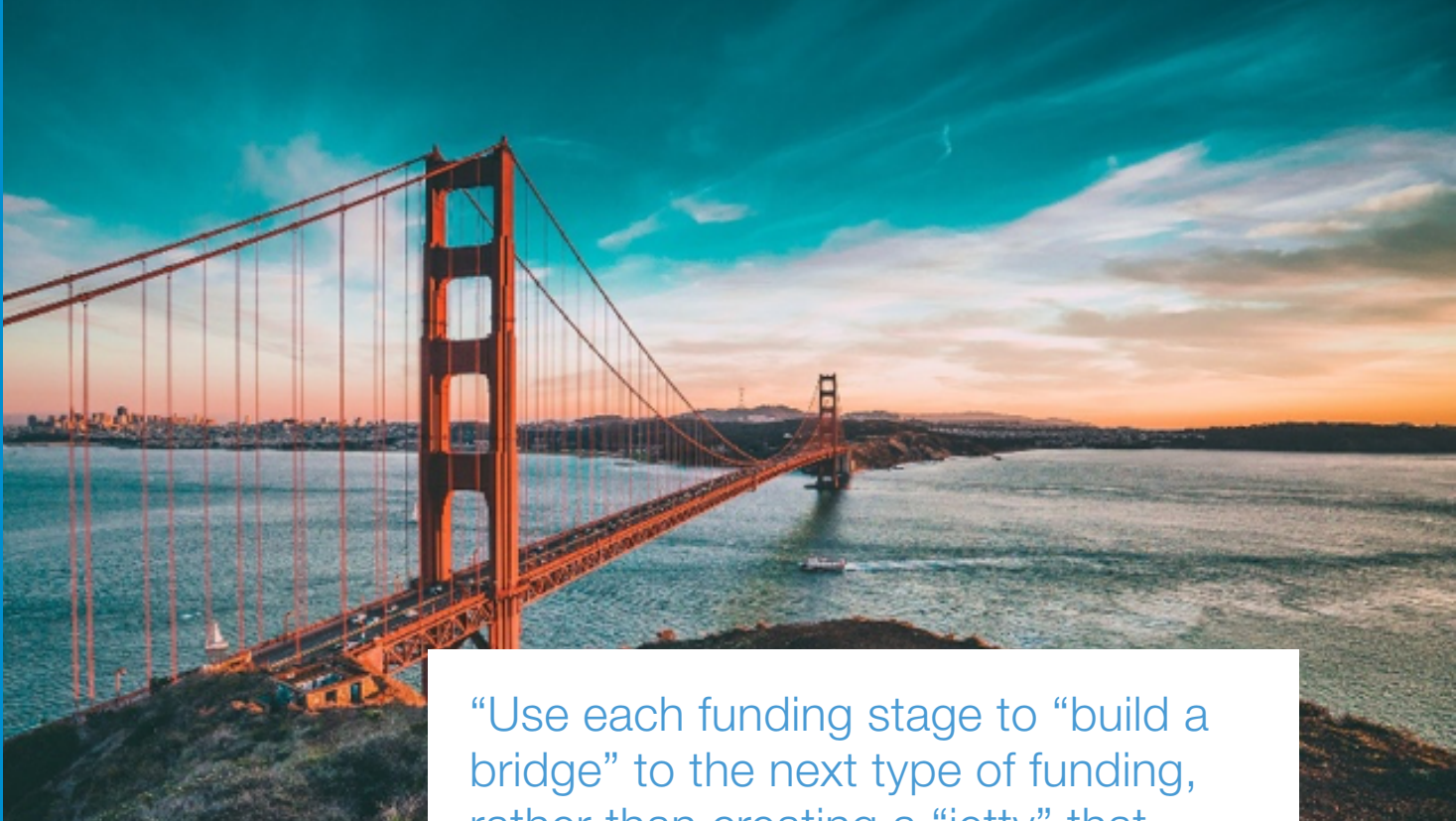


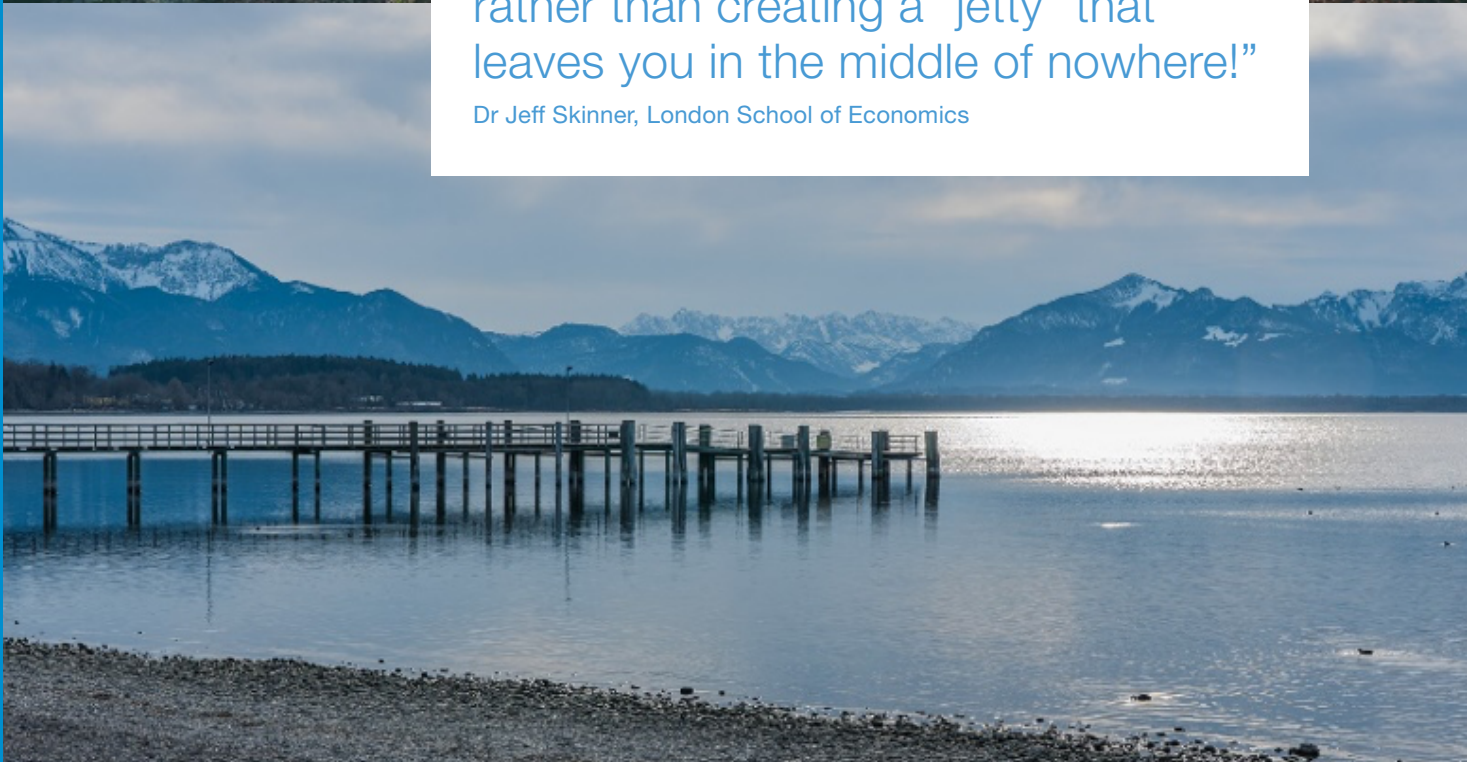


Bridging the Gap
- A guide to Innovation
Funding at UCT
University of Cape Town



“Use each funding stage to “build a bridge” to the next type of funding, rather than creating a “jetty” that leaves you in the middle of nowhere!”

