IMPACT INVESTING IN VENTURE CAPITAL – COMBINING IMPACT WITH FINANCIAL RETURN

CASE STUDY OF NORRSKEN VC'S INVESTMENT IN ELYPTA

LUCAS RINTALA

EMILS SEILIS

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Abstract:

The purpose of this thesis is to investigate how an impact venture capital fund defines and measures impact, incorporates impact assessment in the decision-making process, and mitigates the multitasking problem. We perform an in-depth case study of Norrsken VC and its investment in the early-stage start-up Elypta. We identify what are the key characteristics of an effective impact assessment framework for an early-stage VC fund. Furthermore, we find that Norrsken VC mitigates the multitasking problem of achieving both market-rate returns and positive impact by having a priority return and an impact-linked carried interest. Limited partnership contracts play an important role in aligning the incentives between impact funds and their investors. Lastly, we note that to successfully focus on the dual mandate, it is critical that the impact assessment plays a role throughout every step of the investment and decision-making process. As the impact investing space is rapidly growing and evolving, it is important to understand whether the newly developed fund structures and investment frameworks are effective in reaching their goals. Our paper contributes to the emerging literature of impact investing and provides guidance on these important questions.

Keywords:

Venture Capital, Impact Investing, Impact Assessment, Private Partnership Contracts

Authors:

Lucas Rintala (24264)
Emils Seilis (41941)

Tutors:

Jan Starmans, Assistant Professor, Department of Finance
Bo Becker, Cevian Professor, Department of Finance

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Stockholm School of Economics

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1. Introduction

Impact investing has received a lot of attention in recent years as the impact investing market has grown substantially and is expected to continue to grow in the future. At the end of 2019, assets under management (AUM) for impact investors reached USD 715B, compared to USD 502B in 2018 (Global Impact Investing Network (GIIN), 2020a). The sustainable investing space consists of multiple investment strategies such as socially responsible investing (SRI), environmental, social and governance (ESG) investing, as well as impact investing. Our paper focuses on the latter as there recently have been several interesting developments within the performance and practice of impact investing (idib). For example, impact investors and their investment strategies are becoming more advanced (International Finance Corporation, 2020). There has also been significant progress in terms of more sophisticated measurement of impact and management practice (GIIN, 2020a). The latest GIIN Impact Investor survey notes that in 2019 impact investors invested USD 47B, out of which the wider private equity segment invested USD 7.5B and accounted for 16% of the total capital invested (ibid). The market is growing and new fund structures are emerging with notable differences compared to the traditional funds.

As noted by Geczy, Jeffers, Musto & Tucker (2021) there are different types of impact investors, i.e., those that are seeking market-rate returns and those that are willing to forgo higher financial returns. Similarly, GIIN categorizes impact investors into those targeting market-rate returns, those targeting below-market-rate returns, and those that are seeking a return closer to capital preservation (GIIN, 2020a). When aiming to achieve both market returns and positive social impact, which is the goal of dual mandate funds, there could be a trade-off between financial returns and impact. Therefore, important multitasking problems could arise (Holmstrom and Milgrom, 1991; Baker, 1992). For example, investors might focus more on outcomes that are measurable and most rewarding (Kaplan and Strömberg, 2003; Geczy et al., 2021). As impact can be hard to quantify and measure (Maas & Liket, 2011; Rawhouser, Cummings & Newbert, 2017), the investors might focus more on financial objectives where performance is easier to judge.

Previous literature notes that impact funds opt for a traditional fund compensation structure and tie the carried interest (carry) only to financial performance (Geczy et al., 2021). Angelina Jönsson Gajic, the ESG Coordinator at the private equity fund Norvestor, notes the following:

> "We have not seen a strong push from investors to go in the direction of becoming an impact fund. Nearly all investors ask questions about ESG, and they want to see responsible investment policies. Investors also expect from the funds to have clear goals and targets for each portfolio company and to see the performance reporting."

This is an interesting observation as it is contrary to what multitasking models suggest (Holmstrom and Milgrom, 1991). Instead, impact funds mostly use both aspirational and operational terms. For example, they communicate their intention to pursue, measure and report impact, and incorporate impact assessment during their screening and due diligence (DD) processes. More broadly, the private equity and venture capital fund setup has been widely analysed due to the inherent principle-agent and governance problems that arise between the general and limited partners of the fund. The additional impact objective of the fund can be seen as an additional layer to the existing incentive-alignment problem that should be properly addressed. Therefore, an in-depth case study about an impact VC fund that has addressed the multitasking problem by aligning compensation of the fund to both financial returns and positive impact, in addition to having incorporated impact assessment throughout the decision-making process, provides a great opportunity to assess the effectiveness of the structure.

Based on previous literature and the nature of the case at hand, the goal of our paper is to answer the following research questions:

How to define and measure impact in an early-stage venture capital setting? (1)

How does a venture capital impact fund incorporate impact assessment in the decision-making process? (2)

Can impact funds mitigate the multitasking problem by linking the compensation to both financial returns and positive impact? (3)

To answer the research questions, we analyse an early-stage venture capital (VC) impact fund Norrsken VC (NVC) and its investment in Elypta, a molecular diagnostics start-up focusing on early cancer detection. NVC is an early-stage impact VC fund that invests in impact technology ventures in various industries across the Nordics and in Europe. The fund has a dual mandate to generate market-rate returns and to maximise positive impact. In addition, the carried interest is linked to both objectives of the fund. NVC also incorporates impact assessment in every stage of the investment and decision-making process. As early-stage companies typically are in the initial phases of commercializing their product, in comparison to a late-stage company that has a proven product and is either profitable or on its way to reaching profitability (Metrick & Yasuda, 2010b), defining and measuring impact could likely be much more difficult for early-stage companies. However, we find that despite investing in early-stage ventures, NVC managed to define and measure impact by developing and applying their Impact Assessment Framework and having an in-depth workshop session with the portfolio company. The Impact Assessment Framework specifically evaluates the investment opportunity based on various criteria and is a useful tool to use in an early-stage venture investment where uncertainty is high and tangible results are in a distant future.

Our analysis is based on two main sources of data[1]. First, we investigated NVC's internal investment documentation and fund related materials. Second, we conducted several interviews with both dependent and independent interviewees. We find that the NVC's Impact Assessment Framework is a useful tool to define and measure impact in an early-stage VC setting. First, the framework has a clear purpose and end goal in mind. It allows VCs to set interim milestones while still focusing on the main goal of the venture. Second, the framework raises most of the key questions that industry experts and researchers have deemed to be important such as who, why, how much etc. Third, the framework is incorporated throughout every step of the decision-making process. This allows VCs to focus on both objectives of the fund.

Next, we find that NVC mitigates the multitasking problem of its ambition to achieve both market-rate returns and impact, by having a priority return and an impact-linked carried interest. Moreover, the previous literature suggests that such a compensation structure is rare among impact funds, especially early-stage VC funds (Geczy et al., 2021). In regard to screening and investment criteria, we find that NVC emphasized impact potential, product quality, scalability, unicorn potential, business model, entrepreneurs and team, ethical standards, market and industry, where entrepreneurs and team are more emphasized depending on the type of investment and sector. The criteria's impact potential, unicorn potential and ethical standards all relate to ESG, whereas the other to some extent focus more on the financial aspect of the company. Previous literature mentions the importance of factors such as product, scalability, business model and management team, market and industry, which are also among NVC's criteria (Block et al., 2019; Gompers et al., 2020; Kaplan and Strömberg, 2004). In addition, we find that NVC can only invest in certain sectors and are obliged to invest in Impact-Driven enterprises, where impact KPIs, among other things, should be defined and followed up.

This case study of Norrsken VC's investment in Elypta highlights how an impact venture capital fund is structured and makes investments, despite having a multitasking problem of achieving both market-rate returns and positive impact. Finally, we note that the area of impact investing is developing, and new structures continue to emerge. For example, in addition to linking part of the portfolio company's management remuneration to impact KPIs, certain funds, such as Trill Impact, also tie their own financing, as well as financing of their portfolio companies to these impact targets. Therefore, these new fund structures provide a great opportunity for further research that could give more guidance on how to ensure effective investment management and incentive alignment between the funds, investors, and entrepreneurs. Especially because

[1] Many company, investor and investment-related metrics and financials throughout the case have been adapted and disguised from the actual figures.

there is contradicting research that argues against such structures and developments (Bebchuk and Tallarita, 2022).

The thesis proceeds in five main sections. We begin with an overview of the existing literature and theory in Section 2, as well as an overview of venture capital and impact investing. The description of the methodology and data used is reported in Section 3. We then proceed with NVC's Investment in Elypta in Section 4. Section 5 concludes.

2. Literature Review

2.1. The Venture Capital Landscape

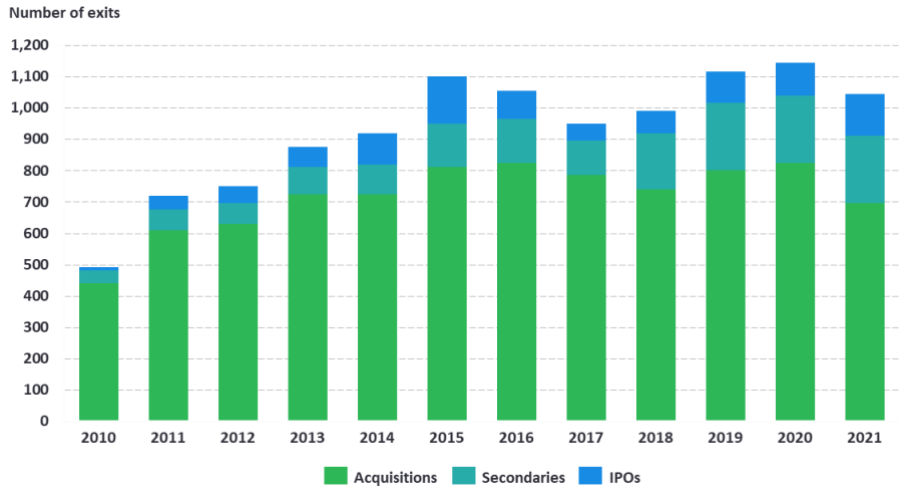
2.1.1. What is Venture Capital?

A VC fund is a financial intermediary retrieving capital from investors that is invested in private companies. A VC fund is organized as a limited partnership, where the venture capitalist is the general partner (GP) and investors act as limited partners (LP). VCs monitor their investments and support their portfolio companies. Typically, the main goal for a VC is to maximise financial returns by exiting investments through the sale or IPO of an investment (Metrick & Yasuda, 2010b). However, there are also impact funds with a dual mandate to both meet financial goals as well as deliver environmental or social benefits (Geczy et al., 2021).

VCs have three focus areas: investing, monitoring, and exiting. With investing, the VCs look for and may screen hundreds of new opportunities. Prospective companies may receive a preliminary offer, i.e., the term sheet, which includes the valuation, security type and investor control rights. Given that the company accepts the term sheet, DD will be performed by the VC analysing the company in further detail. As the term sheet is a non-binding offer, all parties negotiate on the final terms in the contract, which is then signed in the closing phase. There are various types of companies that a VC can have in its portfolio, and they are normally divided into early-stage, mid-stage, and late-stage. An early-stage company could, for instance, be at the initial phases of commercializing its product, whereas late-stage companies have a proven product and are either profitable or on their way to reaching profitability. Mid-stage companies typically are those in-between (Metrick & Yasuda, 2010b).

During the monitoring phase, VC engagement with portfolio companies includes board meetings, recruiting and regular advice. Many VCs see these activities as the best opportunity to add value. In the exit phase, VCs usually consult with investment bankers on their exit strategies. An IPO has historically been the most lucrative exit opportunity, and the main alternative to an IPO has been to sell the company to a strategic buyer (Metrick & Yasuda, 2010b). The most common exit for the last 20 years has been an acquisition or secondary sale, whereas IPOs have been less common (please see **Figure 1** for more details).

Figure 1: Exits of VC-backed companies in the US



Note: The figure above shows the number of exits by VC-backed companies in the US. The data is split by the type of exits, i.e., acquisitions, secondaries, and IPOs. Source: Ljungqvist (2021).

Apart from VC's main activities of investing, monitoring, and exiting, fundraising is also an important activity to allow VCs to fund their investments. Various factors such as overall economic growth, capital gains tax rates, research and development (R&D) expenditures, in addition to firm-specific performance and reputation, affect fundraising. For example, higher recent returns also lead to larger capital commitments to new funds, while organizations that are older and larger also attract additional capital (Gompers, & Lerner, 1998).

2.1.2. Venture Capital as an Asset Class

Private Equity has historically been important in the asset allocation of pension funds and endowments. In 2020, private equity constituted 12% of the total asset allocation of endowments and 5% of corporate and public pension funds (Lerner, Tango & Ferragamo, 2020). Furthermore, VC has become a more important asset class over time and has reached around 8% of total asset allocation for university endowment funds (Lerner et al., 2020). This can be compared with previous studies on asset allocation finding that an aggressive portfolio should have a 2% to 9% allocation to venture capital given its high but volatile returns and considering the low correlation between venture capital and public equity (Chen, Baierl, & Kaplan, 2002).

To manage their capital, LPs typically pay a yearly management fee of 2% to the GPs. Moreover, to motivate GPs and align incentives, the compensation structure includes a carried interest component, i.e., sharing excess profits[2] between the LPs and GPs. Most

[2] Excess profits after a certain hurdle rate of return is reached (most commonly, 8% p.a.).

commonly, the excess profits are shared in an 80/20 split, where GPs are entitled to 20% (Metrick, & Yasuda, 2010b).

Regarding returns, Kaplan et al. (2005) found that VC fund returns net of fees are like the performance of the S&P 500, being higher on a capital weighted basis but lower on an equal-weighted basis. Similar results were found for LBO fund returns, having slightly lower returns than the S&P 500 net of fees (ibid). On average, it is suggested that both LBO and VC returns gross of fees, exceed returns of the S&P 500 (ibid). Findings by Jeffers et al. (2021), however, suggest that private markets have underperformed public markets in the last two decades. Concerning the fund cycle, the GP has 5 years to invest the committed capital and a total time of 10-12 years after which capital should be returned to the LPs (ibid).

2.1.3. Venture Capital Market

In 2019, the global VC market was performing relatively well with the share of up rounds being at one of its highest levels since 2014. Median deal sizes and pre-money valuation for A to D+ rounds were also at a high level compared to historical figures. Swedish VC investments were at a relatively high level in 2019 compared to historical figures, with almost SEK 4.0B being invested in Swedish portfolio companies (Tillväxtanalys, 2020).

Moreover, the impact venture capital market had a solid performance in 2019, with impact start-ups[3] raising EUR 21B, which was slightly higher than the EUR 20B raised in 2018. The total valuation of impact companies was EUR 380B in 2019, significantly higher than in 2018 at EUR 268B and 2017 at EUR 130B (Dealroom, 2021). The most impact-focused venture capital market is Europe where approximately 15% of total VC investments were impact investments in 2019, compared to approximately 8% in the United States and 5% in Asia (Dealroom, Danske Bank, & Green Innovation Group, 2021).

In comparison to 2019, the global VC market in 2021 is booming, with the share of up rounds and median deal sizes being at their highest level since 2014 (KPMG, 2022). Pre-money valuation for A to D+ rounds is also at its highest level since 2014, with late-stage valuation more than doubling in 2021, compared to 2020. In terms of sectors, the financing amount is similar to the one in 2019 with the most venture capital funding going to the software sector (KPMG, 2022). Swedish VC investments in 2020 were at their highest level, with almost SEK 5.0B being invested in Swedish portfolio companies (Tillväxtanalys, 2022).

[3] A company that addresses one or more UN Sustainable Development Goals (SDGs) at the core of its business and the potential to scale (Dealroom, n.d.)

Impact venture capital market experienced strong performance in 2021, having raised a record EUR 39B in venture funding until Q32021, in comparison to EUR 21B in 2019 (Dealroom, 2021). The total valuation of impact companies was over EUR 1.6T as of mid-October 2021 (Dealroom, 2021). Companies focusing on the SDG, Good Health and Well-being, received the 6th most funding of all SDGs from 2017 to Q3 2021 (Dealroom, 2021). Sweden is the most impact-focused venture capital market with 43% of total VC investments being impact investments, compared to 34% in the Nordics, 17% in Europe, 9% in the United States, and 5% in Asia (Dealroom, Danske Bank, & Green Innovation Group, 2021). Tove Larsson, Program Manager at Norrsken, noted the following (Dealroom, 2022a):

> "We are super excited to see many of the new start-ups focusing on impact and sustainability."

2.2. Impact Investing

In the sustainable finance and impact investing space, several investment themes exist that inherently have very important differences. It is crucial to develop a cohesive understanding of what impact investing is and to acknowledge the main differences between these various types of sustainable investment strategies.

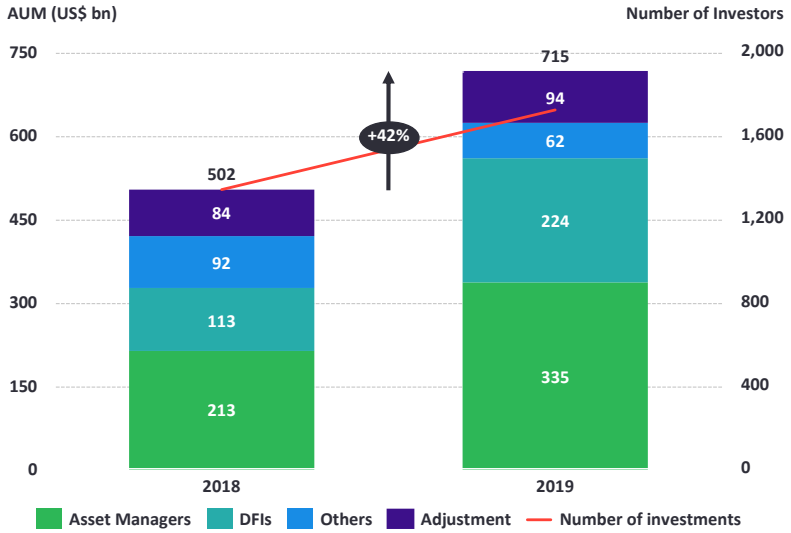
Impact investing can be defined as "investments made with the intention to generate positive, measurable social and environmental impact alongside a financial return" (GIIN, n.d.)[4]. ESG investing is "the consideration of environmental, social and governance factors, alongside financial factors, in the investment decision-making process" (Fidelity International, n.d.). ESG investing differs from impact investing as it does not proactively target positive impact but rather only considers ESG factors in the decision making (GIIN, n.d.). Socially responsible investment (SRI) "focuses on the impact of companies in specific areas of interest. It most commonly involves investing using a negative screen which would exclude companies engaging in activities the investor finds undesirable" (Hill, 2020). The main difference, compared to impact investing, is that SRI aims to minimize negative impact instead of maximising positive impact.

