

Coala Life

Sector: Medtech

Listen To Your Heart

Redeye initiates coverage of Coala Life, a Swedish medtech company whose Coala Heart Monitor enables remote long-term monitoring, analysis, and algorithm-based diagnosis of the heart. We argue that the share offers investors exposure to exciting growth in the telemedicine/RPM market, with the current share price representing an attractive entry point for the long-term investor.

Disrupting cardiology

By combining a refined technique of listening to the heart and conducting ECG for patients at home, Coala Life aims to digitalise and transform the field of cardiology. The Covid-19 pandemic has accelerated the trend of moving large parts of healthcare to the home (telehealth), and this shift towards more remote solutions is expected to continue in the coming years. Thanks to its scalable platform, combining both hardware and software, we argue that Coala Life is in an excellent position to take part in this disruption.

Imminent US penetration

The company's CE- and FDA-approved Coala Heart Monitor is covered by a wide range of reimbursement codes in the US. Thanks to the ongoing build-up of its US sales organization, its business model based on monthly recurring revenues, and the high incentives it provides to prescribing physicians, Coala Life is ready to start penetrating the US market.

Appealing growth prospects at attractive valuation

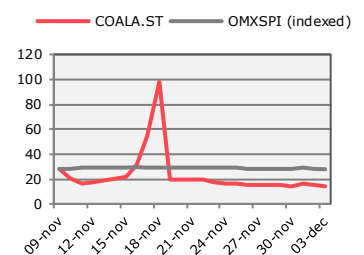
We base our valuation of Coala Life on a DCF model to capture the long-term potential in the case. Given its unique offering for long-term, remote heart monitoring and its exposure to the fast-growing remote patient monitoring (RPM) market, we argue that Coala Life provides investors with appealing growth prospects at an attractive valuation. We initiate coverage with a Base Case of **SEK 33** (and respective Bull and Bear cases of SEK 50 and SEK 9).

Key Financials (SEKm)	2020	2021E	2022E	2023E
Sales	3	5	38	133
Sales growth	66%	61%	610%	248%
EBITDA	-53	-46	-44	11
EBIT Margin (%)	n.m.	n.m.	n.m.	8%
EBIT	-54	-47	-47	-2
EBIT Margin (%)	n.m.	n.m.	n.m.	n.m.
EV/Sales	125.0	77.8	11.0	3.1

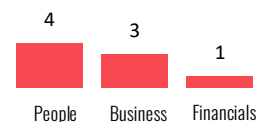
FAIR VALUE RANGE

BEAR	BASE	BULL
9	33	50

COALA.ST VERSUS OMXS30



REDEYE RATING



KEY STATS

Ticker	COALA.ST
Market	First North
Share Price (SEK)	14.22
Market Cap (SEKm)	502
Net Debt (SEKm)	-75
Free Float (%)	45%

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Investment Case

A unique offering to disrupt cardiology

Thanks to a unique offering combining both hardware and software with reactive AI, Coala Life provides a scalable platform for cardiovascular diseases and chronic care management. The Coala Heart Monitor is a small medical device that patients take with them in everyday life to monitor their heart condition remotely. The real-time response directly in a patient's smartphone (through the Coala App) and to physicians via the cloud-based Coala Care Portal reduces the number of unnecessary hospital visits, allowing patients to enjoy a higher quality of life. Backed by strong clinical results and with reimbursement in place, Coala Life is in an excellent position to help drive disruption in the cardiology field, we believe.

Attractive business model with recurring revenue

As of today, approximately 10,000 patients, primarily in the US and Europe, have used the Coala Heart Monitor and more than 350 care providers and 1,000 physicians are connected to the Coala Care Portal. Thanks to a business model based on monthly recurring revenue, Coala Life offers an attractive commercial potential and high operating leverage, we argue.

Exposure to high growth in the telemedicine/RPM market

An investment in Coala Life provides investors with exposure to the fast-growing remote patient monitoring (RPM) market, which Markets and Markets valued at around USD 23bn in 2020 and expects to reach USD 117bn in 2025, implying a CAGR of 38.2 percent. We argue that Coala Life has a strong outlook for the coming years; we estimate sales of around SEK 250m by 2024, growing at a CAGR of 260 percent from this year, for which we forecast sales of SEK 5m.

Upside potential of +130% to our Base Case

Based on a DCF model, we see more than 130 percent upside potential in the share and expect quarterly results and additions of further clinics to be key events for the stock, pushing the valuation towards our Base Case over the next 12 months.

Bear Points

Understanding the risks of an investment can lead to better decisions being made. Below, we list some potential risks associated with an investment in Coala Life.

Patient compliance

Under the RPM program, reimbursement is dependent on the patient using the Coala Heart Monitor device at least 16 days in a month and that the physician reviews the collected data for at least 20 minutes per month. Accordingly, compliance issues among patients and physicians can impact Coala Life's sales. However, as the incentives for the prescribing physician are high (receiving around 50 percent of the reimbursement) and patient adherence to recommendations by a cardiologist is also high (some 80 percent), we see this risk as limited.

New waves of the pandemic

The coronavirus pandemic is still posing challenges to the medtech sector, and disruptions in global logistics chains and lockdowns are affecting all businesses. It is particularly challenging for smaller players to gain traction as many negotiations are being postponed. If the Omicron variant, or potential new variants of the coronavirus, cause new waves of the pandemic, it would impact Coala Life's sales ramp-up.

Capital needs

Although Coala Life is already generating sales, we expect the company to remain unprofitable until 2024. Accordingly, it may need additional funding over the coming three years, which could result in poor share price development.

Catalysts

Quarterly reports

Over time, Coala Life's quarterly reports should reassure investors that the company is on track to execute on its commercialization strategy and achieve its financial targets. Consequently, we argue that quarterly reports are key events for the company and can act as strong catalysts for the stock.

Expansion of services/features

Today, the Coala Heart Monitor is primarily used to monitor the heart remotely. However, to further leverage revenues and earnings, Coala Life will continue to develop its products and add new services and features to its offering. Any news about these would be particularly interesting and could impact the share price positively.

New clinics

Coala Life's sales will largely be driven by the total number of monitor prescriptions by cardiologist at connected clinics. Accordingly, clinic additions will be an important growth driver for the company and can act as a catalyst for the stock.

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This is Coala Life

Company Description

Founded in 2015, Coala Life is a Swedish medical technology company active in remote cardiac diagnostics. The company has developed the Coala Heart Monitor, a multi-award-winning and FDA- and CE-approved product platform that enables remote long-term monitoring, analysis, and algorithm-based diagnosis of the heart.

Coala Heart Monitor is mainly marketed to caregivers who prescribe the product to patients for everyday use, reducing their need to visit a cardiac clinic. The monitor is also marketed directly to consumers in the Swedish market with the purpose of constantly bettering the offering to the healthcare sector by generating data that can further improve algorithms, usability, and functionality.

The company is headquartered in Uppsala, Sweden, and has 32 employees (37 including part-time personnel). Since 2019, Coala Life has had a US subsidiary based in California – Coala Life Inc – which is responsible for the US market. Development activities take place mainly through a separate development department, while manufacturing takes place through partners in Finland (a former Nokia unit) and Estonia.

To date, more than 350 care providers and 1,000 doctors are connected to the Coala Care Portal and approximately 10,000 patients, primarily in the US and Europe, have used the Coala Heart Monitor to monitor their heart.

The company went public in November 2021 through a reverse acquisition of RNB Retail and Brands and its shares are listed on Nasdaq First North.

History

Although the company was founded in 2015, Coala Life's history dates back to 2001, when a number of medical students and IT experts in Lund discussed the difficulties of listening to heart sounds. Heart sounds are low frequency and difficult to hear, even with a stethoscope (equipment that was invented in the mid-19th century and has not been updated since the 1930s). Moreover, other sounds, such as breathing, also interfere with the diagnosis. Diagnoses are thus often based on a subjective assessment by the physician, meaning experience is vital.