Dr Jeff Skinner, London School of Economics



About this Guide

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 Guide to Creating a UCT Spin-off Venture. These can be obtained as hard copies from RC&I or electronically via 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.

As part of a drive to support innovation and commercialisation of research UCT has a range of funding instruments from very early pre-seed right through to early-stage venture capital funding, that it either manages internally or is specifically linked to and these are managed through RC&I.

This publication was prepared by Research Contracts & Innovation at the University of Cape Town.

Website: www.rci.uct.ac.za

Email: innovation@uct.ac.za

Tel: 021 650 4015

Ver: 2025



CONTENTS

About this Guide	1
Abbreviations	5
1 The Innovation Funding Ecosystem	6
2 Commercial Funding	8
2.1 Pre-Seed Funding	9
2.2 Seed Funding	9
2.3 Series Funding	10
3 Technology Readiness Levels	12
4 UCT Innovation Funding Range	14
3.1 Pre-Seed Funding	14
3.1.1 Explorer Funding	15
3.1.2 Concept Funding	15
3.2 Innovation Builder Fund (“IBF”)	17
3.3 Evergreen Fund	17
3.4 The University Technology Fund	18
5 Practical Fundraising Tips	20
6 Funding Agreements	22
5.1 Share Subscription Agreement	22
5.2 Convertible Preference Shares	22
5.2.1 SAFE Notes	23
5.2.1 Convertible Preference Shares	23
7 Quick Glossary of Key Funding Terms	27
8 Sample Calculations	29
7.1 Net Present Value (NPV)	29
7.2 Internal Rate of Return (IRR)	31



ABBREVIATIONS

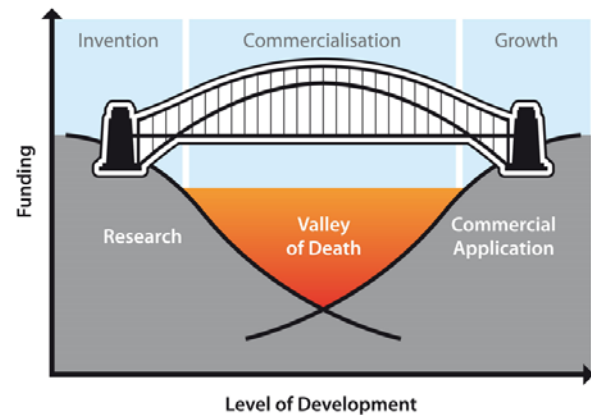
DSI	Department of Science and Innovation
EoI	Expression of Interest
IBF	Innovation Builder Fund
IP	Intellectual Property
IPAC	Intellectual Property Advisory Committee
IPO	Initial Public Offering
Mol	Memorandum of Incorporation
MVP	Minimum Viable Product
NIPMO	National IP Management Office
PAG	Private Equity Advisory Group
RC&I	Research Contracts & Innovation
SAFE	Simple Agreement for Equity
SHA	Shareholders Agreement
SSA	Share Subscription Agreement
THRIP	Technology and Human Resources for Industry Programme
TIA	Technology Innovation Agency
TRL	Technology Readiness Levels
TTO	Technology Transfer Office
UCT	University of Cape Town
UTF	University Technology Fund
VC	Venture Capital

THE INNOVATION FUNDING ECOSYSTEM

UCT's innovation funding environment has changed significantly over the last few years with the introduction of the Evergreen Fund in 2017, Innovation Builder Fund in 2019 and partnership with the external University Technology Fund (“UTF”) in January 2020. These additional funds complement the existing UCT Pre-Seed Fund by providing a comprehensive gap-funding suite to facilitate the technology transfer and commercialising priorities of the university. Each fund plays an important role in incubating early-stage nascent technology originating within the university.

These funds are needed because there is a gap between the funding available for university research and where external venture capital, private equity or corporate funders have a propensity to invest their own money. Professional funders are typically more commercially oriented and would require a sizeable return on their investments for committing capital to early-stage projects which have a relatively high failure rate. The innovation system is therefore constrained by a lack of appropriate funding alternatives to transition

early-stage technologies from the university into the market. Gap funding at universities is important to bridge this divide. The purpose is not solely to generate investment returns but to weigh up the societal benefits of commercialising high-quality research output and accelerating invention and innovation within the university ecosystem.



The graphic above shows the so-called “Valley of Death” where a lack of funding opportunities limits the ability of early-stage projects or companies to into sustainable

businesses. By partnering with like-minded funding partners, the university is able to position early-stage “deep science” technologies for potential follow-on investment from commercial funders. Strategic partnerships have also allowed the university to further bridge and advance identified commercialisation priorities through the formation of spin-off companies or licenses to existing companies.

University Venture Funds have more recently become an important part of the global innovation ecosystem and are particularly appropriate for supporting early-stage projects across the “Valley of Death”. UCT has partnered with the University Technology Fund (“UTF”) to present researchers with additional resources to commercialise their projects. The UTF is a venture fund that was started in January 2020 and is the first of its kind in Africa. The core focus is on the commercialisation of intellectual property and technology originating within South African Universities. The Fund has a unique value proposition in the technology transfer and commercialisation ecosystem with existing resources to not only bridge funding constraints in early-stage university spin-off companies but also provide ongoing business support and networking opportunities.

The funding on the other side of the “Valley of Death” is described further in the next section and focusses primarily on the structure of pre-seed, seed and series funding models used by investors today. These funding structures have historically been particularly averse to investing in any “deep science” technologies but there is some evidence of selective angel investors and venture capitalists expanding their opportunity set to include less traditional investments across the health sciences, biotechnology and energy sectors. This does, however, vary significantly by the innovation and entrepreneurship ecosystem in individual countries and geographies.

