SPRING LANE CAPITAL

FASHION FOR GOOD

THE GREAT UNLOCK

CLOSING THE INNOVATION COMMERCIALISATION GAP THROUGH PROJECT FINANCE SOLUTIONS

2023

CONTENTS

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ABOUT US

Fashion for Good is the pioneer of collaborative innovation in the fashion industry. Its Innovation Platform connects brands, manufacturers, innovators, and funders to jointly transform the industry and to bring new ideas and technologies from niche to norm. Fashion for Good's programmes are supported by founding partner Laudes Foundation, co-founder William McDonough and corporate partners adidas, BESTSELLER, Burberry, C&A, CHANEL, Inditex, Kering, Levi Strauss & Co., Otto Group, Patagonia, PVH Corp., Reformation, Target and Zalando, and affiliate and regional partners Arvind Limited, Birla Cellulose, Norrøna, Pangaia, Paradise Textiles, Shahi Exports, Teijin Frontier, Vivobarefoot, Welspun and W. L. Gore & Associates.

To learn more about Fashion for Good, visit fashionforgood.com.

Spring Lane Capital is a private equity firm based in Boston and Montreal, focused on providing hybrid project capital for sustainable infrastructure solutions. The firm's structured financial model supports the fastest-growing platforms that traditional project capital cannot due to scale and limitations of existing investment models.

To learn more about Spring Lane Capital, visit springlanecapital.com.

EXECUTIVE **SUMMARY**

The fashion industry is undergoing an exciting yet challenging period of innovation, with transformations across the entire supply chain, ranging from new materials and processing to recycling. These innovations promise to address significant environmental impacts such as carbon emissions, waste, and water usage.

The trajectory of scaling innovation comprises distinct phases, each escalating in complexity and cost. The transition from R&D, through piloting, to demonstration scale is crucial to prove commercial viability and attract further investment into these new innovations. While these initial phases can usually be funded through traditional venture capital equity rounds, it is at this juncture that innovators will face their most significant financing challenges and can underestimate the time and expertise required to fund their progress to the next stage.

The financing required to scale Next Generation Materials and Processing innovations equates to roughly $400Bn, of which approximately 50% or $200Bn[1] would be required in the form of debt financing. While this number represents all potential debt financing required across the various stages of the scaling journey, the vast majority relates to the commercialisation and adoption phases. Unlocking this capital is where project finance plays a key role.

USING PROJECT FINANCING TO UNLOCK SCALE CAPITAL

Structured project finance allows for greater borrowing capacity by isolating risk, unlike corporate fundraising, which considers a company's entire risk profile. Given the lack of creditworthiness of almost all of the innovators in those technology segments, project finance can lead to better credit ratings and increased leverage based solely on the project's viability.

The foundations of a well structured project are strong, well-integrated offtake, feedstock, and Engineering, Procurement, and Construction (EPC) contracts, amongst others. While these contracts are complex, from ensuring supply reliability and quality in feedstock contracts, to managing risk allocation and dispute resolution; they ultimately mitigate financial and operational risk. It is vital that innovators obtain and dedicate the necessary financial, technical, operational and project management expertise to construct and manage these contracts from the earliest stages of project development.

Image by Julissa Santana | Unsplash

1 Aii/FFG, 2021

A CALL TO ACTION FOR KEY STAKEHOLDERS

Project finance encourages the efficient organisation of incentive structures and risk distribution between project stakeholders via the nexus of well-structured contracts. Therefore, innovators, brands, and financiers must act collectively across the following points:

Innovators - Build Expertise & Plan Ahead
Innovators need to align their development milestones with their capital strategy. Specifically, they need to ensure that they have the technical, operational and financial expertise in place from the outset, in order to secure structured debt financing when the time comes

Brands - Signalling Demand
To de-risk the project finance construction, brands must clearly signal their demand through engaging in direct or supply chain partner offtake agreements.

Supply Chain Partners - Multi-level Engagement and Ownership
Signalling of demand, providing technical expertise and capital allocation through joint ventures are all roles that Supply Chain Partners can fulfil.

Financiers - Actively Pursue Opportunities
Project Financiers must advance their industry expertise and join forces with brands, supply chain partners and innovators to develop investment propositions that match their risk-return profiles.

In this report we will review the different types of capital needed to close the funding gap within the commercialisation stage. We discuss the benefits, requirements and opportunities related to project finance as a funding solution in this space, and highlight the roles that various stakeholders would need to play in order to bring this to life. Finally, best practices and agreement templates are being provided.

We hope this report helps to enhance innovators' understanding of relevant stakeholders and encourage fruitful discussions between them, that ultimately assists us all in our quest to further enable the scaling of much needed innovations in this space.

Image by Lidya Nada | Unsplash

IN SUPPORT OF

"There is a lot of investor interest in new technologies - especially for proven solutions like ours where market demand is high and the positive environmental impact so clear. In the last few years, we have signed major offtake agreements with leading brands. Based on those experiences, we see this report as a valuable toolkit to help innovators prepare for the funding journey that lies ahead."
— Petri Alava, CEO, Infinited Fiber Company

"Bringing hard tech innovations in the fashion industry to commercial scale can be quite capital intensive and will often require certain shifts in the supply chain relying on strong support from brands and supply chain partners. As part of the funding journey it can thus be relevant to consider project financing as an addition to venture capital - whether corporate or not - which also offers a potential path to a more balanced cap table. This report is a helpful toolkit for innovators starting out on this journey."
— Jeppe Bredahl, Invest FWD, BESTSELLER

"This is an excellent handbook for innovators looking to commercialise. With innovations in the next-gen space especially, financial mechanisms and structures like project finance that can de-risk scale and provide patient capital are necessary. Through a contextual analysis of capital needs and case studies from both the fashion industry and other sectors - the report outlines concrete ways for brands, supply chain actors and financiers to play a part in the scale of next-gen."
— Anita Chester, Head of Fashion, Laudes Foundation and Managing Director, Laudes India

"Financing plays a vital role in scaling Next Gen Materials. For innovators of hard tech, this can be particularly challenging as each stage is more complex and costly than the last. In an effort to build best practices and pave the way for industry-wide transformation, we must share insights broadly. In that way, we can better inform not only financiers but brands as well about the realities of what it takes to bring these solutions to market."
— Luke Henning, Chief Business Officer, Circ

"Investment is fundamental in scaling sustainability innovations. This report provides a simple and clear playbook for innovators, brands, suppliers and financiers to more intentionally catalyse the adoption of funding options to accelerate climate action within the fashion industry at a faster pace."
— Rick Relinger, Chief Sustainability Officer, PVH Corp.

01. INTRODUCTION
TO THE NEED FOR INNOVATION

Image by Alexander Donka | Unsplash

Over the last decade the fashion industry has witnessed a step change in brand commitments, regulation activity and innovation. While these provide a guiding light in terms of where the industry is headed, the pace of implementation at scale still leaves a long road ahead for a radical transformation of this $2 trillion industry.

The impact of the fashion industry is significant as it relates to its carbon footprint (2-8% of global GHG emissions), as well as its impacts on waste and water. In order to enable a transition towards a net zero industry, the scaling of innovations - in particular in next generation materials, recycling and processing is critical.

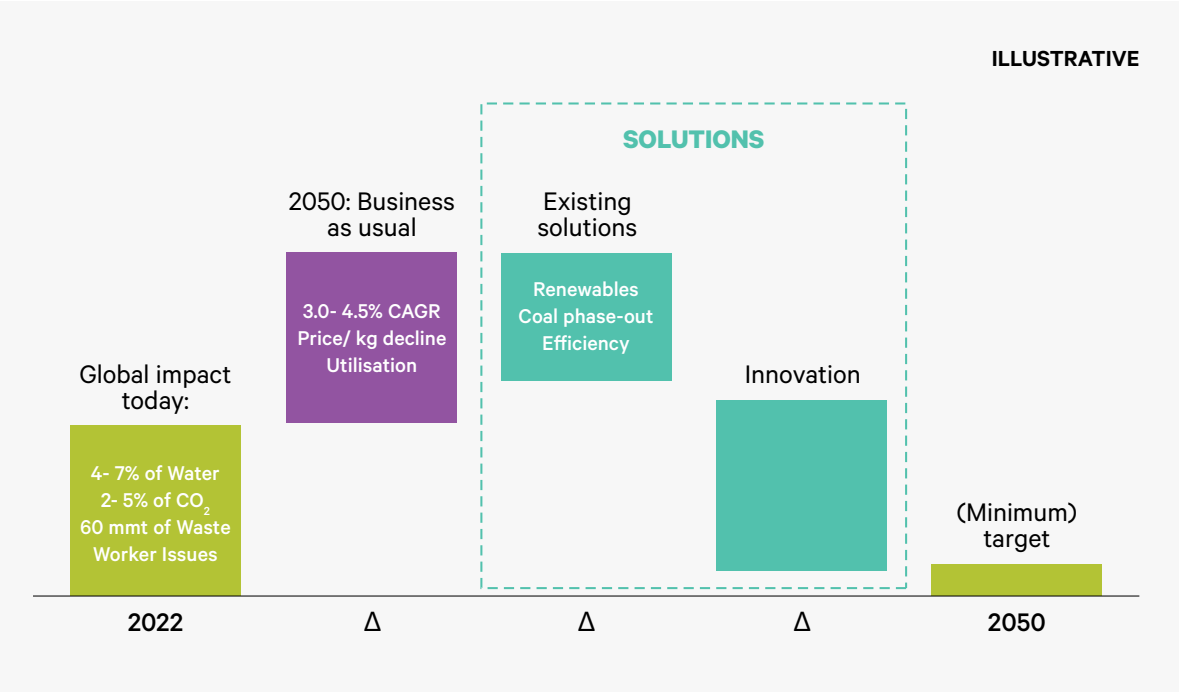


Figure 1: Impact of the Industry: The Innovation Gap. Illustrative

Fashion for Good Analysis (2023)

NEXT GENERATION MATERIALS

Next generation material solutions are targeting the most widely used materials with the most significant environmental impact led by fossil fuels derived synthetics, predominantly polyester (54% share of fiber market), conventional cotton (22%) followed by Man Made Cellulosics (6,4%)[2] as well as Animal Leather. Materials within this category still lack scale meaning that market penetration remains under 1% of incumbent materials.

Polyester innovations replace virgin fossil fuel derived inputs with renewable feedstock alternatives which include three main categories: biomass derived inputs (e.g. sugars and lipids to be utilised for e.g. biosynthetics), captured carbon to be directly converted into chemical building blocks or used as feedstock for e.g. fermentation processes yielding further chemical building blocks, and lastly recycled inputs, using the large amounts of textile waste via textile-to textile recycling.

2 TE PFMR 2022 https://textileexchange.org/app/uploads/2022/10/Textile-Exchange_PFMR_2022.pdf

Textile-to-textile recycling innovations are a crucial lever in driving the industry towards closed loop production. Incumbent mechanical recycling technology is not effective as it does not deal with blends (eg. polyester + cotton), usually resulting in degradation, and is often more expensive than producing virgin material. Chemical, biological, and advanced mechanical recycling offer solutions to these common pitfalls.[3] Many innovators are working towards enabling textile-to-textile circularity, and a small subset are now reaching early commercial-scale deployments. In the polyester space, these innovators include the likes of Circ, CuRe Technology, and Ambercycle

Cotton innovations include alternative cultivation methods such as regenerative agriculture as well as alternative feedstocks such as agri residues and (other) bast fibres that can be processed in innovative ways to resemble cotton properties.