During the discussion, an idea was born of creating a stethoscope for the future, where subjectivity is replaced by objectivity, with filtering and amplification allowing the physician to hear only what they should hear.

This idea, which was developed into the Coala Heart Monitor, was initially intended for physicians, but the team gradually realized that patients are an equally important, or perhaps more important, user group. The digital journey took off and a large number of experts in and outside of the healthcare sector were involved over several years of development work.

During this time, smartphones were introduced, and apps, clouds, and wireless connection became ever more popular. The team quickly realized that connecting people to the physician via the cloud, enabling initial screening to take place in the home, was the way forward.

The development of a technology that amplifies and filters the heart sound, with the assessment presented directly in the patient's mobile phone, took form and patent applications were applied for and subsequently approved. The next step was to combine a refined technique of listening to the heart with ECG for the patient at home. This solution is unique; no other player combines these two possibilities.

Today, Coala Life has developed an ecosystem that is approved in both Europe and the US. More than SEK 260m has been invested in the company and its products are protected by around 30 patents and are well adapted to the new digitalized healthcare environment.

Company history

2004	- Research begins within the company Computerized Medical Technology in Sweden AB
2015	- Coala Life is founded and Philip Siberg takes over as CEO, while the industrialization is initiated
2016	- Coala Heart Monitor receives CE approval and Coala Life AB is ISO 13485 certified
2017	- Launch of Coala Heart Monitor in Sweden for the consumer market - Coala Life wins SALSS 2017 Rising Star Award and eHealth Award 2017 - Lloyds Apotek begins to offer Coala Heart Monitor
2018	- Coala Heart Monitor is introduced in the Swedish healthcare sector - The University Hospital of Lund takes in Coala Heart Monitor Pro to perform digital arrhythmia examinations - The company initiates a collaboration with global pharma company Bayer - Coala Life wins StartUp WorldCup 2018 in Sweden - Coala Life launches next-generation algorithms with p-wave detection of atrial fibrillation
2019	- FDA approval and establishment in the US market - Dan Pitulia takes over as the new CEO - Initiates a collaboration with Japan's Asahi Kasei to conduct studies on heart failure patients - The cardiac clinic at Aleris Sabbatsberg includes Coala Heart Monitor Pro in its clinical activities and conducts a clinical evaluation that shows more efficient process, lower costs, shorter care queues and higher patient satisfaction - Coala Life signs commercial partnerships in Germany and the Netherlands - Coala Life is named one of the world's 100 leading players in digital health by The Journal of mHealth and is named "Cool Vendor 2018" by Gartner
2020	- The company gets extended FDA indication to enable automatic detection of nine of the most common arrhythmias and enable monitoring of lung sounds during Covid-19 - The TEASE study is published in BMJ which validates Coala Heart Monitor for monitoring patients suffering from cryptogenic stroke - The company receives the Cardiology 2.0 Impact Award
2021	- Coala Life receives Frost & Sullivan New 2021 Product Innovation Award - Cardiac Monitoring - Amy Davelle is appointed President of the US subsidiary, Coala Life, Inc - Launch of new functionality including Coala Monitoring Report and cloud-based filters for remote auscultation - Launch of Managed RPM by Coala in the US market to run RPM programs in collaboration with partners - The company receives TGA approval in Australia - Coala Life publishes the Red Heart Study (a study conducted on almost 1,000 women), showing that the Coala Heart Monitor helps to reduce anxiety and symptoms as well as increases the quality of life in women with palpitations - The company goes public through a reverse acquisition of RNB Retail and Brands on November 9

Source: Coala Life and Redeye Research

People & Ownership

People

We believe that Coala Life has a strong management team that brings with it a combination of broad experience and deep sector knowledge. It applies a clear business focus and is dedicated to creating long-term shareholder value – something we highly appreciate.

CEO Dan Pitulia joined Coala Life in 2019, bringing with him more than 20 years of experience from executive roles in the medtech sector. During his career, he has transformed several companies, such as Entific, Carmel Pharma, and Memira, and sold them to strong players who have continued to develop them well.

Co-founder and Chief Strategy & IR Officer Philip Siberg is a serial entrepreneur in the life science sector and has held various management and board positions including CEO of Stille and CEO of Acacia Designs BV, among others. He also has experience from board assignments in listed companies, including Chairman of the Board of Senzime and Acarix.

The Coala Life board consists of four members with extensive experience from different fields. Chairman Per Carendi has had a wide-ranging career in insurance, venture capital, and investment companies and has had board assignments with more than 60 companies, several of which have been listed.

For a full overview of the management team and board, please see Appendix II.

Ownership

When it comes to ownership, there are few institutional players among Coala Life's largest shareholders today. The current largest shareholder is 20 North Street CO AB, holding some 20 percent of the company's shares. 20 North Street CO AB is partly owned (0.64 percent ownership) by Michi Capital AB, which in turn is owned by Ebba Fåhraeus, a board member at Coala Life. Accordingly, Mrs Fåhraeus holds around 45,000 Coala Life shares indirectly. However, we believe it will be easier for Coala Life to attract more long-term institutional owners once its sales start to pick up and its market capitalization increases.

Shareholders

#	Name or institution	No. of shares	Capital (%)	Votes (%)
1	20 North Street CO AB	6,983,467	19.77%	19.77%
2	Konsumentföreningen i Stockholm	3,295,290	9.33%	9.33%
3	Otiva J/F AB	2,834,077	8.02%	8.02%
4	Magnus Sörländer	2,037,596	5.77%	5.77%
5	Åke Sundvall Holding AB	1,858,038	5.26%	5.26%
6	Traction Delta AB	1,299,720	3.68%	3.68%
7	SHB Luxembourg CL Acct Swden	947,673	2.68%	2.68%
8	JRS Asset Management AB Client Acco	799,696	2.26%	2.26%
9	Cdmar Invest AB	698,668	1.98%	1.98%
10	Blue Seed AB	672,398	1.90%	1.90%
	Others	13,898,548	39.34%	39.34%

Source: Coala Life and Holdings

Management ownership is an important factor in the People category in Redeye's Quality Rating since companies where the management team has a meaningful ownership stake are generally more likely to prosper. CEO Dan Pitulia owns nearly 800,000 shares, while the two co-founders Philip Siberg and Magnus Samuelsson (CTO and Medical Director), hold around 700,000 and 9,000 shares, respectively. No other members of the management team currently hold any shares. Accordingly, the teams' ownership accounts for around four percent of total shares outstanding. This is slightly below the five percent threshold in our rating model. Accordingly, we would find it encouraging to see greater management ownership in the future.