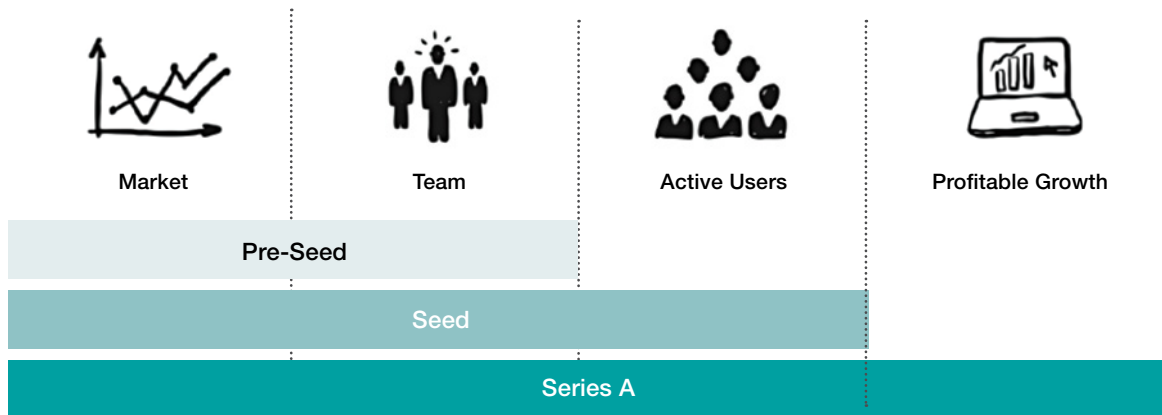
COMMERCIAL FUNDING

The graphic below shows the accepted fundraising structure for start-up companies. The transition or progression across the Pre-seed, Seed and Series stages is by no means a linear process, and companies that survive the start-up journey may actually need to access multiple rounds of Pre-Seed and Seed funding to increase their chances of raising a Series investment.

Successful companies will also need to sufficiently bootstrap or self-fund their operations as they attempt to build and scale a sustainable business.

The different types of funding are described generically in the following sections, read section 3 for UCT-specific funding that is available and the amounts available per project, etc.

Company needs at each phase of funding



2.1 Pre-Seed Funding

Pre-Seed funding is a relatively new part of the start-up funding lifecycle. It is essentially the birth of the project and the earliest investment stage for companies. Founders are typically operating with limited financial resources and possibly a small operational team. The focus is on the research and development of a product prototype or proof-of-concept to validate ideas ahead of practically evaluating market fit. The founding team spends a significant amount of time attempting to validate the business model by creating a minimum viable product (MVP).

Founders are expected to commit own funds where possible and build 'skin in the game' for attracting follow-on funding in later stage funding rounds. The Pre-Seed funding stage does not usually attract professional investors since ideas are still mostly intangible. Pre-Seed funding is currently largely provided by the colloquially named three F's – Family, Friends and Fools. Most of the funding usually comes from the founders themselves as well as close friends and family members. Accelerators can also provide early-stage funding with additional value add provided through access to networks, mentors, and other entrepreneur support services. The accelerator model is relatively well developed globally with prominent accelerator programmes like *Techstars* and

Y Combinator providing stage appropriate investment to start-up businesses with high growth potential.

2.2 Seed Funding

Seed Funding is typically used for further market research and accelerate product development after proof of concept has been demonstrated in the Pre-Seed stage. The minimum requirements for raising Seed funding include having a strong founding team with a suitable mix of skills and experience, a MVP with demonstrated potential for market fit, as well as tangible commitments from potential customers. Ideally the business would also have generated some revenue and successfully onboarded a few customers.

The Seed stage is usually where the founding team would start raising money from external professional investors, primarily to demonstrate the MVP and obtain market feedback from early adopters of the product. This stage attracts industry-specific angel investors with dedicated early-stage Seed funding mandates. Some niche Venture Capital (VC) firms may invest in companies at the Seed Stage where market demand is expected to be especially strong and companies have had early success in onboarding their first customers and generating revenue. VC's entering at

this stage would typically demand a viable exit strategy within a quantifiable period of time, usually between 5 to 10 years. They would also usually be more focussed in terms of the type of industry and sector they invest in, as well as having region specific or geographical preferences.

Traditional Seed investments are usually made through convertible preference shares or a funding instrument known as a Simple Agreement for Equity (SAFE) note. Both instruments delay taking an explicit shareholding in the business upfront, when a company is very difficult to value accurately. The valuation is rather delayed and provided by a next-round investor at a later stage. At that time the company is easier to value and it is at which point this investment is converted into ordinary shares. A “discount” can be applied to acknowledge the risk taken by the early investor compared to the next-round investor.

2.3 Series Funding

Start-up companies that successfully mature through the Seed stage will attempt to raise Series A funding. Series funding requires significantly more substance than a committed founder with a great idea. That a

great idea needs to have a high probability of scaling up into a sustainable business.

The MVP would need to be successfully trialled by early customers and the founding team would ideally have received some market feedback in terms of refining the product fit. Series A funding would now be a viable alternative for funding the growth of the business and moving the company towards profitability. Funding is typically applied to bring in key operational employees to execute the strategic business plan and differentiating the businesses from existing market incumbents or competing products and services.

Series A investment rounds are typically led by a single investor. Securing that investor allows other potential funders to gain confidence in the business which supports any subsequent fund-raising rounds the company will need to do. VC firms are highly active in Series A investments. Series A investments are typically followed by Series B where companies show high potential to further build and develop a sustainable business and scale-up operations.

CASE STUDY

Impulse Biomedical

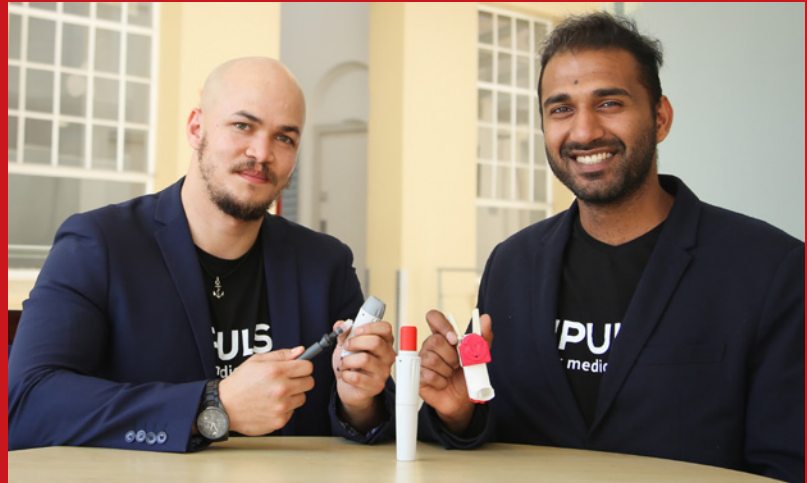
Impulse Biomedical is a UCT spin-off company that was co-founded by UCT Biomedical Engineering Masters students, Giancarlo Beukes & Gokul Nair in 2017. They developed technologies that were spun out into a company focussed on the commercialisation of disruptive medical devices.

The **Easy Squeezy** is a novel device that attaches to a standard asthma pump, and allows young children to activate the device by applying less pressure when suffering an asthmatic attack.

The **ZiBiPen** is the company's proposed Adrenaline Auto-Injector solution for treating patients experiencing Anaphylaxis, a severe allergic reaction which can be fatal if left untreated. The use of adrenaline as a first aid treatment can significantly improve patients' probability of survival.