Man-Made cellulosic fibres (MMCF) innovations include both alternative processing and feedstock solutions. On the processing side this entails technologies that are replacing conventional production methods with chemical, water and emission saving alternatives or novel dry spinning processes (e.g. Spinnova). Feedstock innovations target the replacement of virgin cellulose sources e.g. from wood or waste derived cellulose inputs (e.g. agri-residues, textile waste). Ideally, MMCF innovations cover both feedstock and process alternatives. Material innovations within this category are often promoted as cotton and synthetics alternatives as they can mimic related performance characteristics. Promising innovators in the cellulosics textile-to textile recycling space include Renewcell and Infinited Fiber Company.

Leather innovations include both alternative processing and feedstock solutions. Within the processing step this includes less chemical, water and emission intensive tanning and preservation technologies (e.g. Lite Hide). Alternative feedstock innovations are predominantly plant and fungi derived as well as earlier stage innovations within microbe and cultivated animal cell derived materials. Leading innovators include Forager (Ecovative) and Mirum (Natural Fiber Welding).

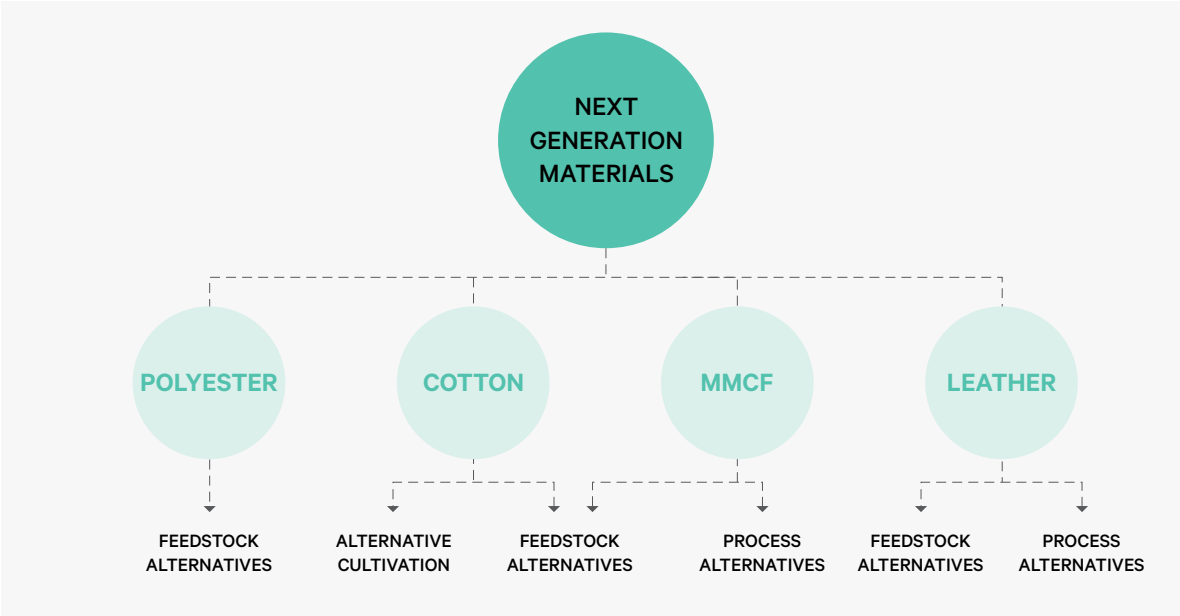


Figure 2. Innovation Areas for Next Generation Materials.

Fashion for Good Analysis (2023). Note: this is a non-exhaustive list of material innovation categories

3 See also Fashion for Good Chemical Recycling report

PROCESSING

Processing textiles is an energy-intensive procedure that includes several steps, including: pre-treatment, colouration, and finishing. Traditional practices are not only inefficient in terms of energy use, but they also contribute to water pollution due to the use of hazardous dyestuff and chemicals. Therefore, recent innovations aim to make these processes more sustainable and efficient.

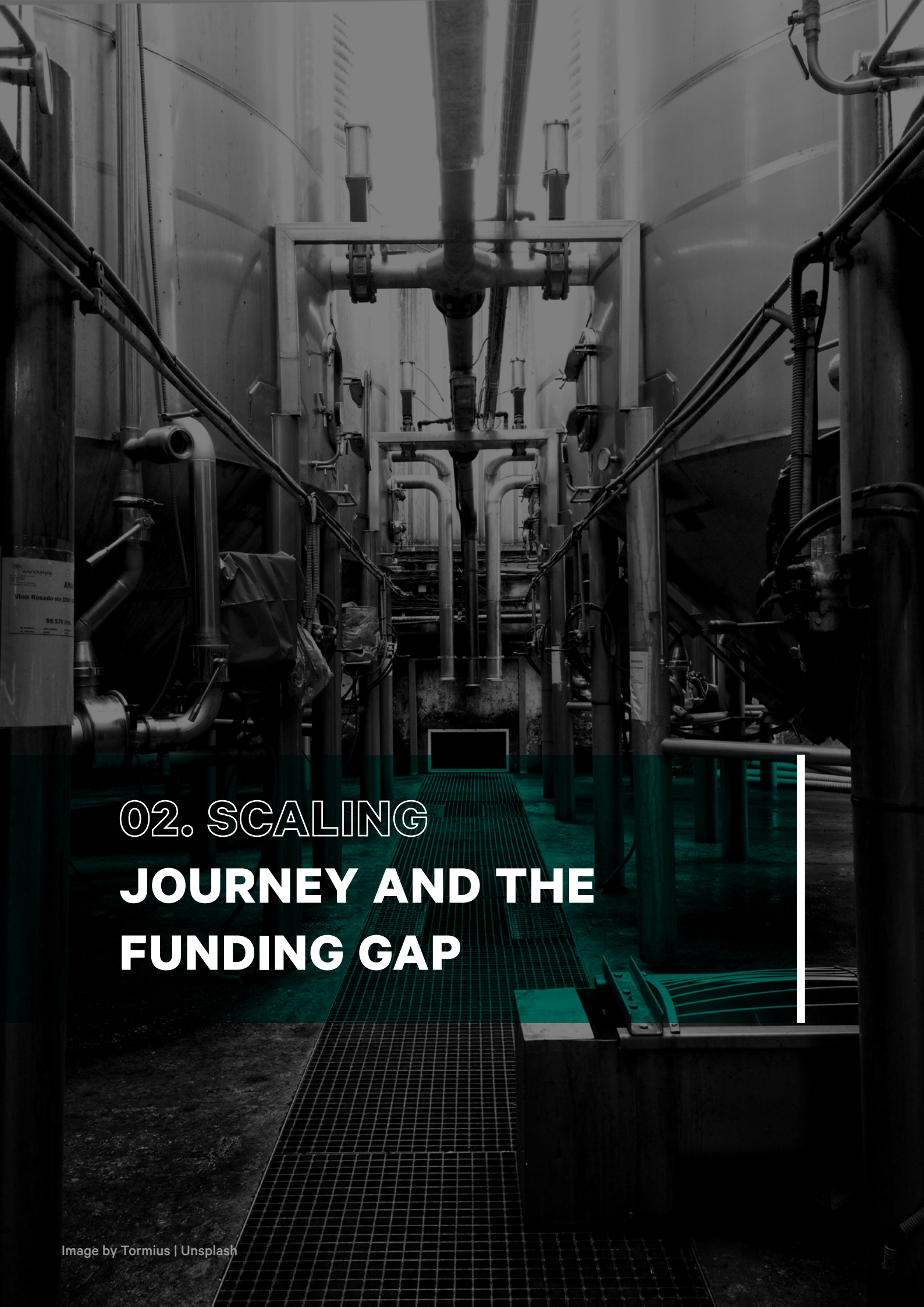
Innovations within the processing domain can be categorised into two main areas: chemistry and machinery. Chemistry encompasses the use of chemicals applied during processing, such as dyes, solvents, and softeners. On the other hand, machinery involves the various machines used to execute the processing steps, including those for pretreatment, colouration and finishing.

One promising machinery innovation includes the use of **plasma technology** for textile pretreatment. Traditionally, pre-treatment involves multiple stages and uses significant amounts of water and energy. Plasma technology, however, can modify the surface properties of textiles, improving dye uptake and wettability adhesion, thereby reducing the chemical usage amount of dye needed, and saving energy. A promising innovator in this area is Grinp.

Another innovative development in the machinery space is the use of **digital printing** technology, which applies dyestuff and designs directly onto the textile, significantly reducing water and energy usage as compared to conventional dyeing methods, while also enabling greater design flexibility. A promising innovator in this space is NTX Cooltrans.

Innovations for finishing processes are enhancing efficiency through innovative machineries and novel chemical formulations. Machines equipped with **spray technology** employ precision nozzles to apply the exact amount of finishing chemistry directly onto the fabric, with digital control ensuring high efficiency. Consequently, this method reduces the usage of water and chemicals compared to traditional processes. Notable innovators in this domain include Alchemie and Imogo.[4]

4 See also Fashion for Good Textile Processing Guide for more details



02. SCALING JOURNEY AND THE FUNDING GAP

Image by Tormius | Unsplash

CATEGORIES OF TECHNOLOGY: SOFT TECH VS HARD TECH

Software technologies, which are primarily digital solutions, such as re-commerce platforms and traceability software, involve minimal physical assets. On the other hand, hardware technologies require the development of physical, capital-intensive assets like dyeing machinery, new fibre production lines, or recycling infrastructure. The degree of asset intensity is an important factor that influences the pace and path of technology development and scale.

Both Next Generation Materials as well as Processing Innovations fall into the category of hard-tech innovations, as they typically require the development of physical, capital-intensive assets like dyeing machinery, new fibre production lines, or recycling infrastructure. The degree of asset intensity is an important factor that influences the pace and path of technology development and scale. Hard-tech innovations often bring complex R&D cycles, require specialised skill sets and customised tools, and involve orchestration of a wide set of stakeholders across the supply chain. Hard-tech often have substantially larger capital needs, face unique challenges such as development and construction risk, have higher marginal costs of production, and ultimately scale more slowly. Investors would argue this type of innovation offers a different return-on-investment profile than soft-tech ventures due to capital requirements, the difficulties of widespread adoption, and the time required to grow from pilot to scale.

The scaling of innovation is typically characterised by the following four stages, as set out in figure 3 - Stages of Innovation.

The Research and Development phase, the earliest stage, involves small, cost-effective experiments conducted in controlled environments to test the feasibility of a concept or prototype. After successful testing, the technology moves to the pilot stage, where a small-scale version operates under real-world conditions. Finally, a demonstration scale is the start of the commercialisation stage where the technology is operated at near-commercial scale to prove its commercial viability, refine the process under realistic conditions, and demonstrate its performance to potential investors, regulators, and customers.

Each stage, increasing in complexity and cost, is a crucial step towards the commercialisation of new technologies, with timelines for one stage to the next ranging from months to years and can be iterative. Some innovators may also choose to outsource pilot or demonstration facility testing to external contract manufacturers, rather than building in house.