The impact investing market has experienced significant growth over the last decade with assets under management (AUM) reaching USD 715B (GIIN, 2020a; please see **Figure 2** for more details). Private equity has been an important asset class within impact investing, with the latest impact investor survey noting that it attracted 16% (i.e., USD 7.5B) of the total USD 47B capital investments made by impact investors in 2019 (GIIN, 2020a). Most (approx. 81%) of private-equity investors seek market-rate returns while below-market-rate and capital preservation are targeted by 11% and 6%, respectively (see Section 2.2.1 for a discussion on return targets). Among these types of

[4] We will follow GIIN's definition of impact investing.

investors, funding mainly comes from pension funds and diversified financial institutions (GIIN, 2020a).

Figure 2: Impact Investing Assets Under Management (USD B)



Note: The figure above shows the assets under management (AUM) by the type of impact investors, and the number of impact investors present in the impact investing space. Asset managers consist of fund and investment managers in venture capital, private equity, fixed income, real assets and public equities. Source: GIIN (2020a) and GIIN (2019).

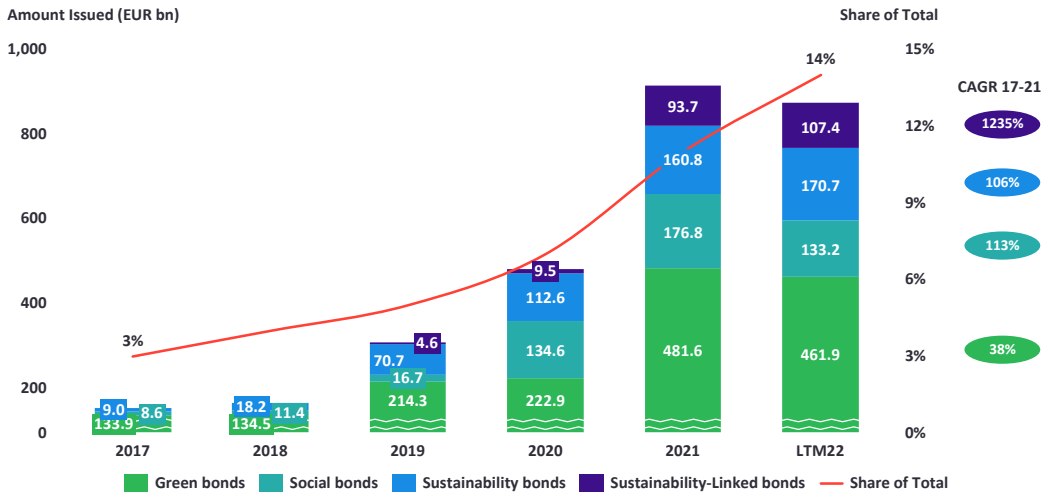
Apart from private equity investors, other types of impact investors include various asset managers in the fixed income, real asset and public equity segments, as well as development finance institutions (DFIs), i.e., government-backed institutions. These investors also prefer to target market-rate returns, albeit to a lesser degree than private equity players. For example, around 50% of private debt investors surveyed by GIIN target market-rate returns (2020a). On the other side of the impact investing spectrum, there are foundations and not-for-profit asset managers. Investment objectives differ widely for these types of investors as only a third target market-rate returns. Those not targeting market-rate returns target capital preservation or below-market returns is roughly equally split (ibid).

Public and private debt has been a critical part of impact investing and sustainable finance more broadly. In 2019, private and public debt accounted for more than 60% of total capital invested by impact investors (GIIN, 2020). The sustainable debt capital markets[5] surpassed EUR 900B in global issuance[6] in 2021 (Bloomberg, n.d.).

[5] Sustainable debt includes green, social, sustainability, and sustainability-linked bonds.

[6] For more details, please refer to **Figure 3**.

Figure 3: Global Sustainable Bond Issuance



Note: The figure above shows the amount of global sustainable bond issuance (EUR M) split by-products, i.e., green, social, sustainability or sustainability-linked bonds. In addition, the right-hand side notes the share of sustainable bonds represents of the total bond market. Source: Bloomberg (n.d.).

The most notable market driver is the rise of sustainability-linked structures (S&P Global Ratings, 2022). The SLB structure forces the issuers to deliver on their sustainability claims and work towards achieving the impact KPIs. As impact goals are becoming more prevalent in debt markets, it raises a key question of whether similar developments are also underway in equity markets.

2.2.1. Impact and Financial Considerations

As the impact investing universe is rapidly growing and becoming more important, researchers have analysed the financial return considerations for impact investors.[7] Practitioners have noted that the link between financial returns and impact will become more prevalent, as Johannes Eliasson, Senior Associate at the private equity fund Norvestor, outlines:

> "I think the evidence will become more and more clear about the positive link between the returns and impact. As the significance of impact continues to increase, the impact will become more important and may even be as important as the financial considerations."

Researchers have mainly tried to answer what the relationship between impact and financial returns is and whether impact investors are willing to sacrifice financial returns for positive environmental or social impact.

[7] See for instance Barber et al. (2021), Hebb (2013), Geczy et al. (2021), Renneboog et al. (2008).

Geczy et al. (2021) note two types of impact funds, market-rate-seeking (MRS) funds and nonmarket-rate-seeking (NMRS) funds, where the impact objective of NMRS funds is implicitly elevated given their willingness to forgo higher financial returns. Similarly, GIIN categorizes impact investors into those targeting market-rate returns and those targeting below-market-rate returns. Investors targeting below-market-rate returns are further divided into those seeking a return closer to the market rate and those seeking a return closer to capital preservation (GIIN, 2020a).

Researchers have found that some impact investors accept lower returns in favour of social impact. Barber, Morse & Yasuda (2021) suggest that impact funds earn lower IRR ex-post than traditional VC funds, and investors are willing to pay for nonpecuniary characteristics of investments. However, impact funds that focus on, among others, small to medium firms and social infrastructure show similar investment rates to traditional VC funds (ibid). Jeffers et al. (2021) find that when market risk exposure is accounted for, impact funds perform like comparable private market strategies. Impact funds have significantly lower market beta than VC funds, which contradicts the idea of sustainability as a "luxury good" (Jeffers et al, 2021). As Jeffers et al. (2021) conclude, impact investing serves as a "relative hedge against downside risk".

2.2.2. Defining and Measuring Impact

Impact investing starts with developing an understanding of what impact is and how to measure it. There is no universally accepted standard on how to measure impact. Maas and Liket (2011) in their study analyse 30 different social impact measurement methods. They classified the different frameworks by their *purpose, time frame, orientation, length of time frame, perspective,* and *approach* (see **Table 1** below).

Table 1: Characteristics of Social Impact Frameworks

Characteristics	**Types**
Purposes	Screening; Monitoring; Reporting; Evaluation
Time frame	Prospective; Ongoing; Retrospective
Orientation	Input; Output
Length of Time frame	Short term; Long term
Perspective	Micro (Individual); Meso (Corporation); Macro (Society)
Approach	Process Methods; Impact Methods; Monetarisation

Note: The table above shows the summary analysis of 30 social impact measurement methods. Source: Obtained from Maas and Liket (2011).

As can be seen by the first characteristic, each impact framework has its purpose. It is important for an impact investor to understand the intended goal for measuring impact. GIIN (2020b) reveals that one of the main purposes of the framework is to enable standardization and comparability across investments, portfolios, and peers. What is

more, 86% of impact investors consider measuring impact to assess the progress towards their goals as very important, while 77% and 72% also consider stakeholder reporting and impact performance improvement as very important. Most targets set by impact investors are quantitative in nature, yet it is not uncommon to set both quantitative and qualitative objectives. Furthermore, it is also important to understand to which level, i.e., the fund or investment, the targets will correspond. Overall, investors use a variety of ways to develop impact targets. For example, based on the environmental or social objective of the fund, global development agendas (e.g., UN SDGs) or based on preferences of their investors (ibid).

The next step after impact goals have been defined is to develop an understanding of the impact metrics and KPIs that will be used to monitor the progress and performance, especially if the KPIs play a role in the incentive schemes. As highlighted by Bebchuk and Tallarita (2022), review and scrutiny by outsiders is warranted to ensure an effective framework. Interestingly, almost all (91%) of investors state that they select the impact metrics themselves and only 21%, mainly fund managers, noted that they also use input from their investors (GIIN, 2020b). Impact investors further highlight reliability and utility as the two most important factors when selecting KPIs (ibid).

There are also other important factors that impact investors should note when designing the impact metrics. After discussions with hundreds of enterprises, investors and practitioners, Impact Management Project (n.d.) developed the following five dimensions of impact: *what, who, how much, contribution,* and *risk.* These dimensions raise key questions that help measure and assess the performance of impact. *What* asks the question of "is the outcome positive or negative", *who* seeks to answer "who experiences the outcome", *how much* sets to answer "how many stakeholders and for how long they experienced the outcome", *contribution* asks "would this change likely have happened anyway", and lastly *risk* questions the "likelihood that impact will be different than expected" (ibid).

2.2.3. Social Investment Criteria

Screening and assessment of the impact potential is also an important consideration for impact VC funds. While the traditional non-impact driven funds also utilize various screens and criteria to quickly judge the investment potential (see most notably Block et al., 2019; Gompers et al., 2020; Kaplan and Strömberg, 2004), the screening process may not be comparable to impact-driven funds as it also includes social objectives (Block et al., 2021).

The management team has been considered one of the most important factors by many when screening an investment opportunity (Block et al., 2019; Gompers et al., 2020; Kaplan and Strömberg, 2004). Gompers et al. (2020) show that 95% of VC firms mention it as an important factor, while nearly 50% of the VCs outline it as the most important one. Some of the most mentioned characteristics of management teams are

ability, industry experience, and passion (Gompers et al., 2020). The relative importance of the management team also differs between early-stage investors and late-stage investors. Early-stage investors consider management teams as relatively more important than late-stage investors do, whereas business factors are more important for late-stage investors.

Business-related factors are also frequently mentioned as important when the VC makes an investment decision. Kaplan and Strömberg (2004) note the attractiveness of the market, strategy, technology, and product or service. Gompers et al. (2020) mention business model, product, market, and industry. Block et al. (2019) argue that for most VCs profitability is less important than scalability and high levels of revenue growth. Interestingly, healthcare investors place a higher emphasis on business-related factors compared to IT investors. Gompers et al. (2020) argue that it is consistent with expectations as intellectual property (IP) and intangible assets are more important for health-related businesses. Lastly, investors also highlight the fit with the fund as an important aspect of the overall assessment (Gompers et al., 2020) whereas Block et al. (2019) mention that the presence of reputable investors increases the likelihood of VCs making the investment.

There are various types of impact investors with different impact definitions, return goals and screening criteria. For impact investors, Miller & Wesley (2010) concluded that screening criteria differ between investors with a large emphasis on social impact and those that focus less on social impact. For example, philanthropists and non-market rate seeking investors value societal impact more than financial sustainability, while market-rate seeking investors look for impact scalability. For impact equity investors specifically, the authenticity of the founding team and the importance of the societal problem are the two most important attributes (Block et al., 2021). Finally, strong entrepreneurial passion for social change and the size of the entrepreneur's social network plays a key role when impact VCs assess the management teams (Miller & Wesley, 2010).

2.3. Structuring Considerations for Impact Investing

2.3.1. Principal-Agent Problem

Private markets have been associated with various principal-agent and governance problems both from the perspective of portfolio companies and VC funds, as well as between VCs and fund investors (LPs). Because the VCs act as intermediaries between the investors and entrepreneurs, such a set-up is prone to misaligned incentives (Gompers and Lerner, 1996) and the primary focus of the limited partnership agreement is to align the financial incentives (Kaplan and Strömberg, 2003). However, if the VC fund has more than one objective, e.g., the dual mandate of an impact investor, then a multitasking problem arises. Models by Holmstrom and Milgrom (1991) and Baker (1992) outline the potential problem of "gaming", i.e., focusing more on outcomes that

are measurable and most rewarding (Kaplan and Strömberg, 2003; Geczy et al., 2021). The implication for impact investing is two-fold. First, impact specific objectives should be incorporated into the partnership contracts to incentivize VCs to achieve those goals. However, there are important caveats to consider. As mentioned by Bebchuk and Tallarita (2022) such a compensation structure where pay is linked to ESG performance can exacerbate the agency problem. To mitigate the problem, the compensation structure should be reviewed by outsiders. Second, impact performance must be clearly understood and measurable. As found by Maas & Liket (2011) and Rawhouser et al. (2017), impact, especially social impact, can be hard to quantify and measure. In addition, Bebchuk and Tallarita (2022) note that ESG metrics might only cover a limited scope of stakeholders and that agents might focus on these specific metrics, thus hurting the aggregate welfare of all stakeholders. Therefore, it is important to understand not only how the impact component of the dual mandate is reflected in the reward and motivation schemes, but also how the impact is being assessed and measured.

2.3.2. Venture Capital Partnership Agreements

Limited partnership contracts between LPs and GPs aim to align incentives and strengthen the governance of the partnership. Limited partnership agreements and the associated agency problems have been reviewed in detail.[8] Limited partnership agreements are governed by complex contracts that have three main aspects: the structure of the funds, the restrictions placed on their activities, and the incentives offered to the private equity investors (Lerner et al., 2011). Contracts consist of numerous clauses that govern what VCs can and cannot do: covenants relating to the overall fund management, covenants relating to activities of general partners, and covenants restricting the types of investment that can be made (Gompers and Lerner, 1996; Lerner et al., 2011). Similarly, there is extensive disclosure on the compensation structure in the partnership agreements. With the use of covenants and specific compensation structures, the contracts aim to align incentives and ensure optimal behaviour by linking the compensation to fund performance (Lerner et al., 2011). As mentioned earlier, funds utilize a combination of carried interest and management fees in their compensation structure.

For impact funds, the limited partnership agreements appear to be like that of a traditional fund (Geczy et al., 2021). Most impact funds choose to tie compensation only to financial performance and opt for the traditional waterfall compensation, where cash flows first go to investors, then managers, and then finally is divided between the

[8] Please refer to Kaplan and Strömberg (2003, 2009); Gompers and Lerner (1996, 1999); Metrick and Yasuda (2010a); Gompers et al. (2020); and Phalippou et al. (2018).

two, where the carried interest rate specifies the manager's share. As noted by Geczy et al. (2021), the findings are contrary to what multitasking models by Holmstrom and Milgrom (1991) would suggest. This raises an important question of whether such a compensation structure compromises the impact objective as it does not play any role in the compensation assessment.

Instead, impact funds utilize a wide spectrum of terms pointing management's attention towards impact. 98% of funds in the sample of Geczy et al. (2021) used aspirational terms describing the intention to pursue impact, whereas 60% of funds prohibited negative impact. Impact funds also utilized various operational impact terms such as impact assessment during DD processes and in their requirements for impact measurement. Further, almost all impact funds offer LPs advisory roles that give oversight over areas such as deal selection, due diligence process and conflicts of interest, which does not seem to be common among nonimpact funds.

Since NVC not only has a dual mandate in terms of market returns and positive impact but also has tied its compensation to achieving both of those objectives, it is a relevant fund to analyse. Thereby, we aim to contribute to the existing literature by pursuing an in-depth study of an impact fund structure where compensation is also tied to impact KPIs. In addition, we will analyse the investment-specific considerations of an impact-driven fund.

3. Methodology

In this section, we describe our choice of methodology and data collection. Furthermore, we discuss the reliability and validation of our methodology and the data collected.

3.1. Empirical Methodology

Given that impact investing, especially within venture capital and social impact, is a relatively new phenomenon and not extensively researched, an in-depth case study on the topic seemed appropriate. Moreover, the case study method allowed us to understand in detail the reasons for how a venture capital firm makes investment decisions where the main goal is not only financial returns but also positive social impact.

There are various findings on using case studies as an empirical method, with both critics and supporters of the method. Some critics argue that case study research does not provide much basis for generalization, whereas supporters see the usability of case studies, especially in situations with new topic areas, where current theory seems deficient (Yin, 2013, and Eisenhardt, 1989).

3.2. Data

Our primary source of data is interviews with both independent and dependent interviewees. Dependent interviewees are those who had a position to influence the decision and the outcome of the case, i.e., investment decision or company performance. Independent interviewees had no direct involvement in the decision but could contribute with insights from important perspectives. Please refer to **Exhibit 1** for a list of all interviewees.

Apart from the interviews, the material received from NVC is also a primary data source, which includes company presentations, internal impact assessment materials, DD decision materials and investment decision materials. Please refer to **Exhibit 2** for a full list of materials and data sources.

3.3. Reliability and Validity

As stated in Section 3.1, some critics argue that case studies do not provide much base for generalization. To tackle this and other identified drawbacks but also evaluate the quality of case studies, four main tests can be used: construct validity, internal validity, external validity and finally reliability.