The unique modular design of the ZiBiPen allows the adrenaline within the device to be reloadable as opposed to other established market applications where the device needs to be disposed of after each use. The device is also significantly more affordable than current leading competitor products in the industry. The commercial viability of the product is further supported by a large addressable global market characterised by existing supply shortages of adrenaline auto-injectors in both developed and emerging market countries.

Impulse Biomedical was approved for Innovation Builder funding in 2020. The company's have previously accessed multiple funding sources within the RC&I ecosystem to develop proof of principle and conceptual prototypes including Pre-Seed Explorer and TIA Seed funds before being allocated funds from Innovation Builder Fund. The incubation of these research technologies across the different UCT innovation funds has also assisted the company to access funding from external partners including the Department of Trade, Industry and Competition (DTIC) as well as local and international venture capital and angel investors.



3 TECHNOLOGY READINESS LEVELS

Successive funding instruments assist in de-risking technologies and moving them through the different “technology readiness levels” (TRLs) into commercialisation. The funding importantly will move university technologies into the critical zone in which they are sufficiently mature to attract commercial partners or establish the basis on which to fundraise for a new start-up venture. Funders often indicate the TRLs that their funding is focussed on.

In the words of Dr Jeff Skinner, London School of Economics, one is looking to use each funding stage to “build a bridge to the next type of funding, rather than creating a jetty that leaves you in the middle of nowhere!” This means that one needs to answer key questions that a next-stage funder would want to have had answered, e.g. that you have demonstrated repeatability of a process, developed and tested a first prototype,

etc. RC&I’s understanding of a product’s “route to market” will guide milestones that need to be met with each round of funding. The RC&I team will try to ensure that the momentum built up in a project is maintained and not lost due to a delay in getting next-stage funding and that the UCT technology development moves from one funding type to another seamlessly.

LEVEL	TRL 1	TRL 2	TRL 3	TRL 4	TRL 5	TRL 6	TRL 7	TRL 8	TRL 9
Science & Engineering	Basic idea	Concept developed	Experimental Proof of Concept	Lab Demonstration	Lab scale validation (early prototype)	Prototype demonstration	Capability validated on economic runs	Capability validated over range of parts	Capability validated on full range of parts over long periods
				Component and/ or system validation in laboratory environment	Laboratory scale, similar system validation in relevant environment	Engineering/ pilot scale, similar (prototypical) system validation in relevant environment	Full-scale, similar (prototypical) system demonstrated in relevant environment	Actual system completed and qualified through test and demonstration	Actual system operated over the full range of expected mission conditions
Software			Software to test and evaluate basic concepts on simple model problems representative of final need	Escalate model to more realistic representation of industrial system. Confirm basic formulation.	Model contains all major elements of need. Solve industrial strength problems by code developers OR achieve functionality by expert users. Document performance. GUI.	No specialist intervention required from programmers/ developers. This includes basic GUI interface. If required, programming to be according to ISO standards.	Install, run and evaluate software in actual goal environment (e.g. prospective clients computers). Demonstrate use by clients.	Evaluation done by target representative clients on representative hardware platforms. Complete GUIs, user manuals, training software support etc. Typical user driven 'bug hunting'.	Product proven ready through successful operations on operating environment.
Medical Science	Basic Research		Preclinical Research		Late Preclinical Research	Phase I Trials	Phase II Trials	Phase III Trials	Phase IV Trials
Phase	Research		Translation/ Development				Commercialisation		

UCT INNOVATION FUNDING RANGE

The current university fund range includes the UCT Pre-Seed, Innovation Builder and Evergreen Funds. Each fund has a unique mandate to support the technology transfer and commercialisation priorities of the university.

The Pre-Seed and Innovation Builder Funds both award and allocate grant money to be spent on university research outputs which can potentially be converted into later stage commercial opportunities. These funds typically provide money to support the development of research prototypes, perform research or experiments to demonstrate idea potential as well as furthering market research and competitor analysis. The Evergreen Fund, by contrast, is typically used to provide first-round equity capital into university spin-out companies to accelerate the identified commercialising strategy. The fund is a unique offering in the innovation funding range in that it provides gap funding to prepare early-stage “deep” technologies for follow on investment from commercial Seed and Series funders.

The committed capital for all these funds is allocated by the University. Funds are administered and managed by the team at Research Contracts and Innovation (RC&I)

who have dedicated resources specialising in intellectual property, technology commercialisation, as well as project management and new venture support.






The team have established market relationships and access to collaborative partners resourced to provide additional funding for early-stage translational research, product development, market readiness, and maturing technologies for later stage funding opportunities.

The full innovation funding range is shown in the graphic on page 9. The following section describes the fund mandates in more detail.

3.1 Pre-Seed Funding



The UCT Pre-Seed Fund was started in 2008 to provide financial support for early-stage technology development and promote the technology transfer and commercialisation of intellectual property at the university. The Pre-Seed fund is the earliest stage funding mechanism available in the UCT innovation ecosystem and plays an important role in incubating the commercialisation pipeline before more

FUNDING AMOUNT	DEVELOPMENT (POST RESEARCH)	START-UP	BUSINESS GROWTH (POST REVENUE)
< R100k	UCT PreSeed Fund		
< R500k	UCT Innovation Builder Fund		
< R1.5m	UCT Evergreen Seed Fund		
< R6m		UCT Evergreen Fund	
< R17.5m		University Technology Fund	

mature funding alternatives can be utilised. Funding is typically targeted at a Technology Readiness Level (“TRL”) of between 2 to 4.

The Pre-Seed Fund is divided into two sub-funds – the Explorer Fund and the Concept Fund. R500 000 is available.

3.1.1 Explorer Funding

The Explorer fund is allocated R 100 000 per annum. Explorer funding of up to R20,000 is available per project and is typically awarded to short-term projects with a duration of up to 4 months. Fundable activities for the Explorer fund include:

- conducting detailed intellectual property assessments,
- building and refining prototypes,
- producing market samples or
- performing preliminary primary market research.

Funding can also be applied to accessing secondary market research reports as well as obtaining input and services from consultants and specialists. Funding is provided as a grant and recipients are not required to return the capital.

3.1.2 Concept Funding

The Concept fund is allocated R400 000 per annum. Up to R100 000 per project is available for projects of a maximum of 12 months in duration. Concept funded projects are relatively more complex and typically used to advance piloting and scale-up of projects with an increased focus on technology development. Fundable activities for the Concept fund include:

- refining and implementing designs,
- building and iterating prototypes, and verifying applications of the service or technological innovation,

FUND NAME	PRESEED FUND	INNOVATION BUILDER FUND	EVERGREEN SEED FUND	EVERGREEN FUND
Amount Available	R500k / yr	up to R6m / yr	R5.2m	> R40m (% of UCT PE investment)
Size of Award	R20k or R100k	< R500k	> R500k - R1.5m	< R6m (can be approached more than once)
Decision Maker	Director: RC&I	Steering Committee	Investment Committee	IP Advisory Committee (IPAC)
Source of Funds	UCT GOB	UCT GOB	Donations	UCT Investment
Call Frequency	Ad hoc	Quarterly	Meets Quarterly	Meets Quarterly
Investment Basis	Grant	Grant	Return: Loan - interest Equity	Return: Loan - interest Equity

- demonstrating proof-on-concept,
- preparing technology demonstrations,
- conducting short-run field studies, and
- producing market validation samples.

