringe; patent attorneys tend to charge fairly substantially for an analysis of freedom to operate and will again have a long list of disclaimers.

3.3.1 Identify the IP Assets

The first step is to identify all of the IP rights the company has. This will likely extend beyond patents to copyright materials (e.g. Standard Operating Procedures, databases, drawings, marketing material, images, software), registered designs, trademarks (such as product names, company logo, marketing slogans, etc.) and importantly trade secrets. The latter can be a really useful manner in which to protect IP cost effectively.

This list will be useful for inclusion in a business plan so that funders can understand how a competitive position can be maintained using the IP rights.

3.3.2 Ensuring Ownership or Rights

Proving that the company is the current owner of IP rights is important. If IP has been assigned from the university to the company, this change in ownership needs to be registered at the different patent offices. This exercise incurs costs and needs to be budgeted for.

Care should be taken that IP ownership withing an employee's scope of employment is owned by the company and that employees sign an IP assignment declaration. This can be done at the time of signing an employment contract in order to cover future IP that they generate.

3.3.3 Scope of Protection

One needs to be clear as to exactly which IP protects a particular product and also the scope of this protection. One of the problems that needs to be guarded against is where a product is changed through rounds of prototyping, whilst a patent examiner is whittling away at the scope of the patent claims. This can result in a situation where the product may no longer be covered by the patent!

One needs to watch how claim amendment impacts scope of protection and also to look to file new patent applications to cover new features as the product develops.

3.3.4 IP Valuation

IP and indeed company valuation are extremely difficult at the early stages of a spin-off company's life. Patents may not yet be granted, so one has no confirmation of their final scope of protection.

There are som generalised quantitative approaches to estimate the value of IP:

- **Cost-based approach** - assumes a direct relationship between the costs expended in developing the IP and its economic value.
- **Market-based approach** - this method relies on estimating value based on the similar market transaction of comparable IP in terms of utility, technological specificity, property, and how the market perceives the asset.
- **Income-based approach** - this method is based on the principle that an asset's value is intrinsic to the expected income flow that it will generate.

3.3.5 Freedom to Operate (FTO)

Freedom to operate (FTO) is the process of determining whether your product, process or service does not infringe on IP that is owned by another party. Importantly one needs to look at the overall product as it may contain a number of other components in addition to the IP that you have developed. For example, you may have developed a new battery for a laser pointer, but you are selling laser pointers that incorporate your battery and there may be patents related to certain aspects of the laser pointer itself that are valid.

You need to conduct a patent search (RC&I can assist with giving you access to on-line databases). Here, in contrast to patentability, you are only looking at the patent claims and the patent must be valid (if it is invalid then there is no problem!), i.e.:

- **Granted** in the country(ies) that you will be manufacturing or marketing your product into. If the application is still pending, then you need to be careful as you could be prosecuted for infringement when the patent is granted.
- **In force**, i.e. that the renewals have been paid and that the patent has not lapsed.

- **Not expired**, i.e. it has not reached the end of its 20-year life from when it entered national phase (PCT or national phase filing, whichever occurs first). Also, a patent may still have a few years to run whilst you are busy with product development, but it may expire ahead of your actually launching your product on the market.

Note that patent claims can be different in different countries and a patent attorney may need to contact a specific patent office to determine whether a patent is still in force or not, as online databases tend to lag in terms of reporting legal status.

To analyse the claims:

- Look at claim 1 first, this will be the broadest claim. Examine the integers (see box) and check whether you invention contains each one. Note if it contains all of the integers in addition to some others that are specific to your invention, you will still be infringing the other party's patent. Claim 1 is referred to as an independent claim. Many of the other claims will be "dependent claims" i.e. refer back to all the properties of a previous claim and they represent narrower and more defined cases.
- If you do not infringe claim 1, you do not need to worry about dependent claims, but beware as there may be other independent claims that just claim 1.
- Anything else mentioned in the body of the patent is not a concern – e.g. they may describe inventions that are much more similar to yours. This would impact your ability to get a patent granted, but plays no role in infringement.

INTEGERS OF A CLAIM

A patent claim comprises "integers" which can be regarded as the "essential features". To infringe a patent you product must contain all the integers.

1. A pressure vessel (100) which includes a tubular body (101) constructed from a composite material and a pair of end caps (103, 105) adhesivley secured to opposite ends (107, 109) of the body, characterised in that a flexible, fluid impervious lining (111) formed by a coating applied to the body is provided internally of the body.

The integers in the claim of a Water Rocket invented at UCT have been circled.

There are several different ways in which you can overcome a negative FTO outcome:

- **Legal Strategies**
  - You can attempt to **acquire** the IP, or license it from the owner.
  - Sometimes the owner may be interested in IP that you own and you can come to a **"cross-licensing"** arrangement.
  - In certain jurisdictions law permits you to be granted a **"compulsory license"** if the IP is not being exploited in that territory.
  - If you have encountered prior art that is damaging to the other party's patent you can **oppose the granting** of the patent by approaching the specific patent office(s).

- **R&D Strategies** can be implemented early on in the product development
  - Modify product
  - Invent around

- **Business Strategies**
  - You could adopt a **"wait and see"** approach as your infringement may go undetected, or the owner may not have means to enter into litigation. This is a high risk approach as patent owners often wait until there is significant value being derived before suing for infringement.
  - **Abandon** project
  - **Merge / acquire** company

3.4 Market Research

Whilst university spin-offs typically have strong technical teams, the challenges often lie in the skills required for marketing, customer communication, and sales. The spin-off company team will need to attract customers, generate leads, and close sales to achieve this revenue target. During the planning of the spin-off, a key deliverable required in the business plan is market research.