Construct validity raises the question of whether the selected measures address the concept and question what they are intended to study. Some of the case study criticism can be derived from researchers not creating an adequate and rigorous set of operational measures. Further criticism can be deduced from the way researchers collect their data, by using subjective judgments that may confirm their preconceived notions (Yin, 2013). Therefore, to address construct validity, multiple data sources were used, both independent and dependent to the case.

Internal validity addresses the robustness of the methodology in terms of spurious relationships and endogeneity (Yin, 2013). The greatest considerations are applicable to exploratory studies, i.e., where a causal relationship is investigated and established. Since this case study is exploratory and descriptive in nature, we must ensure the validity of any inferences that we make in case the event cannot be directly observed.

External validity, on the other hand, addresses the issue of whether the findings from this specific case in question can be generalized. To ensure that our study has wider implications for impact investing, we have designed our research with that purpose in mind from start. As suggested by Yin (2013), our research questions have steered the direction of our methodology, data collection and overall research design.

Lastly, reliability outlines the concern that the case study should be replicable if the same steps and analysis would be repeated. Although interviews might not be possible to fully repeat in the exact same manner, which makes ensuring reliability more difficult, extensive material on NVC and Elypta (please refer to **Exhibit 1** for the full list) provides a sound base for someone to replicate our study in future research.

4. Norrsken VC's Investment in Elypta

4.1. Norrsken VC

4.1.1. Norrsken Foundation

Norrsken VC (NVC) fund's history dates to 2016 when the Norrsken Foundation was founded by Niklas Adalberth, the co-founder of Klarna. Niklas Adalberth (NVC, n.d.-a) notes the following:

> "Instead of getting a company to a billion-dollar valuation, we want it to positively influence one billion people. An impact unicorn."

Norrsken is a non-profit organization that aims to address some of the greatest challenges that the world phases, such as environmental issues, poverty and famine, by enabling impact entrepreneurs to solve these with the same infrastructure that is already offered for tech entrepreneurs. Norrsken can complement the work of the likes of charities and social enterprises with their knowledge of tech and entrepreneurship. Norrsken has a coworking space in Stockholm, called Norrsken House Stockholm, that has subsidized membership for those entrepreneurs that focus on impact. Funda Sezgi, Co-founder & Managing Director at Norrsken Impact Accelerator and previously COO at Norrsken notes the following (NVC, n.d.-a):

> "The aim of Norrsken House is to provide infrastructure for impact entrepreneurs to thrive."

Since its inception, Norrsken has grown to become one of Europe's largest ecosystem hubs for impact technology with 420+ members based in Stockholm. Norrsken also has its own Impact Accelerator (Norrsken Impact Accelerator), an accelerator that invests in mainly pre-seed to early-seed startups that use technology to build and scale solutions to environmental and societal challenges. The accelerator offers selected startups a USD 125k pre-seed investment, an 8-week sprint at Norrsken Stockholm House with support from mentors such as unicorn founders, and an opportunity to meet investors during an investor demo day (Norrsken Foundation, n.d.).

Norrsken also hosts various initiatives, where they combine high risk with high impact. They see this as unexplored territory as non-profits tend to avoid financial risks and venture capitalists tend to only focus on financial return. Once they have established an initiative, the aim is to make it cost-neutral over time. An initiative that Norrsken has been part of is 29K, a non-profit that makes psychological tools for inner development, mental health and civic leadership that are accessible and free. Another initiative is Osmond Labs, a pharmaceutical company with a long-term goal to develop and provide treatment options, based on psychedelic substances, for various mental health disorders. It is financed through a donation from Norrsken. Norrsken also hosts Impact Week at

Norrsken House Stockholm, an event that gathers entrepreneurs and investors, among others, for discussions, inspirational talks, and startup pitches.

In 2017, Norrsken began investing funds from their own balance sheet, with a co-investor approach, focusing on the Nordics and on seed and early-stage companies. It was inspired by investors such as Sequoia Capital. In 2018, Norrsken established the Norrsken Founders Fund (NFF) by attracting prominent founders and raising USD 25M. NFF's financial target was to return only 1x of the amount raised, while the true objective of the fund was to maximise the impact NFF could achieve. The fund had a co-investor approach, focusing on the Nordics and on seed and early-stage companies, although also doing selected follow-ons.

In December 2021, Norrsken opened Norrsken House Kigali, the largest hub in Africa for entrepreneurs, planning to host 1000 entrepreneurs by December 2022. Norrsken believes that Kigali is on its way to becoming one of the leading clusters in Africa for tech and startups and wants to accelerate that journey. Norrsken House Kigali is the first among 25 hubs globally that Norrsken aims to open over the next decade.

In January 2022, Norrsken Foundation launched its USD 200M Norrsken22 African Tech Growth Fund to support growth-stage startups in Africa (Norrsken 22, n.d.). The fund invests across Africa, although mainly in Nigeria, Kenya, South Africa and Ghana, and provides founders with capital and strategic value, while also helping them position themselves for impact and international expansion. The fund focuses on tech-enabled business models that are relevant, disruptive and scalable, mainly within the sectors of fintech, market enablement, medtech and edtech. The fund plans to invest in Series A and B firms, in addition to follow-on rounds, although these will be from Series C up until exit. The fund is an initiative by Hans Otterling, partner at Northzone Ventures, and Niklas Adalberth, founder at Norrsken Foundation. Investors in the fund include Niklas Zennström, co-founder of Skype and Carl Manneh, co-founder of Mojang. Part of the carry (22%) that Norrsken Foundation receives from the fund will be re-invested into the African startup ecosystem to support a new generation of founders and further promote entrepreneurship.

4.1.2. Norrsken VC

In late 2019, the first NVC impact fund (NVC1) was raised to invest in early-stage impact technology ventures, mainly within Europe and especially focusing on the Nordics. The fund does both co-investments and lead investments, primarily investing in seed and series A rounds. In addition, NVC also does follow-on investments. NVC is run as a separate company, although NVC and Norrsken Foundation still share the same values and mission. In terms of legal structure, the GPs, team and advisors hold 55% of the company, whereas the other 45% is held by Norrsken. The fundraising process for NVC1 attracted a lot of interest from private and institutional investors, and it closed at EUR 123M (approximately SEK 1200M) (NVC, 2021). Norrsken Foundation guards

the fund's mission to make sure NVC1 remains truly focused on impact (NVC, n.d.-c). Please see **Exhibit 3** for further information on the investors in NVC1.

Tove Larsson, General Partner at NVC notes the following (NVC, n.d.-a):

> "The idea behind Norrsken VC is to inspire more money to flow into impactful start-ups by proving that they can also generate market-rate returns."

4.1.3. Investment and Impact Strategy

NVC's main purpose is to support driven entrepreneurs that are solving some of the world's biggest challenges. The fund primarily makes investments in the following impact areas: environment, healthcare & well-being, alleviation, education, inclusion, and transparency. The ambition to set up NVC was not only to generate market-rate returns but more importantly to maximise impact. The management team and founding partners believe that *"there is no trade-off between impact and financial returns, and that impact companies have a real competitive advantage"* (NVC, n.d.-c). Therefore, impact assessment is critical through every stage of the investment process, from screening to structuring, and exit.

Impact is always the first thing NVC considers before asking if it is feasible to make market-rate returns. Both considerations are equally important to NVC and must be met for NVC to make the investment. While there is no formal impact threshold that an investment needs to meet, at one point, the impact would be too small to justify the investment. Hence, NVC invests in companies that focus on areas where environmental or social needs create an opportunity that can offer market-rate returns.

NVC's strategy focuses on where it can have the largest potential impact and the largest ability to succeed. For instance, doing a lower impact project with a high probability of success is better than doing a high impact project with zero chance of success (NVC, n.d.-d).

4.1.4. Investment Process

NVC's investment process is divided into five main parts: deal screening, DD, deal structuring, investment management and exit (NVC, n.d.-e).

As a first step in the investment process, NVC does the deal screening, where they look for impact-driven companies. NVC sees an impact-driven enterprise as one which intends to achieve social impact, by providing solutions to a societal problem; has business models that allow it to be self-funded on a non-grant basis; defines social impact goals within its business plans and specifies metrics for managing operations and monitoring impact; has an intention to use its business growth to proceed on pre-defined social goals; and finally, is managed in a transparent and accountable way (NVC, 2019). Furthermore, the deal team examines whether the company aligns with NVC's view on impact, although the actual definition of impact is determined during

the DD phase. They also examine whether the company aligns with UN SDGs and whether the investment does not fall within one of the prohibited sectors in NVC's Investment Policy (a detailed list of the prohibited sectors can be found in **Exhibit 4**). In the deal screening process, NVC applies their investment ranking methodology, where investments are ranked on a scale of 1 – 5 on areas such as their impact potential, whether the company has a unicorn potential, its business model, the quality of the entrepreneurs, and finally its ethical standards (NVC, n.d.-f). The criteria's impact potential, unicorn potential and ethical standards all relate to ESG, whereas the rest focus more on the financial aspect of the company. More details on the investment ranking methodology can be found in **Exhibit 5**.

Second, NVC does due diligence, where the company's impact potential is evaluated using NVC's Impact Assessment Framework. The framework is divided into three main parts - vision, challenge, and solution. First, the vision of the company is evaluated by asking the following question: *"What would the world look like if you had succeeded, and your solution is no longer needed?"* and checking whether the vision aligns with Norrsken's strategy. Second, NVC assesses the challenge to achieving the vision by asking questions such as: "*Why isn't the vision achieved today?"* and *"What is the obstacle?"*. They also assess whether the severity of the challenge is low or high. Third, NVC assesses how well the company's solution (e.g., product or service) can address the challenge and achieve the vision. Various questions are used to evaluate the solution, such as the following: *"What is your contribution vs. what is likely to occur anyway?"* The answers to these questions are then rated on a scale, where the above question of contribution would be rated in terms of whether the company's solution has a low or high contribution. Please see **Exhibit 6** for an overview of NVC's Impact Assessment Framework.

Relevant impact data, including a sustainability questionnaire, is also requested and analysed, in addition to testing the impact hypothesis with industry experts and stakeholders. Finally, NVC runs an Impact Workshop together with the company, where they define the company's specific impact and risks. The Impact Workshop aims to measure the above-mentioned Impact Assessment Framework for the company in question, and more specifically the effect of a company's solution. Please see **Exhibit 7** for an overview of NVC's Impact Workshop.

The third step of the investment process includes deal structuring, where impact KPIs and targets for each KPI are selected together with the company. These are then finally approved by NVC's Advisory Committee, which, among others, includes LPs such as SEB Pension Foundation. An impact KPI could for example be the accumulated tonnes of CO_2 emissions reduced for the road freight industry, where the measurement methodology would be the reduction in CO_2 achieved by replacing diesel trucks with electric vehicles. This would be calculated by multiplying the average CO_2 reduction

per km by the number of km driven with an e-vehicle instead of a diesel truck over the lifetime of the vehicle, i.e., avoided CO_2 emissions. The impact KPIs but also commitment to impact and sustainability are included in the Shareholders Agreement.

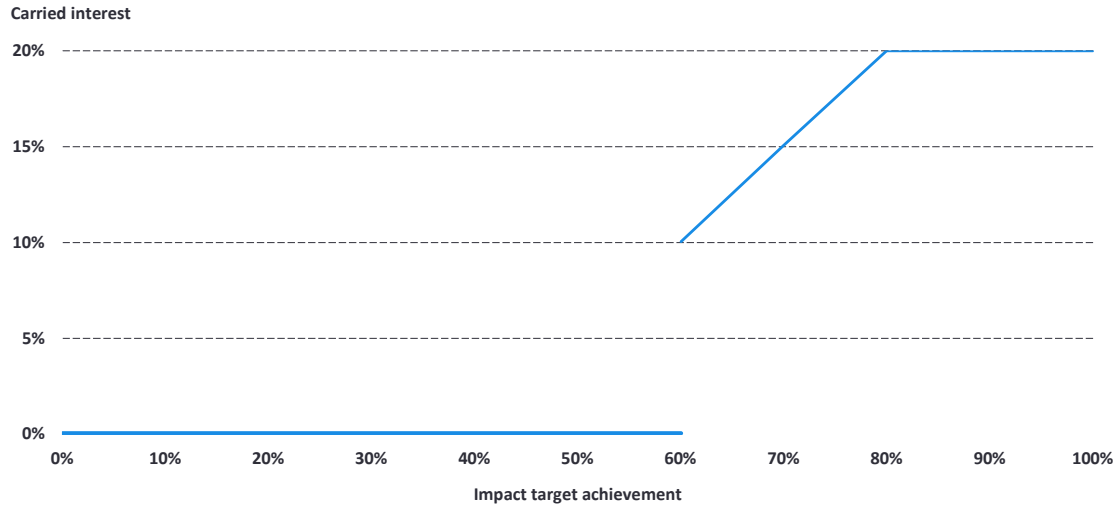
As a fourth step, NVC focuses on investment management, where they track the impact KPIs quarterly. Inês Rocha, Investment Manager at NVC and support staff on the Elypta deal notes the following:

> "Sharing impact KPIs with our own investors helps hold us accountable for making investments with high impact."

ESG risks and policies are tracked annually. A fund report including impact data across the portfolio is also distributed to investors. In addition, progress towards impact targets is measured on an annual basis. Finally, on an annual basis, NVC reviews whether the investment complies with its Responsible Investment Policy. The Responsible Investment Policy is a document developed by Norrsken that ensures that NVC has a focus on environmental and social aspects in every part of the investment horizon, from initial due diligence and investment decision, throughout the investment management period and finally for its exit strategy.

Finally, at exit, the fund manager is entitled to a carried interest of between 0% to 20% above a 1.25x preferred return, i.e., the GP commits to a certain return to the LPs before being entitled to any carry. The actual percentage in carried interest depends on how the fund manager has performed on their impact targets. No carried interest is paid out to the deal team unless they achieve the impact targets of the investment to at least 60%. Instead, the carry is transferred to a third-party foundation / NGO / social enterprise. If impact targets have been achieved to at least 60%, a carried interest is paid out, which is split between the General Partners, team and advisors who receive 70% of the carry, and Norrsken who receive the remaining 30%. Niklas Adalberth's part of the carry will however be donated to Norrsken Foundation (NVC, n.d.-c). The maximum carry of 20% is paid out if impact targets are achieved to at least 80%. Please see **Figure 4** below for an overview of NVCs Carried Interest Payoff Diagram.

Figure 4: NVC's Carried Interest Payoff Diagram



Note: Norrsken VC carried impact payoff diagram based. The carried interest is dependent on the level of achieved impact KPIs. Source: NVC (n.d.-e).

In terms of the impact-linked carry, Inês Rocha, Investment Manager at NVC and support staff on the Elypta deal notes the following:

> "Once you make the investment the impact-linked carry keeps impact as important as financials. You won't sacrifice the impact because you want the company to be more profitable."

Apart from the carried interest, the fund has a 2-20 setup, with a 2% management fee and a target gross IRR of 20% (NVC, n.d.-c). The investment period of the fund is 5 years, with a life cycle of 10 years. The life cycle of the fund can however be extended to a total of 12 years, meaning that an investment at most can be held for 12 years until an exit.

4.1.5. Analysis

Limited partnership agreements

As suggested by (Kaplan and Strömberg, 2003), the primary focus of limited partnership contracts is to align financial incentives. If the VCs have multiple objectives, a multitasking problem arises. To incentivize VCs to achieve goals, the motivational scheme should be incorporated into the partnership contracts. Also, impact performance must be clearly understood and measurable; however, the impact can be hard to quantify and measure (Maas & Liket, 2011; Rawhouser et al., 2017). NVC has managed to align both financial incentives and impact objectives, by having a financial objective of achieving market-rate returns and only receiving carry if they achieve a preferred return of 1.25x and reach impact targets of at least 60%. If NVC does not achieve enough impact, no carry will be paid out, regardless of how large the financial

returns have been. In that way, the principal-agent problem is mitigated both from a financial and impact perspective.

Limited partnership contracts between the LPs and VCs also strengthen the governance of the partnership. Contracts aim to align the incentives and ensure optimal behaviour by linking the compensation to fund performance (Lerner et al., 2011). NVC has several restrictions and clauses to make sure that the LPs and VCs are aligned. Apart from restrictions on what sectors NVC can invest in, it is also obliged to invest in Impact-Driven enterprises, where impact KPIs, among other things, should be defined and followed up.

Impact assessment

With increased attention to impact investing, questions such as what impact is and how to measure it are becoming more predominant. In the interviews with industry experts, they noted that there is also increased importance of measuring impact. Even though measuring impact is on everyones mind, there seems to be a wide disparity on how to think about it. For example, Oskar Malm Wiklund, Tech Specialist at Norrsken Foundation, highlighted the following:

> "The investment ecosystem is realizing that impact is not only important for the founders but it is also important for their brand, their customers, for their institutional investors etc. Now, it is almost becoming ubiquitous where if you say that you're not thinking about impact, then no one wants to do business with you. (…). There is no one way to measure impact and the way impact is viewed is very different depending on who you talk to."

Oskar Malm Wiklund also noted the following shift in how the impact is being measured:

> "I think people have become a bit more quantitative in their way of thinking and their way of measuring things and their way of talking about impact when they speak to investors (…). A lot of investors are asking a lot more about how you measure impact, what is the long-term and short-term effects, etc."

We analysed an early-stage venture capital setting where uncertainty is high and impact is not yet achieved. We note several considerations that are important in such a setting. First, interim milestones are warranted. Venture investors have adopted similar structures in other settings. For example, using milestones in performance reviews or staging investment rounds conditional on achieving certain goals (Kaplan & Stromberg, 2003; Bienz & Hirsch, 2011). Therefore, by focusing on interim milestones, an impact fund can measure and assess the impact of an early-stage venture. Second, it is important to establish a clear methodology that can be used to assess different kinds of investment opportunities. It will allow the impact investor to have a consistent approach to impact assessment, and it can be a useful tool for comparison purposes. Third, the impact assessment should cover the material questions and aspects of the venture.