Image Courtesy of Unsplash

Phase	TRL	Challenges	Type of Financing
1. Research & Development	0. Idea 1. Basic research 2. Technology formulation 3. Needs validation	Characterised by high technological and execution risks - often lack of evidence of product-market fit	Equity (seed, VC), Grants (philanthropic, government, universities)
2. Piloting and small scale production	4. Small scale prototype 5. Large scale prototype	High risk including technology risk	Equity (VC), Grants (philanthropic, government)
3. (First) Commercial production	6. Prototype system 7. Demonstration system 8. First of a kind commercial system ("flagship")	Engineering, operating and market risks may exist. Attractive unit economics may not have been reached (may require further optimisation or economies of scale)	Equity (VC, Growth), Debt (Corporate lending, project financing)
4. Replication/ adoption phase	9. Replicability and standardisation achieved enabling expansion possibilities	Quality and commercial (unit economics) targets met; standards set. Low risk profile	Equity (Growth, PE), Debt (Corporate lending, project financing)

Figure 3: Stages of Innovation

Source: All / Fashion for Good

The knowledge gained in the pilot stage is logically expected to lead to the development of full-scale production systems and commercial products, or further optimise processes and quality, so that a material is ready to be included in a brand's supply chain at the right specs and pricing. Importantly, scaled innovation is uniquely characterised by commercial activities that are replicable without further modification. If significant further optimisation of processes are required to enable replicability, meaning that the process in its current state cannot yet be copied without further modification e.g. because target quality or pricing have not yet been met, we cannot consider the innovator to have entered the third "commercial production" phase.

Image by Soex Group

FUNDING GAP IN COMMERCIALISATION STAGE

Despite marked interest from early-stage financiers and small-scale support from brands during phases 1-2, as innovators mature and reach phase 3, their funding requirements and return profiles disconnect from VC mandates, and with business operations still lacking the scale and reliability that growth investors seek, the resultant funding gap becomes a significant hurdle to industry wide adoption of new products and technologies.

It is this funding gap and the obstacles that it poses to sustainability that has driven ourd need to highlight the commitments, responsibilities and opportunities that the various stakeholders can expect to encounter.

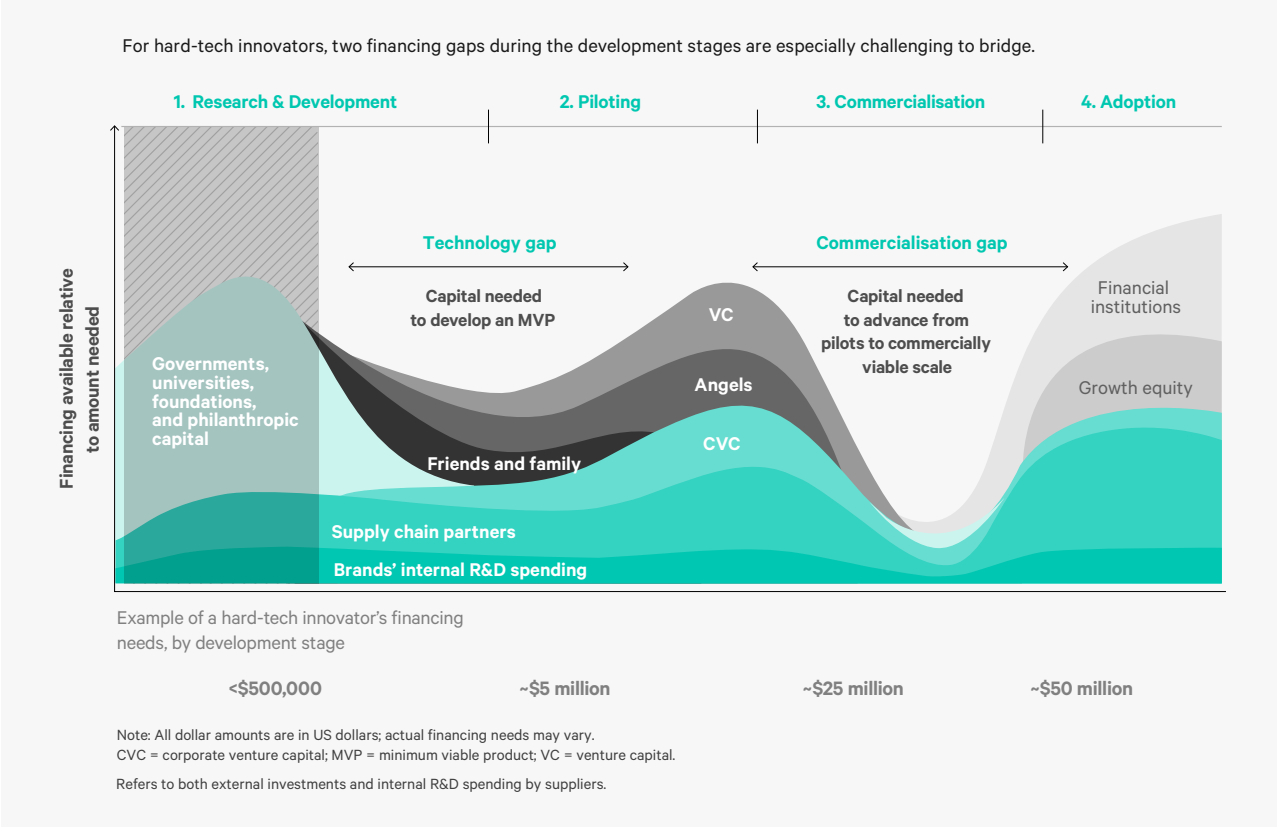


Figure 4. Typical Financing Demand and Supply Landscape for Hard-Tech Innovators

Source: Fashion for Good & BCG Analysis

Quantifying the value of this funding gap not only highlights the size of the task at hand, but also the value of the opportunity that exists for project financiers looking to invest in this space. The financing required to scale Next Generation Materials and Processing innovations equates to roughly $400Bn, of which approximately 50% or $200Bn[5] would be required in the form of debt financing.

5 Aii/FFG, 2021

While this number would represent all potential debt financing required across the various stages of the scaling journey, the vast majority would apply to the commercialisation and adoption phases, with the latter again drawing the bulk of this. Ultimately, the opportunity for project financiers would not only lie in the funding required to reach commercialisation, but even more so in the then replicable projects thereafter.

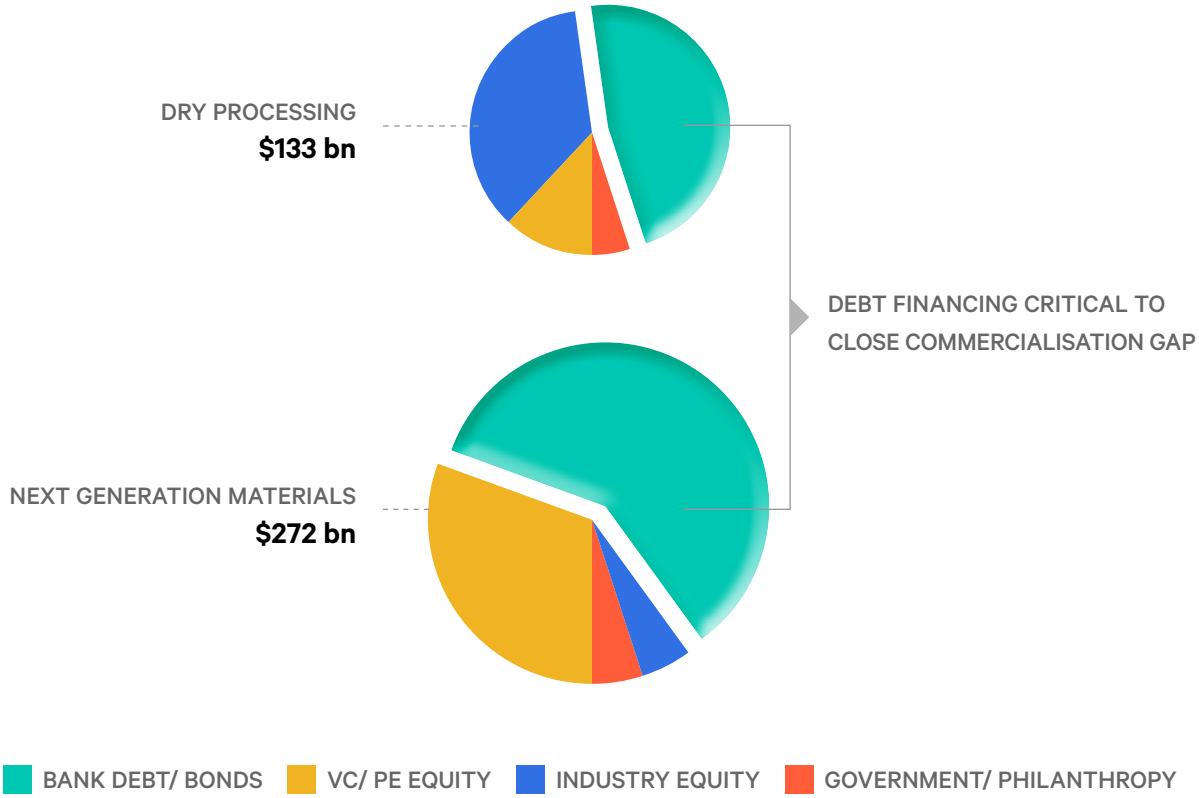


Figure 5: Financing Mix across Innovation areas

Source: Fashion for Good / AII, 2021

The early commercial stage of almost all of the innovators in this technology segment means that project financing has a key role to play in the sourcing of low cost funding, as the structured nature of this type of financing provides risk mitigation measures that help reduce financing costs for debtors and provide security to financiers.

The trajectories of scaling innovations in next generation materials and processing are generally similar, but there is significant distinction in capex requirements and timelines towards commercialisation that should be highlighted. While processing tech like plasma is often about building one machine that works at scale and then replicating it, the next generation material space always requires the building of full facilities that work at scale and then replicating that. Given this distinction, the focus of this report is therefore more so on the use of project finance as an instrument to scale next generation material solutions.

03. OVERVIEW OF INFRASTRUCTURE FUNDING OPTIONS

Image by Renewcell

The type of financing a business decides to raise is determined by many factors, but ultimately, founders are looking to minimise their cost of capital and maintain as much ownership as possible.

Traditionally, venture capital is suited for emerging technologies where the risk and reward profile is highest. However, selling corporate equity is considered the most expensive form of capital, as founders are giving up ownership of their business.

Venture capital (VC) rounds are often 20-40% dilutive, effectively translating into a very high implied cost of capital, potentially upwards of 40% depending on the company's growth and valuation metrics. For founders, this means ceding a significant portion of ownership and future profits. In contrast, off-balance sheet financing generally comes with a set interest rate, typically ranging from 8-20%. This fixed cost is often more predictable and less expensive in the long run. Thus, the cost of capital from VC, due to significant dilution, can be markedly higher than alternative financing routes. Early stage businesses proving out their technologies tend to raise venture capital, or some combination of grant money, VC, and venture or convertible debt, as they mature.

As businesses start to mature and may be able to start demonstrating reasonable future cash flows, there comes a point where, given the dilutive nature discussed above, VC money becomes too expensive. At that point, alternative cheaper forms of off balance sheet financing can be explored.

Three basic types of debt capital sources exist: corporate, project and bank. From among these, project finance is the global standard for most infrastructure businesses because of its comparative advantage over other options.

Project finance is a specialised type of financing in which the project's assets and cash flows serve as collateral for the loans used to finance the project, compared to bank loans that are often unsecured or corporate debt, in the form of bonds, where the company as a whole is provided as collateral. In project financing, the lenders therefore assess the project's risks and potential returns (cash flows), rather than the creditworthiness of the project sponsor or company as a whole.