Market research involves collecting information on potential customers in a market to provide decision-makers with the information they need to find appropriate solutions for potential customers out there. Given the nature of deep technology university spin-off companies, customers tend to be sophisticated, knowledgeable of the product, and often in limited supply. Market research aims to identify the number of attainable customers, communicate the benefits of the products, and finally, allow for a frictionless path to a sale. We typically aim to understand the following questions: What are the macro-economic conditions that affect the business?

- Who are the current competitors in the market?
- Which competitor dominates the market?
- What are the sources of competitive advantage required to excel in this industry?
- What are the barriers to entry into the industry?
- What is the degree of competition within this industry?

Once market research has been conducted, the team will need to determine the following about the industry:

- Its attractiveness presently, and in the future
- The degree of competition
- Factors that bring about industry change
- The value chain
- Critical success factors
- Long-term value and profit potential

3.5 The Customer Journey

The customer journey is a crucial driver of competitive advantage in a range of sectors. This concept focuses on attracting customers, delivering what they need or want, and exceeding their expectations to create a brand loyal customer. Today, customers have unprecedented control over the availability of goods and services available and one needs to understand the segments that they fall into as each segment's need for your product may be slightly different.

3.5.1 Define a Customer Experience Vision

The customer experience vision sets the standard that the sales force needs to deliver on and the statement needs to focus on around what matters to the customer so that it provides a set of guiding principles for the sales team, or the individual responsible for attracting revenue to the business.

Typical questions that will uncover the customer experience statement include the following:

- What is the current customer experience offered by competitors?
- What is the company's appetite to improve the experience of customers?
- Is the goal to fundamentally change the customer experience or improve it?
- How can the company gain a customer-experience advantage against competitors?
- How do the overall capabilities of the staff support the customer experience the company wants to provide?

It is important to note that at the early stage of the spin-off, the company might have under five employees, with no sales-force or experience.

3.5.2 Develop a deep Understanding of what Matters to Customers

To understand what matters to customers, you need to prioritise gathering and segmenting data. During the early stages of the spin-off, customer behavior might not be well understood or information too immature to base decisions on, but as a starting point,

the following questions help structure the data that needs to be collected:

- Who are the customers as individuals?
- What would motivate the purchase of the product/ service?
- How does this product/ service fit into their lives or workflow?
- What are the fundamental causes of satisfaction?
- Who is the customer? Sometimes the end user is actually not the customer, as a service provider may be the actual customer – e.g. a dentist for orthodontic equipment.

The data need to be analysed and the following understood:

- What are the needs or desires that customers want from the journey?
- What do customers want to experience in their journey?
- What are the current stereotypes, preconceived notions? Is it currently positive or negative?
- What emotions do they experience in the journey?

3.5.3 Understanding Customer Expectations

The expectations of the customers have a two-fold impact on a spin-off: firstly, they helps in product development; and secondly, it impacts the retention rate of customers. As the spin-off founder, it is essential to assume that customers expect superior products/ services and pre-and after-sales support (often an aspect that is overlooked). An essential tool that all spin-off founders need to understand is customer-driven benchmarking. Here companies uncover product attributes and quality drivers to improve product and service quality. Benchmarking reveals the following:

- The outcomes customers expect in terms of quality, reliability, and speed to which products and services are received;
- Products and services customers want to receive to improve the attributes and values of the current offering;
- And finally, the measurement of performance that customers expect during their journey.

We measure the dimensions of customer-driven benchmarks in terms of performance value, price value, and personalisation value to understand customers' expectations of the spin-off products and competitors.

3.5.4 Map out the Customer Journey and Reinvent the Process

A customer journey includes all the activities before, during, and after a product or service is acquired. Regardless of the company's age, customer journeys represent a sustainable, cost-effective source of competitive advantage. Once the technology is ready to be introduced into the market, significant time is spent

with the founders to understand a customer's touchpoints to purchase a product. The outcome of identifying the touchpoints of the customer allows management to understand the interaction they have with their product or service, customer service, sales staff, and marketing material. To improve the customer journey, the following is recommend:

- Review the current steps customers take to purchase existing products/ services in the market. This process often requires the founders of the technology to adopt the customer's viewpoint, or to engage with customers, to understand the current journey.
- While you take the customer's viewpoint, try to understand and navigate the customer touchpoints as they purchase a product. Try to identify specific touchpoints that can cause a customer to drop off, or that improve the purchase probability.
- Anticipate the customer needs, expectations, and desires they experience at each touchpoint of the journey.