NVC's impact assessment covers the company's vision, key challenges and proposed solutions. Furthermore, by having several in-depth factors, an investor can score the impact potential in multiple dimensions. Oskar Malm Wiklund also noted that most start-ups do not truly address a problem:

> "Most products and most start-ups today solve the *want* space, but they are not solving a real problem. I think that the impact companies have a genuine *why* they are doing something, compared to others where you must invent a why or make up a story about your product. Whereas with impact companies you start with the *why*."

Thus, it is extremely important for an impact investor to ask these simple questions to ensure that impact is a critical part of their business.

However, we also find that there might be additional factors to consider in the impact assessment framework. For example, the level of ambition for the selected targets and KPIs. We have seen in public debt markets that investors and standards such as the European Commission or the International Capital Market Association (ICMA) are requiring companies to set ambitious targets (ICMA, 2020). Similar practice should also be used in a private setting where the ambition level is gauged by, e.g., peer and industry comparison.

Impact-linked compensation

As Geczy et al. (2021) have found, most impact funds choose to tie compensation to financial performance rather than to impact. That is contrary to the structure NVC has put in place where the carried interest varies depending on whether impact targets have been achieved or not. In case impact targets are below the 60% threshold, no carried interest is paid out to the fund. Instead, the carry is transferred to a third-party foundation, NGO, or social enterprise (NVC, n.d.-e).

In addition, Geczy et al. (2021) found that those impact funds with higher profit goals have tighter contracts around both financial and social-benefit goals, which goes in line with NVC, having a financial goal of achieving market-rate returns while at the same time staying true to their goal of also making an impact.

Geczy et al. (2021) note that funds contract on impact in alternative ways by modifying contract aspects like governance. NVC uses governance to make sure that the fund remains truly focused on impact by having Norrsken Foundation guard its mission. Also, like most impact funds, NVC describes their intention to pursue impact using aspirational terms. As an example, they mention that they "*want to create real change by backing businesses focused on solving some of the world's biggest problems and; having a positive effect on people and/or planet*". Most impact funds also prohibit negative impact. NVC does this by prohibiting investments in companies in tobacco, weapons and ammunition, casinos, and such. Other funds use impact assessment during

the DD process and in their requirements for impact measurements. This is also done by NVC as they have impact as a major part of the DD process and use various KPIs to measure impact.

Furthermore, Geczy, et al. (2021) find that almost all funds offer LPs advisory roles that give oversight over areas such as deal selection, due diligence process and conflicts of interest, which does not seem to be common among non-impact funds. At least some of NVC's LPs are also offered this oversight, including Carl Manneh, which is both an investor in NVC and a board member at Norrsken.

The area of impact-linked compensation has a relatively long history. Funds such as Aureros Capital's Africa Health Fund (launched in 2009) and Core Innovation Capital's fund (launched in 2010) both have had part of their carry linked to impact, despite being launched several years ago. In the case of Aureros Capital's Africa Health Fund, the base carry was 15% if no impact targets were achieved, however it could increase to a maximum of 30% given that certain impact targets were achieved. In the case of Core Innovation Capital's fund, their 20% carry comprised of two components, with 90% of the carry being tied to financial performance and 10% being tied to how many per cent of the total impact score was achieved (GIIN, 2011).

During the last few years, the number of funds and the fund sizes that apply an impact-linked compensation model seem to have increased, with one example including Trill Impact. Trill Impact launched its EUR 900M private equity fund in 2021, targeting companies that have strong value creation potential and impact management. All of Trill Impact's investments should generate market-rate returns while at the same time contributing to a better world, like NVC. Trill Impact's carry is linked to impact and ESG performance, although not to the same extent as NVC. Apart from the carry, Trill Impact links part of the management team's variable remuneration to impact and ESG targets. The LBO financing for their portfolio companies is also linked to impact, by tying impact KPIs and related targets to their financing cost. Finally, Trill Impact applies ESG-linked financing on a fund level, as the financing cost of their revolving credit facility is reduced given that their portfolio companies meet certain GHG emissions reduction targets (Trill Impact, 2022). Apart from Trill Impact, several other funds have recently begun to link their carried interest to impact, including EQT's Future fund (launched in 2021), for which up to 20% of its carried interest will be linked to achieving the portfolio-level impact KPIs (EQT, 2021). Revent launched its early-stage venture fund in 2021 and links its carry to impact (Revent, n.d.). Swen Capital Partners launched their Blue Ocean Fund in 2021 for which 50% of the fund's carried interest is linked to fulfilling impact goals (Ali, 2021).

In terms of impact-linked compensation and especially linking management remuneration to impact, Thomas Hemmestad, Director in Sustainable Finance at DNB Markets, notes the following:

> "Companies are now setting up quite ambitious sustainability strategies, and they will become more ambitious over time. What companies are doing is that they are linking their strategy to the remuneration packages of the management. On the back of that, you can add the sustainability linked bond which is further incentivizing you to achieve these targets."

Thomas Hemmestad also notes the following shift among investors:

> "Compared to a couple of years ago, investors are now asking for more proof, data and science behind the targets, behind the sustainability objectives and behind the governance structures."

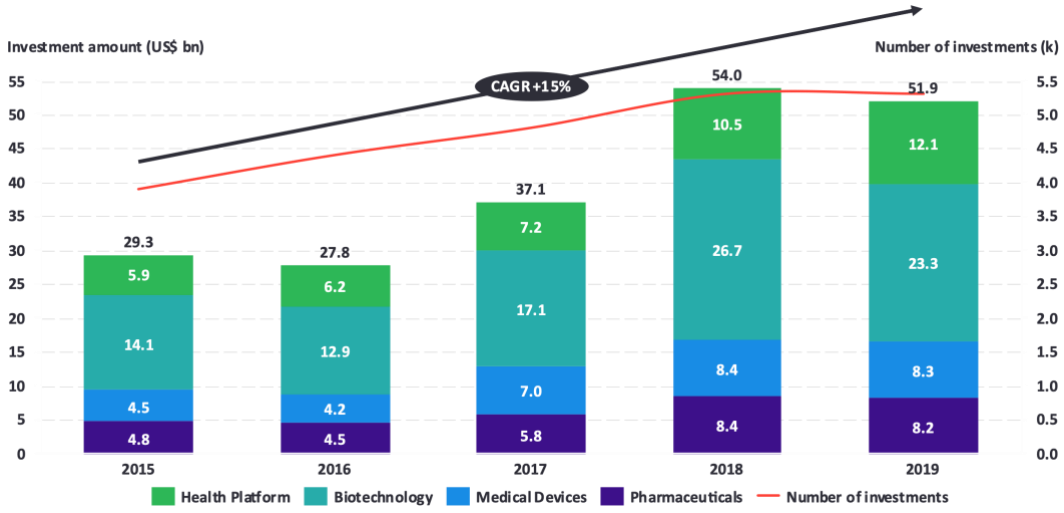
4.2. Overview of Early-Stage Cancer Diagnostics

The broader digital health technologies (Health Tech) sector can be defined as the application of digital technology to improve health or care delivery (McKinsey & Company, 2020) and is split into four main categories: Medical Devices, Health Platforms, Biotechnology, and Pharmaceuticals (Dealroom, n.d.).

Biotechnology is the largest segment for Health Tech and accounted for 45% of funds raised in 2019 (Dealroom, 2022b). Biotechnology can be clustered into the following areas: service providers[9], immunotherapies, advanced-therapy medicinal products, metabolic diseases, brain and neuronal therapies, vaccines, antibodies, and other technologies (McKinsey & Company, 2019). During 2017 – 2019, investments in health tech, including biotechnology and life science, were mainly driven by technology as a key enabler for the future of health. Entrepreneurs and innovators are leveraging advances in artificial intelligence and machine learning to enable new products and solutions (Deloitte, 2020).

[9] Including drug-discovery tools and services, and diagnostic and personalized-care solutions.

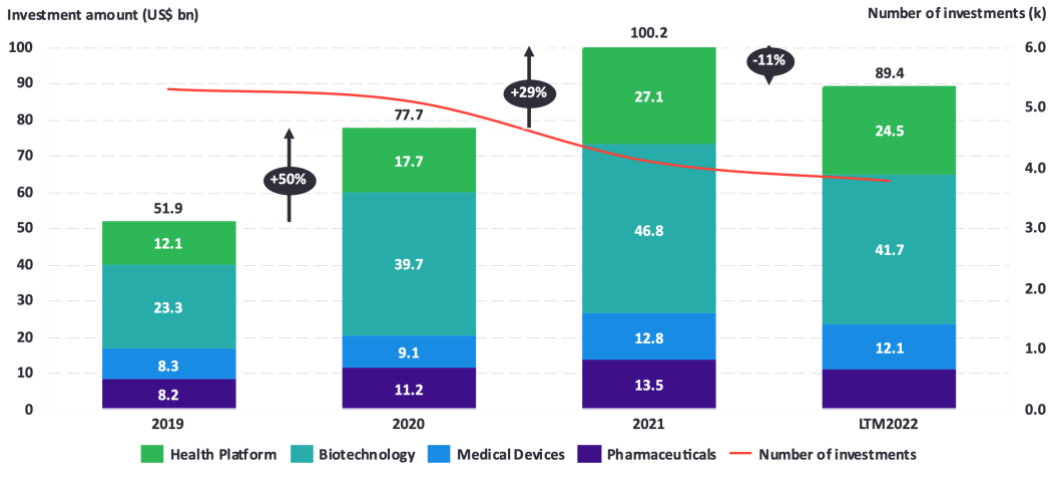
Figure 5: Global Investments in Health Tech (2015 – 2019)



Note: Venture Capital fund investments in Health Tech start-ups globally. Data accessed on Dealroom's platform on April 2nd, 2022. Source: Dealroom (2022b)

Post-2019, the global pandemic and increased awareness accelerated funding for Health Tech start-ups. The industry has seen an unprecedented level of investment flows. In 2020, the total amount invested into Health Tech start-ups grew by more than 50% and constituted 23% of total VC investments (Dealroom, 2022b). Investment themes such as virtual care, digital platforms, vaccine discovery, R&D, mental health and well-being, have been the most predominant since the global pandemic emerged (Deloitte, 2022).

Figure 6: Global Investments in Health Tech (post-2019)



Note: Venture Capital fund investments in Health Tech start-ups globally. Last twelve months (LTM) as of Q1 2022. Data accessed on Dealroom's platform on April 2nd, 2022. Source: Dealroom (2022b).

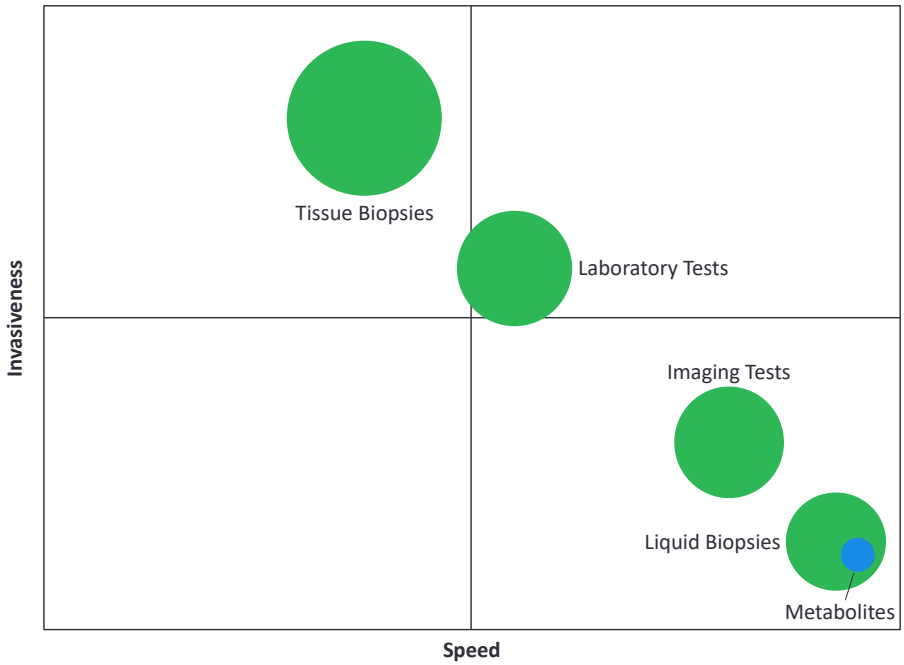
4.2.1. Cancer Diagnostics

Globally, cancer is one of the top causes of death and its prevalence has been increasing rapidly. In 2019, cancer accounted for more than 10 million deaths and ranked second only behind cardiovascular diseases as the world's deadliest affliction (Ritchie & Roser, 2019), and in the US alone there are over 1.7 million new cancer diagnoses each year (National Cancer Institute, n.d.-a). As a disease, cancer occurs when one or more of the body's cells grow uncontrollably and spread to other parts of the body. Cancer can originate almost anywhere in the body, and in total there are more than 100 types of cancer (National Cancer Institute, 2021).

There are different types of cancer diagnostics procedures, and healthcare professionals are working on developing more effective diagnostic and treatment options. Diagnostics procedures cover several types of cancers and mainly include laboratory tests, imaging tests, tissue biopsies, and liquid biopsies. Traditional procedures like imaging tests include, e.g., CT scans and x-rays, while tissue biopsies most commonly include incisional biopsy, in which only a sample of tissue is removed; excisional biopsy, in which an entire lump or suspicious area is removed; and needle biopsy, in which a sample of tissue or fluid is removed with a needle (National Cancer Institute, n.d.-b). The procedures differ in terms of invasiveness[10], speed and cost as can be seen in **Figure 7** below. Please also refer to **Exhibit 8** for more details.

[10]Medical process which is done by cutting into or putting something into the body.

Figure 7: Overview of Cancer Diagnostics Procedures



Notes: The figure above plots different types of cancer diagnostics techniques in terms of their speed of execution and invasiveness. The size of the bubble represents the indicative cost of the procedure. Source: Authors' analysis, adopted from interviews and case documents.

4.2.2. Liquid Biopsy

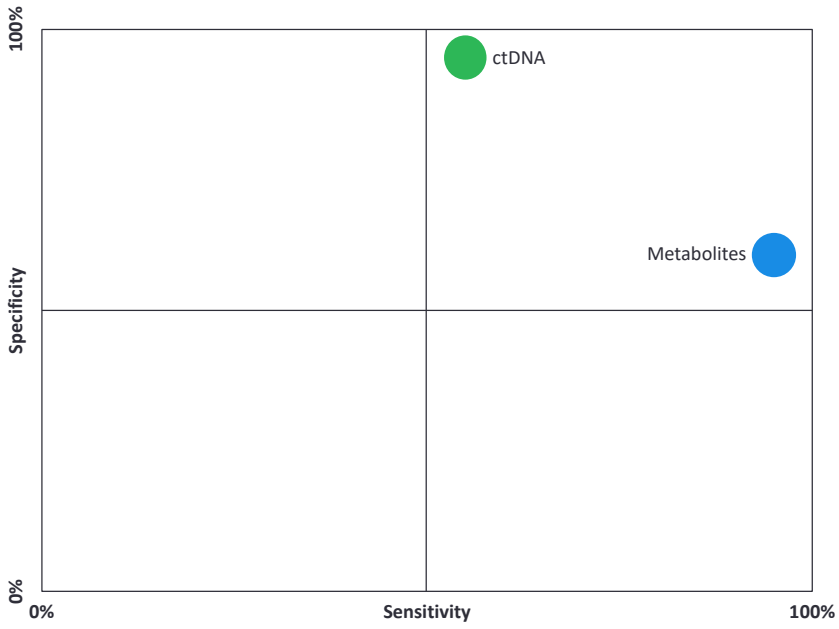
Liquid biopsy is a non-invasive medical procedure. It is performed on a sample of fluids to look for biomarkers[11], e.g., cancer cells that are circulating in the blood or to look for pieces of DNA from tumour cells (National Cancer Institute, n.d.-b). The two most well-developed biomarkers detected by liquid biopsy are circulating tumour cells (CTCs) and DNA-based (circulating cell-free tumour DNA (ctDNA) or cell-free DNA (cfDNA)), while other forms of liquid biopsies used in cancer detection are exosomes and metabolites (BIS Research, 2017). CTCs are by far the most used for liquid biopsies and account for 56% of the market, followed by ctDNA (23%) and exosomes (8%). Other biomarkers such as cfDNA and metabolites make up the remaining 13% of the market.

While the end goal for all technologies is the same, i.e., to detect cancer cells, there are important differences to note. First, biomarkers and various testing approaches differ in terms of their sensitivity. Sensitivity describes how well a test can detect a specific disease or condition (e.g., cancer) in people who indeed have the disease or condition.

[11] A biological molecule found in blood or other body fluids that is a sign of a normal process or of a condition or disease (National Cancer Institute, n.d.-b).

The objective of the test is to have a sensitivity of 100% so that there are no false negatives (National Cancer Institute, n.d.-b). While the sensitivity rates can vary significantly for different types of cancer, DNA-based methods have shown poor performance in terms of sensitivity. Furthermore, not all cancers can be detected using DNA-based biomarkers as there is a tiny amount of such biomarkers found in the blood. Second, it is also vital to consider the specificity of the tests. Specificity refers to the percentage of people who test negative for a specific disease among a group of people who do not have the disease. The ideal test should have a 100% specificity so that there are no false positives (ibid). DNA-based biomarkers are relatively good at limiting false positives, whereas this has been challenging for metabolism-based tests. Third, the cost can also vary between different technologies due to the inherent differences between different biomarkers. For more details and additional information on biomarkers, please refer to **Figure 8** and **Exhibit 9**.

Figure 8: Biomarker Sensitivity and Specificity



Note: The Figure displays sensitivity and specificity values for ctDNA and metabolites-based biomarkers. ctDNA values are based on a press release from Grail (2019), whereas values for metabolites are obtained from Elypta (n.d.).