	Venture	Corporate	Project	Bank
Form	Equity	Equity/ Debt	Equity/ Debt	Debt
Basis	Company growth	Company profit	Project cash flow	Company repayment
Timing	Pre-revenue	Post-revenue	Development Complete	Post Profit
Risk/ Cost	Very High	High	Medium	Low
Security	None	Full - All Company Asset	Limited - All Project Assets	Limited - Liquid Company Assets
Dilution	Yes	Yes	No	No

Figure 6: Overview Infrastructure Capital Providers

Source: Spring Lane Capital

Off balance sheet, structured, or project finance is commonplace in physical infrastructure or capital intensive industries such as power generation and transmission, highways and toll roads, railways, recycling, oil & gas, mining, logging, etc. In it, investors have recourse to project level cash flows in lieu of ownership of the top company. This structure is ideal if investors can reasonably assume a project will deliver future cash flows via a well-informed proforma.

Technologies are however not project financeable until they have been proven at, at least, a demonstration phase. In some cases, entrepreneurs may even need to finance the first commercial project on balance sheet, if they are unable to raise project financing or if the success (or failure) of the first commercial project is so critical to the company that giving up project ownership is not possible.

For all other cases, structured project finance is an advantageous funding mechanism for development stage companies with limited credit, as it expands their financing options by providing access to broader debt capital markets. The predictable cash flows from structured project finance offer favourable terms not typically available to existing companies or in emerging markets. Additionally, due to the long-term offtake contracts, structured project finance offers longer tenors, making it more attractive than corporate finance.

It is important for innovators to remember that both debt and equity capital options have their benefits and drawbacks, which can be described as a double edged sword. While the former may have a lower cost of capital, the proverbial clock starts ticking almost from day one, as cash flows are needed to cover interest payments. In contrast, returns on equity capital are normally not expected to materialise for several years, but a failure to reach promised milestones and subsequent valuation growth, can leave innovators standing on the edge of a funding cliff.

Understanding all funding options available to you and knowing when to fund what, and with which option, can play as big a role in innovator success as the idea itself.

> **Innovators looking to achieve commercial scale via a licensing model may first need to de-risk their technology at commercial scale under a build-own-operate model to demonstrate a track record to potential licensors. Structured/project finance should be considered in conjunction with corporate financing to implement this strategy.**
>
> — Erik Karlsson, Head of H&M Group Ventures

Image by m0851 | Unsplash

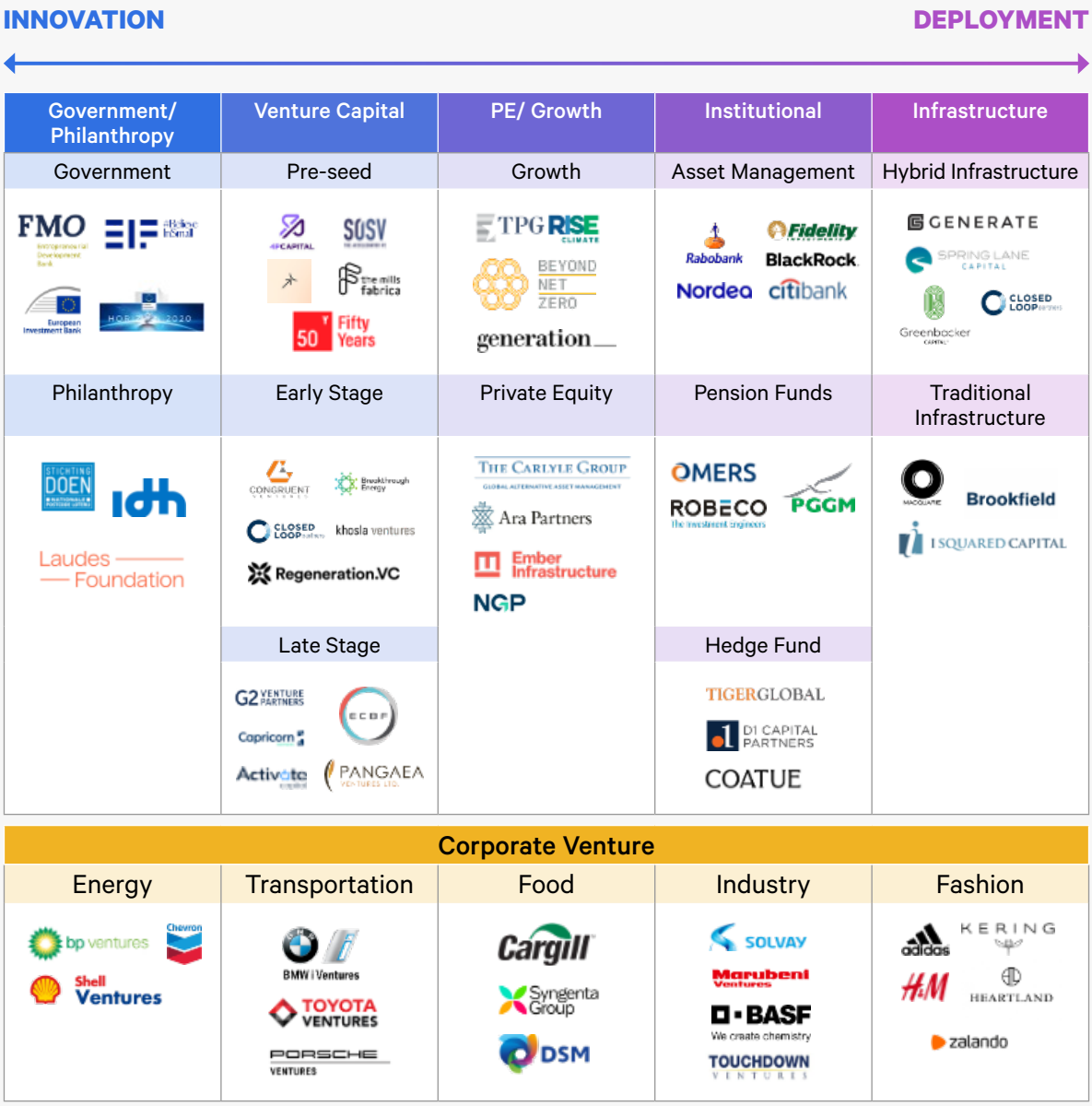


Figure 7: Fundraising Landscape
Source: Climate Tech VC, Fashion for Good 2023

The last couple of years have seen plenty of exciting additions of funds earmarked for climate and technology advancements that can help lower carbon emissions and create more circular economies, some also with a dedicated focus on technology related to the fashion industry. The breadth and depth of specialised technology capital support has increased significantly, allowing innovators to start pulling together the relevant sources of capital - stacking VC rounds on top of government grants, then piling growth, debt or project finance on top of that, to satisfy the capital requirements necessary for scale.

PUBLIC FUNDING/ PHILANTHROPY

Government and development bank based grants/ loans can be a time consuming process to access due to the slow internal processes, high levels of compliance and restrictive funding conditions. However, the non-dilutive nature of this funding can be an attractive option for innovators as they lower the amount of other external funding required, while helping to align regulatory requirements with investor interests.

Philanthropy/ Catalytic capital includes financing or enabling projects with philanthropic funding that seek a lower return on investment or concessionary capital.

VENTURE CAPITAL (VC)

VC Investors gravitate towards early-stage companies, with a focus on high-risk, high-reward ventures. They seek potentially disruptive ideas with substantial growth prospects and a clear exit strategy, usually through a sale or IPO.

Pre-seed/seed investors such as SOSV and Pale Blue Dot cater to the nascent stages of a company, investing typically less than $1M in ideas and minimal viable products. Despite the substantial risk, they anticipate significant returns and substantial equity stakes in the supported startups.

Early-stage investors like Congruent Ventures, Breakthrough Energy Ventures, and Regeneration VC typically provide checks in the $1M to $10M range during the product development and market launch phases. They target startups with an initial customer base and proof of concept, hoping to capitalise on their significant growth potential.

Late-stage investors, including G2 Venture Partners and Activate, invest larger sums often exceeding $10M in more mature companies with established products and significant revenue. They expect steady growth, lower risk, and a clear exit strategy.

PRIVATE EQUITY (PE), GROWTH INVESTORS

Private Equity (PE) and Growth investors target later-stage, profitable companies with investments often in the tens to hundreds of millions. They anticipate lower risk and consistent returns, often via dividends and company exits. In the right financial climate, innovators with promising technologies can also access public funding markets through an Initial Public Offering (IPO) of company shares.

Growth investors like Beyond Net Zero, TPG Rise Climate, and Generation focus on companies with a solid track record and significant market penetration. They anticipate rapid growth and high return potential, requiring evidence of these aspects before investing.

PE investors such as Ara Partners, NGP, and Ember Infrastructure often acquire majority stakes, initiating strategic changes for operational improvement or market expansion. They seek stable cash flows and significant potential for profitability.

INSTITUTIONAL INVESTORS

Institutional investors, managing client investments, prioritise a balance between risk and return. Check sizes vary significantly depending on the fund size and investment strategy.

Asset management firms like Blackrock, Fidelity, and T. Rowe Price, along with **Pension funds/ Sovereign wealth funds** like Temasek, CPPIB, Omers, and Robeco, invest across a variety of sectors and stages for portfolio diversification.

Hedge funds, including Coatue, Tiger, and D1 Capital Partners, employ aggressive strategies, including derivatives and leverage, to generate high returns. Despite the high-risk profile, they offer the potential for substantial returns.

INFRASTRUCTURE INVESTORS

Infrastructure investors specialise in long-term projects.