MARKET CHANNEL AND UNDERSTANDING YOUR MARKET

- ✓ Understand how your market works.If you want cardiologists to buy and use your products, you are going to fund their trips to conferences!
- ✓ Plan your events and develop relationships
- ✓ Carefully consider whether it is worth building up your own brand,or better to market through other established brands
- ✓ Decide whether it is worth having your own distributors or using other established distribution networks - especially overseas. But then you need to monitor them closely and if Agents underperform you need to move your business from them rapidly. Ensure that your contracts do not lock you into staying with them and don't be taken in by their explanations and promises of successful turnaround in the future
- ✓ Local market may not have the insight into the needs of the industry/the ability to take up your technology. By attending international expos one can assess trends and focus your product development by getting in contact with leading global users
- ✓ Look for international industry bodies - they can often provide excellent contacts and a network that aids market development and access
- ✓ Participation in competitions provide you with great PR, exposure and networks - especially if you win them!
- ✓ Establish a track record.That first client is all important. Its often worth discounting for them, but ensuring that you can use them as a reference client - this is especially great if they are a 'big name' in the industry

- Define priorities and opportunities to improve the current customer journey.
- Finally, develop a framework to improve the end-to-end experience by eliminating the number of touchpoints to make the journey efficient, cost-effective, and delightful through technology.

Given the spin-off's nature, the technology is new, and often the customer journey might not be well-understood or developed. The novelty of the technology provides an opportunity to reinvent the customer journey and improving the experience to create brand loyal customers. It is important to note that transactions tend to be long in duration in the business-to-business market, with frequent meetings and relationship building. Regardless of the market, a great customer experience allows a spin-off to differentiate itself from the existing market.

3.5.5 Customer Relationship Management

A crucial component of managing a spin-off company is developing an effective customer relationship management (CRM) strategy to ensure revenue growth. In developing the CRM strategy, the management team needs to identify the customer acquisition costs and retention rate to determine its customer equity value, firm value, and the allocation of marketing resources. In general, investors typically use CRM metrics as a proxy for management's outcome.

Once the spin-off forms, the New Venture Support Manager will help the founders determine the cost of acquiring a customer and allocating marketing resources to reduce this cost. This activity involves sales forecasting and identifying specific marketing activities to achieve the sale. Once the sales target and strategy are determined, the New Venture Support Manager will guide the founders to assess a customer retention strategy. This process generally involves developing a database and different marketing strategies to maintain a customer relationship to ensure the future sale of products.

3.5.6 Customer Tiers

Customers can be divided into different categories or tiers.

- **First-tier customers:** This customer segment is the easiest to reach and is waiting for an improved product. These customers can recognise the benefits early and have the income to pay a premium to become an early adopter. These customers tend to be within proximity to the company and the network of the founders.
- **Second-tier customers:** This customer segment may recognise the benefits of the product, but they are not willing-to-pay for specific features or inefficiencies present currently. These customers tend to adopt the product more slowly and may presently be using a competitor's product. As part of your market

research, you must understand the current issues faced by this customer segment and adapt your product to improve their adoption. This customer tier tends to emerge during the growth stage of your business.

- **Third-tier customers:** The final tier of customers are the "unexplored" customers who have never thought about your product or service. These customers do not recognise your product or service's benefits, only due to a new application.

3.6 Building your Team

In our experience, the founders of the invention tend to be technical individuals from an engineering or science background with limited business / commercial experience. One of the challenges that you will experience is attracting talented individuals, with limited to no funds, and retaining them. The question inventors face is should you start to build a team before or after funding? Funder are often looking to invest in a team and there is the saying that they would rather invest in an "A" team with a "B" product than vice versa.

3.6.1 Building a Team Pre-funding

During the start-up pre-funding phase, the founder has focused on developing a technical team to mature the technology and bring the product to market. As the product comes closer to the market, the focus changes to building a business and this requires different skillsets such as marketing, finance, and other commercial skills. Due to funding limitations, the challenge is attracting talented individuals to fill the commercial positions required. Whilst retaining the current technical team. It is important to note that during this phase, an investor will invest based on the team's confidence and will significantly discount the valuation due to the added risk of the business.

PRODUCT OFFERING

- ✓ Its about quality, quality, quality!
- ✓ Beware of free services that you thrown in with your product.Recognise their value - one can generate additional revenue from them that extends beyond the initial sale of your product. It creates an annuity type income stream
- ✓ Regular communication with your clients is essential to keep up with new ideas and opportunities, keeping your product on that upward curve - it also alerts you to budding problems so that they are rapidly addressed!
- ✓ Build in a long term view in terms of where a product is going, e.g. eventually to an overseas market

Seed funding can help in this stage and founders generally do not earn market-related salaries (in the early stages of the business) noting that they are also gaining from the increasing value of their equity. This is ofte referred to as “sweat equity”. Some other early employees may also be attracted by the opportunity to acquire equity, but the jury is out on how effective employee share option schemes are in start-ups.

One can also employ service providers or consultants on a part-time basis during this stage and sometimes this is useful as a prospective employee can migrate into a full-time position when adequate funding has been secured.

3.6.2 Building a Team Post-funding

During this post-funding phase of the business, it becomes easier to attract an experienced commercial management team and retain the current technical team due to the availability of funds. Once the company becomes capitalised, the business objectives change from maturing the technology to manufacturing, marketing, sales and distributuion. Therefore, founders must identify an experienced management team to lead and manage the shift towards commercialisation. The commercial team provides a structure that allows the technical team to focus on research and development (R&D) in product development.

3.6.3 Identifying Talent

Recruiting tends to be the most exciting part of a start-up. The original ideation starts to become a viable commercial vehicle for developing technology and becoming a significant economic contributor. Recruiting talent is also challenging, as experienced professionals might struggle to understand the product’s technical attributes. Despite this, there is a common framework to aid in talent recruitment:

- Shared vision/ passion of the technology
- Meet the requirements for current objectives of the business
- Provides a skill set that is currently not present in the business
- Recruit individuals that are more talented than the current team
- Focus on diversity and bringing in different opinions and backgrounds to create a strong team.