Liquid biopsies have several advantages over traditional tissue biopsies. First, due to their non-invasive nature and the fact that they do not involve surgery, liquid biopsies can be performed more frequently than standard biopsies. They can also be performed in cases where surgical biopsies cannot, for example when tumours are hard to reach, or patients are unable to tolerate surgery (National Cancer Institute, 2017). Therefore, the procedure results in less pain and has a substantially lower risk of complications. Second, testing and processing a liquid biopsy sample requires far less time, compared

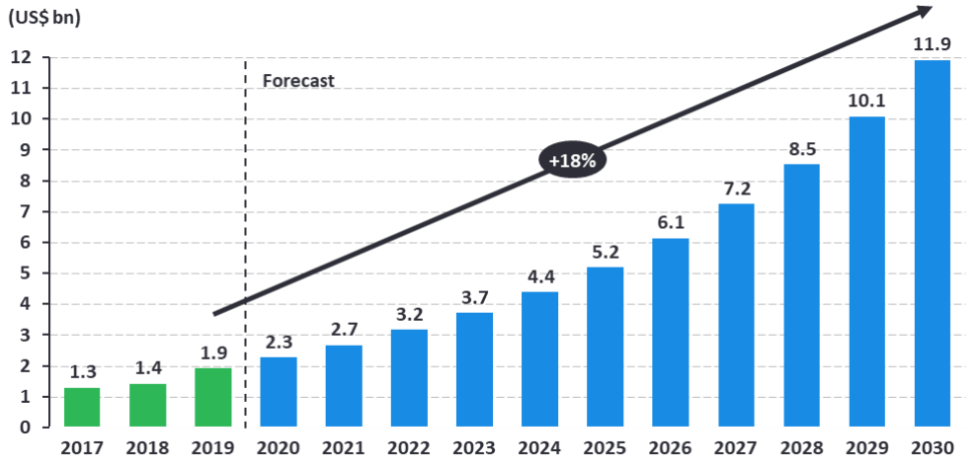
to a tissue sample. Liquid biopsy screening and lab analysis can be performed in less than 10 days, while tissue biopsies can require several weeks. Third, as the procedure is safe and convenient, liquid biopsies can be leveraged to monitor cancer growth, track how a patient is responding to treatment, and conduct a surveillance procedure on people who have completed treatment but are at high risk of having their disease return. Lastly, as liquid biopsy testing ramps up scale, they are expected to have better unit economics, compared to tissue biopsies and other diagnostic methods (ibid).

However, there are also various shortcomings for liquid biopsies. Biomarkers that are typically used to diagnose and track cancer are not well-established for most cancer types. For example, a biomarker commonly used to detect advanced pancreatic cancer is considered unreliable for early detection. Additionally, it may not be possible to accurately compare the blood biomarker with the tumour DNA, and, therefore, it may not be the best source of clinical information (National Cancer Institute, 2017). Therefore, improving sensitivity and specificity is critical to the overall success of the technology.

4.2.3. Market Overview

In 2019, the global cancer diagnostics market was valued at USD 144B (ca. EUR 130B) where the liquid biopsy market accounts for a marginal 1% to 2% share (Grand View Research, 2019). Based on available market research, both the wider cancer diagnostics market, as well as the liquid biopsy market are expected to grow with high-double digit growth rates over the next decade. By 2030, the liquid biopsy market could reach USD 12B (please see **Figure 9** for more details).

Figure 9: Global Liquid Biopsy Market Size



Note: The figure shows the global market size of the liquid biopsy market in the period from 2017 to 2030. Data from 2020 onwards are forecasted values. Source: Grand View Research (2019).

The liquid biopsy market can be further segmented by products and services, where kits and consumables account for 63%, platforms and instruments represent 26%, and services comprise 11% of the total market (BIS Research, 2017). Kits and consumables include the actual test kits that are used, platforms and instruments consist of statistical analysis, machine learning and various other analytical tools to support healthcare and research laboratories, whereas services could include data storage, which requires lighter analysis, compared to platforms.

North America is the largest liquid biopsy market and accounts for more than 43% of revenues, followed by Europe (26%), Asia Pacific (22%), and the rest of the world (8%) (The Insight Partners, 2019).

4.2.4. Market Drivers

There are several underlying factors that are driving the liquid biopsy market. First, there is a shift toward precision medicine, i.e., from "one drug fits all" to the right drug for the right patient at the right time. For many years researchers and clinicians have understood that cancer is different and that it might progress differently for each patient. One advantage of liquid biopsies is the opportunity for frequent testing and monitoring of cancer development. This enables clinicians to better understand each individual cancer and see how cancer is responding to the treatment. Therefore, the personalised care that liquid biopsy can enable is essential to the success of the treatment.

Second, advancement of research methods in healthcare and innovation in technological capabilities have enabled companies to take liquid biopsy forward and achieve ground-breaking results. Recent clinical trials have shown remarkable results in terms of efficacy and reliability of the cancer tests.

Third, raising awareness and increasing concern among governments and health organisations have put a spotlight on cancer as cancer rates continue to increase. Additionally, the segment has experienced significant capital inflows from various kinds of investors, including VCs.

Overall, these factors have the potential to change the cancer diagnostics market from an invasive, painful, and costly process to a safe, quick, and cost-efficient one. There are, however, several drawbacks with biomarkers. Biomarkers such as CTCs and ctDNAs can exist in the bloodstream at a very low concentration which might make it challenging to detect cancer in a reliable manner. More importantly, current results from clinical trials indicate lower sensitivity and specificity levels for biomarkers, compared to traditional tissue biopsies.

4.2.5. Key Players

Liquid biopsy market players consist of both large multinational pharmaceuticals and medical device manufacturers, as well as innovative venture firms. While original

equipment manufacturers like ThermoFisher Scientific and Roche focus more on hardware products that enable the testing process, venture-backed start-ups are the main players in the early cancer detection space.

The two leading companies for liquid biopsies are Grail and Thrive. Both have been backed by prominent VC funds and investors. For example, Grail has attracted investors such as Bill Gates and Sequoia Capital, while Thrive has fundraised from, among others, Exact Sciences and Third Rock Ventures. As of year-end 2019, Grail had raised in total close to USD 1.6B following their latest Series D round, whereas Thrive recently closed its Series A round, having raised in total USD 110M (Dealroom, 2022b). Overall, the competitive landscape is a mix of relatively new ventures and more well-established companies. Nearly all current technologies are based on DNA biomarkers, i.e., cfDNA or ctDNA (please see **Exhibit 10** for an overview of the key players).

4.3. Overview of Elypta

4.3.1. Company Description and Early History

Elypta is a molecular diagnostics start-up based in Stockholm, Sweden. Elypta was founded in 2017 by Francesco Gatto (currently the Chief Scientific Officer), Jens Nielsen (Member of the Board) and Karl Bergman (Chief Executive Officer) as a spin-off from Chalmers Innovation Office. The history of the company dates to when Francesco was a PhD student at the Department of Biology and Biological Engineering at Chalmers University of Technology (Chalmers). During his doctoral studies, Franceso identified biomarkers for cancer detection during an analysis of blood metabolites, and, in 2015, Francesco together with Jens Nielsen, a professor at Chalmers, started working on the project in the Chalmers Innovation Office incubator. Two years later, after successful research projects and pilot studies, both scientists decided to found Elypta, yet they lacked the commercial background to run the business. Thus, Francesco and Niels connected with Karl Bergman who joined the founding team of Elypta in May 2017.

After Elypta was founded in 2017, the company had plenty of initial success, showing a kidney cancer proof-of-concept and data in 14 different cancers, as well as receiving an EU grant and CMO & CRO contracts in 2019. They also have received significant recognition from various awards and nominations. In 2019, Elypta was a finalist in Medtech's Insight Awards where they were nominated for Best Technological Innovation within Diagnostics (Elypta, 2019a). Elypta won the Nordic Life Science Award in 2019, being awarded for their accomplishment of combining science and technology to build a platform for early cancer detection (Elypta, 2019b). Elypta was also awarded Nordic start-up of the year in 2019 in the Serendipity Challenge for its fast progress toward using novel biomarkers to detect cancer at an early stage (Elypta, 2019c).

4.3.2. The Team

From a handful of people at inception, Elypta has grown to more than 10 people in its core team at the end of 2019. The team is comprised of highly experienced and skilled professionals in various aspects of science, engineering, and business. Among others, the core team's key responsibilities include R&D, clinical trials, artificial intelligence, software development, and business development. Furthermore, Elypta has established a prominent Board with both industry and investor representatives.

The team of Elypta has extensive experience and includes many knowledgeable people within the field. Francesco Gatto has received numerous awards such as Innovator Under 35 by MIT Technology Review (Chalmers, 2018), Sweden's largest innovation award Skapapriset (Chalmers, 2019a), Karin Markide's innovation prize (Chalmers, 2019b) and Genetic Engineering News list of Top 10 Under 40 (Philippidis, 2019). As the Chief Scientific Officer, Franceso's contribution and leadership are critical to the product and technology development processes.

Karl Bergman joined the core team at the inception of Elypta. Before that, he was a principal at Arthur D. Little, a global management consultancy firm. Karl spent 8 years in the Healthcare and Life Sciences practice where he advised clients on strategic challenges across pharma, diagnostics, and MedTech. Karl has also been part of Praktikertjänst, Sweden's largest private healthcare provider, where he was the Chief Digital Officer. Apart from Francesco Gatto and Karl Bergman, the other team members are also highly experienced (please see **Exhibit 11** for more information on the team members).

In addition to the team, the Board also has extensive experience. Jens Nielsen is one of the leading systems biology scientists in the world. His research lab, Nielsen Lab, is advancing the research of metabolism with more than 80 researchers that have accumulated more than 45 thousand citations. Jens has received countless international awards, has invented several dozens of patents and has been a co-founder of a handful of biotech companies. Aside from Jens Nielsen, the other board members include Anders Ekblom (Chairman of the Board), Jamal El-Mosleh, Pontus Ottosson and Henrik Vesterberg. Anders Ekblom has several years of experience from Astra Zeneca with roles such as EVP global drug development and CEO of Astra Zeneca Sweden and holds multiple life science board positions (please refer to **Exhibit 11** for more information on the Board members).

4.3.3. Value Proposition and Business Model

Elypta targets one of the top reasons for death in the world (i.e., cancer) and addresses the key factor to increasing survival by developing the first-ever metabolism-based liquid biopsy platform for early detection and closer follow-up of several cancer indications. Cancer is a common disease as one in three will develop cancer, and it is

also the leading cause of death in the west. Detecting cancer early improves the chances of survival.

While Elypta has performed studies on multi-cancer detection, its early focus has been on studying kidney cancer as there are no biomarkers that are either approved or in late-stage development. Kidney cancer also allows Elypta to tackle a high unmet need. It is the 7th most common cancer in the EU and the U.S., and nearly 20% of the cancers recur in 5 years' time.

As of 2019, Elypta was at a pre-revenue stage with several focus areas for further development. First, Elypta is working on developing an assay kit that will be used during the testing process. The kit is based on the biomarkers identified by Francesco Gatto and Jens Nielsen in their research. Glycosaminoglycans (GAGs) are sensitive metabolites that can be used in early cancer detection. Compared to DNA-based liquid biopsies, which have limited sensitivity, Elypta's metabolism-based liquid biopsy test is highly sensitive to small tumours and is, therefore, more effective in early cancer detection. What is more, the assay kits developed by Elypta are cheaper to produce compared to other DNA-based kits - per unit cost of the kit can be 5 to 8 times less expensive. Elypta has also secured a contract with Merck regarding the manufacturing of the assay kits. The test kits can thus be mass-produced once they are ready for use.

Second, Elypta plans to ramp up clinical studies to get valuable data that can be used to develop cancer detection algorithms, and, more importantly, to get supportive evidence to secure Federal Drug Administration's (FDA) approval in the U.S. In 2019, Elypta secured funding from the EU as a contract research organization (CRO), and recently they launched the largest-ever study in kidney cancer diagnostics with the objective to evaluate the ability to use GAGs to detect recurring kidney cancer. Furthermore, Elypta has applied for patents for its approach and will be the first to market in kidney cancer with no known competitors as of 2019.

Third, Elypta is developing a cloud-based platform for diagnostic applications and cancer detection algorithms, as it not only aims to sell the GAG assay kits to laboratories and healthcare providers but also plans to build a platform which will perform the analysis. The platform is an integral part of the value chain as it not only alleviates the laboratory analysis part but also feeds back the data to improve cancer detection algorithms.

Ultimately, the objective for Elypta is to scale the technology and testing process for all types of cancer. By having a proof-of-concept for multi-cancer detection, Elypta would enter the EUR 25B market and increase its valuation immensely. Furthermore, by targeting multiple types of cancer, the impact potential would also increase exponentially. Overall, Elypta is on a path to having their first revenues in 2020 and reaching break-even in 2025.

4.3.4. Outlook

Elypta had previously raised SEK 18M in a pre-seed round (please see **Exhibit 12** for the cap table as of before the seed round). In 2018, they could have done an IPO but instead decided to go for VC funding. The main reasons for choosing VC financing were to leverage the expertise of life science investors and have investors on board that fully understands the risks of investing in an early-stage life science venture.

After Elypta decided to choose the VC route for their fundraising in 2019, they looked for investors that would be the best fit, which for Elypta mainly was a life science VCs. Elypta preferred investors with sector and industry experience as this would allow them to leverage their expertise and to get people on board that understand what type of risks an investment in a company like Elypta would entail. They also preferred to have long-term owners on board that are not bound to a limited term, as this provides stability and avoids a situation of unideal exits.

Even though NVC not a well experienced life science investor, Elypta saw NVC as a great addition to the cap table. First, NVC's management and investment team was very experienced, well-networked, and highly valued by the investment community. Second, it was clear that NVC and Elypta would be a great fit. Elypta's business ambition was closely linked to NVC's strategy to invest in companies with high impact potential.

As NVC always does an Impact Assessment of the companies they invest in, Elypta and NVC sat down together during the investment process to discuss how Elypta could have an impact. With regards to Elypta's vision for their company, their vision was very clear, as their CEO Karl Bergman mentioned the following:

> "When Elypta was set up, we said to ourselves that if we somehow impacted the mortality of cancer, nothing else matters. We will make money one way or another, but if we can retire and say that we have made a difference towards impacting the mortality of cancer, we will be happy with ourselves. That makes it crystal clear that we just need to get this done in the best way we possibly can."

4.4. The Investment Opportunity

NVC learned about Elypta's late seed round through Sciety, an investor network specialising in unlisted Swedish growth companies within life science and digital health. The deal team consisted of Tove Larsson – a partner on the deal, as well as Tove Lilliestierna and Inês Rocha – support staff on the deal. It was important that the investment opportunity should both give market-rate returns to investors and have an impact.

4.4.1. Deal Screening

From an impact perspective, Elypta would initially focus on kidney cancer, the 7th most common cancer, which was especially interesting as no other biomarkers were

identified for this specific disease. Elypta has had high prototype accuracy in detecting kidney cancer and has the potential to become the global standard for kidney cancer patient treatment, given that they get clinical validation, an FDA approval and become part of clinical guidelines. As there are 140 000 new kidney cancer patients solely in the EU and the US per year, the impact potential from detecting cancer early using their solution was large, having a lifesaving effect for many people. There were also many benefits to society, as people do not have to go through surgical procedures, which are not as safe. In addition, Elypta's technology was more cost-efficient than other solutions available in the market for cancer detection making it more likely that governments and healthcare institutions would tend to scale technology like Elypta's.

Impact KPIs

To measure impact, NVC applied various KPIs. The team understood that the end goal and main KPI to look at would be how many lives Elypta's solutions have saved based on the number of people tested and early cancers detected. Because Elypta's test was not yet fully developed, other targets had to be used.

To understand how to bridge the gap between the end goal and Elypta's current position, NVC utilised a concept called *theory of change* (Accountability Lab, n.d.). The team analysed and measured steps that are needed to arrive at the end goal of saving lives by detecting cancer early. Qualitative milestones for the company were used such as having the test kits ready. Quantitative KPIs were utilised as well, such as the number of patients engaged in the trials, the accumulated number of tested samples during clinical studies and the accumulated data points that have been collected. The KPIs are measured on a quarterly basis to ensure frequent monitoring of the progress. Because these KPIs contain commercially sensitive information, actual numbers would not be disclosed publicly.

Whether the ultimate KPI for Elypta of looking at the number of lives saved by its solution was good or not was subjective but given NVC's emphasis on focusing on where they have the largest potential impact, NVC thought Elypta had a good impact ratio.

Impact Assessment Framework and Workshop

In the Impact Assessment Framework, NVC saw that Elypta's vision was to have a world where people have high chances of surviving cancer, which was highly aligned with Norrsken's values. Elypta's challenge was to detect cancer early, as this is the best way to survive cancer. However, many of the existing solutions cannot detect cancer at very early stages given their limited sensitivity. They are also not suitable for frequent tests from a patient safety and cost perspective, although frequent testing would enable earlier cancer detection.

Elypta's solution was to provide a methodology to identify GAG biomarkers, as these are very sensitive to small tumours and therefore could be detected at earlier stages of

cancer. Elypta's methodology was also safe and non-invasive, easy to administer, convenient, affordable, and scalable.

Overall, Elypta increases the chance of treating cancer when it can be cured. This is done by enabling frequent testing, as this allows for a possibility to give an earlier diagnosis but also detect recurrence and non-responders earlier.

Elypta's solution was rated among several other factors. First, the intensity of the effect was seen as deep, as its solution can help save lives. Inês Rocha, Investment Manager at NVC and support staff on the Elypta deal notes the following:

"The first thing we look at is the intensity of the impact and it is very deep in the case of Elypta - this is about life or death."