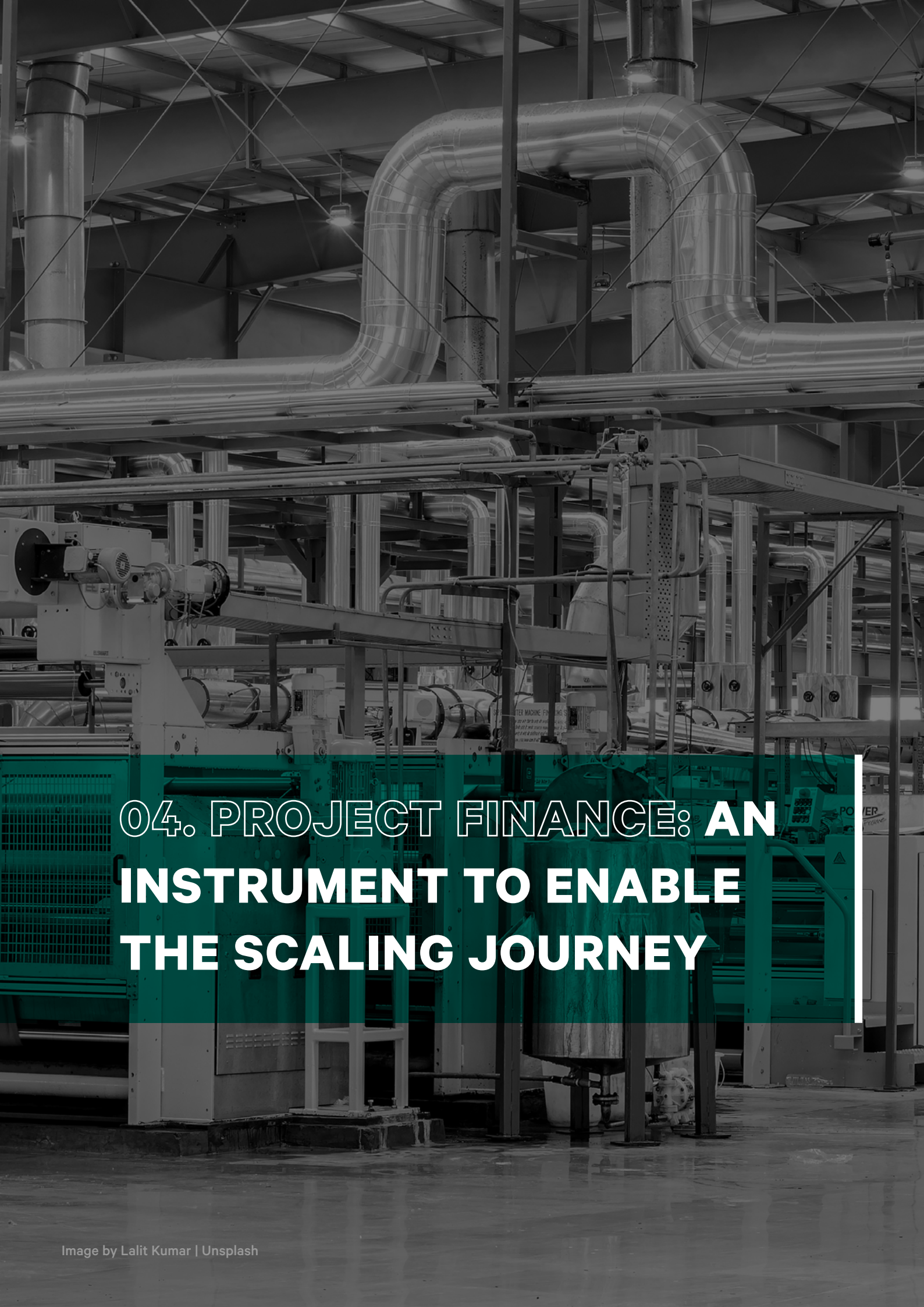
Hybrid infra investors like Generate, Spring Lane, and Greenbacker Capital might invest in both infrastructure and corporate growth, typically in the tens of millions dollar range.

Traditional infrastructure investors like Brookfield, Macquarie, and I-Squared, investing often in the hundreds of millions, focus on established assets like utilities, transport, and energy.

Infrastructure funds are often lumped into one big pool, but there is a large variance in risk tolerance, commonly referred to as 'core' / 'core+' / 'value add' segments, that innovators should understand in order to identify suitable investors in this space.

CORPORATE INVESTORS

Corporate VCs such as adidas Ventures, TinShed Ventures (Patagonia), H&M, Heartland (Bestseller), Kering Ventures or Zalando, invest in startups that offer strategic benefits to their parent companies. Check sizes typically range from a few million to tens of millions, and they require a proof of concept or a minimum viable product.



04. PROJECT FINANCE: AN INSTRUMENT TO ENABLE THE SCALING JOURNEY

Image by Lalit Kumar | Unsplash

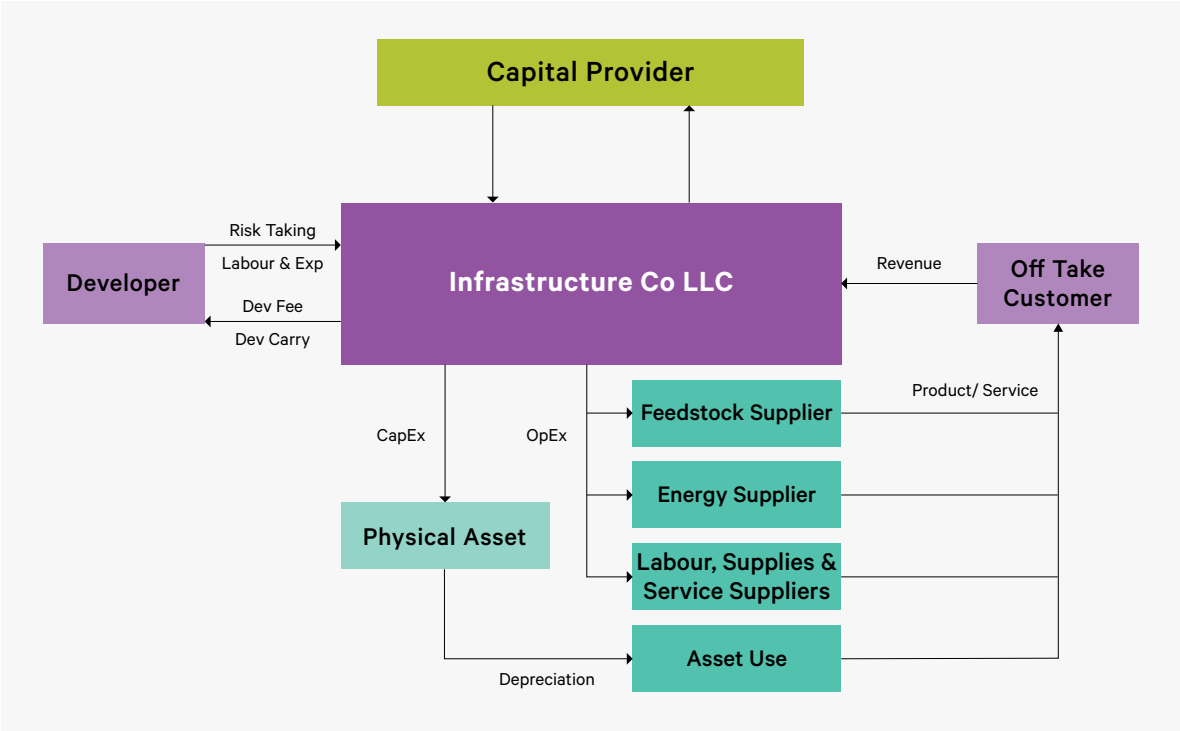


Figure 8: Design of Infrastructure Project

Source: Spring Lane Capital

Project finance is particularly suited for capital-intensive industries that have high upfront costs and relatively predictable long-term cash flows. Although it has been traditionally used for infrastructure such as roads, bridges, and powerplants, project finance has applications in emerging technologies, offering certain benefits over corporate finance, namely, the ability to raise a larger quantum of financing at relatively lower costs of capital. However, it also involves higher transaction costs and complexity compared to corporate debt or equity financing. Raising project financing involves detailed due diligence, complex legal structuring, and often requires third-party consultants, leading to substantial transaction costs. In contrast, VC transaction costs are typically lower, as they centre mainly on valuation and equity stake negotiations. The intricate nature of project-specific risk evaluation in project financing contributes to its higher associated costs.

A unique aspect of structured project finance is its risk limitation to the investment in the projects, as opposed to corporate finance which implies full recourse to the balance sheet. This structure enables risk sharing among parties best equipped to manage specific risks, thereby benefiting lenders who don't face the ongoing business risks associated with corporate lending. Collateral in structured project finance is confined to project assets and cash flows, avoiding any restrictive covenants that may be in place at the corporate parent level.

The foundation of these structures are formed through the use of offtake, feedstock, and Engineering, Procurement, and Construction (EPC) contracts and aligning these contracts is vital for smooth project operations. These contracts are complex, from ensuring supply reliability and quality in feedstock contracts, to managing risk allocation and dispute resolution.

One of the major advantages of structured project finance is that it enables companies to scale faster and execute more quickly than their competition. The technology and commercial development process required to achieve project financing ensures the highest standard of construction and process engineering. Although more development and planning is required upfront, ultimately this mitigates pitfalls, leading to faster scaling.

Project finance's applicability is notable when the project is large, complex, and requires a significant amount of upfront capital investment. The financing is secured by the project's assets and cash flow, rather than the creditworthiness of the project sponsors or shareholders. This allows the project to obtain financing based on its own merits and financial viability, rather than the financial strength of the sponsors or shareholders.

Project financing also involves a unique set of drawbacks that innovators should consider. Firstly, transaction costs are often higher than VC funding because the complexity of these deals requires the involvement of specialised financial experts, legal counsel, and sometimes technical consultants. Each participant adds to the overall cost, especially as the due diligence phase demands detailed reviews of project feasibility, revenue models, and risk assessments.

Furthermore, the longer lead times reflect the thoroughness needed to vet and structure a deal around a specific project rather than a company's broader potential. This often involves validating the technical viability of the project, ensuring all regulatory compliances are met, and formulating intricate repayment schedules based on projected cash flows.

The restrictive covenants in project financing agreements are a direct result of lenders wanting to ensure the predictability of returns and minimise risks. This contrasts with VC deals, where investors often take equity stakes and understand they're betting on future growth potential rather than immediate cash flows.

PREREQUISITES

For successful project financing, six key prerequisites must be met:

1. **Thorough feasibility study is essential** to assess the project's technical and financial viability, including a detailed analysis of the project's market potential, technology, cost structure, and cash flow projections.
2. **Strong sponsorship is vital,** requiring a credible sponsor with a successful track record in project development and management. The lead equity investor, commonly referred to as the project sponsor, should be capable of providing the equity portion of the project financing and managing the project.
3. Project must be developed within a **stable regulatory environment,** ensuring clear frameworks for permitting, licensing, approvals, and stable policy for revenue streams.
4. Project should have **robust contracts with customers (offtake), suppliers (feedstock), and contractors (Engineering, Procurements & Construction)** to provide a stable revenue stream and mitigate risks like construction delays and cost overruns.
5. **Robust financial structure** is necessary, encompassing a detailed funding plan, a realistic debt-to-equity ratio, and a clear risk management strategy.
6. **Adequate collateral,** such as project assets, contracts, and cash flows, is essential to secure the debt financing.

All of the above needs to be assessed through a comprehensive due diligence that covers the project's technical and financial aspects, as well as the sponsor's track record and creditworthiness.

We have seen that there is a knowledge gap as it relates to the most critical contracts, namely offtake and feedstock. Thus we have included templates to enhance the understanding of, and align on, key components needed for these contracts. These are provided in Appendixes B and C. Particularly critical and often contentious is the offtake agreement and thus in the following section, we will dive into the offtake agreement in more detail.

THE NEED FOR OFFTAKE AGREEMENTS

An offtake contract is a crucial factor that is used to assess the economic feasibility of a project. It is often the initial contract entered into, serving as the cornerstone around which the entire project is structured. This contract acts as the primary source of revenue for the project, and it provides a contracted market for the product or output, which guarantees a steady source of cash flow. By setting the parameters for other project contracts, the offtake contract enables the project to progress and helps allocate the market risks between the project and the purchaser. Thus, the offtake contract plays a vital role in the project's success and serves as the principal determinant in evaluating its economic viability.

In some cases, a project may be able to secure financing without an offtake agreement if the project has a strong revenue stream from other sources, such as government subsidies or regulated tariffs. Additionally, some projects may have a high degree of certainty around their revenue stream, such as renewable energy projects with long-term power purchase agreements.

However, given that this report is focusing on new technologies with unproven commercial scale, innovators should expect lenders to require that an offtake agreement be in place as a precondition for providing financing.

The structure of an offtake contract can significantly impact the risk profile of a project. For instance, a fixed-price contract might be suitable for a project with a stable production cost, as it transfers the commodity price risk to the offtaker. On the other hand, a variable-price contract might be suitable for a project with high production cost variability, as it allows the project to pass on some of these costs to the offtaker. The choice between these and other contract structures should be guided by the project's risk profile, taking into account factors such as production cost stability, market volatility, and the risk appetite of project lenders and investors, and ultimately the ability to negotiate with offtake counterparties.