3.7 Defining the Start-up Organisational Design, Roles and Responsibilities

The organisational structure involves decisions centered around the following:

- Work specialisation identifies chunks of work broken down into steps and allocated to specific people. When a task becomes specialised, one person

becomes an expert in this task, leading to productivity and error reduction. Often at the outset founders tend to be a "jack of all trades".

- Delegation of Authority is important to establish to define who in the company is authorised to make specific decisions (this can include Board and Shareholders too), e.g. purchases up to different value limits, hiring of new staff, signing contracts, banking authorisations, etc.
- The chain of command identifies the continuous line of authority from the lower to upper levels of the organization. The New Venture Support Manager aims to uncover the following:
  - Identify individuals who have authority to make decisions on behalf of their business unit;
  - Identify the team responsibility to clarify the tasks that need, and the expectation of work quality that needs to be delivered;
  - Determine the level of accountability that each member is required to own for their work designated to them;
  - Determine the unity of command to identify individuals that will deal with conflicting demands and priorities within the organisation;

  and these elements are generally formalised in job descriptions.

3.8 Role of Shareholders

A shareholder is an individual, company, or institution that owns a minimum of one share of the company's equity. Shareholders can profit from their investment either the value of the share increasing due to value creation or from dividends declared to shareholders. However, the shareholder's principal investment is at risk if the firm's value declines due to a loss of income. As a result, investors insist on a competent management team to execute their business plan and ensure value creation.

3.8.1 Shareholders Rights

Shareholders have the following rights:

- to inspect the company's financial statements;
- legal right to sue the directors or presiding officers for the corporation wrongdoing;
- hold voting rights and proxy voting rights that can exercise on crucial corporate issues such as director appointments or possible new investment rounds;
- a claim on the corporation's dividends;
- to attend annual meetings;
- a right to claim the company's assets if liquidation of the venture occurs.

3.8.2 Types of shareholders

It is common for a venture to issue different types (or classes) of shares and a spin-off

DESCRIPTION	COMMON	PREFERRED SHARES
Company ownership	Yes	Yes
Voting rights	Yes	No
Dividends	Variable	Fixed
Returns based on	Earnings	Earnings

typically uses common and/or preferred shares to raise equity capital in the business. The majority of shareholders hold common shares as they are cheaper and readily available relative to preferred shares. Common shares carry voting rights that increase with the proportionate ownership, and they receive a dividend if declared. In contrast, preference shares have no voting rights and receive a fixed dividend ahead of ordinary shareholders – these are often held by investors.

It is common for spin-offs to issue different share classes to address voting authority, dividends, and rights to its assets and capital.

Advisory shares are another type of common share class routinely used within start-ups. This allows business advisors to share their knowledge and experience to provide strategic direction to the venture. Advisory shares routinely vest monthly over a one- or two-year period according to a schedule. See section 3.4.3 for more information about UCT's Shareholder Representative.

3.9 Directors

Once a company has been incorporated, at least one Director needs to be appointed in terms of section 66 of the Companies Act, 2008 and general several directors will be appointed to the Board. Once a person accepts the appointment as a Director, the individual acts as a fiduciary to the company and is required to demonstrate good faith to shareholders and in their dealings on the company's behalf. Where they are appointed by a particular shareholder, the Director must act firstly in the best interests of the company. The powers of the board are specified by the company's Memorandum of Incorporation (MoI).

It is important to note that the management team of the spin-off company (which includes the CEO) is responsible for the day-to-day operations of the company, while the responsibility in terms of the Act lie with the Directors.

Successful Boards are structured by appointing Directors with a diverse

background and skill-set, as well as strong networks that can assist the company.

3.9.1 Types of Directors and King IV

The South African legal framework does not differentiate between the different types of directors. As a result, all Directors are required to comply with the relevant legislation and standards when performing their duties. The King IV Report sets out the philosophy, principles, practices and outcomes which serve as the benchmark for corporate governance in South Africa. (King IV Report on Corporate Governance for South Africa). There are three different categories of Director that are described in the report:

3.9.1.1 Executive Director

Executive directors are full-time salaried employees that manage the day-to-day operations of the venture. These individuals have a deep understanding of the business operations, and as a result have a greater amount of information than non-executive directors. Executive directors are entrusted to present information to the board to accurately reflect the activities of the business.

3.9.1.2 Non-executive Directors

The non-executive director provides an objective opinion on issues facing the company. By definition, the non-executive director is not involved in the management of the company and as result, can provide an objective view on matters surrounding strategy, performance, sustainability, resources, transformation, diversity, employment equity, standards of conduct and evaluation of performance. Non-executive directors generally meet from time to time to evaluate the performance and actions of executive management.

See section 3.4.2 regarding UCT's appointment of non-executive Directors.

3.9.1.3 Independent Director

An independent director is defined as an individual who is not a representative of a shareholder who has the ability to control or significantly influence management or the board, and does not have a direct or indirect incentive in the company. The independent director is someone who has senior status, and the authority to facilitate any issues that may arise between the executive and non-executive directors of the board.

3.9.2 Appointment of Directors

In theory, any adult can be appointed as a Director as long as they have not been precluded from holding such a role – e.g. through insolvency, previous reckless trading, criminal offence, etc. Directors can either be appointed or elected. The legal mechanics of the appointment of a director are stipulated in the MoI in terms.