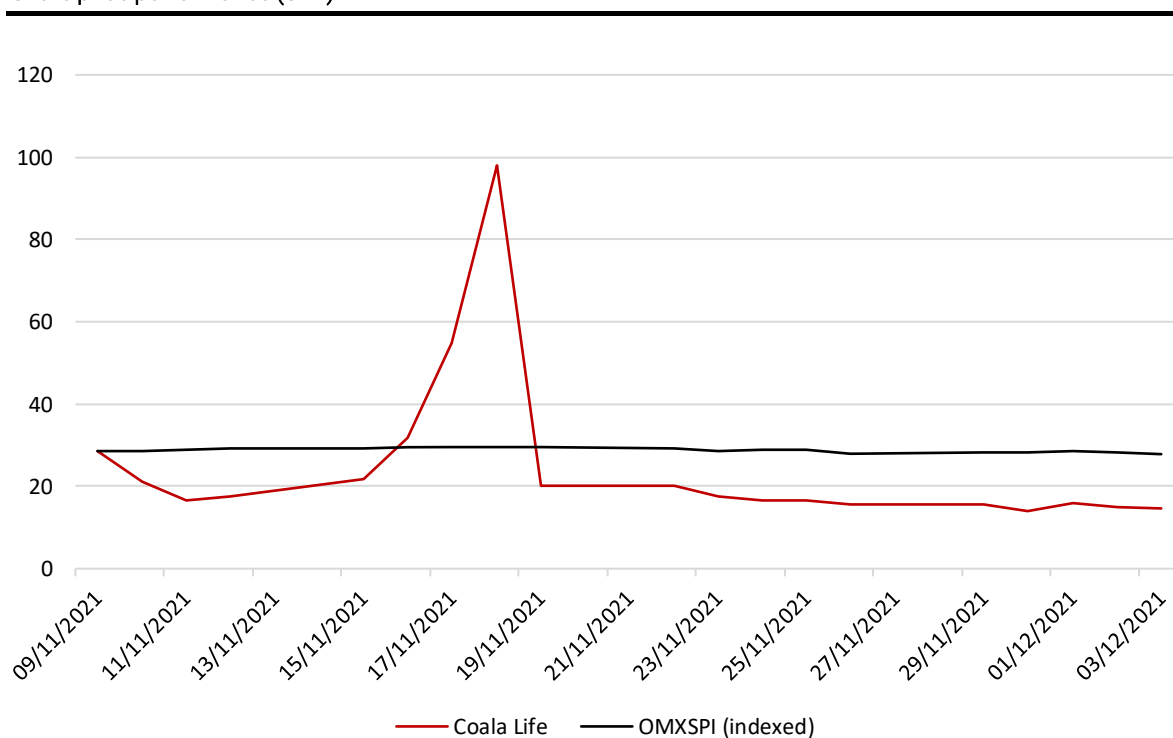
Share Price Performance

Coala Life was listed on Nasdaq First North Stockholm on 9 November 2021 through a reverse acquisition of RNB Retail and Brands. In the transaction, RNB acquired all shares in Coala Life through a non-cash share issue of 1,413,007,333 new shares in RNB. The shares amounted to an estimated value of around SEK 400m, based on an issue price of approximately SEK 0.28 per new share in RNB.

The transaction valued Coala Life at SEK 400m and RNB at SEK 100m (part of the bond loan and other liabilities were converted into shares, which gave a theoretical value per share after the transactions of approximately SEK 0.28 per RNB share). Accordingly, the new entity, named Coala-Life Group, was listed with a theoretical market cap of SEK 500m.

During the first two weeks of trading, the volatility in the share was absurd. The share price increased by approximately 180 percent between November 9 and November 18 (more than 50 percent intraday), peaking at SEK 98 per share, corresponding to a market capitalization of SEK 3,462m. The following day (November 19), the share price plunged some 80 percent and closed at SEK 20 per share. Since then, the share has been trading in the SEK 13-20 range.

Share price performance (SEK)


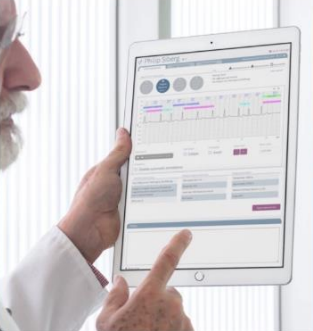




Source: Yahoo Finance and Redeye Research

Product Portfolio

Through its product offering, Coala Life aims to engage patients in the monitoring of their heart condition and thereby give caregivers the opportunity to reduce the number of physical visits. Through a combination of hardware and software with reactive AI, the company provides a scalable platform for cardiovascular diseases and chronic care management.

A unique offering in CVD and chronic care management

			
<p>Real-time patient response reduces anxiety</p> <p>Coala is the only patch-free, Rx heart monitor that provides immediate patient and physician feedback with diagnostic-quality ECG analysis, proven to increase patient quality of life!</p>	<p>Precise diagnostics by high resolution data and algorithms</p> <p>The only smart-phone based system with real-time, p-wave based ECG analysis of 9 of the most common arrhythmias.</p> <p>300% more accurate AF-detection than single-lead ECG by dual-lead ECG, high-fidelity and smart algorithms.</p>	<p>Platform to track patients and create on-demand reports</p> <p>Data entry of Blood Pressure and other vitals through the Coala App.</p> <p>The Coala Care portal enables efficient, patient-friendly and reimbursed cardiac care. Data and reports can be accessed at any time.</p>	<p>Remote auscultation and murmur detection</p> <p>Configure each patient to allow for heart and lung auscultation.</p> <p>The Coala PCG correlates ECG and heart sounds by smart algorithms to help detect murmurs remotely.</p>

Source: Coala Life

The product portfolio consists of the Coala Heart Monitor, and the Coala App and web-based Coala Care Portal platform. The solutions are based on many years of Swedish research and development and are protected by more than 30 patents.

Product overview

Hardware	Software
Coala Heart Monitor	Coala App Coala Care Portal

Source: Coala Life and Redeye Research

Below, we describe the Coala Heart Monitor, Coala App and Coala Care Portal in more detail.

Coala Heart Monitor

The Coala Heart Monitor is a small medical device that patients carry around with them in everyday life, enabling them to monitor their heart remotely. The default configuration is to first conduct a chest ECG recording for 30 seconds, followed by a thumb ECG recording for 30 seconds (a total of 60 seconds). The ECG recordings are made using integrated stainless steel electrodes that capture a high-resolution ECG.

Heart sound is also recorded synchronously during the chest measurement using a digital, patented piezoelectric stethoscope. The stethoscope function can also be used to register lung sounds.

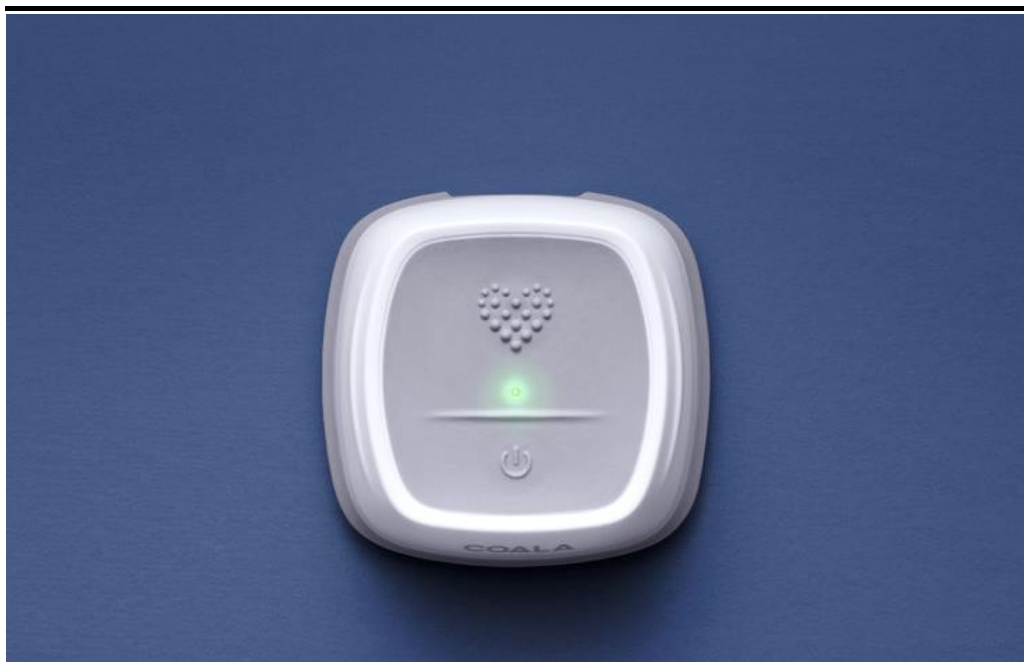
The Coala Heart Monitor has an internal rechargeable lithium polymer battery, and the product is delivered with a charging station that connects to an electrical outlet for charging, meaning no external batteries or other disposable products are required. The product does not require service or calibration either, and no data or information is stored in the monitor.