Offtake contracts are essentially promises of future performance. If an offtaker fails to perform its obligations under the contract, the project may suffer significant losses. To mitigate this risk, project developers should ensure that the offtake contract is legally enforceable. This includes ensuring that the contract is properly executed, that it includes appropriate remedies for breach, and that it contains a dispute resolution mechanism. It's often beneficial to seek legal advice to ensure the contract's enforceability.

Just as it is wise to diversify investments, it is often prudent to diversify offtakers. Having multiple offtakers reduces the project's exposure to the risk of a single offtaker's failure. However, diversification must be balanced against the increased complexity of managing multiple offtake contracts. Furthermore, each offtaker may demand certain concessions, such as volume discounts or preferential delivery schedules, which could affect the project's profitability.

Offtake contracts can span many years and their terms can significantly impact the project's viability. Consequently, project developers should pay close attention to the contract's details. Key provisions to consider include the price (and how it may change over time), the quantity of product to be delivered (and any flexibility in this quantity), quality (often tested and specified to pilot / demonstration scale sample output), the duration of the contract, and any force majeure or termination clauses. Each of these provisions can have significant implications for the project's risk profile and profitability. Therefore, it's essential to carefully review, negotiate, and, where appropriate, seek legal advice on these details.

UNDERSTANDING RISK ALLOCATION

Proper allocation of risk and incentive structuring is crucial in developing a project or project financing transaction. These elements, when addressed correctly, can significantly improve a project's risk profile. This involves thorough assessment of technical, legal, and environmental aspects of a project, ensuring all potential risks are identified and mitigated before contract execution.

In project finance, risks are distributed among various stakeholders including project developers, lenders, investors, contractors, and offtakers. This allocation is not arbitrary; it is guided by the principle that each risk should be borne by the party best equipped to manage it. For instance, construction risk is typically borne by the contractor, while market risk can be transferred to offtakers through offtake contracts. This risk allocation should be embodied in contractual agreements, thereby fostering risk mitigation and management. Project developers must understand this dynamic and ensure that risks are appropriately allocated in all project contracts, including offtake contracts.

The use of incentives can align the interests of all parties involved. Payment terms can be linked to performance benchmarks, rewarding contractors for on-time, on-budget delivery. Similarly, penalties like liquidated damages can disincentivise poor performance or delays, providing a strong motivation to adhere to project timelines and specifications.

Contracts should incorporate provisions for dispute resolution, typically favouring arbitration over litigation. This approach ensures disagreements do not lead to project delays and allows for continuity of work even amidst disputes.

In essence, prudent risk allocation, effective incentive structures, thorough due diligence, and efficient dispute resolution mechanisms can significantly improve the risk profile of a project, making it more attractive to investors and financiers.

RISK ALLOCATION AND MITIGATION FOR KEY INDUSTRY STAKEHOLDERS

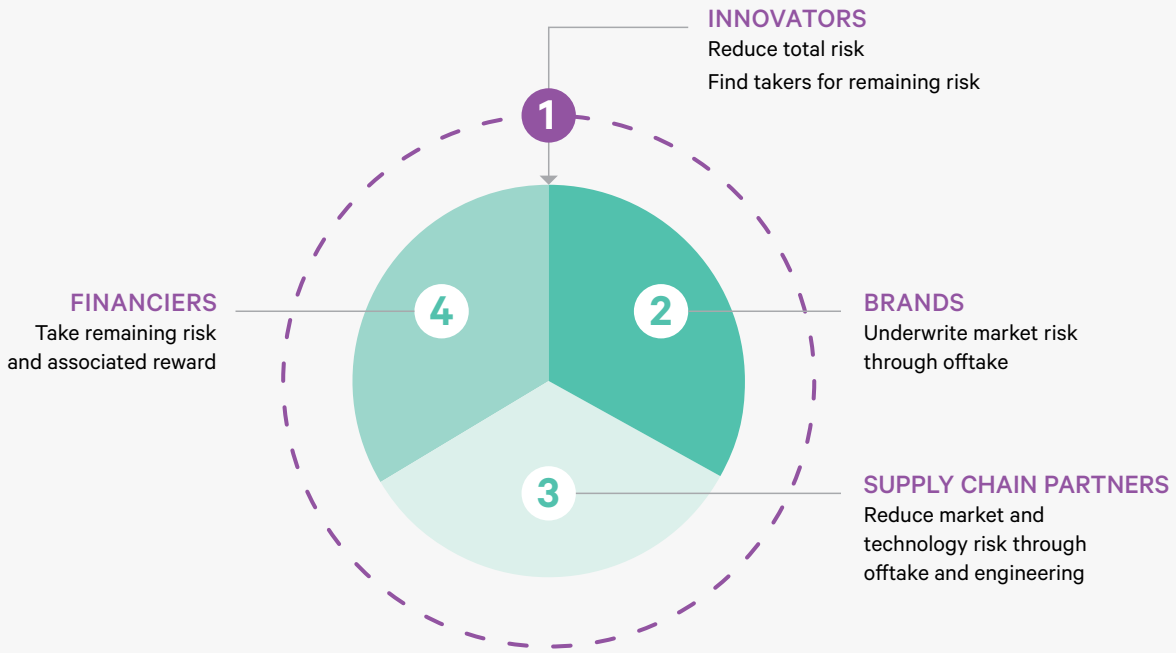


Figure 9: Risk allocation and mitigation

Source: Fashion for Good

The innovators, financiers, brands, and supply chain partners all have their roles in taking a degree of risk so that the project can be realised:

1. **Innovators** need to minimise the total risk pie – They can do this by being in control of technology, planning ahead and building confidence with customers to land offtake agreements.
2. **Brands** need to signal and underwrite demand, thereby mitigating the market risk of the project.
3. **Supply chain partners** are able to signal and underwrite demand, while also providing expertise to mitigate engineering and construction risk.
4. **Financiers** should take on the remaining risk in exchange for the associated returns. By actively educating themselves to better identify challenges and opportunities, they can ultimately drive down funding costs by mobilising more capital.

05. LEARNINGS FROM CASE STUDIES AND OTHER INDUSTRIES

Image by Spinnova

CASE STUDIES FROM INNOVATORS

For this report, several companies were researched or interviewed for purposes of identifying overlapping challenges and learnings that can ultimately benefit innovators in the textile industry. Key themes emerged in the form of project structuring, the need for proper planning and expertise within the innovator team, as well as key considerations when evaluating various sites for potential suitability. Key learnings for each of these are set out in the graphic.

Project Structure	A Joint Venture with a strategic supplier can help de-risk the structure through: • Vested interest by both parties • Securing input volumes • Potential access to existing site • Shared operational, regional and regulatory knowledge • Broader network of potential investors
Planning	From concept to completion, a project can easily take 3 years. Innovators should therefore: • Start engaging with project financiers and other required parties whilst still in initial R&D and VC funding phases • Take into account the likelihood of cost increases/ overruns and budget for these
Team Expertise	Founder teams need to have deep expertise in relation to financial, technical, operational and project management fields. This will reduce: • R&D times/ costs • Associated need for seed/ VC capital • Project implementation risks
Site Identification	While the use of brownfield sites can help increase speed to market, when evaluating any potential site, innovators should pay special attention to: • Environmental regulations • Permitting needs • Ability to access sufficient, reliable and stable energy

Figure 10: Key learnings from innovators

Source: Fashion for Good Analysis

CIRCOTEX

Grant and Developmental Based Funding Used to De-Risk Debt Investment

Innovator Solution

Clean processing of polyester yarns and fabrics through the use of innovative technologies, helping to reduce the amount of water and energy used as compared to traditional pretreatment, colouration and finishing techniques. .

Facility Details

Located in Amsterdam/ Hoofddorp, Netherlands, the buildings were completed in March 2023, with machinery installation and testing currently underway. This will be Circotex's first commercial facility. Total cost not disclosed.

Funding Breakdown

Equity provided by the founders and grant funding from the European Union, but the largest portion is being funded through EUR9Mn worth of project financing from DOEN Participatie, Amsterdamse Klimaat & Energiefonds (AKEF) and the Participatiefonds Duurzame Economie Noord-Holland (PDENH).

Innovator's thoughts

> **Existing investors can be very strong allies when it comes to networking a consortium of financiers for project based debt funding, and highlights the value of having stakeholders that work together for the benefit of all involved.**
>
> — Erwin Schols, Co-founder

Authors' Insight

Combining non-dilutive, zero cost capital (grant funding) with development based loans, is a good example of how innovators can de-risk the debt portion of their funding mix and help improve investors' potential risk-return profile.

SPINNOVA

Joint Venture: Supplier and IPO Based Funding Example

Innovator Solution

Creation of textile fibre out of cellulose without involving any harmful chemicals, minimal water use and emissions and zero waste. The natural fibre material is a white continuous filament and is ready as-is for spinning into yarn and knitting or weaving into fabric. With the stretch and strength qualities of cotton, it can suit apparel, footwear, accessories, home textiles, non-wovens

Facility Details

Located in Jyväskylä, Finland, the facility cost EUR36M to build with a planned capacity of 1000 tons of fibre output per year. This is the first commercial plant producing SPINNOVA® fibre (Woodspin), with production currently being ramped up following completion in Q2 2023.

Funding Breakdown

The facility was developed through a 50:50 joint venture with Suzano (key supplier - largest pulp and paper producer in Latin America, with a presence in 80+ countries globally), and funded with capital raised during an IPO of the company's shares in June 2021. More information regarding funding and the IPO can be obtained through Spinnova's website.

Innovator's thoughts

A balance between tech and raw materials contribution, in an independent entity, helps ensure skin in the game on both sides.

— Jarkko Havas, Head of Concept

Authors' Insight

The value of the expanded industry knowledge that a JV with a strategic supplier can bring, should not be underestimated. Combined with favourable market timing, this can serve as a strong underpin for a valuable IPO-based equity raise.

RENEWCELL

Mixture of Equity and Project Financing - via IPO, Banks, Government Funding

Innovator Solution

Re:newcell recycles cellulosic-based textile fibres, such as cotton and hemp to name a few, back into "dissolving pulp". Dissolving pulp is the raw material for a number of different products, however the main use for the pulp is the production of textile fibres such as Lyocell and viscose. Founded in 2012, (Sweden)

Facility Details

After building its first plant in Kristinehamn, Sweden in 2017 and starting to produce Circulose®, Renewcell partnered with leading global brands such as H&M and Levi's®. To scale up production, Renewcell started to work on a 60,000-tonne-capacity textile recycling plant in Sundsvall, Sweden (Renewcell 1) which went live November 2022 . Renewcell 1 will be scaled up to produce 120,000 metric tons of pulp, equivalent to 600 million t-shirts.

Funding Breakdown

For its commercialisation journey and the financing of its 60,000 tonne capacity recycling plant, Renewecell appointed Nordea to evaluate possible financing options. In Nov 2020, they announced a tailor made financing solution consisting of a mixture of both equity and project financing debt backed by an export credit agency guarantee from Finnvera, Finland's state-owned export credit agency, of up to 85%. Nordea acted as the global co-ordinator in the IPO of Renewcell (November 2020), raising SEK 800 M in equity, as well as for the debt facility, raising an additional SEK 520 M with SEK (the state-owned Swedish Export Credit Corporation) as co-lender. Coordinating such complex export and project financing usually takes around 7-8 months. In this case, the time frame was only 3 months – while the IPO ran in parallel. Additionally, in June 2021, the European Investment bank confirmed a SEK 311 M (EUR 30 M) loan; this credit line is supported under InnovFin, funded by the EU's Horizon 2020 programme. Additional equity has been raised during the last two years in order to support the finalization of the investment and ramp up of Renewcell.