3.9.2.1 The First Directors of the Company

The Act determines that each incorporator of a company will also be a first director of that company. This directorship will be temporary and will continue until a sufficient number of directors have been first appointed or first elected. In general, start-ups are private companies and often aim to appointment at least three directors (so that votes can be decisive). Start-up Boards tend to be kept small so that meetings can be readily called.

3.9.2.2 Election of Directors by the Shareholders

It is the responsibility of the shareholders to evaluate, and legally appoint each new Director. In terms of section 68 of the Companies Act, each director must be voted on by a separate resolution at a general meeting of the company. Once elected, the person will become a Director only once written consent to serve as a director has been delivered to the company.

The Memorandum of Incorporation indicates the percentage equity that a shareholder must hold in order to be able to appoint a Director themselves, or other requirement that has been established (e.g. a founder may be entitled to appoint more than one director, or a particular shareholder may be entitled to still appoint a Director even though they are below the percentage equity threshold).

A shareholder may, if they have the requisite percentage equity, appoint themselves as a Director. Here, care needs to be taken that the person knows which "hat" they are wearing when – i.e. as a director, or as a shareholder.

3.9.2.3 Registration of Directors

The Act requires every company to keep a record of its Directors. This record should be in written form, of other form as long as it the information can be converted into written form within a reasonable time. The register of directors must be transparent to allow for any individual who holds a beneficial interest in any securities issued by the company.

The record for a directors includes the following:

- Full name,
- Identity number or date of birth;
- Nationality and passport number;
- Occupation;
- Date of their most recent election or appointment as a director of the company
- Name and registration number of every other company or foreign company of which the person is a director, and in the case of foreign company, the nationality of that company
- Any information as required by the regulator

The company must also register its Directors with the Companies and Intellectual Property Commission (CIPC) and also record when any Director resigns.

An appointment needs to be registered within 10 days and a resignation with 20 days, on the prescribed CIPC form.

3.10 Memorandum of Incorporation

The Memorandum of Incorporation (MoI) is arguably the most important document when forming a spin-off company. The MoI sets out the rights, duties, and responsibilities of shareholders, directors, and others within a company, and by which a company is incorporated and defines the business that the company intends conducting.

CIPC has a standard "default MoI" that can be used, but generally a more detailed MoI is created for UCT spin-off companies and RC&I can help with the initial draft. As mentioned elsewhere the spin-off will require its own legal representation.

The following key information is included:

- Details of incorporators
- Number of directors or alternate directors
- Share capital (maximum issued)

The Notice of Incorporation, which is lodged with the MoI, contains the following information:

- Type of company
- Incorporation date
- Financial year-end
- Registered address (main office) [For UCT-incubated companies, a rental agreement with UCT will provide proof of address for FICA purposes]
- Number of directors
- Company name
- Whether the company name will be the registration number
- The reserved name and reservation number
- List of four alternative company names to be checked by the Commission

To register a private company you will complete either a CoR 15.1A (for a standard private company) or a CoR 15.1B (for a customised private company) and a CoR 14.1. The supporting documents required include:

- Certified ID copies of all indicated initial directors and incorporators;
- Certified ID copy of applicant if not the same as one of the indicated initial directors or incorporators;
- If an incorporator is a juristic person, a power of attorney is required for the representative authorised to incorporate the company and sign all related documents;
- If another person incorporates the company and signs all related documents on behalf of any of the incorporators and initial directors, a power of attorney and certified ID copy of the person is required;
- If a name was reserved before filing of incorporation documents, a valid name reservation document is necessary.

RC&I will be able to assist you in drafting and submitting the MoI for your company.

Memorandum of Incorporation vs Shareholder Agreement, What to Put Where

As a general rule:

- If an issue is discussed in the MoI, alter it there
- If an issue is relevant to all shareholders, include it in the MoI
- If something will change as the company develops, or it is applicable to only some shareholders, this should be handled in a separate agreement
- The SHA can be changed and updated more easily than the MoI

	Memorandum of Incorporation	Shareholders/ Subscription/ Other Agreement	Comments
Business of the Company	✓		It is important to describe the nature of the business activity that the company will be involved in to prevent the board/ managers from changing that.
Investment-related issues • Share subscription • Claw-backs		✓	See Section 3.10
Funding / Capital Raising		✓	Manner in which this will be done – e.g. requests to shareholders, debt, issuing shares.
Board • Special Resolution Thresholds • Delegation to management • Board Composition	✓	✓	Can use the SHA to phase in provisions to ultimately transition to the MoI defaults. SHA can be used for investor-specific special resolution matters and thresholds.
Management • Delegation to staff • Access to information • Attendance of meetings		✓	Start-ups may want to limit delgations. Investors may want certain reporting, e.g. management accounts, etc.
Share transaction rights	✓		
Confidentiality	✓	✓	Investors may need to report to their principals.

3.11 Shareholders' Agreement (SHA)

The Shareholder's Agreement (SHA) regulates the relationship between shareholders in connection with the company's operations and it is important that the company is party to it. Its core function of the agreement is to outline the relationship between different shareholders, their residual claim on profits or liquidation of assets, details of share transfer restrictions, issuance of shares, the oversight of the management of the business, the mechanism to enact shareholder rights, and finally, the structure of the venture. The SHA is often drafted at the same time as the MoI.