Next, NVC looked at how many people can be affected by Elypta's solutions. The volume of the effect was seen to be fairly high. At first, Elypta is targeting kidney cancer which is the 7th most common cancer in the EU and US. The team also considered a scenario where Elypta would enter multi-cancer market, thereby having the potential to reach millions of people. Third, NVC analysed what alternative solutions are currently available for the potential beneficiary of Elypta's product. The beneficiary was seen as being underserved because there are few testing options for cancer. Moreover, there were essentially no affordable and reliable early-stage cancer detection alternatives in the market. Fourth, Elypta was scored in terms of the duration of the effect, i.e., for how long the beneficiary can and will benefit from Elypta's solution. The duration was seen as long-term as it is a matter of life or death for the patients. In case the cancer is detected early when it can be cured, the patient will benefit from Elypta's solution for the rest of her life. Next, the team looked at what is the time to effect, i.e., how quickly or slowly the impact can be achieved. In case of Elypta, the team thought the time to effect is very quick, once the technology and tests are ready. The time to perform the test is short, therefore Elypta's test can quickly tell whether the patient has cancer or not. Furthermore, NVC analysed the contribution Elypta's solution would have. As Elypta ultimately would save lives, it scored highly in terms of contribution. Lastly, the team looked at the risks. Since Elypta was still an early-stage start-up, the risk that the impact would not be achieved was high.

Following the completion of the Impact Assessment Framework, an impact workshop was held, where two impact KPIs were chosen, namely the accumulated number of samples that Elypta has tested as part of their clinical study and the number of accumulated data points collected.

NVC also screened the investment on the following main considerations: product quality, scalability, unicorn potential, business model and financial sustainability, entrepreneurs and team, whereas ethical standards would be reviewed in the due diligence phase.

Product quality

NVC found the product to be unique, as it was the only metabolism-based liquid biopsy test approved or under development. A risk with metabolism was, however, that it can be affected by other diseases and thus have unsatisfactory results in the studies.

Elypta's solution was to some extent protected by a mix of the pending patent for the algorithm. Moreover, the test kit Elypta produces is a trade secret, although receiving thorough IP protection for diagnostics is in general difficult, which makes it harder to protect Elypta's solution from being copied. There are also additional barriers to entry, including the experience and research of the team, in addition to a large and growing data set. Anyone who would be interested in replicating their results would be required to 1) come up with similar medical findings to set up the algorithm (which Elypta has a pending patent for) and design the test kit (which is a trade secret), 2) go through the same process as Elypta with regards to lengthy clinical trials and FDA approval, which cannot be shorted by having more capital, and 3) compete with Elypta in the labs/hospitals space.

Further, there were no biomarkers for kidney cancer, which made the market entry easier, as Elypta was solving a problem that did not have a solution. This additionally allowed for building a customer base for future sales with other cancer types, which further adds to the impact of the case.

Elypta was still early for commercialization in the US. They would have to put in place reimbursement schedules in the markets they operate in. In case the initial clinical study would not show satisfactory results, an alternative would be to conduct a new study, where the methodology would have been revised based on key learnings. This would, however, require further financing and delay commercialisation.

On the other hand, the valuation would be much higher if NVC would enter at a later stage when that validation and certificates were in place. NVC also had to consider Elypta's long time to market, which made the investment riskier. NVC was, however, impressed with the structured process and awareness of risk and challenges that the founders have shown during meetings, in addition to their willingness to make Elypta successful.

Scalability

The technology was found to be highly scalable due to several factors, including outsourced manufacturing of their test kits, the possibility to use the same kit for any cancer (to be clinically proven), software to be cloud-based, sales to partner laboratories generating large reach, and partnering opportunities which could also provide a potential exit scenario. In addition, multiple follow-on applications are being evaluated.

Unicorn potential

Elypta was believed to have strong potential, both in terms of impact and financially. In NVC's base case for Elypta, which is quite conservative, only including Research and Recurrence surveillance revenues for kidney cancer (and not other cancers), Elypta was estimated to become a EUR 100M valuation (unicorn) company by 2027, with break-even in 2025. If Elypta would be successful with this, their testing tool could become the worldwide standard tool within RCC healthcare. Because the product is also possibly a suitable biomarker for other cancers, NVC saw significant additional upside potential with this investment. Similar companies although larger ones have received high valuations despite not having FDA approval and a unique product offering, making Elypta attractive in terms of multiple expansion. The closest competitor valuation is estimated to have a valuation of more than USD 3.2B, with estimated revenues of only USD 11M, despite not having the ability to detect early cancers with as high sensitivity as Elypta can.

Business model and financial sustainability

There was a large unmet need and margin potential, selling their kit to central labs which then sell their test results to the end client (i.e. hospitals).

In addition, Elypta would promote their kit and software directly to doctors to build demand. Another earnings potential for Elypta was to partner up with companies within pharma and diagnostics.

The financial potential was large as the global cancer diagnostics market was valued at EUR 130B in 2018, although Elypta's first target market (RCC / surveillance of kidney cancer recurrence) was smaller and valued at EUR 350M (EU & US only). Although the financial potential was large, the investment would still be risky, given that Elypta was still pre-revenue and would require several years before breaking even, with NVC estimating the company to have their first sales in 2020 and break-even in 2025.

Entrepreneurs and team

NVC and other investors believed that the team was highly competent, very experienced and was able to deliver on all aspects of the business and technology. In terms of business acumen, Elypta had an experienced CEO with extensive experience and a good network. NVC was confident that Karl Bergman was able to manage the company in the next growth phases as well. From the scientific and technological perspective, the team consisted of world-class scientists in their field. Therefore, NVC was also confident in the technical capabilities of the team to deliver the required results.

4.4.2. Due Diligence

As a next step in the investment process, it was important to conduct an extensive DD of Elypta, analysing all benefits and limitations of the deal to make sure that there were

no red flags that could impact the investment decision. Normally, as a lead investor, NVC would conduct most DD themselves, relying on in-house expertise in addition to hired consultants. However, given that NVC decided to participate as a co-investor in this round, they relied heavily on the DD done by the lead investors.

NVC interviewed and obtained DD conclusions from one of the lead investors Industrifonden and no red flags were identified. Their assessment focused on various DDs, including IP DD, Legal DD, Financial DD, HR DD, Technical DD, and a Medical/Scientific assessment. In addition, they also spoke with several experts through the Gerson Lehram Group (GLG) network – an insight network connecting the client with experts. Given that this was a life science investment, a successful IP DD was especially important, as this is one of the most valuable things in a life science deal compared to a software investment for example, where the team is more highly valued.

NVC further reached out to the other lead investor Sciety and obtained DD conclusions from them, with no red flags identified. However, less reliance was put on the conclusions from Sciety's DD given that they had a corporate finance (i.e., sell-side like) role in this round and it could potentially impact their objectivity. Therefore, the information obtained from Sciety was only used on a confirmative basis. NVC also interviewed one of the researchers who performed Sciety's Medical DD, which further increased the reliability of Sciety's DD.

NVC also interviewed and obtained DD conclusions from one of the other investors Nina Capital, with no red flags identified. Their assessment focused on technical DDs (algorithm and IP), interviews with clinical and other experts, as well as advisors within the life sciences market.

NVC to some extent also wanted to perform a due diligence assessment themselves to make sure that all areas of the transaction were fully covered and base the investment decision on solid information. NVC's DD included an interview with current investors and an interview with health care experts within NVC's own network. They also used World Check (a database covering politically exposed persons and other areas to help with DD screening), and founder reference calls to analyse whether Elypta had solid ethical standards within their business (Refinitiv, n.d.).

NVC had to keep in mind that they relied heavily on the expertise and DD of the lead investors Industrifonden and Sciety, as NVC's team had limited expertise in the area. NVC had limited time to validate or second guess the findings of the lead investors. Although NVC could not be able to get full documentation from their DD they were still able to get access to insights verbally, and since the DD done by the lead investors seems to have been extensive within medical, technical, commercial, financial, and legal DD, the reliance on the lead's was still deemed to be reasonable.

Finally, given that the lead investors were new investors in Elypta, their DD would likely be more trustworthy, analysing the company from start to finish and making sure that all important areas were included in their analysis. As leads, they invest more

money than other investors, which further incentivizes them to make a proper analysis. In that way, NVC would likely be able to trust the DD done by the other investors. Given the successful results from the due diligence, NVC was comfortable with proceeding with a potential investment decision.

4.4.3. The Role of a Co-Investor

NVC normally does 50-50 investments as a lead vs passive (co-investor). The main criterion for whether to invest as a lead investor is usually based on the company's sector or area. For biotech or life science companies, NVC tends to invest as a co-investor rather than a lead investor, given that their main expertise lies in other sectors than those of biotech or life science.

As NVC did not have all capabilities in-house to analyse the deal properly, consultants are normally hired to support. In this case, reliance is put mostly on lead investors, as they make the most analysis and tend to share this material with other investors to support them in their decision. Because a co-investor relies more on the analysis and DD that lead investors share with them, a biotech investment like Elypta requires a lead investor with good life science knowledge where their DD can be trusted. If not, being a co-investor would simply be too risky.

As a co-investor, the investment would be more passive. For biotech or life science investments, the analysis and DD required is typically quite expensive, which makes it more reasonable to invest as a co-investor.

In addition, an investment as a co-investor would likely result in less contact with management and limited access to commercial materials, which makes a co-investment riskier. On the other hand, the investment would be more passive than as a lead investor, which would make the required effort lower, as the company would be supported on demand by occasionally making intros and giving them some advice. Another reason to invest as a co-investor is the smaller amount of capital invested in the round compared to a lead investor, making a potentially poor investment less problematic to the overall fund returns. At the same time, a smaller investment makes the pro-rata rate in the company lower than for lead investors, which will result in a smaller share of the overall company and a smaller share of the next round. As a lead investor, with more capital, you would more likely receive a board seat, which makes it easier to influence the company in the desired direction, compared to a co-investor whose influence is more limited.

Finally, having successful and knowledgeable investors would help mitigate some of the risks of an investment in Elypta. Sciety – which brought NVC into the round, was the lead investor of the round together with Industrifonden – a Nordic venture capital investor, focusing on companies within emerging science and technology ventures that also have a societal impact (Elypta, 2020a). Apart from Sciety and Industrifonden, other investors included Chalmers Ventures – a leading Nordic incubator and seed venture

capital firm, and Nina Capital – a Barcelona-based micro venture capital fund investing in European founders developing health tech companies. As the lead investor Industrifonden had solid experience from similar investments, NVC was comfortable with proceeding.

4.4.4. Exit Opportunities

As Elypta was early stage and pre-revenue, with NVC only having a fund horizon of 10 years (12 years at most with an extension), exit opportunities within the fund horizon were important. NVC saw three main exit opportunities for Elypta: a trade sale to a diagnostic company, a trade sale to a mass spectrometer OEM, and finally an IPO. The likelihood of a trade sale to either a diagnostic company or a mass spectrometer OEM seemed most likely, given how Elypta and their technology could be highly valuable and complementary for these types of acquirers. NVC also found that there was an interesting mix of potential acquirers within both areas. These exit opportunities also seemed more likely than an IPO, as this was not the main exit alternative sought by the company's founders. NVC concluded that Elypta had many interesting exit opportunities available.

4.4.5. The Deal

The final step before making a final investment decision was to look at the details of the transaction and the valuation.

Valuation

Valuing start-ups can be challenging. Since Elypta was at a pre-revenue stage, valuation was especially difficult. The deal team used various methods to estimate the value of Elypta, including the discounted cash flow model (DCF) and the VC valuation method (VC method). In addition, Elypta's pre-money valuation of SEK 85M served as a good baseline for benchmarking.

At first, NVC's deal team utilized a valuation method referred to as the VC method. The VC method addresses the question of valuation from a different perspective. Instead of focusing on the present value of discounted cash flows, the VC method is used to analyse what percentage of ownership a VC need to ask for, given the round size, discounted exit value and potential dilution in the future.

For the VC method, the team had to estimate the potential exit value. NVC looked at two important inputs: expected revenues at the time of exit and the revenue multiple for comparable companies. Elypta's forecasts were used as a foundation for the exit value (please see **Exhibit 13** for the forecasts). As a next step, the team analysed the potential time of exit and found that the timing of the sale had a significant impact on the valuation. The team assumed a successful exit in 5 to 7 years' time and chose 2025 as their base case. Next, they compiled a list of public comparable companies (see

Exhibit 14) to estimate the exit multiple. The team faced several challenges when estimating the revenue multiple for comparable companies. First, Elypta was not comparable to the listed industry players as it was at a pre-revenue stage and focused on a different type of technology. Most of the peers were large multinationals with a market cap of at least a few billion USD. Second, they observed significant variation in the valuation multiples of peers, ranging from an enterprise value (EV) to revenue of 2.4 to 33.4. To mitigate the risk of overestimating the valuation of Elypta, the team excluded the outlier Guardant Health from the sample, which resulted in a median EV to revenue multiple of 5.6x. As a result, the team estimated that the exit value of Elypta could reach close to SEK 711M.

The team also had to discount the exit value with NVC's target rate of return. As each investment is unique, a pre-determined discount rate could not be used. Several inputs were considered, such as the return target of the fund, the level of risk of the transaction, and the likelihood of a successful exit. As a result, a sensitivity analysis of various potential discount rates was used, with the base case of a 35% IRR. Given the exit value and discount rate, the analysis implied a SEK 117M valuation of Elypta.

Lastly, the team derived the required level of ownership, given the size of the investment. NVC had to consider several factors to determine how much it should invest. First, the estimated round size and contributions from other investors had to be considered. As NVC was in a co-investor position in this round, they were expected to invest a smaller amount, compared to the lead investors. Second, the future financing needs of Elypta and fund diversification for NVC itself also had to be considered. It was clear that Elypta needed to raise additional funding soon. Therefore, for NVC to retain the same level of ownership and not be diluted, it would have to participate in future rounds at least on a pari-passu basis. NVC also had to consider fund exposure to individual investments, as well as available capital for future rounds.

As a next step, the team also developed a DCF model. At first, the team used the base case scenario to derive the free cash flows (FCFs) throughout the forecast period. During the FCF estimation, a critical piece of input had to be added – the terminal growth rate. Here the team faced several challenges. First, the revenue growth after successful clinical trials and FDA approvals was expected to be very strong. Such expectations supported using a higher terminal growth rate. Second, most of Elypta's expected growth would occur after the assumed time of exit in 2025. Thus, the terminal growth rate assumption had to capture the full growth potential of Elypta. As a result, the team agreed to proceed with 3.5% as the terminal growth rate and to perform a sensitivity analysis on its effect on the EV.

The team then proceeded with the second critical input in the DCF model – the weighted average cost of capital (WACC). For Elypta, estimating the WACC was difficult as one of the key assumptions relied heavily on the peer group values, i.e., the beta. Based on selected peers, the team noted a slight variation in their betas, albeit to a

lower degree than for revenue multiples. After re-levering the equity betas, the team used 1.31 as Elypta's asset beta. Next, the team understood that Elypta was a high-risk venture which should be reflected in the discount rate. The team selected the US 20-year treasury yield as the risk-free rate, applied a market risk premium (MRP) of 6%, and included a company-specific risk premium of 4%. The cost of equity was estimated to be 14%, and since Elypta was expected to remain a pure-equity firm with no excess cash and no debt, the cost of equity was effectively the WACC.

Overall, based on the FCF forecast, the terminal growth rate of 3.5% and WACC of 14%, the DCF model suggested a valuation for Elypta of SEK 124M. The team also performed a sensitivity analysis based on different WACC and terminal growth rate inputs (see **Exhibit 18**). The analysis indicated a valuation range of SEK 93M to 167M for Elypta.

Ultimately, NVC invested SEK 10M for a 7.1% ownership stake (post-money valuation of Elypta of SEK 140M). Even though NVC was in a price-taker position as the lead investors set the valuation of the round, it was still beneficial for NVC to do their own valuation estimates (please see **Exhibit 19**).

4.4.6. Final Thoughts and Analysis

NVC weighed the benefits and limitations of the investment. Although the company was at a very early stage, which made this investment riskier, the company had overall scored very high in the NVC's investment ranking, which made it an interesting opportunity. More importantly, the company had both significant financial and positive social impact potential, and it was a strong company to include in the portfolio. NVC was very pleased about being part of Elypta's investment, with Tove Larsson, General Partner at NVC noting the following (Elypta, 2020a):

> "Elypta has the potential to impact the lives of millions of people, as its solution can increase the survival rate for one of the most common causes of death: cancer. Norrsken is proud to support this strong team as they continue to work on developing this groundbreaking methodology of early cancer detection."

Financial returns

NVC had the ambition to achieve market-rate returns with a target gross IRR of 20%. The target could be achievable given previous findings from Jeffers et al. (2021) suggesting that when market risk exposure is accounted for, impact funds perform like comparable private market strategies. In addition, NVC possibly has lower risk than traditional funds, as Jeffers et al. (2021) found that impact funds have significantly lower market beta than traditional VC funds, acting as a "relative hedge against downside risk".

Priority returns are relatively rare among early-stage funds and relatively common among late-stage funds (Metrick & Yasuda, 2010b). Despite NVC being an early-stage fund, it still uses a preferred return, where the fund manager is entitled to a maximum carried interest of 20% above a 1.25x preferred return. One possible explanation could be that NVC's multiple objectives to both achieve impact but also financial returns would be difficult to maintain by solely having the carried interest paid out based on the impact achieved. By also including the preferred return requirement before the carried interest is paid out, both the impact objective and financial objective are emphasized.

Investment decisions

The screening process of traditional non-impact driven funds may not be comparable to impact-driven funds as it also includes social or environmental objectives (Block et al., 2021). Miller and Wesley (2010) argue that impact investors only assess other criteria when a certain hurdle is achieved in terms of social impact. NVC also does this as they always look at impact first and then ask themselves whether they can create positive financial returns from the investment. Both objectives are of the same importance to NVC and need to be present.

For impact investors, Miller & Wesley (2010) concluded that the screening criteria differ if the investors have a high or low social impact focus. Also, Barber et al. (2021) find that some impact investors accept lower returns in favour of social impact. Although NVC first looks at the impact and then asks themselves whether they can profit from the investment, they are still not willing to sacrifice lower returns as they have a goal of achieving market-rate returns apart from the impact. NVC's strategy of combining impact with market-rate returns is similar to what Geczy et al. (2021) define as market-rate-seeking (MRS) funds. Other funds, such as Trill Impact can also be classified as a market-rate-seeking fund.