In the US market, the Coala Heart Monitor is usually prescribed as a so-called event monitor with the reimbursement code CPT 93268. This code provides compensation to caregivers from all US insurance companies, including Medicare, up to approximately USD 200 and allows the patient to have the Coala Heart Monitor for up to 30 days (used as an initial evaluation period).

If there are further medical reasons – such as the patient has chronic heart problems, a diagnosis is not obtained during the first 30 days, or the patient is to be included in an RPM program – the patient retains the Coala Heart Monitor and the clinic switches to prescribing under CPT 99453, CPT 99454, CPT 99457, or CPT 99458 (see Appendix I for a more detailed description of CPT reimbursement codes).

The Coala Heart Monitor is CE-marked and has also received 510(k) clearance from the FDA.

Coala Heart Monitor



Source: Coala Life

Coala App

The Coala App can be downloaded for free to the patient's smartphone and is available for both Apple iOS-based and Android-based smartphones.

The Coala Heart Monitor connects wirelessly to the app via Bluetooth, enabling the patient to start registration and follow instructions for measurement. Perceived symptoms or mood can be registered at the time of measurement, and these are then presented to the reviewing physician together with the results. Recordings and detection of cardiac arrhythmias are stored via an ECG analysis software package available in the cloud (Coala Cloud). A simplified view of the ECG signal is displayed in the app with audio recording playback. A PDF with the ECG from the measurement is generated and can be viewed and saved on the patient's phone.

Immediately after the measurement is completed, the patient can view the automatically analyzed results. The Coala App also includes "My journal," where the results are then stored. Additional features include "My inbox," where the physician can send messages and notifications to the patient via the Coala Care Portal.

Coala App



Source: Coala Life

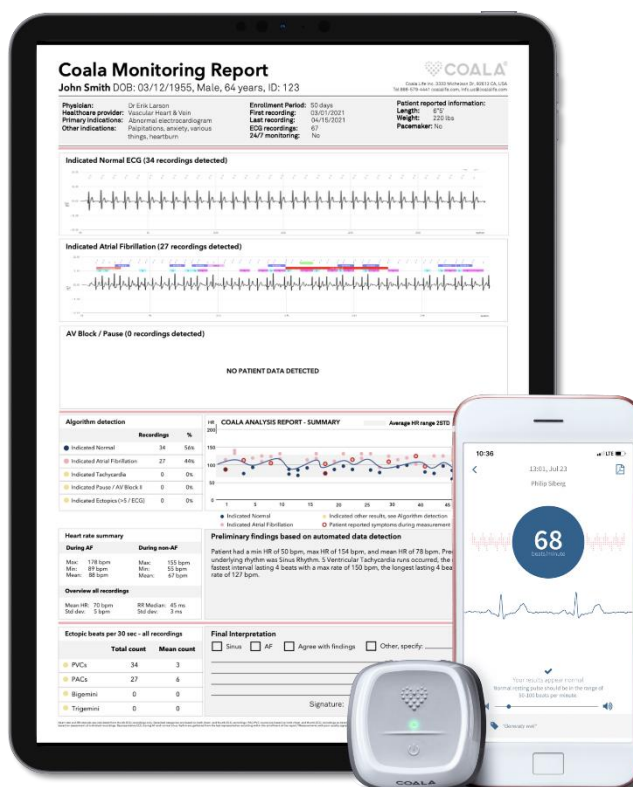
Coala Care Portal

Coala Care Portal is a cloud-based, web-based portal that is accessed via a web browser – no special software is required. The portal is used to administer patients and to analyze and review ECG results and generate reports. The portal provides the physician with a quick overview of the most recent ECG recordings. In addition, ECG recordings can also be annotated and analyzed with various tools, such as a caliper. This allows the results to be analyzed in detail.

In addition to ECG-specific functions, the physician is given the opportunity to flag and filter measurements and to create notes. This simplifies the workflow and communication between medical colleagues. The portal supports login with SITHS cards, and the system offers a number of different authorization modules, meaning that access to data and functions can be individualized based on the specific needs.

The portal is connected to the Coala Cloud, which consists of a validated software package on a platform from Microsoft Azure for algorithm-based analysis and identification of arrhythmias from measurements with the Coala Heart Monitor.

Coala Care Portal



Source: Coala Life

Clinical Validation

Several studies have been conducted to validate the Coala Heart Monitor as a tool for monitoring the heart remotely. In addition to the completed studies in the table below, active studies are underway in both Denmark and Sweden for the detection of arrhythmias, plus studies in Japan for remote monitoring of patients with heart failure.

Overview of completed studies

Algorithm and Performance Studies	Red Heart Study (Palpitation patients)	TEASE Study (Stroke patients)
Performance evaluation of automatic symptom-ruled, real-world arrhythmic recordings. Ohlsson et al. Kardiovaskulära Vårnötet, Stockholm, Sweden 2018. Abstract presentation	Instant analysis of the ECG with direct response during palpitations reduce symptoms, anxiety, depression, and increase HRQOL in women. Carnlöf et al. European Journal of Cardiovascular Nursing. March 2021.	Diagnostic yield of chest and thumb ECG after cryptogenic stroke, Transient ECG Assessment in Stroke Evaluation (TEASE): an observational trial. Magnusson et al. BMJ Open Aug 2020.
Performance evaluation of dual vs. Single lead automatic, real-world arrhythmic ECG recordings. Ohlsson et al. European Society of Cardiology 2019. Abstract presentation.	Symptomatic palpitations causing anxiety in women - what are the underlying arrhythmias? Carnlöf et al. Cardiovascular Spring Meeting (Kardiovaskulära Vårnötet) 2019, Gothenburg.	Patient-reported feasibility of chest and thumb ECG after cryptogenic stroke in Sweden: an observational study. Magnusson et al. BMJ Open Oct 2020.
Symptom-Ruled Real-World Arrhythmic Recordings with an Internet Based System. American Heart AHA presentation and abstract 2018. Published in Circulation 2018.	Improving Efficiency of Clinical Studies Using a Total Digital Approach: Prospective Observational Study Schenck Gustavsson et al. JMIR Formative Research. Feb 2021	
Evaluation of an enhanced, cloud-based AF-detection algorithm based on real-world arrhythmic recordings. Ohlsson et al. European Society of Cardiology 2019. Abstract presentation	Pre-menopausal women with palpitations have more symptoms, anxiety, depression and lower HRQOL than post-menopausal women. Carnlöf et al. OSSD 2019, Washington DC.	
Quality validation of different ECG leads, and an automatic P-wave detection algorithm for AF, based on real-world data. Samuelsson et al. Abstract presentation American Heart AHA EPI 2020. Published in Circulation Feb 2020.		

Source: Coala Life and Redeye Research

Below, we briefly describe some of the company's completed studies.

Performance evaluation of automatic symptom-ruled, real-world arrhythmic recordings. Ohlsson et al. 2018

In this study, 2,000 individual ECGs were analyzed by Coala Life's automatic algorithms and compared with manual interpretation by a cardiologist. The results showed that the Coala Heart Monitor had a sensitivity of 97.2 percent and specificity of 94.6 percent. Furthermore, the combination of chest and thumb ECG was found to be superior to either thumb or chest ECG only.

Red Heart Study – Instant analysis of ECG with direct response during palpitations reduces symptoms, anxiety, depression, and increase HRQOL in women. Carnlöf et al. 2021.