The SHA is often used to safeguard and provide protection to shareholders in the event of an adverse event. The shareholders' agreement sets out the rules should a shareholder want to transfer their shares to a third party (i.e. stipulate that other shareholders may need to be offered the shares first, or be allowed to offer their shares pro-rata for purchase by the third party), regulates how potential disputes and deadlocks between shareholders will be resolved, and finally, define the course of action in the event of the death of a shareholder.

It outlines the mandate of financing the company, management of the company, the dividend policy, the procedure to transfer shares, deadlock situations, and valuation of shares. The absence of a shareholders' agreement opens up the potential for disputes, and disagreements between shareholders. Shareholders' agreements contain provisions that pre-empt disagreements and sets out appropriate ways to dispute potential issues. The outcome of the shareholders' agreement is to protect the interests of shareholders in the company.

3.11.1 Types of shareholders

To pass certain resolutions, a simple majority (50%+1) is required, but for matters that requires special resolutions, a vote of 75% or above is required for the resolution to be passed. The MoI and SHA will provide for "reserved matters" that require specific decision makers, or special resolutions.

3.11.1.1 Minority Shareholders

A minority shareholders tends to hold less than 50% of shares within a company. Due to the nature of their holding, minority shareholders tend to be vulnerable in decision-making, and the illiquidity of shares in start-ups. There are methods to protect the interest of minority of shareholders through the following mechanisms:

- Issuance of a special class of shares
- Board structure
- Provisions of the MoI

3.11.1.2 Majority Shareholders:

These shareholders hold more than 50% of the shares in the business, and therefore, have significant interest in the business. Shareholders' agreements tend to protect the interests of majority shareholders. Majority shareholders tend to have a more voting power, and slightly more liquidity due to the nature of their holdings.

3.12 Share Subscription Agreement (SSA)

A Share Subscription Agreement (SSA) is used by an investor to acquire shares in the company. It sets out the number of shares that will be acquired by each shareholder and what they will provide in return for acquiring the shares, e.g. a certain price per share will be paid, or IP may be assigned. It can include the fulfilment of specific conditions too, ahead of the shares vesting (e.g. the investment could be tranched with payments based on milestones being achieved or time-based). The company is also party to the SSA.

SA COMPANY CHALLENGES AND ADVANTAGES

- ✓ There are often small local markets, which requires one to network on an international level
- ✓ We represent a lower cost vs. Europe or US in terms of technical staff employed at technology-oriented start-ups
- ✓ We have plentiful access to patients, an asset in the medical or pharmaceutical sectors
- ✓ Accessing export markets is challenging. You are competing against established brands, there are often import tariffs and agents get commissions that need to be factored into your business model

It is also concluded at the same time as the MoI and SHA when a company is incorporated, but after the company is incorporated, only a new SHA and SSA would be required. Typically the MoI is not intended to be altered during rounds of investment, although on occasion it may need to be amended, e.g. to include the ability to issue preference shares that may need to be used by an investor.

It is generally a short and straightforward agreement, with the SHA containing the detail.

3.13 Company Registration with CIPC

The Companies and Intellectual Property Commission (CIPC) (http://www.cipc.co.za/index.php/register-your-business/companies/) is a government entity responsible for registering companies and intellectual property rights. RC&I recommends structuring the spin-off company as a private venture due to simplicity and limited liability protection. In addition, most private companies are owner-managed, with a small number of directors associated with the company.

Private companies do not offer shares to the public and have restrictions on the transferability of their shares. In general, private companies require at least one director and one incorporator that may be the same person.

Steps in Company registration through the CIPC:

1. Register as a customer on the CIPC website
2. Deposit funds (R125 to register a company without a name, and R175 to register a company with a name)
3. Reserve a corporate name
4. Register your private company with a standard or customised MoI online.

3.14 Registering with South African Revenue Service (SARS)

3.14.1 Tax Registration

If a company is registered at CIPC, it also needs to be registered for Company Income Tax at SARS. Company profits are taxable and a provisional tax return is submitted (with payment if necessary) in October every year, with an annual tax return by February. Company Tax is currently charged at 28%. Losses can be accumulated and set off against future profits.

3.14.2 VAT Registration

VAT registration can be done on a voluntary basis for new companies. It is compulsory when your company expects to do sales of R1 million or more within a 12 month period.

3.14.3 UIF, PAYE and SDL Registration

All employers who appoint employees should be UIF (Unemployment Insurance Fund), PAYE (Pay As You Earn, personal income tax) and SDL (Skills Development Levy) registered. At each month-end SARS will require you to pay these fees after you have paid your employees their salaries.