Screening criteria also diverge among impact investor types (Block et al., 2021). This difference between investor types can be found between NFF and NVC. NFF had an objective to only return 1x of the amount raised, while the true objective of the fund was to maximise the impact NFF could achieve, whereas NVC's goal was to both achieve impact and market-rate returns. In that way, NFF can be more seen as philanthropist friendly whereas NVC is more suitable for equity investors.

As per Miller & Wesley (2010), strong entrepreneurial passion for social change and the size of the entrepreneur's social network plays a key role when VCs assess the management teams. In accordance with these findings, NVC emphasized Elypta's strong passion for social change when the investment decision was made.

The management team has been considered one of the most important factors by many (Block et al., 2019; Gompers et al., 2020; Kaplan and Strömberg, 2004) when screening an investment opportunity. Early-stage investors consider management teams as relatively more important than late-stage investors do, whereas business factors are

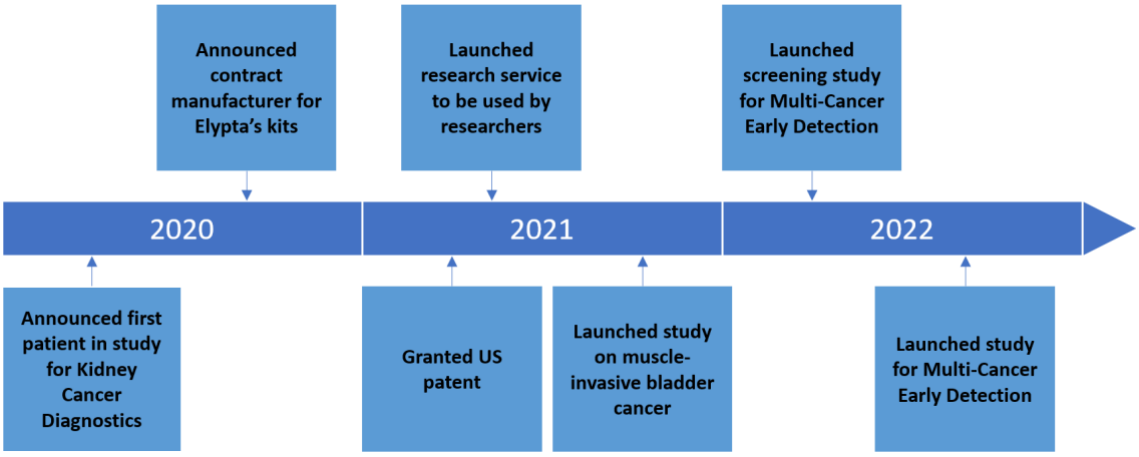
more important for late-stage investors. As NVC only invests in early-stage companies, the team should be more important in their investment decision than business factors. Despite this, NVC emphasized that the way they value the team depends on the type of investment and sector. For a software investment, for example, they would value the team very highly, however, in the case of the life science sector, a successful and solid IP DDs are more important, as they see this as one of the most valuable areas in a life science deal. NVC's mindset is like the findings of Gompers et al. (2020), suggesting that healthcare investors place a higher emphasis on business-related factors compared to IT investors. This is also consistent with expectations as IP and intangible assets are more important for health-related businesses (Gompers et al., 2020).

Apart from the management team, business-related factors are frequently mentioned as important for a VC when making an investment decision. Kaplan and Strömberg (2004) note the attractiveness of the market, strategy, technology, and product or service. Gompers et al. (2020) mention business model, product, market, and industry. In addition, profitability is less important for most VCs compared to scalability and high levels of revenue growth (Block et al., 2019). This is like NVC's mindset with Elypta, as the company was not yet profitable, however, had a huge opportunity to scale and achieve high revenue growth, given that it broadened its scope from only focusing on kidney cancer to instead focusing on any-type cancer. NVC emphasized the company's business model, product, and market when evaluating the investment opportunity. They also analysed the company's industry, as there are sectors in which they are prohibited to invest in.

How has the investment developed?

Since the investment took place in December 2019, Elypta has achieved several milestones. Among other things, Elypta has announced the contract manufacturer for its kits, has been granted a US patent for its Liquid Biopsy Method that is based on Cancer Metabolism and has launched a research service for GAG profiling that will be used by researchers (Elypta, 2020b; Elypta, 2021a; Elypta, 2021b). Please see **Figure 10** below for further information on Elypta's achievements.

Figure 10: Elypta's Milestones post 2019



Note: The figure above displays a timeline with various milestones Elypta has reached since the seed round. Source: Authors' analysis, based on information from the company's website, interviews and case materials.

The team has grown from 5 people to 15 people and the company has expanded to 10 countries. The company is now past the pre-revenue stage by making revenue from measurements that are provided to partner labs. The actual launch of their test kit, is, however, still set to be in 2024/2025.

Elypta's research has shown early signs that its technology might be applicable for multiple cancers. This is a very important breakthrough from various perspectives, including impact potential. As Elypta is now aiming to address multi-cancer early detection, the impact potential has increased immensely. In addition, Elypa has launched several studies which is in line with the impact KPIs trajectory set at the time of NVC's investment. Overall, Elypta is performing well and the impact KPIs show promising results.

Competition has also increased following Elypta's expansion of their total addressable market (TAM) to now include several cancers and not only kidney cancer. Compared to certain competitors, Elypta has a major cost advantage as its production costs are significantly lower. From an impact perspective, this is especially beneficial to lower-income regions like Africa, as they would otherwise not afford to buy the tests on a larger scale.

Venture capital investments into impact start-ups[12] in 2021 have seen strong growth compared to 2019, with valuations of these companies also having increased significantly (as of October 2021). Companies focusing on the SDG, Good Health and Well-being, received a high share of the funding (Dealroom, 2021). As a percentage of

[12] Dealroom definition: A company that addresses one or more UN Sustainable Development Goals (SDGs) at the core of its business and the potential to scale.

the total VC investment, impact investing remains a historically high market share. Sweden and the overall Nordics are the most impact-focused venture capital market (Dealroom, Danske Bank, & Green Innovation Group, 2021). The M&A market is also strong, with 2021 breaking previous records (PricewaterhouseCoopers, n.d.). This opens opportunities for a potential acquisition of Elypta.

In hindsight, it seems like the investment has shown initial success, given Elypta's achievements and a stronger VC and M&A market, although a final assessment of the impact and financial returns from the investment must wait until exit.

5. Conclusions

This case study of Norrsken VC's investment in Elypta highlights how an impact venture capital fund is structured and makes investments, despite having a multitasking problem of achieving both market-rate returns and positive impact. We find that NVC has a priority return and an impact-linked carried interest, which mitigates the issue of having a multitasking problem. Priority returns are relatively rare among early-stage funds. We also discover that NVC applies impact throughout their investment process from deal screening to exit, ensuring that the fund remains focused on impact.

Like traditional VCs, the fund considered product, scalability, business model, management team, market, and industry as important, although the team is more emphasized depending on the type of investment and sector. NVC, however, also emphasized social investment criteria, including impact potential, unicorn potential and ethical standards. In addition, NVC thought of profitability as less important than scalability and high levels of growth. We also find that NVC applies an Impact Assessment Framework and hosts an Impact Workshop together with the potential portfolio company, which allows them to define and measure the impact of each investment opportunity.

Finally, we note that the area of impact investing is developing, and new structures continue to emerge. Angelina Jönsson Gajic, the ESG Coordinator at the private equity fund Norvestor, notes the following on market development in the future:

> "There, of course, will be many factors driving future development, and as the society and investing community evolves, so will the private equity funds. But more importantly, a key part of the development will come from regulatory changes."

As a result, we would encourage future research on how the regulatory environment is driving and influencing impact investing fund development. What is more, certain funds tie their own financing and the financing of their portfolio companies to impact. In addition, they also tie part of the portfolio company's management remuneration to impact. Therefore, these new fund structures provide a great opportunity for further research that could give more guidance on how to ensure effective investment management and incentive alignment between the funds, investors, and entrepreneurs.

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7. Exhibits

Exhibit 1: List of interviewees

Interviewee	Title & Company	Dependence
David Frykman	General Partner, Norrsken VC	Dependent
Inés Rocha	Investment Manager, Norrsken VC	Dependent
Karl Bergman	CEO, Elypta	Dependent
Oskar Malm Wiklund	Tech Specialist, Norrsken Foundation	Independent
Johannes Eliasson	Associate, Norvestor	Independent
Angelina Jönsson Gajic	ESG Coordinator, Norvestor	Independent
Thomas Hemmestad	Director in Sustainable Finance, DNB Markets	Independent

Note: The table above shows the list of interviewees and their relationship to the case, i.e., dependent or independent. Source: Authors' analysis.

Exhibit 2: List of primary data source materials

Document	Owner
Investment Presentation (Nov 2019)	Elypta
Investment Presentation (Mar 2021)	Elypta
DD Decision Materials	Norrsken VC
Investment Decision Materials	Norrsken VC
The Norrsken Blueprint	Norrsken Foundation
The Norrsken Blueprint (House)	Norrsken Foundation
The Norrsken Blueprint (Fund)	Norrsken VC
NVC Fund 1 AB Investment Policy	Norrsken VC
Norrsken VC Annual Impact Report 2020	Norrsken VC
Norrsken Responsible Investment Policy	Norrsken VC
Impact Assessment Framework and Impact Workshop	Norrsken VC
NVC Fund 1 AB Term Sheet	Norrsken VC
Sustainability related SHA inputs	Norrsken VC

Note: The table above summarises the documents and materials used in the case study. The table shows the respective owner of the document. Source: Authors' analysis, adopted from interviews and case documents.

Exhibit 3: Norrsken VC Fund 1 investors

Investor	Type	Description	Investment (SEK M)
Saminvest AB	Institutional investor	VC firm specializing in fund of funds investments with a focus on VC	250
European Investment Fund (EIF)	Institutional investor	The investment arm of EIB, specializing in VC and PE fund of funds investments	212
Norrsken Foundation	Institutional investor	The parent organisation of NVC	120
Nordea Life and Pension	Institutional investor	Pension fund under the Nordea bank	50
Ramsbury Invest	Institutional investor	H&M family investment company	Not disclosed
SEB Pension Foundation	Institutional investor	Pension fund under the SEB bank	Not disclosed
Carl Manneh	Private Investor	Co-founder of Mojang	Not disclosed
Sebastian Knutsson	Private Investor	Founder of King	Not disclosed
Filip Tysander	Private Investor	Founder of Daniel Wellington	Not disclosed
General Partners	General Partner	GPs include Tove Larsson, Agate Freimane, Niklas Adalberth and David Frykman	30

Note: The table above shows a list of selected investors in the NVC Fund 1 AB. Source: Authors' analysis, adopted from interviews and case documents.

Exhibit 4: NVC's Prohibited Sectors

The Company shall not invest, guarantee or otherwise provide financial or other support, directly or indirectly, to companies or other entities whose business activity consists of: (a) an illegal economic activity (i.e. any production, trade or other activity, which is illegal under the laws or regulations applicable to the Company, including without limitation, human cloning for reproduction purposes; (b) the production of and trade in tobacco and distilled alcoholic beverages and related products; (c) the financing of the production of and trade in weapons and ammunition of any kind, it being understood that this restriction does not apply to the extent such activities are part of or accessory to explicit European Union policies; (d) casinos and equivalent enterprises; or (e) the research, development or technical applications relating to electronic data programs or solutions, which (i) aim specifically at: (A) supporting any activity referred to under (a) to (d) above; (B) internet gambling and online casinos; or (C) pornography, or which (ii) are intended to enable to illegally (A) enter into electronic data networks; or (B) download electronic data. In addition, when providing support to the financing of the research, development or technical applications relating to (i) human cloning for research or therapeutic purposes or (ii) genetically modified organisms ("GMOs"), the Manager shall ensure the appropriate control of legal, regulatory and ethical issues linked to such human cloning for research or therapeutic purposes and/or GMOs.

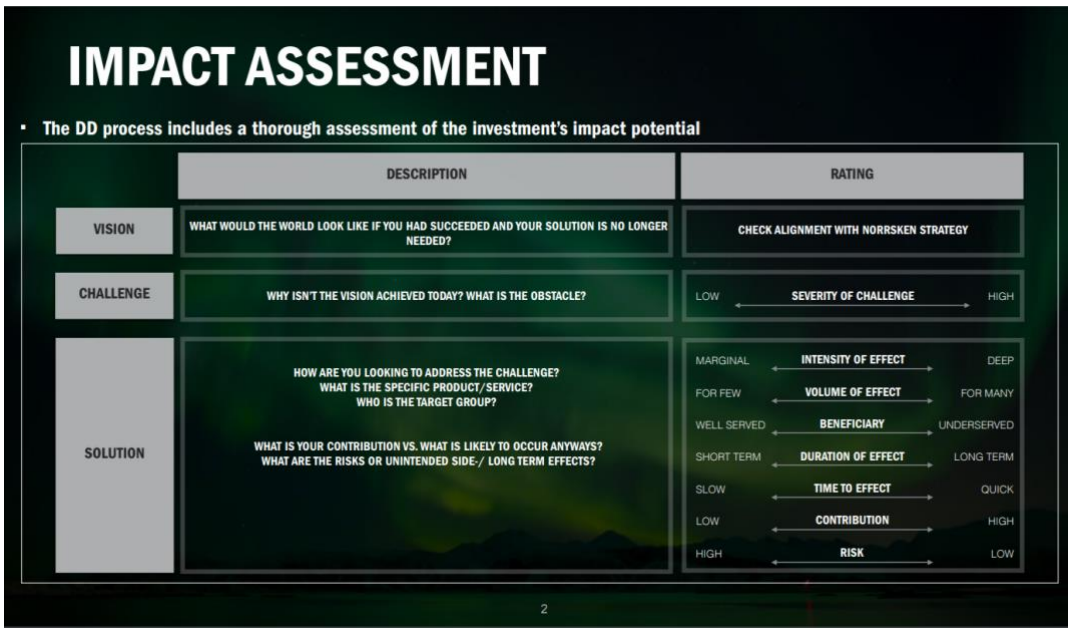
Note: The table above lists prohibited sectors and assets in which NVC Fund 1 AB cannot invest in. Source: NVC (2019).

Exhibit 5: NVC's Investment Ranking Methodology

Investments are ranked on a scale of 1-5 on their impact potential, how exceptional their product is, whether the technology is scalable, whether the company has a unicorn potential, its business model, the quality of the entrepreneurs, and finally its ethical standards (Norrsken VC, n.d.-e).
Impact potential. A company will receive the highest score if it saves many lives / alleviate for many / achieve systematic change, whereas a low impact potential would entail a company with impact intentions but little scale or large scale but simply a nice-to-have. To measure the impact potential of a company, NVC defines relevant impact measurements, performance criteria, and impact KPIs for the company they would potentially invest in. They also agree on social impact goals / target value / weighting for the relevant investment together with the Advisory Committee of NVC. In addition, they also calculate an impact multiple (ratio between the between the Target Value defined at the time of an investment and the observed realized value of a given Social Impact Goal) for the social impact goals of the investment (Norrsken VC, 2019). The progress in social performance for the investment, based on these social impact goals, should be monitored, and reported.
Product exceptionality. The highest score will be given to companies with a unique, excellent UX, in addition to large demand but low supply. A low score would be given to companies with an unintuitive product that is not unique, conservative, and not tested.
Technology scalability. The highest score will be is achieved if a company is a Saas company, patented and software focused, whereas a low score would be given to companies within hardware, that are very customized and require significant upfront capital.
Unicorn potential. The highest score is given to those who have the possibility to positively impact 1 billion people, and deliver good financial returns, whereas a low score would be given to niched and weak businesses.
Business model. The highest score will be given to those who meet an explicit demand and have customers with solid abilities to pay.
Quality of entrepreneurs. The highest scores would be received by the likes of successful entrepreneurs such as Elon Musk. High scores would also be received by people having a successful entrepreneurial journey before joining. Lowest scores would be received by entrepreneurs not having any past experience building a business, lack of leadership, and lack of pitch or sell skills.
Ethical standards. The highest score would be achieved by companies being a role model and having strong alignment with NVC's values, whereas low scores would be given to companies that could compromise ethics for business.

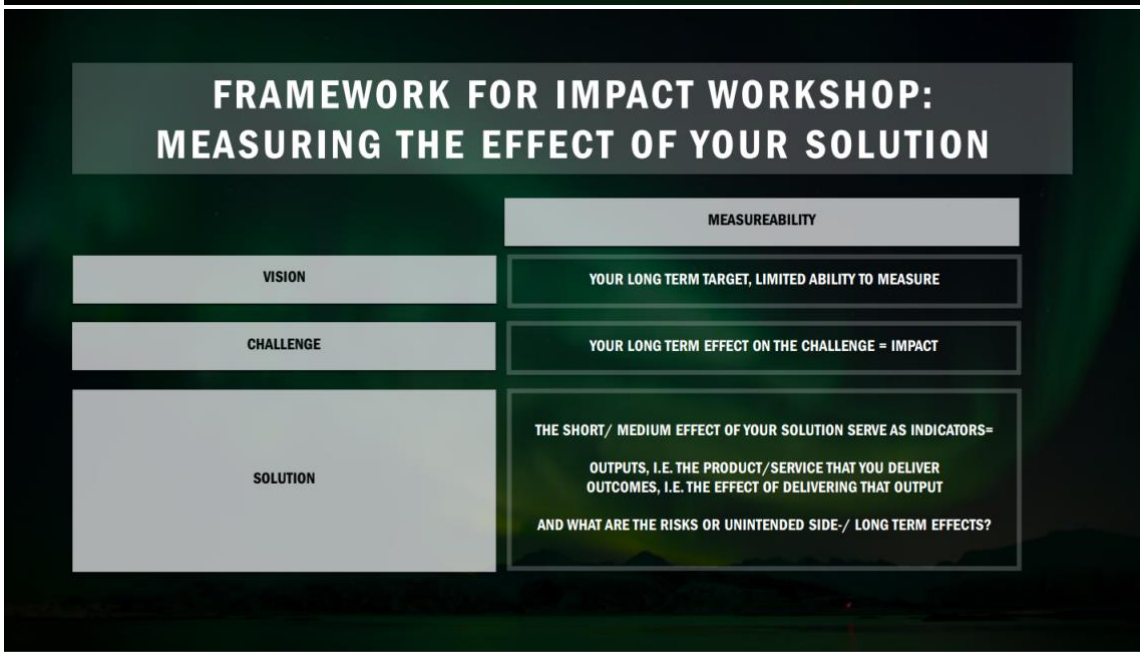
Note: The table above shows NVC's investment ranking methodology, where investments are ranked on a scale of 1 – 5 on areas such as their impact potential, whether the company has a unicorn potential, its business model, the quality of the entrepreneurs, and finally its ethical standards. Source: NVC (n.d.-f).