In this study, 821 women were monitored with the Coala Heart Monitor over 60 days. Of the nearly 300,000 recorded ECG measurements in the study, 95 percent were completely normal or showed harmless extra beats. In four percent of the participants, undiagnosed atrial fibrillation or atrial tachycardia was found. Of particular interest is that the results showed that instant analysis of the ECG, with direct response during palpitations, reduced symptoms, anxiety, and depression

and also increased heart-related quality of life (HRQOL). Accordingly, the scope of benefits from using the Coala Heart Monitor appears enormous.

Quality validation of different ECG leads and an automatic P-wave detection algorithm for AF, based on real-world data. Samuelsson et al. 2020.

In this study, 5,512 real-world data recordings from Coala Heart Monitor users in Sweden were manually interpreted and compared with the cloud-based algorithm to determine the detection quality of the respective ECG leads. The evaluation was conducted on 100 consecutive anonymous printouts of chest and thumb ECG waveforms, where both an irregular RR rhythm and strong P-waves in either chest or thumb recording were detected. The results from the study showed that the combination of chest and thumb ECG for detection of atrial fibrillation (AF) by an automatic P-wave-based algorithm is more than 300 percent superior to thumb ECG alone with the majority of automatically detected P-waves and highest assessed ECG quality in the chest ECG.

Business Strategy

Coala Life's business strategy is primarily based on attaining recurring income through compensation per active patient. The company mainly prioritizes the US, Swedish, and German markets, processing these via its own sales force and sales partners. Initial marketing is also underway in Australia, the Netherlands, and a number of Asian markets.

In the Swedish market, Coala Heart Monitor is marketed directly to consumers via the company's own web shop and at selected pharmacies.

Europe

Europe is typically a slower market in which to develop and market new medical devices than the US. As an effect of different requirements and healthcare systems in the different countries, the process of obtaining reimbursement is often lengthy and more burdensome when it comes to administration. GDPR is a challenge, and this is especially complicated for companies operating cloud-based services.

Moreover, the European market is also more fragmented than the US, making it more challenging to scale and obtain a large base of outstanding devices there. Adoption is generally relatively slow in most European countries, unless there is strong national KOL support and traction with the medical community.

Among the targeted European markets, we see Germany as the most interesting for Coala Life in the early commercialization phase, and the company is currently working on getting reimbursement in place there. To access the German market, Coala Life signed a distribution agreement with Arteriomed GmbH in 2019, allowing it to initiate marketing activities in the country.

Furthermore, a collaboration with Luscii – a leader in remote healthcare and telemonitoring, delivering patient-centered solutions in the Netherlands – was initiated during 2019. As Luscii's EMR-integrated digital health platform is used by almost 50 percent of hospitals in the Netherlands, Coala Life has a strong partner in this geography.

Although the European market is interesting, the real value in the case lies with the US market.

US

In contrast to Europe, the US market is characterized by a high level of concentration, enabling high volumes with a relatively small base of clinics. In the US, Coala Heart Monitor is marketed as a service with a reimbursement model based on the number of active patients per month. In other markets, the system is sold with a recurring annual license or subscription.

Coala Life will initially address a few selected physician-owned clinics (approximately two to three) to get proof of business before focusing on a more extensive market penetration. The company will initially work with clinics with which it has strong contacts through its existing network and will then intensify the penetration and gradually increase the number of clinics. In the upscaling phase, the focus will be on cardiac clinics with about 1,000 patients and 3 to 15 cardiologists. However, Coala Life's goal is to have expanded this to approximately 50 clinics and 50,000 patients by the end of 2024.

Sales will be conducted through its own sales force, which is currently being established in the US. We estimate that by the end of 2021, the company will have employed around 10-15 sales staff in the US. By the end of 2022, however, we believe the US sales force will have grown to

20-25 staff. According to the company's own calculations, each salesperson should be able to generate USD 1-2m in revenue per year. Given an average annual salary of around USD 250,000¹, each salesperson is thus expected to generate revenues of 4-8x their annual salary. Based on this, the payback period will be approximately two to three months.

As previously mentioned, the company will initially focus mainly on physician-owned clinics and hospitals. In the longer term, however, larger hospitals will also be addressed so as to gain access to larger hospital systems. If we take an example and look at HCA (owned by KKR and Bain Capital) – one of the US's largest hospital networks with about 180 hospitals – this would imply enormous opportunities.

Within the RPM program, Coala Life's offering is today reimbursed at up to USD 200 per patient and month. However, the company expects the reimbursement to initially be around USD 100 per patient and month. The reimbursement is split between Coala Life and the prescribing physician at a proportion dependent on which model is being used (see below). Accordingly, physicians will have strong incentives to prescribe the Coala Heart Monitor since they earn part of the reimbursement.

Reimbursement is, however, conditional upon the patient using Coala Heart Monitor for at least 16 days a month and the physician reviewing the results for at least 20 minutes each month. Thus, the important factor is getting the patients to use the monitor. However, research indicates that 70-90 percent of cardiac patients adhere to recommendations from physicians following cardiology referral². Therefore, we expect patient compliance to be high.

Sales Model

Coala Life's offering to healthcare providers can be split into two different models:

- Standard Coala RPM
- Managed RPM by Coala

Standard Coala RPM

Under this model, Coala Life acts as a supplier to the healthcare sector, offering the Coala Heart Monitor and software to physicians at different clinics. The physicians then prescribe the monitor to those patients in need of frequent, long-term heart monitoring, subsequently reviewing the results through the portal. Within Standard Coala RPM, the prescribing physician/clinic is also responsible for the administrative work related to reimbursement.

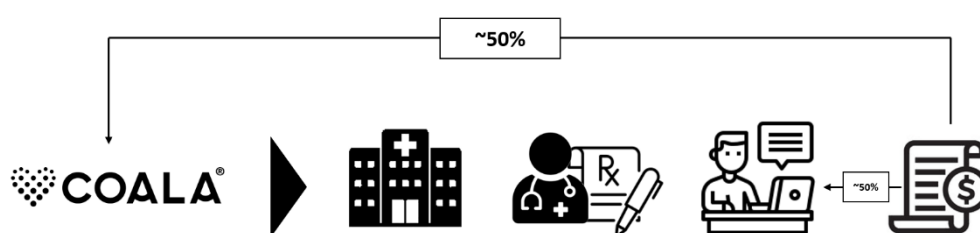
Since the physician handles all the administrative work, Coala Life takes approximately USD 50, while the remaining USD 50 goes to the prescribing physician. Accordingly, physicians have a strong incentive to prescribe Coala Heart Monitor since they earn around 50 percent of the reimbursement.

Given the above, each patient could potentially generate recurring revenues of USD 50 per month with the Standard Coala RPM model. Given an estimated monitor lifetime of approximately three years and a manufacturing cost in the range of SEK 1,000-2,000 (depending on the order size and prices of input goods), the gross margin is up to 90 percent and the payback period is just three to four months.

¹The average annual salary for sales personnel is significantly higher in the US than in Europe.

² Marques AC, Calderaro D, Yu PC, Gualandro DM, Carmo GA, Azevedo FR, et al. Impact of cardiology referral: clinical outcomes and factors associated with physicians' adherence to recommendations. *Clinics*. 2014;69(10):666-671.

Overview of the Standard Coala RPM



Source: Redeye Research and Coala Life

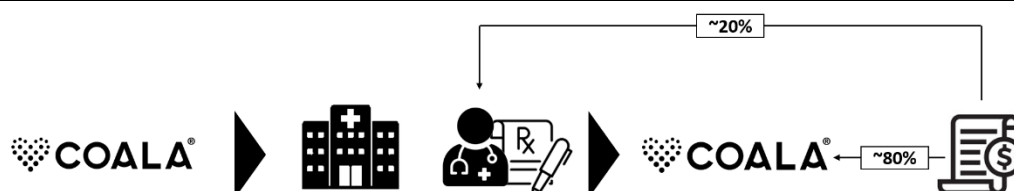
Managed RPM by Coala

Using this model, Coala Life becomes more of a full-service provider than just a supplier that delivers its monitors and provides its portal. Like the Standard Coala RPM model, the physician meets the patients and prescribes the Coala Heart Monitor to those they deem to be in need of long-term monitoring.