3.14.4 Tax Clearance

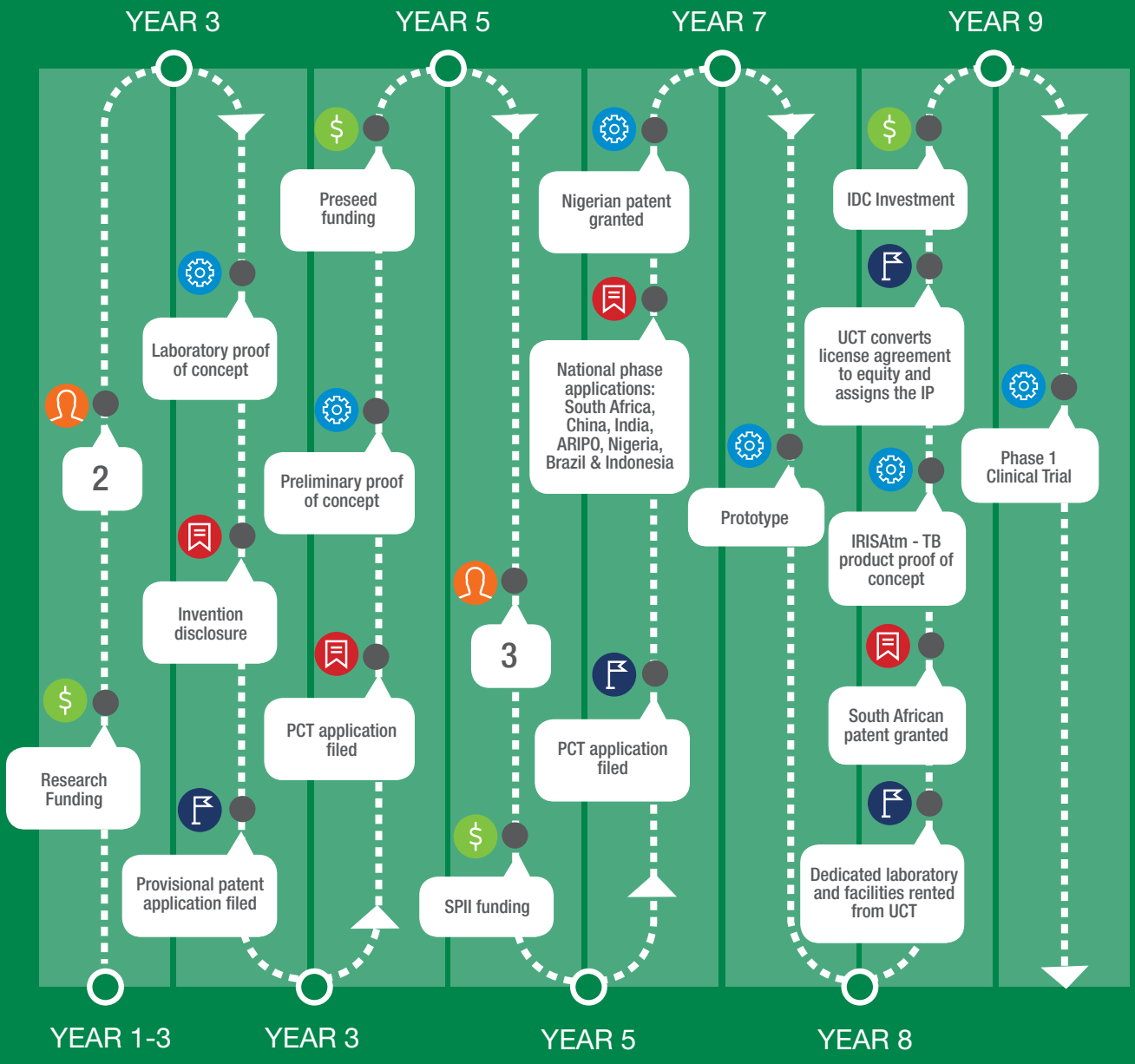
Before doing business business with large corporations / government institutions (tenders) they would want to know your company does not have a bad history with SARS. To prove this, you will be required to give them a Tax Clearance Certificate from SARS.

3.14.5 Import / Export License

An Import / Export License is also known as an Importer's / Exporter's Customs Code or Customs Registration. In order to receive a customs code, the individual or business has to be registered with South Africa's Customs (included in this licence).

This license will grant permission to:

- Clear incoming / outgoing goods at customs.
- Make foreign transfer


YEAR 3
YEAR 5
YEAR 7
YEAR 9
Research Funding
2
Laboratory proof of concept
Invention disclosure
Provisional patent application filed
Preseed funding
Preliminary proof of concept
PCT application filed
3
SPII funding
Nigerian patent granted
National phase applications: South Africa, China, India, ARIPO, Nigeria, Brazil & Indonesia
PCT application filed
Prototype
IDC Investment
UCT converts license agreement to equity and assigns the IP
IRISAtm - TB product proof of concept
South African patent granted
Dedicated laboratory and facilities rented from UCT
Phase 1 Clinical Trial
YEAR 1-3
YEAR 3
YEAR 5
YEAR 8
KEY
FUNDING
PEOPLE IN COMPANY
TECHNICAL MILESTONE
IP/ PATENTING
MISC. EVENT

ANTRUM BIOTECH (Pty) Ltd

Founders

Prof Keertan Dheda

Mrs Khilona Radia

Antrum Biotech (Pty) Ltd was founded in 2008 as a spin-off company from the University of Cape Town to support the need for field-friendly rapid TB diagnostic tools in developing countries.

Antrum Biotech's strategic areas of focus are:

- The identification and exploitation of novel diagnostic biomarkers relating to TB and other poverty-related diseases.
- The incorporation of these biomarkers into appropriate testing platforms.
- The marketing and distribution of these tests throughout Africa and, where relevant, to the rest of the world through international partners.

The founders are Prof Keertan Dheda, a leading pulmonologist and TB physician, and Khilona Radia, a globally experienced business manager, who currently manages the company as CEO.

Antrum's first product, IRISA, a groundbreaking diagnostic tool for the detection of Extra-Pulmonary TB (EPTB), will enter the clinical trial phase during 2014. It is the first point-of-care test for EPTB that can be used at the patient bedside and deliver a rapid accurate result so treatment can begin immediately.