The funds are managed and administered by the team at RC&I and are available to UCT staff and postgraduate students (supervised by a staff member). *Ad hoc* applications are accepted throughout the year.

3.2 Innovation Builder Fund (IBF)



The IBF was started in 2019 with the mandate of developing UCT research projects where initial proof of principle has already been established. The fund aims to support projects assessed to be commercially viable where research outputs have intellectual property that has either been protected, or may be protected in the future (e.g. on completion of the project).

Funding of up to R500 000 is available for qualifying individual projects. This is structured as a grant over a maximum project duration of 12 months. Funding is released in tranches and is subject to meeting specific milestones. Recipients are required to submit quarterly progress reports to manage project milestones and provide risk mitigation strategies where appropriate.

There are up to four IBF funding calls per annum and the application is a two-stage process. The first stage involves the

submission of a short Expression of Interest (EoI). The EoI's are reviewed by RC&I to check that they fit into the remit of the fund. RC&I also advise applicants regarding how to structure their full application if the EoI is approved and what to emphasize specifically.

Postgraduate students, university staff and UCT spin-off companies may be funded to develop UCT IP and technologies.

The second stage application involved the full, detailed project proposal. This is again reviewed by the RC&I team and may require applicants to rework the proposals to ensure that they have the highest chance of success when reviewed by the Steering Committee.

The Steering Committee meets roughly quarterly to review applications, make new awards and to monitor the progress of current projects.

Post-investment risk is managed by the team at RC&I with dedicated project management resources to review quarterly progress reports and monitor the status of key project milestones and deliverables.

3.3 Evergreen Fund



The Evergreen Fund (Evergreen) was established in 2017 following donations from alumni and a R60m investment from the University. The fund is used to support and accelerate the technology transfer through the formation of spin-off companies. The

donations portion has been used to create the Evergreen Seed Fund, which invests smaller amounts up to R1.5m. It is the latest-stage investment vehicle managed by RC&I. The Evergreen funding is not a grant and requires a return on investment. The UCT funding originated from Council permitting a percentage of UCT investments to be made in private equity - and a portion of this specifically ring-fenced UCT spin-off companies.

A company does not necessarily have to have been incorporated, i.e. a project that is headed towards spin-off company formation can be funded.

Funding may be invested in return for equity in a company, or extended as an interest-bearing loan.

The key requirement is that the funding must be utilised for the commercialisation of IP emanating from UCT research.

The Intellectual Property Advisory Committee (IPAC) has the delegated authority to approve Evergreen Fund investments. They may be advised by the Private Equity Advisory Group (PAG). The PAG is comprised predominantly of external members with relevant professional industry experience across investment, finance as well legal and compliance disciplines. Investment due diligence, post-investment risk management and general fund operations are provided by the team at RC&I.

3.4 The University Technology Fund



The SA SME Fund launched the University Technology Fund (UTF) on 31 January 2020, a first of its kind in Africa. UCT and

Stellenbosch University were the first two universities that participated in the fund. The UTF provided UCT spin-off companies with access funding for Series Seed and Series A rounds as well as additional seed funding to support innovation projects within the university. UCT was required to co-invest R20m alongside the UTF in the ventures and does this via its Evergreen Fund.

The first UTF fund became fully invested in 2024 and venture funds have been raised for UTF 2, which will commence investment in 2025. UCT will again participate in the fund as an investor and UCT spin-off companies will again have access to this early-stage funding, which may include a seed component for earlier-stage ventures. An exciting development is that UCT alumni will also be able to access the UTF for investment.

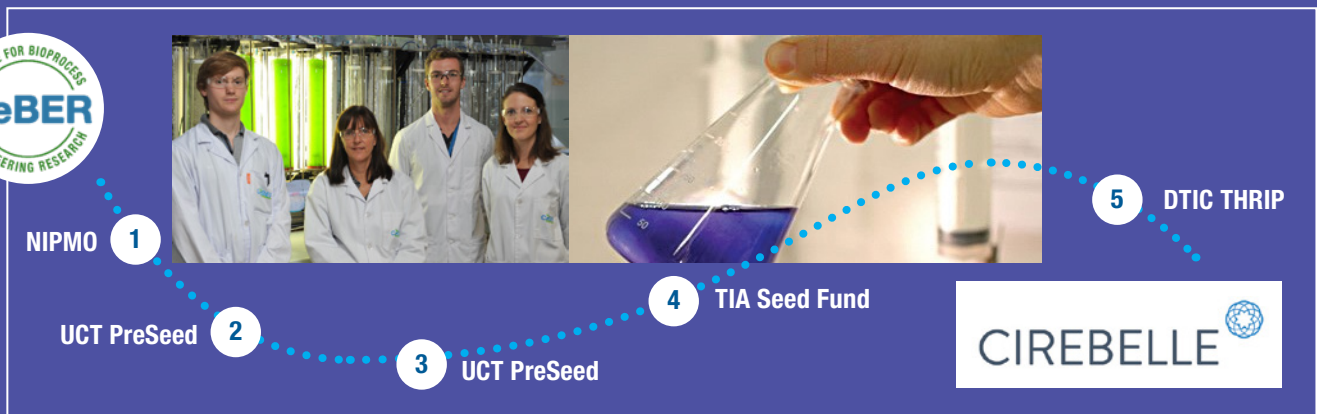


Phycocyanin

Food and cosmetic companies are replacing synthetic dyes in their products with natural alternatives. While most colours are relatively easy to replicate and produce, blue – a surprisingly rare colour in nature – provided something of a challenge.

Enter the discovery of phycocyanin, a brilliant blue dye extracted from the cyanobacterium, Spirulina. Recently approved as a food additive in both the United States and the European Union and also marketed as a health food supplement or nutraceutical, it has saved blue Smarties and became a highly sought-after natural commodity in the food and cosmetics industries.

The Centre for Bioprocess Engineering Research (CeBER) at UCT has developed and patented an improved and novel process for the extraction and purification of phycocyanin from Spirulina. The process removes microbial contaminants present in the raw Spirulina and enables high purity product to be achieved cost effectively and is transferring the technology to commercial partner, Cirebelle.