However, here, Coala Life is responsible for the administrative work and can also provide the clinic with additional services, which means the company is eligible for a larger proportion of the reimbursement (we estimate up to 80 percent).

Furthermore, as more services are included, we also believe that reimbursement per patient can be higher. We estimate this at around USD 125 per patient and month, implying that Coala Life earns USD 100 in monthly recurring revenues provided that the patient uses the monitor. We see this model as particularly interesting since it enables the company to further leverage revenues and earnings.

Overview of the Managed RPM by Coala



Source: Redeye Research and Coala Life

Value Proposition

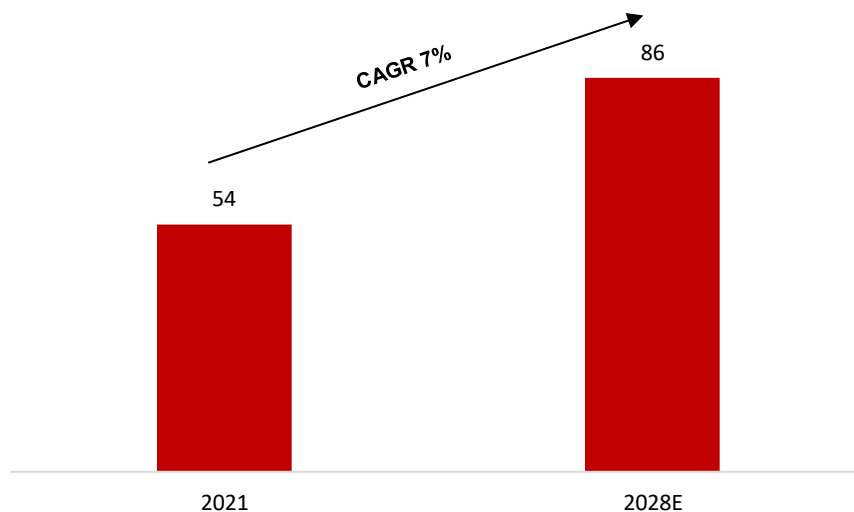
We argue that Coala Life has a strong value proposition since its offering should increase the utility for all involved:

- **For patients:** Real-time responses presented in the Coala App reduce anxiety and depression and increase heart-related quality of life (HRQOL). Moreover, remote monitoring results in fewer unnecessary hospital visits and decreases waiting times.
- **For clinics:** Saves time for cardiologists who can follow their patients remotely and outsource time-consuming administrative work (with the Managed RPM by Coala model). In addition, there are monetary incentives as the physician earns part of the reimbursement.
- **For payers:** Significantly lower cost burden by reducing physical hospital visits and ruling out more patients from additional and more cumbersome testing and procedures.

Market Overview

According to the WHO and the American Heart Association, the annual societal cost of cardiovascular diseases in the EU and the US amounts to EUR 210bn and USD 330bn, respectively. Thus, the economic impact on society is huge. By finding new and effective monitoring and diagnostic methods, and by detecting risk factors at an early stage, significant costs can be saved. Accordingly, the need for solutions like Coala Life's is enormous.

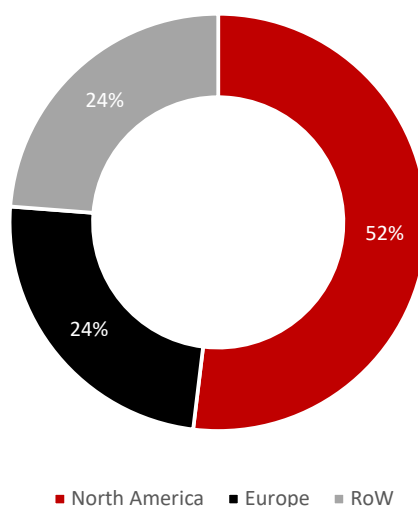
Global cardiovascular device market, 2021-2028E (USDbn)



Source: Fortune Business Insights and Redeye Research

Fortune Business Insights values the global cardiovascular devices market at around USD 54bn today and expects it to reach approximately USD 86bn in 2028, representing a CAGR of around seven percent. The market growth is driven largely by an increasing geriatric population with vulnerability to chronic diseases, in particular heart diseases such as chronic artery disease (CAD) and heart failure, among others. Moreover, regional governments' increasing awareness and initiatives are also likely to propel growth.

Geographical split

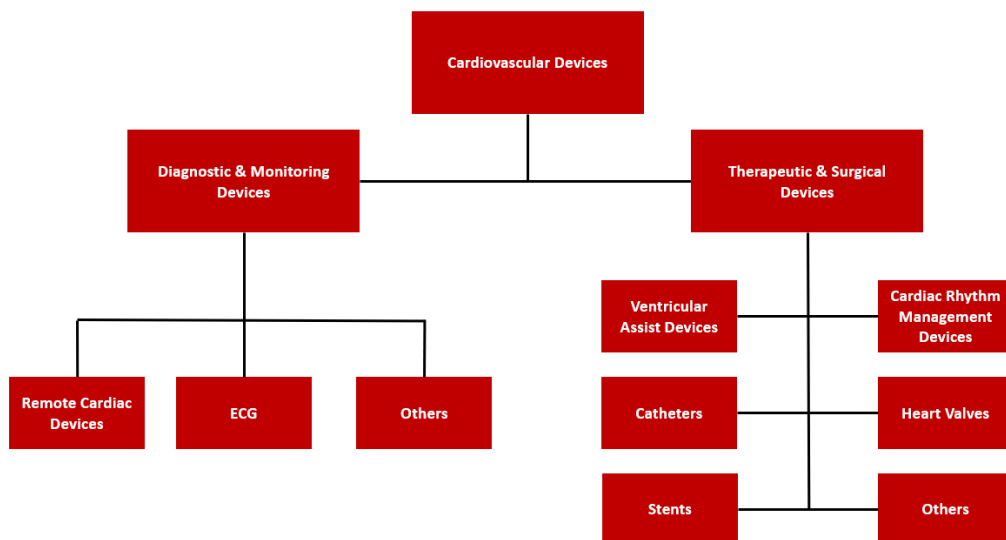


Source: Fortune Business Insights and Redeye Research

The market can simply be segmented into two main categories of devices: Diagnostic & Monitoring Devices and Therapeutic & Surgical Devices.

Diagnostic & Monitoring Devices can, in turn, be split into ECG, Remote Cardiac Monitoring Devices, and Others, while Therapeutic & Surgical Devices can be further segmented into Ventricular Assist Devices (VAD), Catheters, Stents, Cardiac Rhythm Management (CRM) Devices, Heart Valves, and Others.

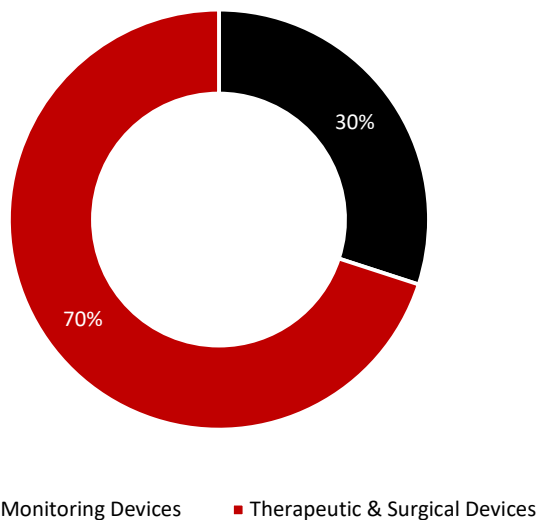
Cardiovascular devices market – overview



Source: Redeye Research

Therapeutic & Surgical Devices accounts for the largest share of the market at an estimated some 70 percent, while Monitoring & Diagnostic Devices accounts for around 30 percent. Both segments are expected to grow at a CAGR of more than six percent over the coming five years.