ANNEXURE 1: ELEMENTS OF A BUSINESS PLAN

The IDC Venture Capital Fund provide an excellent summary of the key requirements for a Business Plan (some of which may not apply to a newly incorporated company) in their brochure and with kind permission of Dr Paul Johl they are:

- Information on funding applicant (contact details);
- Executive summary;
- The company (history; mission statement; strategic objectives; shareholding structure; directors; current business activities; key strategic partnerships/alliances);
- Product description of products on offer; status of development; key milestones achieved and still to be achieved; cost breakdown; technology employed; intellectual property; patents; royalties; competitive advantages; SWOT analysis);
- Technical information (description of process; details of plant, equipment and building requirements; details of actual and projected operating costs and capital expenditure; information on raw materials and suppliers);
- Present employment and the number of new employment opportunities to be created;
- Market analysis (market trends; industry analysis; customer profiles; market research results; competitor analysis; substitute products; three year sales forecast - units and value; market share; entry barriers; potential market segments - size and growth);
- Marketing plan (overall marketing strategy; pricing; advertising and promotion; sales tactics; distribution);
- Management team (organisational chart with responsibilities; CVs of key people);
- Critical risks (highlight key risks areas and describe plans to minimise their impact);
- Funding (details of funding required and application thereof; capital invested to date; owner's contribution);
- Financial plan (valuation; key assumptions three years' historical (audited in the case of an existing company) and projected income statement, balance sheet and cash flow statement; break-even analysis; business ratios);
- Material contracts and/or agreements, and
- Ownership (before and after funding).

ANNEXURE 2: TERMS AND DEFINITIONS

TERM	DEFINITION
Accelerator	An institution which provides cohort-based programs through mentorship, space, connections, and educational components, usually culminating in a pitch event to accelerate growth
Assets	This word refers to all resources that a corporation owns. Current assets can be any form of currency, including traded inventory, investments, and checks. Fixed assets (capital assets) consist of material goods and equipment of a company, such as the land, the company buildings, and technological machinery. Intangible assets mainly comprise of intellectual property protection, copyrights, patents, etc.
Business to Business (B-to-B)	Your company sells to other companies.
Business to Consumer (B-to-C)	Your company sells directly to the consumer
Balance Sheet	A condensed financial statement showing the nature and amount of a company's assets, liabilities, and capital on a given date
Board	A group of people elected by the company's shareholders (often to the terms of the negotiated Shareholders Agreement) that makes decisions on major company issues, including hiring/firing the Chief Executive Officer.
Due diligence	The analysis an investor makes of all the facts and figures of a potential investment. The due diligence is usually performed by the consultants (e.g. lawyers, auditors etc) of the investor.

TERM	DEFINITION
Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA)	A measure of cash flow calculated as: = Revenue - Expenses (excluding tax, interest, depreciation, and amortization).
Economies of Scale	Economic principle that, as the volume of production increases, the cost of producing each unit decrease
Employee Stock Option Plan (ESOP)	A plan established by a company whereby a certain number of shares is reserved for purchase of and issuance to key employees. Such shares usually vest over a certain period of time to serve as an incentive for employees to build long-term value for the company.
Exit	The sale or exchange of a significant amount of company ownership for cash (or for debt and/or equity of another company).
Expenses	The cost a business incurs during operations in order to generate revenue. The expenses are usually divided into cash expenses (e.g. salaries, payments to suppliers etc.) and non-cash expenses (e.g. depreciation, amortization etc.) according to the accounting standards.
Income Statement	A financial statement that shows a company's financial performance over a specific time period. It delineates the Revenue, Expenses and Net Income.
Initial Public Offering (IPO)	The first sale of stock by a private company to the public
Minimum Viable Product	The basic version of a product required to test it in the market in order to achieve proof of concept. The term is usually applied to the software which is still in development.
Net Income	The resulting earnings of a company after deducting all costs and expenses, including operations, general and administrative, selling, depreciation, interest expense, and taxes.

TERM	DEFINITION
Non-Disclosure Agreement	An NDA is a formal legal agreement between two or more parties undertaken by the parties to keep information shared or provided by one party to another confidential. NDAs are utilized where parties become privy to confidential and / or sensitive information, which the disclosing party desires not be made available to third parties or the general public. Such agreements may also include the confidentiality of the relationship in existence between the parties.
Proof of concept	A demonstration of the feasibility of a concept or idea that a startup is based on.
Representations and Warranties	A list of material statements or facts which are included in the investment agreement and which are confirmed by the entrepreneur.
Vesting	A process in which startup company releases its shares to employees, management, founders, advisors, board members and other company stakeholders over time. The purpose of vesting is to grant stock to persons over a fixed period of time so to provide an incentive for them to stay with the startup company.
Vesting Schedule	A timetable and methodology under which a startup releases shares to employees, management, founders, advisors, board members and other company stakeholders.

This publication was prepared by
Research Contracts and Innovation (RC&I)
at the University of Cape Town.

Website: www.rci.uct.ac.za
Email: innovation@uct.ac.za
Tel: 021 650 4015

Ver: 2021

UCT appreciates and acknowledges the support that the National Intellectual Property Office (NIPMO) provides in terms of patenting rebates received from the IP Support Fund, resourcing of Research Contracts & Innovation (RC&I) and for the publication of this book.