TRACKING THE FUNDING

- 1 National IP Management Office (NIPMO) awarded to RC&I was used to conduct a strategic review of CeBER to develop an Innovation Strategy.
- 2 UCT PreSeed (Explorer) funding was used to investigate the techno-economics of growing Spirulina and then extracting phycocyanin.
- 3 UCT PreSeed (Concept) funding was used to support the production of Spirulina at a pilot facility in Franschoek.
- 4 Technology Innovation Agency (TIA) Seed Fund money was used to review existing processes for the extraction of phycocyanin and revisit the CeBER phycocyanin extraction process. This led to the invention of the new patented process.
- 5 Department of Trade, Industry & Competition (DTIC) THRIP funding was awarded to Cirebelle in partnership with UCT to scale the extraction process up to commercial scale. Work is being supported at both UCT and Cirebelle and postgraduates involved in the project will participate in the full-scale implementation.

PRACTICAL FUNDRAISING TIPS

- 1 Funding Amount.** The goal should be to raise enough money to meet a substantial milestone – like manufacturing a minimum viable product (MVP) or securing a paying customer. A general rule of thumb is that most businesses should look to raise sufficient capital to fund operations for a period of 12 to 24 months. Think about it like using every fund-raising round to sufficiently de-risk the business for the next stage follow-on investment. Raise more than you think you need. The reality is that starting up is likely to cost twice as much and take twice as long. Developing a new project or business up is not a linear process so make sure you have allowed for adequate liquidity buffers to give yourself the best chance of being successful. Put differently, if you think you need R500 000 to reach key milestones and deliverables in 6 months, raise R1 000 000 and expect the process to take a year to be complete.
- 2 Equity.** Giving up equity in anything that you invest a substantial amount of blood, sweat and tears is never easy. Most founders try to hold on to as much equity as possible in their business. A general guideline is that raising 12 to 24 months of capital from external investors should typically cost you 20 to 30% of your business. There are exceptions. Companies with more mature opportunities with demonstrated market fit and an understandable route and time to market will typically be able to give up less equity for the same funding runway. Somewhere in the order of 10 – 15%. Companies running out of cash in the next 6 to 12 months will more than likely have to give up between 35% - 40% of the company to attract outside investors, if the business model is viable and has the potential to scale through future capital raising.
- 3 Likeminded Partners.** This applies to everyone you partner with in your business but is especially important in your investment or funding partners. You can't do a good deal with a bad person. Put differently, a good business can be destroyed by bad investors. People create value. Make sure you choose your partners wisely.



4 Learn to Sell. Fundraising is a sales job. Learning to market yourself and your business to potential funding partners is critical to give the company an opportunity of being successful. For most people selling is hard and there is unfortunately no secret sauce. If for any reason you are not interested in selling, then make sure you have a dedicated competent resource on your team who can. That being said, potential funders almost always want to talk to the founder so selling is not something you can avoid if you want to build a successful business.

5 Perfect your Pitch. A Pitch is your opportunity to tell the story of your business and give an overview of the strategy. A short, succinct slide deck highlighting the following will go a long way to showing prospective funders your commitment to building the business.

- **Problem** – The core problem and challenge you are solving.
- **Approach** – Your novel or unique solution to the identified problem.
- **Competitive advantage** – The differentiated product you are bringing to market.
- **Total Addressable Market** – Product market fit and estimated target market size.
- **Strategy** – Your proposed business model.
- **Team** – Key operational people responsible for implementing the proposed strategy.
- **Revenue** – Expected revenue growth by price and volume over the next 5 years.
- **Marketing Strategy** – Client acquisition and expected growth over the next 5 years.
- **Goals** – Key milestones and deliverables you are planning to achieve.
- **Investment** – Amount of money you need to achieve your business goals.

FUNDING AGREEMENTS

A number of agreements related to establishing a company are discussed in more detail in the *Guide to Creating a UCT Spin-off Venture*, but some details are provided below, particularly on Convertible Preference Shares a mechanism that is used by both the UTF and UCT in its Evergreen Fund investments.

5.1 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 tranching with payments based on milestones being achieved or time-based). The company is also party to the SSA.

It is also concluded at the same time as the Memorandum of Incorporation (Mol) and Shareholders Agreement (SHA) when a company is incorporated, but thereafter only a new SHA and SSA would be

required. Typically, the Mol 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.

5.2 Agreements for Future Equity

You will notice that valuation is not included anywhere in this funding guide. This is simply because valuation does not matter at the stage of commercialisation where gap funding is typically applied. Too many founders spend far too much time overthinking how much their businesses are worth. Value is an outcome of building and creating something of substance that will make the right people want to partner with you.

Valuation is determined by a willing buyer agreeing to do business with a willing seller at a price that both parties think adequately compensates them for the estimated intrinsic value of the business.

For early-stage companies, the bulk of this value will come from the ‘investability’ of the founders themselves as well as the expected growth prospects of the business.

A Series round investment is typically the first opportunity to have a reasonable estimate of the value of the business. At that stage the business should be post revenue and raising either a Series A investment to grow profitability or a Series B investment to expand and scale-up the business. More important than debating valuation is to ensure that key people creating value are incentivised with equity and that the SHA and company Mol provides adequate protection for founder shareholders and early-stage investment partners.

5.2.1 SAFE Notes

Because of the difficulty in valuing early-stage start-up companies, Y Combinator, a US-based tech accelerator created a useful mechanism for postponing that valuation to a point in time where the value of the company could be determined more easily. This Simple Agreement for Future Equity (SAFE) entitles investors in a company when there is a future valuation event, which typically occurs when Series A funding is raised and the deal can include valuation caps and discounts to the Series A share price to compensate for the high risk taken by the investor at an early stage. You can read more about them here: <https://www.financialpoise.com/what-is-a-safe-note/>.

5.2.2 Convertible Preference Shares

For the South African environment Convertible Preference Shares have emerged as the best option – one of the significant advantages is that it is an instrument that does not lead to an early investment being recorded as a debt in the start-up company’s books.

The Mol does need to allow for Preference Shares to be issued and if there is no provision, then the Mol will need to be amended. Typically, this is being provided for in the Mol’s of new UCT spin-off companies.

The **Preference Shares** are a different class of shares to **Ordinary Shares** (e.g. Class X Preference Shares) – the number of preference shares issued is not material and could be just one. The preference shares convert into ordinary shares at some trigger point.

The **trigger point** will generally be the Series round investment at which point a value can be placed on the company (Equity Financing Event). A minimum quantum of shares that need to be purchased in an Equity Financing Event (e.g. 10%) is normally set to ensure that it is market related – i.e. preventing the price (company value) from being manipulated by a person buying one share for a heavily inflated amount.

It could also be an Initial Public Offering (IPO), i.e. should the company’s shares become listed on a stock exchange (Liquidity Event – this could also be a

change of control). Ahead of that point several Convertible Preference Share Agreements may have been entered into for different tranches of funding.

The new investor (or IPO) **sets the value of the company** due to the number of shares that they purchased for a specific price through the Equity Financing Event.

So, if a company had 10 000 issued shares and the new investor purchased 1 000 Ordinary Shares for R10 000 000, then the price per share is R10 000 000 / 1 000 = R10 000.