Innovator's thoughts

Once we had the technology, organisation and expansion plan in place, we decided to involve banking partners to start evaluating financing options for this project. We wanted to find the optimal solution for Renewcell and not just go for equity.

— Renewcell (2021)

Authors' Insight

A carefully considered plan, covering all aspects of the team, technology and expansion, is what all innovators should strive for when project financing comes to mind. This takes time however, so start early and you will reap the rewards when the time comes to initiate funding conversations.

Sources: Nordea, EIB, Renewcell

ANALOGIES TO OTHER INDUSTRIES

The commercialisation journey of renewable energy provides vital insights for emerging industries like Next Generation Materials and Processing. A significant contributor to renewable energy's success was the adoption of Power Purchase Agreements (PPAs) and project finance models, which mitigated revenue uncertainty and risk, facilitating investor interest.

PPAs, introduced in the 1980s, offered a solution to revenue risk by setting a fixed price for the electricity generated by renewable projects. Meanwhile, the project finance model encouraged considerable capital commitments by allowing for high leverage and confining lenders' claims to project assets and revenues, thus protecting sponsors' other assets. This approach made renewable projects highly attractive to investors, propelling U.S. wind energy capacity from less than 10 GW in 2001 to over 110 GW in 2020, and solar photovoltaic capacity from nearly zero in 2000 to more than 100 GW in 2021.

Transferring these lessons to Next Generation Materials and Processing, could foster similar growth. Long-term contracts, akin to PPAs, guaranteeing the uptake of Next Generation Materials, could attract investors by reducing revenue risk, facilitating project finance to enable the development of large-scale recycling facilities or production plants.

However, applying these successful elements to sustainable fashion poses unique challenges due to the industry's specific characteristics. Unlike the linear structure of renewable energy, the fashion industry features a fragmented supply chain, hindering direct interaction between brands and upstream material producers. This difference could complicate the implementation of PPA-like contracts in fashion, calling for extensive cooperation and potential industry restructuring.

The acceptance of Next Generation Materials also hinges on consumer perception, as these materials must meet exacting aesthetic, quality, and performance standards. Additionally, the regulatory landscape for sustainable fashion is less developed than for renewable energy. Policymakers could stimulate growth by enacting supportive legislation and incentives, similar to the feed-in tariffs and tax credits beneficial to renewable energy.

Furthermore, the industry must address high upfront costs, technical challenges associated with Next Generation Materials and Processing, and environmental impact reduction. Despite these obstacles, the sustainable fashion industry can capitalise on the renewable energy sector's lessons, incorporating innovative financing structures, technological advancements, and lobbying for supportive regulations to achieve scale and pave the way for a more sustainable future.

06. A CALL TO ACTION FOR KEY STAKEHOLDERS

Image by Kazuend | Unsplash

To help bridge the commercialisation funding gap, project finance can be a key enabler. For this opportunity to be unlocked, a concerted collaborative effort is needed in order to establish the required contractual and risk allocation mechanisms. Innovators, brands and financiers must act individually and as a collective, across the following points.

Innovators - Build Expertise & Plan Ahead
Innovators need to align their development milestones with their capital strategy. Specifically, they need to ensure that they have the technical, operational and financial expertise in place from the outset, in order to secure structured debt financing when the time comes.This often includes demonstrating a positive track record in the marketplace, such as receiving positive feedback from offtakers on sample production from pilot facilities.

Brands - Signalling Demand
To ensure the success and minimise risks in project finance construction, it's vital for brands to clearly signal their demand. This is typically achieved through direct or supply chain partner offtake agreements. By doing so, brands not only secure future supply volumes and price certainty but also position themselves to transition to a more sustainable alternative to their existing materials or processes.[6] Finally, these contracts can provide brands with exclusivity and a competitive advantage, possibly allowing them to pass on certain costs to consumers.

Supply Chain Partners - Multi-level Engagement and Ownership
Not only to signal and underwrite demand, but Supply Chain Partners can also help mitigate engineering and construction risk by offering technical expertise and access to equipment and capital e.g. through Joint Venture participation.

Financiers - Actively Pursue Opportunities
To accelerate the reduction in cost of capital and increase the capital available for Innovators, financiers should proactively educate themselves and immerse themselves in the ecosystem. This way financiers can directly experience the challenges and potentials, allowing them to make more informed decisions and, in turn, drive the cost of capital down for innovators seeking project financing.


Image by Renewcell

6 It's also worth noting that the procurement process for specialty materials, which aren't widely traded on the spot market and are non-commoditized, often necessitates bilateral contracts.

Last but not least, regulatory bodies play an important role in the scaling journey of an innovator. Policy frameworks consisting of economic incentives, regulations and standards can further mobilise industry players. Also, public capital for the commercialisation of innovations can de-risk larger investment rounds suitable for project financing structures.

> **Partnering with innovators in scaling their technologies allows us to accelerate the availability of, and secure access to, novel materials and processes that are crucial for the achievement of our sustainability goals.**
> — Carolin Lanfer, Director Corporate Ventures - Sustainability, adidas

The recommendations outlined in this report are centred around the conditions required, to enable the project financing structures needed, to bridge the commercialisation gap. Bold action from the relevant stakeholders will pave the way for innovations to scale in order to transform the fashion industry.

07. APPENDIXES

Image by Aron Yigin | Unsplash

APPENDIX A

PROJECT FINANCE - KEY CONTRACTUAL ELEMENTS & BEST PRACTICES

A. OFFTAKE AGREEMENT: KEY ELEMENTS

Offtake Contracts play a pivotal role in project finance, particularly for capital-intensive projects. They provide a secure, long-term income stream, making them integral to project viability. Here are some key elements that must be considered:

Term and Commitment: The term of the Offtake Contract is usually not less than the term of the senior debt and often extends beyond it. It's crucial to outline the nature of commitment—usually a "take or pay" or "hell or high water" basis. This commitment can be challenged during the project's life cycle, making it a critical aspect of the agreement. Terms for renewal, extension, and project disposition at the end should also be included.

Price: The agreed price must be sufficient to service the project debt and provide an adequate return on equity. To hedge risk, it can be beneficial to index the offtake price to the same commodity as your feedstock costs.

Quantity: The contract should specify the volume of the product—whether it's the total output of the plant, a specific quantity, or a min-max range. It's also important to consider the consequences of reductions in availability or capacity.

Percentage of Project Capacity Covered: The Offtake Agreement should cover a firm percentage of the project capacity to secure contracted revenue for financing versus merchant upside.

Conditions Precedent and Force Majeure: The contract should outline specific conditions precedent, such as commencement of construction by a specified date, achieving construction milestones, and consequences of failing to achieve commercial operation by a certain date. It should also include force majeure provisions to address unforeseen circumstances disrupting the contract's execution.

Enhanced Credit: If the Offtaker has a better credit standing than the investor, it may enable the project to raise debt on better terms than what the investor could obtain from a corporate loan.

Various forms of Offtake Contracts exist:

Take-or-pay Contract: Here, the Offtaker must purchase the project's product or pay the Project Company in lieu of the purchase. The price is based on an agreed tariff. This contract type ensures payment as long as the Project Company can deliver the product.

Take-and-pay Contract: The Offtaker pays only for the product taken, providing no long-term purchase certainty. This type of contract may be used in Input Supply Contracts for fuel or other raw materials.

Long-term Sales Contract: The Offtaker agrees to take specific quantities of the product, but the price paid depends on market prices at the time of purchase or an agreed market index.

The Project Company ensures its product can be sold but takes on the market risk for the price.

Hedging Contract: The Project Company can hedge its expected production against commodity price fluctuations using different hedging contracts.

Contract for Differences (CFD): The Project Company sells its product into the market and not to the Offtaker. If the market price is below or above an agreed level, the Offtaker pays the Project Company the difference.

Throughput Contract: This contract is used in pipeline financings. A user of the pipeline agrees to use it to carry not less than a certain volume of product and to pay a minimum price for this.

The Offtaker takes on the risk that the Project Company may not succeed in constructing and operating the project as expected. To mitigate this risk, the Offtaker must ensure that the project has credible sponsors, is technically sound, has contracts signed with appropriate parties, and is financially sound. The Offtaker should perform a financial analysis on the project even if the full data are not available from the Sponsors.

By structuring payments on termination appropriately, the Offtaker can ensure that they don't bear the full cost of a poorly performing project and can deduct extra costs required to bring the project up to standard.

B. FEEDSTOCK SUPPLY AGREEMENT: KEY ELEMENTS

Feedstock contracts, also known as input supply contracts, are an essential aspect of project financing. They ensure the secure, continuous supply of essential raw materials or fuel at a predictable cost, and are tailored to harmonise with the terms of the offtake agreement, where present.

Key Components of a Feedstock Contract:

Reliability and Volume of Supply: An optimal feedstock contract guarantees a reliable supply of inputs, sufficient for full capacity operation of the project. The contract should provide for flexibility in the delivery schedule to accommodate consumption rates and storage capacity of the facility. Start-up supply dates generally coincide with the Commercial Operation Date (COD), but provisions should exist for flexibility, taking into account potential project delays.

Quality Specifications: The input supplies should meet defined quality specifications. The project company must have the right to reject supplies not meeting the requisite standard. This helps in ensuring that the project operates optimally and aligns with the environmental and technical requirements.

Pricing Mechanism: The contract should establish a pricing mechanism that aligns the cost of input supplies with the price of the product or service provided under the offtake agreement. This could be linked to the cost of the input supplies, the price at which the product is sold, a negotiated price, or the open-market price for the product, depending on the specifics of the project and the presence or absence of an offtake contract.

Transfer of Risk and Title: Typically, the risk and title of the input supplies transfer to the project company on delivery. If the input supplier is responsible for building a physical connection to the

project site (such as a pipeline), the project company might need to pay a capacity payment to cover construction costs. Provisions should be made for compensation to the project company if the connection isn't completed on time.

Nature of Commitment and Contract Type: The contract should clearly define the commitment level of the input supplier. This could take various forms, such as a take-or-pay contract where the project company is required to buy a specified minimum volume of input supplies, or a take-and-pay contract where the project company pays only for input supplies actually needed. Other options include output or reserve dedication, interruptible supply, or tolling contracts.

Force Majeure Provisions: The contract should include force majeure provisions to account for unforeseen, uncontrollable events that could prevent the input supplier from fulfilling their delivery obligations.

Integration with Other Contracts: If a project company has an offtake contract, the input supply contract should mirror the general terms of the offtake contract, ensuring compatibility and reducing potential conflicts between different contracts.

Feedstock contracts form a crucial element in risk management and financial predictability for a project. Their proper structuring can significantly enhance a project's operational stability and creditworthiness, while also ensuring alignment with off-take obligations and overall project goals.

C. EPC CONTRACT: KEY ELEMENTS

Engineering, Procurement, and Construction (EPC) contracts are integral to large-scale infrastructure projects such as power plants and refineries. These turnkey contracts involve a contractor who commits to delivering a fully functional project for a fixed price by a specific date. The EPC model streamlines project execution, offers predictability, and minimises risk for project sponsors, lenders, and contractors.