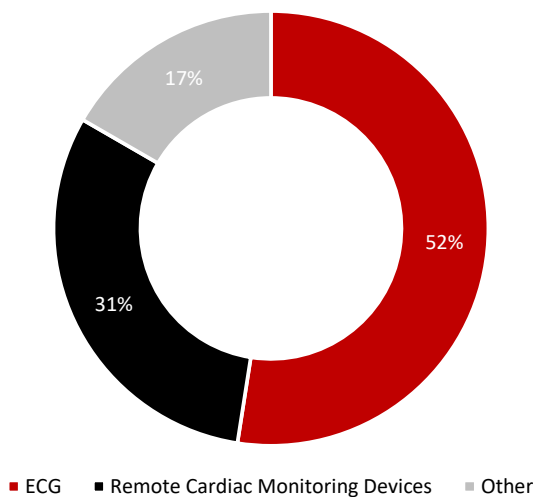
Global cardiovascular devices market share by device type, 2020



Source: Fortune Business Insights and Redeye Research

The market for ECG systems is the largest segment within Diagnostic & Monitoring Devices and was estimated by Markets and Markets at around USD 7.5bn in 2019, growing to USD 10.3bn by 2024, corresponding to a CAGR of 6.4 percent.

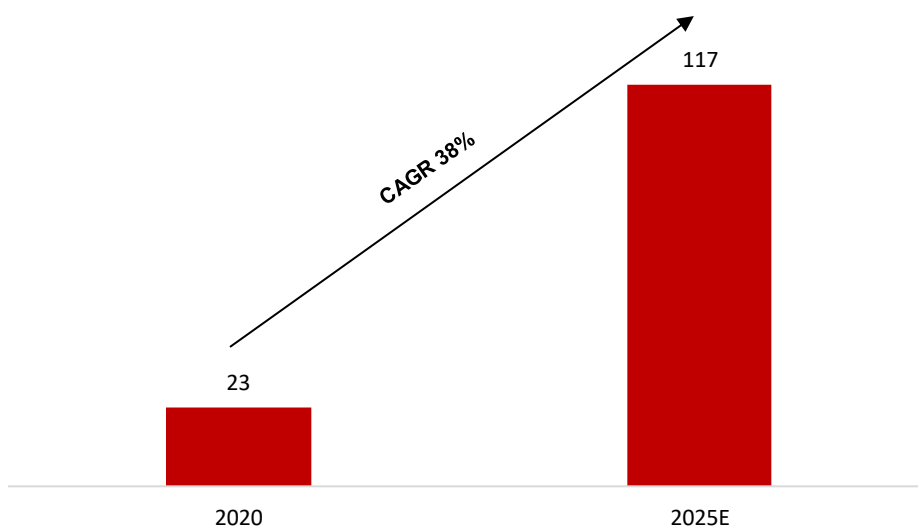
Diagnostic & Monitoring Devices



Source: Markets and Markets and Redeye Research

However, in light of the pandemic, we have seen increased demand for remote patient monitoring (RPM) programs to reduce travel and direct contact between patients and caregivers. In 2021, the Centers for Medicare & Medicaid Services (CMS) further expanded the possibilities with RPM and broadened the regulations to include not only patients with chronic diseases but also those with acute conditions.

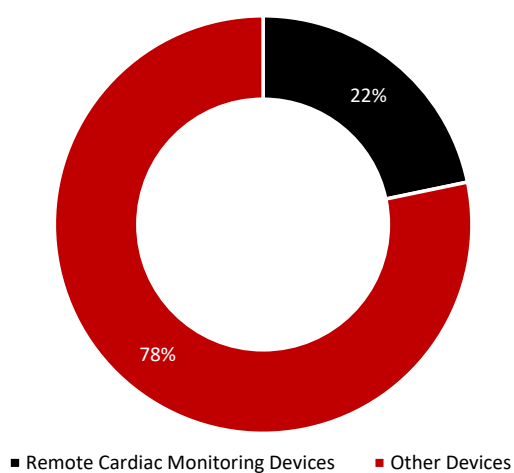
Global RPM market, 2020-2025E (USDbn)



Source: Markets and Markets and Redeye Research

According to Markets and Markets, the global market for RPM services was worth around USD 23bn in 2020 and is expected to reach USD 117bn in 2025, growing at a CAGR of 38.2 percent. Remote Cardiac Monitoring Devices, which is Coala Life’s key segment today, accounts for around 22 percent of this market.

RPM market by segment, 2020



Source: Markets and Markets and Redeye Research

We argue that Coala Life's complete platform with software and hardware is well suited for RPM, and the company's products are currently used in a number of clinics in the US, covered by the CPT codes mentioned before.

Accordingly, we judge that Coala Life has excellent growth prospects in the coming years.

Cardiovascular Diseases

Cardiovascular diseases (CVDs) are a group of heart and blood vessels disorders including:

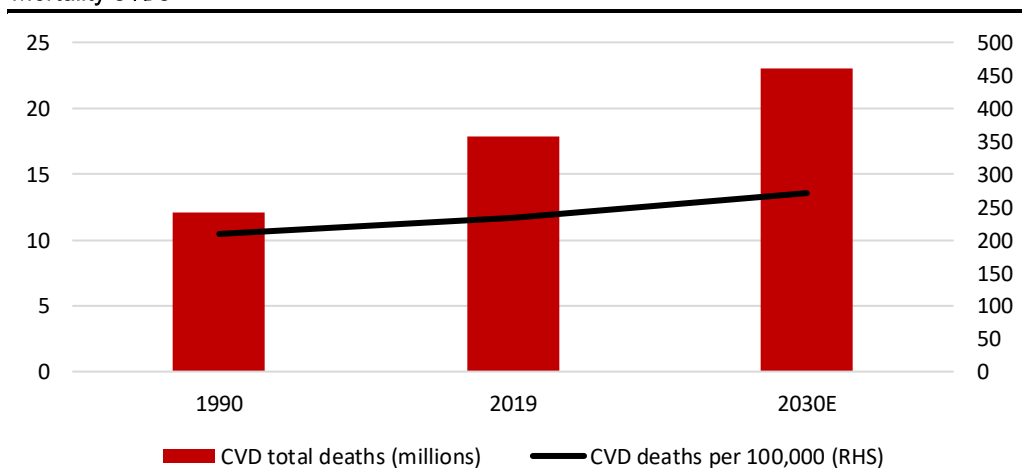
- Atrial fibrillation/arrhythmias
- Aorta disease and Marfan syndrome
- Congenital heart disease
- Coronary artery disease (CAD)
- Deep vein thrombosis and pulmonary embolism
- Heart attack
- Heart failure
- Heart muscle disease (cardiomyopathy)
- Heart valve disease
- Pericardial disease
- Peripheral vascular disease
- Rheumatic heart disease
- Stroke
- Vascular disease (blood vessel disease)

CVDs are the leading cause of death globally, accounting for approximately 17.9 million deaths in 2019 (32 percent of all deaths globally). Moreover, out of 17 million premature deaths in 2019, 38 percent were caused by CVDs, according to the WHO.

The total number of CVD cases has steadily increased over the past 30 years, and studies show that prevalence has nearly doubled from 271 million cases in 1990 to 523 million cases in 2019. In the US, nearly half of the adult population have some type of cardiovascular disease, according to estimates from the American Heart Association. However, it is worth noting that this number includes people with high blood pressure (hypertension).