This means that the value of the company is 10 000 (issued shares) x R10 000 = R100 000 000

The **Subscription Price** is the amount that was originally invested to receive the Class X Preference Shares.

A **Discount Rate** is used to give the original (preference share) investor a discount at the time that the shares convert, so that the risk that they took by investing at such an early stage is recognised, over the current investment round. In our example this is 80% (i.e. the initial investor purchases at 80% of the current price of R 10 000 per share).

By way of example, assume that –

- the Company's valuation at the time of Equity Financing Event or Liquidity Event is R100 000 000;

- the price per Ordinary Share implied by the Equity Financing Event or Liquidity Event is R10 000;
- the Subscription Price was R10 000 000,

then the Class X Preference Shares will be converted into the number of Ordinary Shares equal to the Subscription Price divided by the Discount Price, being:

$$\frac{R10\,000\,000}{(R10\,000 \times 80\%)} = 1250 \text{ shares}$$

One can see that the original investor lands up with more shares for their R10 million that was invested at a high-risk, early stage (1250 vs. 1000)

But a time-based trigger is also included at which point the preference shares are converted based on a pre-agreed valuation of the company.

- the Company's post money valuation includes the Subscription Price, and will be R15 000 000 on the Trigger Date; and
- the Subscription Price is R10 000 000,

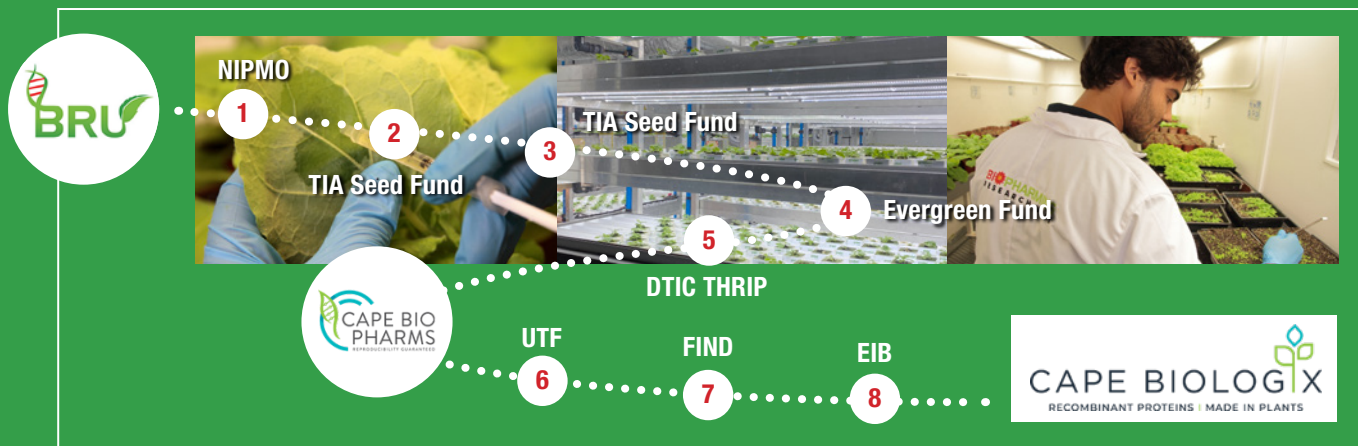
then, the Class X Preference Shares will be converted into such percentage of Ordinary Shares (after conversion) as will equal the Subscription Price divided by the post money valuation of the Company, being:

$$\frac{R10\,000\,000}{(R15\,000\,000 \times 80\%)} = 66.7\% \text{ of the shares in the company}$$



Cape Bio Pharms

Cape Bio Pharms (Pty) Ltd (CBP) is a spin-off company that was based on IP coming from the Biopharming Research Unit (BRU) in the Department of Molecular & Cell Biology at UCT. CBP has done exceptionally well in establishing itself in new facilities in Ndabeni and developing a portfolio of reagents manufactured using modified tobacco plants. The company gained real impetus during the Covid-19 outbreak by manufacturing four different proteins used to detect the virus. This has led to considerable foreign investment and the construction of large-scale commercial facilities to supply the demand and the creation of a subsidiary Cape Biologix that will focus on the Covid-reagent manufacture.



TRACKING THE FUNDING

- 1** National IP Management Office (NIPMO) awarded to RC&I was used to conduct a strategic review of BRU to develop an Innovation Strategy. This involved both techno-economic assessment of enzymes and other proteins that the group could manufacture and the development of a product pipeline that could go into a spin-off company.
- 2** Technology Innovation Agency (TIA) Seed Fund money was used to develop processes for the production of glucose oxidase and horse radish peroxidase.
- 3** A second TIA Seed Fund project looked at developing a basket of IgG products for use as reagents by a potential spin-off company.
- 4** An Evergreen Fund investment was made to launch spin-off company CBP.
- 5** The Evergreen funding was leveraged significantly (25:75) using Department of Trade, Industry & Competition (DTIC) THRIP funding. Two MSc graduates moved from BRU to CBP.
- 6** The University Technology Fund (UTF) made its first investment into a UCT spin-off company in CBP. In terms of the special partnership agreement that UCT has with the UTF, UCT invested alongside the UTF (5:2 ratio).
- 7** Covid-19 brought with it an opportunity for reagents needed for detection of the virus and CBP raised funding from the Foundation for Innovative New Diagnostics (FIND) to expand their production, leading to the creation of a subsidiary Cape Biologix.
- 8** The European Investment Bank (EIB) invested a further R900m in Cape Biologix to significantly scale its production.



QUICK GLOSSARY OF KEY FUNDING TERMS

It is important that you become familiar with the terms that funders use, which will help you to engage with them.

1. **Accelerators.** Companies that are designed to incubate early-stage investment opportunities in the start-up ecosystem by providing both funding and entrepreneurial support.
2. **Acquisition.** An acquisition is when one company buys another company.
3. **Angel investor.** A wealthy private investor in early-stage start-up companies.
4. **Bootstrapping.** Starting up and building a company using your own personal savings and capital.
5. **Burn rate.** A term describing how quickly you use up your cash e.g. the monthly burn rate of the company is R30 000. This would include operating and staffing costs.
6. **Churn rate.** The rate at which clients or customers stop subscribing to a service.
7. **Dilution.** The percentage decrease in existing equity held in a company through the issuance of new shares to a new investor. This does not mean that the value of the equity decreases as generally the value of the company will increase post investment.
8. **Early adopters.** The first users of your product. Can provide valuable feedback in terms of product market fit.
9. **Exit strategy.** The way you envision getting money out of your company. How you plan to sell all or part of the equity in your business to give investors a return on their investment.
10. **Gap funding.** University funding resources available for the commercialisation activities of early-stage technologies with strong market application potential.
11. **IPO.** Initial Public Offering - the first sale of stock by a private company to the public i.e. listing on the stock exchange..
12. **IRR.** Internal rate of return. The annual rate of growth an investment is expected to generate. This is where the Net Present Value is equal to zero. The higher an internal rate of return, the more desirable the investment. This enables investors to compare the potential of different opportunities. See the sample calculations in the next section.