In an EPC contract, the contractor assumes responsibility for project design, procurement of essential equipment and materials, and project construction, with the ultimate objective of delivering a project that meets specified performance and reliability parameters within a defined timeline. The contract typically includes payment milestones tied to project progress.

The scope of an EPC contract is comprehensive, encompassing design, engineering, construction, start-up, testing, commissioning, and site clean-up. It establishes a milestone completion schedule leading to a date-certain COD and includes guarantees for performance, reliability, and completion. The duration of an EPC contract often spans one to two years.

Both the Project Company and the EPC Contractor have defined obligations. The Project Company ensures site availability, site access, acquisition of permits, and provision of utilities and testing materials. In contrast, the EPC Contractor is expected to adhere to the project schedule, resolve disagreements regarding change orders, and meet completion and performance guarantees.

A significant aspect of EPC contracts is risk allocation. The EPC contractor assumes considerable project risk, which is reflected in the contract pricing. This risk includes responsibility for any cost overruns and penalties for delayed completion, which are addressed through liquidated damages provisions - predetermined amounts that compensate the Project Company for financial losses resulting from delays or performance failures.

EPC contracts usually require contractors to provide security for their contractual obligations, often through performance bonds or bank guarantees. This security offers reassurance to the Project Company and lenders about the project's completion.

Dispute resolution in EPC contracts often favours arbitration over court action to avoid unnecessary construction delays. Despite any ongoing disputes, the contract generally mandates that the EPC Contractor continue project work.

Here is a deeper dive into the most important terms in an EPC contract:

Scope of Work: This part of the contract establishes the complete range of the EPC Contractor's responsibilities. It outlines the design, procurement, construction, and commissioning activities that the EPC Contractor must undertake. The scope also defines any limitations or exclusions, such as tasks "outside the fence" or work that relies on third-party technologies. The scope of work is a critical component of the contract as it sets the boundaries of the EPC Contractor's obligations.

Performance Standards: This section outlines the minimum performance and reliability levels that the completed project must meet. It specifies parameters such as output capacity, efficiency, or emissions standards. In the case of non-compliance with these standards, the contract usually provides for the payment of performance liquidated damages.

Milestone Schedule: The contract includes a detailed project timeline, broken down into various stages or milestones, leading to the COD. Each milestone has a completion date, and payment is often linked to these milestones.

Commercial Operation Date (COD): The COD is the date by which the project must be operational and ready to generate revenue. The COD is a crucial milestone in the contract, and any delays can lead to penalties known as delay liquidated damages.

Payment Terms: These terms specify how and when the EPC Contractor will be paid. Payments are often structured around the achievement of specific milestones and are typically made in stages, with an initial deposit, followed by payments at various stages of project completion.

Liquidated Damages: Liquidated damages are predetermined sums that serve as compensation for financial losses due to delays in project completion or failures to meet performance guarantees. They represent a risk transfer mechanism from the Project Company to the EPC Contractor and provide a level of cost certainty in case of delays or performance shortcomings.

Risk Allocation: This section identifies which party is responsible for specific project risks. It provides that the EPC Contractor assumes considerable risk, including responsibility for cost overruns and penalties for delays or performance failures.

Security: To provide assurance of project completion, EPC contracts usually require the contractor to provide security, often in the form of performance bonds or bank guarantees. These financial instruments protect the Project Company and its lenders from potential contractor default.

Dispute Resolution: EPC contracts typically favour arbitration over court proceedings for dispute resolution. This approach helps avoid potentially lengthy and costly court battles and allows construction to continue during the dispute resolution process.

Termination Provisions: These terms set out the conditions that allow either party to terminate the contract. They cover scenarios such as substantial non-performance, insolvency, or force majeure events.

In essence, an EPC contract serves as the roadmap for project execution. It spells out responsibilities, sets performance and schedule expectations, allocates risks, and provides mechanisms for dispute resolution. A comprehensive understanding of these key contract terms is vital to the successful delivery of any large-scale project.

D. INTERCONNECTIVITY OF FEEDSTOCK, OFFTAKE, AND EPC CONTRACTS

Offtake, feedstock, and EPC contracts form the backbone of most project finance operations. They are interlinked and must align to ensure the project runs smoothly and efficiently.

EPC Contract and Offtake Agreement: For instance, the construction timeline and operational readiness date in the EPC contract must align with the product delivery start date in the offtake agreement. If the EPC contract stipulates a COD of December 2023, the offtake agreement should not require product delivery to start before that date. If the offtake agreement requires product delivery to start earlier, it could lead to penalties or even contract cancellation.

EPC Contract and Feedstock Agreement: Similarly, the design specifications in the EPC contract should consider the type and quality of feedstock outlined in the feedstock supply agreement. If the feedstock agreement specifies the supply of a particular grade of coal, the EPC contract should ensure the design and construction of the plant can handle and process this grade of coal efficiently. If the plant is designed for a different grade, it could lead to operational inefficiencies or even damage to the plant.

Offtake Agreement and Feedstock Agreement: The offtake and feedstock agreements should be in sync regarding quantities. If the offtake agreement commits the project company to deliver 1000 units of a product per month, the feedstock agreement must ensure the supply of enough raw material to produce at least 1000 units. If the feedstock agreement only provides for 800 units, the project company might fail to meet its delivery commitment under the offtake agreement.

These examples show how these three contracts can rely on and refer to each other. It's crucial to ensure their terms and conditions are consistent and complementary to avoid project risks and ensure smooth operations.

APPENDIX B

SIMPLE OFFTAKE AGREEMENT TEMPLATE

OUTPUT PURCHASE AGREEMENT

THIS AGREEMENT is made on the 1st day of January, 2024

BETWEEN:

(1) Next Generation Material Producer Ltd. (the "Seller"), a company incorporated in the United States and having its registered office at 123 Sustainable Street, Sunnyville, USA; and

(2) Dedicated Brand Corp. (the "Buyer"), a company incorporated in the United States and having its registered office at 456 Leadership Lane, Powercity, USA.

1. DEFINITIONS AND INTERPRETATION

"Delivery Point" means the Buyer's fibre distribution facility (the "Facility") located at 789 Sun Plaza, Sunnyville, USA.

"Effective Date" means the date of this Agreement.

"Product" means all NextGenFibre produced by the Seller.

"Term" means 5 years from the Effective Date, unless earlier terminated in accordance with Clause 9.

2. SALE AND PURCHASE OF PRODUCT

Subject to the terms and conditions of this Agreement, the Seller shall sell and deliver, and the Buyer shall purchase and receive, the Product. The Product shall be weighed at the Delivery Point using a mutually agreed upon and calibrated system.

3. DELIVERY

The Seller shall deliver the Product to the Buyer at the Delivery Point. The Seller shall bear all costs and risks of transporting the Product to the Delivery Point.

4. QUANTITY

The Seller shall deliver up to 5,000 tonnes of Product per month. If the Seller fails to deliver the minimum monthly quantity due to reasons other than Force Majeure or Buyer's actions, it shall pay to the Buyer liquidated damages at a rate of $X per ton of yarn not delivered.

5. PRICE AND PAYMENT

The price for the Product shall be $3,000 per tonne, subject to an annual escalation of 2% commencing on the first anniversary of the Effective Date. The Buyer shall pay the Seller for the Product within 30 days of receipt of each monthly invoice.

6. FORCE MAJEURE

Neither party shall be liable for any failure or delay in performing its obligations under this Agreement due to Force Majeure, which includes but is not limited to acts of God, war, strikes, labour disputes, embargoes, government orders, or any other force majeure event.

7. INDEMNITIES AND INSURANCE

Each party shall indemnify the other party against any losses and damages arising out of its breach of this Agreement, negligence, or willful misconduct. Each party shall maintain comprehensive general liability insurance with a reputable insurer, with a limit of not less than $5,000,000 per occurrence.

8. DISPUTE RESOLUTION

Any dispute arising out of or in connection with this Agreement shall be first attempted to be resolved through good faith negotiations. If the dispute cannot be resolved through negotiations, it shall be referred to and finally resolved by arbitration in accordance with the Rules of the American Arbitration Association.

9. TERMINATION

This Agreement may be terminated by either party upon the occurrence of any of the following events: (a) the other party materially breaches this Agreement and fails to cure such breach within 60 days after receiving written notice thereof, or (b) the other party becomes insolvent or bankrupt.

10. CONFIDENTIALITY

Each party shall keep confidential all non-public, confidential, or proprietary information received from the other party, except as required by law or agreed in writing by the disclosing party.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the Effective Date.

APPENDIX C

SIMPLE FEEDSTOCK SUPPLY AGREEMENT TEMPLATE

THIS AGREEMENT is made on the 1st day of January, 2024

BETWEEN:

(1) Next Generation Materials Producer Ltd. (the "Buyer"), a company incorporated in the United States and having its registered office at 123 Sustainable Street, Sunnyville, USA; and

(2) Dedicated Supplier Corp. (the "Seller"), a company incorporated in the United States and having its registered office at 456 Farm Road, Cropcity, USA.

1. DEFINITIONS AND INTERPRETATION

"Delivery Point" means the Buyer's processing facility located at 789 Bio Plaza, Bioville, USA.

"Effective Date" means the date of this Agreement.

"Feedstock" means the certified micro-fibrillated cellulose to be supplied by the Seller.

"Term" means 5 years from the Effective Date, unless earlier terminated in accordance with Clause 8.

2. SUPPLY OF FEEDSTOCK

Subject to the terms and conditions of this Agreement, the Seller shall sell and deliver, and the Buyer shall purchase and receive, the Feedstock.

3. DELIVERY

The Seller shall deliver the Feedstock to the Buyer at the Delivery Point. Delivery shall be made in monthly shipments, each shipment to be scheduled for delivery on the first business day of each month.

4. QUANTITY

The Seller shall deliver 5,000 tonnes of Feedstock per month. If the Seller fails to deliver the minimum monthly quantity, it shall pay the Buyer liquidated damages at a rate of $200 per metric ton of undelivered Feedstock.

5. PRICE AND PAYMENT

The price for the Feedstock shall be $1,000 per tonne. The price shall escalate by 2% commencing on the first anniversary of the Effective Date. The Buyer shall pay the Seller for the Feedstock within 30 days of receipt of each shipment.

6. QUALITY

The Feedstock shall meet the following quality specifications: moisture content not exceeding 15% and foreign material not exceeding 2%. The Buyer has the right to inspect and test the Feedstock upon delivery and to reject any Feedstock not meeting these specifications.

7. FORCE MAJEURE

Neither party shall be liable for any failure or delay in performing its obligations under this Agreement due to Force Majeure, which shall include but not be limited to acts of God, war, strikes, labour disputes, embargoes, government orders, or any other force majeure event.

8. TERMINATION

This Agreement may be terminated by either party upon the occurrence of any of the following events: (a) the other party materially breaches this Agreement and fails to cure such breach within 60 days after receiving written notice thereof, or (b) the other party becomes insolvent or bankrupt.

9. DISPUTE RESOLUTION

Any dispute arising out of or in connection with this Agreement shall be first attempted to be resolved through good faith negotiations. If the dispute cannot be resolved through negotiations, it shall be referred to and finally resolved by arbitration in accordance with the Rules of the American Arbitration Association.

IN WITNESS WHEREOF, the parties have executed this Agreement as of the Effective Date.

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