Exhibit 6: NVC's Impact Assessment Framework



Note: The picture above shows a summary of NVC's Impact Assessment Framework. The framework is divided into three main parts - vision, challenge, and solution. Source: NVC (n.d.-g).

Exhibit 7: NVC's Impact Workshop (selected slides)



Note: The picture above shows a summary of NVC's Impact Workshop. Source: NVC (n.d.-g).

Exhibit 8: Overview of cancer diagnosis and screening tests

	Laboratory tests	Imaging tests	Tissue biopsies	Liquid biopsies
Overview	Procedure in which a sample of blood, urine, other bodily fluid, or tissue is examined to get information about a person's health	Create pictures of areas inside your body that help the doctor see whether a tumor is present	The removal of cells or tissues for examination	A test done on a sample of blood to look for cancer cells from a tumor that are circulating in the blood or for pieces of DNA from tumor cells that are in the blood
Speed	Medium	Quick	Medium	Quick
Invasiveness	Semi-invasive	Non-invasive	Invasive	Non-invasive
Most performed procedures	Blood chemistry test	Computed tomography (CT)		Tests based on the following biomarkers:
	Cancer gene mutation testing	Magnetic Resonance Imaging (MRI)	With needle (e.g., bone marrow aspirations)	CTC
	Complete blood count	Bone scan	With endoscopy (e.g., colonoscopy)	ctDNA
	Cytogenetic analysis	PET scan	With surgery (e.g., excisional biopsy)	cfDNA
	Tumor market tests	Nuclear scan		Exosomes
	Immunophenotyping	Ultrasound		Metabolites
	Urinalysis	X-ray		

Note: The table above shows a summary of the different cancer diagnosis and screening tests and their respective characteristics in terms of speed and invasiveness. Source: Authors' analysis, adopted from interviews and case documents.

Exhibit 9: Overview of most used liquid biopsy biomarkers

CTCs are intact cancer cells emanating from a primary tumour and/or metastatic lesions that can be detected in the blood of patients with malignancies.
ctDNA are small pieces of DNA that are released into a person's blood by tumour cells as they die. A sample of blood can be used to look for and measure the amount of ctDNA and identify specific mutations (changes) in the DNA.
Exosomes or extracellular vesicles are a tiny sac-like structures that get released into the blood by many types of cells, including cancer cells, and travel through the blood to other parts of the body. Exosomes can transfer the proteins, DNA, and RNA they contain into other cells.
cfDNA are degraded DNA fragments released to the blood plasma. cfDNA can be used to describe various forms of DNA freely circulating in the bloodstream, including cfDNA derived from cancer cells.
Metabolite is a substance made or used when the body breaks down food, drugs or chemicals, or its own tissue (for example, fat or muscle tissue).

Note: The table above provides a summary of the key biomarkers that are used in liquid biopsy testing kits. Source: Authors' analysis, adopted from interviews and case documents.

Exhibit 10: Overview of Key Players

Company	Brief Description	Date founded	Country	Status	Biomarker used	EV (USD B)
Elypta	Develops technologies for early cancer detection	2017	Sweden	Private	(GAG) Metabolism	n.a.
Grail	Develops technologies for early cancer detection	2016	U.S.	Private	cfDNA	3.2
Thrive	Researches and develops a blood testing platform for the detection of cancer	2019	U.S.	Private	cfDNA	n.a.
Freenome	Researches, experiments, and develops biotechnology products	2014	U.S.	Private	cfDNA	n.a.
Guardant Health	Precision oncology company, providing blood tests, data sets, and analytics	2012	U.S.	Public	ctDNA	6.1
Foundation Medicine	Develops genomic profiling tests that guide treatment strategies for cancer patients	2010	U.S.	Acquired	cfDNA	5.3
SAGA Diagnostics	Personalized cancer diagnostics and disease monitoring company	2016	Sweden	Private	ctDNA	n.a.
Exact Sciences	Provides cancer screening and diagnostic test products	1995	U.S.	Public	cfDNA	11.6
Myriad Genetics	Genetic testing and precision medicine company, developing and commercializing genetic tests	1991	U.S.	Public	cfDNA	2.0

Note: The table above displays a list of key players in the liquid biopsy market for cancer detection. EV corresponds to the enterprise value of the firm. For private companies, the EV is based on the latest publicly available valuation figures. For public companies, values are shown as of December 2, 2019, and the data was accessed on May 7, 2022. Source: Capital IQ (n.d.-a).

Exhibit 11: Elypta – Key Employees and Board Members

Names	Position	Background
Karl Bergman	CEO	Experience as a principal at Arthur D. Little, a global management consultancy firm. Spent 8 years in the Healthcare and Life Sciences practice where he advised clients on strategic challenges across pharma, diagnostics, and MedTech. Has also been part of Praktikertjänst, Sweden's largest private healthcare provider, where he was the Chief Digital Officer.
Francesco Gatto	CSO	Co-founder and CSO of Elypta. Has received numerous awards such as Innovator Under 35 by MIT Technology Review (Chalmers, 2018), Sweden's largest innovation award Skapapriset (Chalmers, 2019a), and Karin Markide's innovation prize (Chalmers, 2019b).
Karin Mattsson	VP R&D	Karin Mattsson is a Vice President in R&D, with previous experience as a Director in R&D at Biovica International AB, a company focusing on improving monitoring and predicting cancer therapy efficacy.
Helene Peyro	Acting CMO	Helene Peyro is the Acting CMO, with previous experience including co-founder of HalioDx, a global diagnostics company focusing on improving patient care.
Henrik Palm	CFO	Henrik Palm is the CFO, with previous experience as a CFO at the pharmaceutical company Karo Pharma.
Marianna Mirabelli	Clinical Trials	Responsible for Clinical Trials, with previous experience within clinical project and account management, including senior management oversight of 200+ global projects for medical devices.
Nils Nordeman	AI & software development	Responsible for AI & software development. Has a MSc degree within Biomedical Engineering from Chalmers.
Souad Shameh	Assay development	Responsible for Assay development. Has a MSc degree within Food Science, Technology and Nutrition from KU Leuven.
Andrea Bacconi	Technical advisor	Technical advisor, with previous experience as a Principal Scientist at Cardiff Oncology (previously Trovagene), a biotechnology company focusing on developing treatment options for cancer patients.
Saeed Dabestani	Medical advisor, Urological surgery	Medical advisor within urological surgery, working as a Postdoctoral Researcher at Lund University and also having a PhD in Kidney Cancer from the same university.
Anders Ekblom	Chairman of the Board	Experience from Astra Zeneca with roles such as EVP global drug development and CEO of Astra Zeneca Sweden AB. Currently holds multiple life science board positions.
Jens Nielsen	Board Member	Co-founder of Elypta. One of the leading systems biology scientists in the world. His research lab, Nielsen Lab, is advancing the research of metabolism with more than 80 researchers and more than 45 thousand citations. He has received countless international awards, has invented several dozens of patents and has been a co-founder of a handful of biotech companies.
Jamal El-Mosleh	Board Member	Experience as a CEO for the listed pharma companies Annexin and Immunicum (company with an RCC-focus).
Pontus Ottosson	Board Member	Head of Investments at Chalmers Ventures. Currently Investor Representative in the board of Elypta for Chalmers Ventures.
Henrik Vesterberg	Board Member	Currently Investor Representative for Ruasset – a Wallenberg sphere investment vehicle.

Note: The table above provides an overview of the key employees and Board members at Elypta. Source: Authors' analysis, adopted from interviews and case documents.

Exhibit 12: Elypta's Cap Table Before the Seed Round

Shareholder	Role	Ownership
Francesco Gatto	CSO, Co-founder	25.54%
Ruasset AB	Member of the Board	23.10%
Jens Nielsen	Member of the Board, Co-founder	17.88%
Chalmers Ventures AB	Member of the Board	15.42%
Karl Bergman	CEO, Co-founder	13.90%
Jamal El Mosleh	Member of the Board	3.69%
Anders Ekblom	Chairman of the Board	0.47%

Note: The table above shows the list of investors in Elypta before the seed round, i.e., as of December 2019. Source: Authors' analysis, adopted from case documents and Elypta's publicly disclosed Board meeting minutes.

Exhibit 13: Elypta's Revenue Forecast

Base Case

MSEK	2020	2021	2022	2023	2024	2025	2026	2027	2028
Research use only	4	6	7	10	12	15	18	22	24
Response monitoring	-	-	2	8	28	44	82	131	161
Recurring surveilance	-	-	1	12	38	68	140	228	336
Total Revenue	**4**	**6**	**10**	**30**	**78**	**127**	**241**	**381**	**521**
EBITDA	*(23)*	*(27)*	*(30)*	*(16)*	*18*	*68*	*158*	*249*	*339*
EBITDA margin					*22%*	*53%*	*66%*	*65%*	*65%*

Downside

MSEK	2020	2021	2022	2023	2024	2025	2026	2027	2028
Research use only	4	5	6	9	11	14	16	19	21
Response monitoring	-	-	1	7	25	39	73	117	143
Recurring surveilance	-	-	1	11	34	61	125	203	299
Total Revenue	**4**	**5**	**9**	**27**	**70**	**113**	**214**	**339**	**464**
EBITDA	*(25)*	*(30)*	*(33)*	*(18)*	*15*	*59*	*138*	*217*	*296*
EBITDA margin					*22%*	*52%*	*64%*	*64%*	*64%*

Upside

MSEK	2020	2021	2022	2023	2024	2025	2026	2027	2028
Research use only	4	6	8	11	13	17	20	24	26
Response monitoring	-	-	2	9	31	48	91	144	177
Recurring surveilance	-	-	1	13	42	75	154	251	370
Total Revenue	**4**	**6**	**11**	**33**	**86**	**140**	**265**	**419**	**573**
EBITDA	*(22)*	*(26)*	*(29)*	*(16)*	*19*	*75*	*174*	*274*	*373*
EBITDA margin					*22%*	*53%*	*66%*	*65%*	*65%*

Note: The table above shows the financial forecasts for Elypta based on the base, upside and downside scenarios. Numbers are presented in millions and denominated in Swedish kronor. Source: Authors' analysis, adopted from interviews and case documents.

Exhibit 14: Selected comparable peers as of December 2, 2019

Company	Description	Country	Revenue (USD M)	EV (USD B)	EV/Revenue	Market Cap (USD B)	Net Nebt (USD B)	Equity Beta
Guardant Health	Precision oncology company, providing blood tests, data sets and analytics	U.S.	184.4	6.1	33.4x	6.9	-0.8	1.87
Exact Sciences	Provides cancer screening and diagnostic test products	U.S.	723.7	11.6	16.0x	11.9	-0.3	1.68
Thermo Fisher Scientific	Offers life sciences solutions, analytical instruments, specialty diagnostics, and laboratory products and service	U.S.	25 220.0	142.0	5.6x	125.5	16.5	1.12
Illumina	Provides sequencing and array-based solutions for genetic and genomic analysis. The company also provides cancer detection testing services	U.S.	3 458.0	45.7	13.2x	47.0	-1.3	1.36
Invitae Corporation	Offers genetic tests in various clinical areas, including hereditary cancer, cardiology and others	U.S.	195.9	1.7	8.5x	1.8	-0.2	2.35
Agilent Technologies	Provides application focused solutions to the life sciences, diagnostics, and applied chemical markets	U.S.	5 163.0	25.9	5.0x	24.9	1.0	1.14
PerkinElmer	Provides products, services, and solutions to the diagnostics, life sciences, and applied services markets	U.S.	2 834.5	12.3	4.3x	10.2	2.1	1.30
Myriad Genetics	Genetic testing and precision medicine company, developing and commercializing genetic tests	U.S.	835.1	2.0	2.4x	1.9	0.1	1.29
High			25 220.0	142.0	33.4x	125.5	16.5	2.35
Low			184.4	1.7	2.4x	1.8	-1.30	1.12
Mean			4 826.8	30.9	11.1x	28.8	2.1	1.51
Median			1 834.8	12.0	7.1x	11.1	-2.0	1.33

Note: Table above shows selected peers for Elypta. Values are shown as of December 2, 2019, and the data was accessed on May 7, 2022. Source: Latest available financials are obtained from Capital IQ (n.d.-a), except for equity beta which is obtained from CRSP database (n.d.).

Exhibit 15: Discounted Cash Flow (DCF) model

Discounted Cash Flow										
Assumptions										
Tax rate	21.4%									
Terminal growth rate	3.5%									
Cost of Capital										
WACC	14.0%									
Free Cash Flow		**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**
Revenue		4.0	5.6	9.6	30.4	78.4	127.2	240.8	380.8	520.8
EBITDA		**(22.8)**	**(27.4)**	**(30.1)**	**(16.4)**	**17.6**	**68.0**	**158.4**	**248.8**	**339.2**
D&A		0.5	0.7	1.2	3.8	9.8	15.9	30.1	47.6	65.1
EBT		**(22.3)**	**(26.7)**	**(28.9)**	**(12.6)**	**27.4**	**83.9**	**188.5**	**296.4**	**404.3**
Operating Tax	21.4%	-	-	-	-	-	(4.5)	(40.3)	(63.4)	(86.5)
Unlevered Net Income		**(22.3)**	**(26.7)**	**(28.9)**	**(12.6)**	**27.4**	**79.4**	**148.2**	**233.0**	**317.8**
D&A		(0.5)	(0.7)	(1.2)	(3.8)	(9.8)	(15.9)	(30.1)	(47.6)	(65.1)
Operating Cash Flow		**(22.8)**	**(27.4)**	**(30.1)**	**(16.4)**	**17.6**	**63.5**	**118.1**	**185.4**	**252.7**
CAPEX		(3.0)	(4.2)	(7.2)	(7.9)	(8.7)	(15.9)	(15.9)	(15.9)	(15.9)
Changes in NWC		2.0	2.8	4.8	(1.1)	(6.3)	(6.4)	(14.9)	(18.4)	(18.4)
Free Cash Flow		**(23.8)**	**(28.8)**	**(32.5)**	**(25.4)**	**2.6**	**41.2**	**87.2**	**151.0**	**218.4**
Terminal Value							405.2			
Total Free Cash Flow		**(23.8)**	**(28.8)**	**(32.5)**	**(25.4)**	**2.6**	**446.4**	**87.2**	**151.0**	**218.4**

Tax-Loss Carryforwards	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**
Opening balance	-	22.3	49.0	77.9	90.5	63.1	-	-	-
Additions	22.3	26.7	28.9	12.6	-	-	-	-	-
Used balance	-	-	-	-	(27.4)	(63.1)	-	-	-
Closing balance	22.3	49.0	77.9	90.5	63.1	-	-	-	-
Taxable Income	**-**	**-**	**-**	**-**	**-**	**20.8**	**188.5**	**296.4**	**404.3**

Enterprise Value	**124**
Enterprise Value (exit 2028)	**670**

Note: The table above shows the discounted cash flow (DCF) model for Elypta as of December 2019. Values are shown in millions and denominated in Swedish kronor. Source: Authors' analysis, adopted from interviews and case documents.

Exhibit 16: Selected Government Interest Rates as of December 2, 2019

Sweden		**United States**		
5 year	10 year	5 year	10 year	20 year
-0.20%	0.06%	1.65%	1.83%	2.15%

Note: Swedish and US government debt interest rates as of December 2, 2019. Data was obtained from Capital IQ (n.d.-b).

Exhibit 17: Cost of Equity calculation

Risk free	2.15%
MRP	6.00%
Company RP	4.00%
Equity Beta	1.31
Cost of Equity	**14.03%**

Note: The table above shows inputs and calculation of the weighted average cost of capital (WACC) for Elypta as of December 2019. Since Elypta is a pure-equity firm, the WACC is effectively the cost of equity. Source: Authors' analysis; risk-free rate obtained from Capital IQ, (n.d.-b); equity beta calculated based on peer group (Capital IQ, n.d.-a).

Exhibit 18: Sensitivity of the Enterprise Value

		Terminal Growth Rate				
		2.0%	3.0%	3.5%	4.0%	5.0%
WACC	12.0%	151	177	192	209	250
	13.0%	122	142	154	167	198
	14.0%	99	115	**124**	135	158
	15.0%	80	93	100	109	127
	16.0%	64	75	81	87	102

Note: Table above shows sensitivity analysis for the enterprise value based on the terminal growth rate and WACC inputs in the discounted cash flow model. Source: Authors' analysis, adopted from interviews and case documents.

Exhibit 19: Selected Committed Seed Investors

Investor	**Committed stake (EUR M)**
Industrifonden	2.20
Chalmers Ventures	0.23
Nina Capital	0.21

Note: The table above shows list of selected investors and their respective investment amounts that have expressed commitment to invest in Elypta during the seed round. Amounts are shown in millions and denominated in euros. Source: Authors' analysis, adopted from interviews and case documents.