13. **Lead investor.** Usually, the first and largest investor in a round who brings others into the round.
14. **Equity Incentive Plan / Option Pool.** Employee Share Option Plan (ESOP). Shares that are allocated and set aside for issuance to employees.
15. **Non-disclosure Agreement (NDA).** A legally binding document that protects parties to a contract by holding them liable for damages if information is disclosed external parties.
16. **NPV.** Net Present Value is the current day value of future cashflows / payments. If an NPV is positive then the investment or project will be positive. See the next section for a sample calculation.
17. **Preferred (Preference) shares.** Capital shares issued by a company that have specific rights, privileges and preferences compared to the ordinary shares. They may be convertible into ordinary shares under certain conditions, for example through a liquidity event like an IPO or the passage of a certain time period.
18. **Pre-money valuation.** The value of a company before investor capital is added.
19. **Pivot.** A course correction for start-ups following findings in user testing and analysis, i.e. targeting a new product or market based on a different application of the core technology on which the company is based..
20. **Post-money valuation.** The value of a company after investor capital is added.
21. **Proof of concept.** A Proof of Concept (POC) is a prototype designed to demonstrate the validity of concepts or theories that have potential for real-world application.
22. **Runway.** The time period over which your cash will last and when you estimate it will run out. This is related to burn rate. Your burn rate will determine the amount of “runway” you have left before you need a new injection of funding.
23. **SAFE.** Simple Agreement for Future Equity. An option to purchase equity in a future financing round at no additional cost. It is triggered automatically when the company raises another round on pre-defined minimum terms.
24. **Sweat equity.** Ordinary shares given to early employees or value adding stakeholders instead of, or in addition to, fair cash compensation.
25. **Term sheet.** Agreement outlining key deal terms and conditions following approval of investment by external investors.
26. **TRL.** Technology Readiness Levels. A metric for describing the maturity of a technology. The scale consists of 9 levels with the lowest level (1) representing the idea stage and the highest level (9) indicative of full deployment of the product in the marketplace.

SAMPLE CALCULATIONS

8

7.1 Net Present Value (NPV)

Net Present Value (NPV) is a financial calculation used to determine the probability of a project delivering good or bad returns going forward. NPV calculates the difference between present value of cash inflows and present value of cash outflows. If a NPV is positive, it indicates a probability of profit in the future. If negative, it projects a bad return.

The present value is the current value of a future sum of money, or a stream of money at a specified rate of return. The NPV looks at the difference between the present value of cash inflows and outflows over a period of time.

The Discount Rate may be inflation, or the cost of capital, or a 'hurdle rate' - i.e. the cost of capital would be the interest that say a bank gives the company for a loan and a hurdle rate is a percentage return that is specified by a company (or investor) when they assess an investment opportunity.

NPV can be calculated using Excel – the default formula $NPV(RATE, value1, value2, \dots)$ can be daunting. A simplified version is shown below:

1. Prepare your values for the calculation. In the table below shows initial investment, discount rate and cash-flows for each year starting from year 1 until year 5.

Discount Rate	7.5%
Initial Investment	1300
Year 1	100
Year 2	90
Year 3	-110
Year 4	250
Year 5	-60

- Input your values into an Excel sheet. In the example below, Column A is used for labels and Column B for the corresponding values. For example A1 is “Discount Rate” and B1 is 8.5%. A2 and B2 show the label and value and Initial investment, and the rows that follow reflect the cash-flow values for each year.
- The calculated NPV value will be written cell B8.

	A	B	C
1	Discount Rate	7.5%	
2	Initial Investment	1300	
3	Year 1	100	
4	Year 2	90	
5	Year 3	-110	
6	Year 4	250	
7	Year 5	-60	
8	NPV		

- Apply the formula to your values and get the NPV result.

In cell B8, type the NPV formula as below “=NPV(B1;B3:B7)-B2”. Once you’ve typed the formula into cell B8, press Enter. You should get the same value as in the picture below. The negative result shows the project is projected to see losses in the future.

	A	B	C	D
1	Discount Rate	7,50%		
2	Initial Investment	1300		
3	Year 1	100		
4	Year 2	90		
5	Year 3	-110		
6	Year 4	250		
7	Year 5	-60		
8	NPV	-R1 072,24		

7.2 Internal Rate of Return (IRR)

Internal Rate of Return (IRR) is the discount rate that makes the net present value (NPV) equal to zero. Below is a simple worked IRR example.

1. Project XYZ needs an initial investment of 110 (cell B6). The project expects no profit at the end of the first and second period, and a profit of R167,60 at the end of the third period.

	A	B
1	Project XYZ	
2		
3	Discount Rate	9%
4		
5	Period	Cash Flow
6	Initial Investment	-110
7	1	0
8	2	0
9	3	167,6

The discount rate is 9%. The discount rate is the rate of return of the best alternative investment i.e. putting the money into a savings account with an interest rate of 9%.

2. To calculate the NPV, use the formula as outlined in the NPV worked example.

	A	B	C	D	E
1	Project XYZ				
2					
3	Discount Rate	9%			
4					
5	Period	Cash Flow			
6	Initial Investment	-110			
7	1	0			
8	2	0			
9	3	167,6			
10					
11	Net Present Value	R19,42			

The positive NPV shows Project XYZ's rate of return is greater than the discount rate. Therefore, it would be better to invest your money into Project XYZ than putting your money into a savings account with an interest rate of 9%.

- The Excel IRR formula calculates the IRR of Project XYZ:

B13		=IRR(B6:B9)			
	A	B	C	D	
1	Project XYZ				
2					
3	Discount Rate	9%			
4					
5	Period	Cash Flow			
6	Initial Investment	-110			
7		1	0		
8		2	0		
9		3	167,6		

The IRR is the discount rate that makes the net present value equal to zero. To see this, replace the discount rate of 9% in B3 with the calculated IRR, 15%.

B11		=NPV(B3;B7:B9)+B6				
	A	B	C	D	E	
1	Project XYZ					
2						
3	Discount Rate	15%				
4						
5	Period	Cash Flow				
6	Initial Investment	-110				
7		1	0			
8		2	0			
9		3	167,6			
10						
11	Net Present Value	R0,00				
12						
13	IRR	15%				

A NPV of 0 shows the project generates a rate of return equal to the discount rate ie. investing money into Project XYZ or putting money into a high yield savings account at an interest rate of 15% will yield an equal return.

You can check this – if you were to put 110 into a bank account with an annual interest rate of 15%, in three years your investment will be R167,60.

A		B	C
1	Project XYZ		
2			
3	Discount Rate	15%	
4			
5	Period	Cash Flow	
6	Initial Investment	-110	
7	1	0	
8	2	0	
9	3	167,6	
10			
11	Net Present Value	R0,00	
12			
13	IRR	15%	
14			
15	Initial Account Investment	110	
16	Investment after 3 years	167,6	
17			

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: 2025



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.