Patients treated for CVDs tend to spend a long time at hospitals. Even if this time spent has decreased in recent years, the impact on the healthcare sector remains a hefty problem for society. The total global cost of cardiovascular diseases (CVD) amounted to USD 863bn in 2010 and is expected to increase to USD 1,044bn by 2030, according to the World Economic Forum. This includes both direct healthcare costs (~55 percent) and other societal costs. Key drivers are global population growth, a larger share of the population aged over 60, and lifestyle factors such as poor diet and physical inactivity.

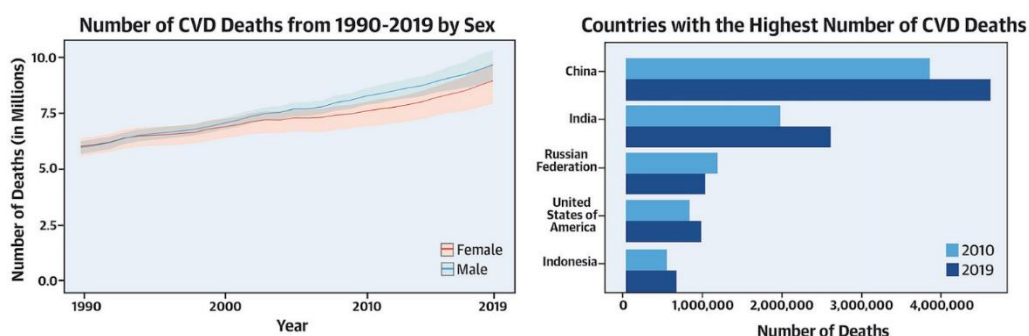
Mortality CVDs



Source: World Bank, WHO and Redeye Research

In 2030, the death rate for cardiovascular diseases is estimated by the WHO to increase to 23 million. The chart above also shows the death rate per 100,000. When adjusted for the global population, it suggests that the death rate has increased since 1990 and is estimated to grow in the coming ten years.

CVD deaths by sex and geography



Source: JACC Journals

Coronary Artery Disease (CAD)

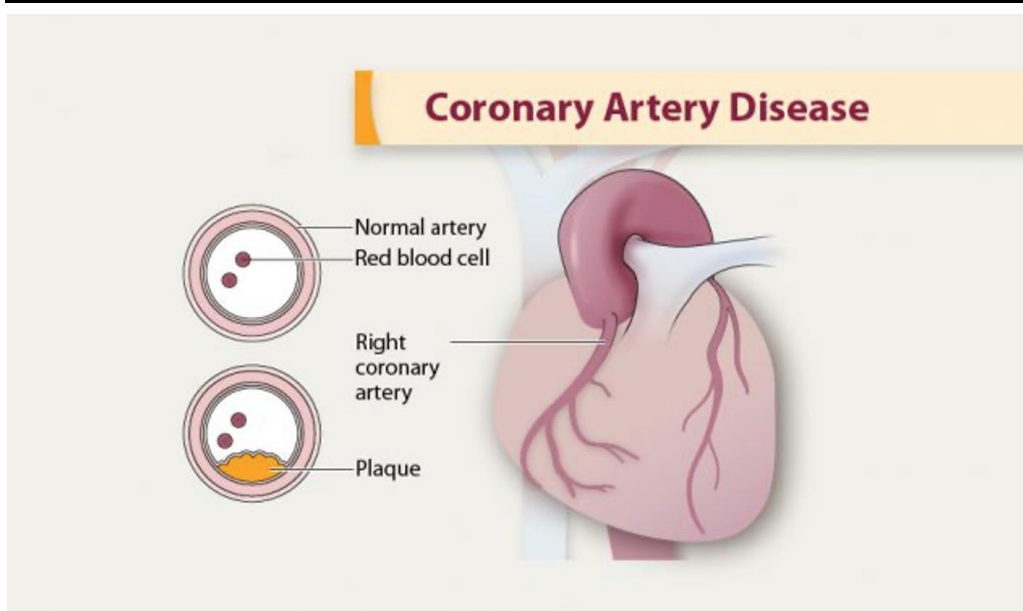
According to Datamonitor, coronary artery disease (or ischemic heart disease) is one of the most common cardiovascular diseases with a global prevalence of ~330 million. CAD is caused by plaque build-up on the walls of the arteries that supply blood to the heart (the coronary arteries) and other parts of the body. Plaque is made up of deposits of cholesterol and other substances in the artery. Plaque build-up causes the inside of the arteries to narrow over time, partially or fully blocking the blood flow, which is called atherosclerosis.

The first sign of CAD is usually chest pain, also known as angina. This could be either stable or unstable angina. Stable angina typically occurs with activity or emotional stress, while unstable angina tends to occur in a random and unpredictable manner.

However, many people may have ischemic episodes without knowing it – known as silent ischemia. This increases the risk of a heart attack with no prior warning. People with angina may also have undiagnosed episodes of silent ischemia. In addition, people who have had heart attacks before or those with diabetes are particularly at risk of developing silent ischemia.

Asia is estimated to have the largest number of cases (171.3 million in 2017), while Oceania is estimated to have the smallest number (1.7 million cases in 2017). The numbers for North America and Europe are estimated at 18 million and 32 million, respectively.

CAD

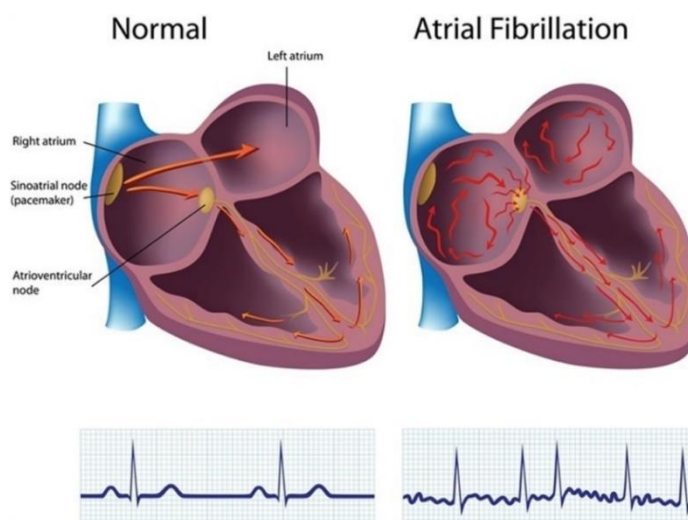


Source: CDC

Atrial Fibrillation

Atrial fibrillation (AF) is one of the most common heart and vascular diseases, occurring due to disordered electrical impulses in the heart's atria. It is characterized by irregular heart rhythm (arrhythmia). With a global prevalence and incidence of 37.5 million and 3 million cases in 2020, respectively, it is the most common cardiac arrhythmia. There are around 3 million AF patients in the US today (around 11 million people annually in the US have arrhythmias). However, this number is expected to grow to 6 to 12 million by 2050. By this time, Europe is expected to have approximately 18 million AF patients³.

Atrial fibrillation



Source: Alia Medical Media / Shutterstock

³ Lippi et.al. Int J Stroke. 2021 Feb;16(2):217-221. doi: 10.1177/1747493019897870. Epub 2020 Jan 19.

Atrial fibrillation is often diagnosed by ECG but can be challenging to detect since the irregular heart rhythm may not be seen during the physician appointment. In many cases, it is not diagnosed until a serious clinical event such as stroke (20-50 percent) or heart failure (21 percent)⁴. Through early detection, however, up to 80 percent of AF-related strokes can be prevented.

Heart Attack

A heart attack is usually caused by the formation of a blood clot that has completely or partially blocked the coronary arteries of the heart, i.e., the vessels that run across the surface of the heart and which supply the heart muscle with oxygen-rich blood. When this happens, the blood cannot pass as it normally does and the part of the heart that would have received the blood suffers from a lack of oxygen, causing damage.

During our lives, blood fats are stored in the walls of our blood vessels. Over time, the accumulation of fat can cause an inflammation that in turn leads to the formation of plaque (fat, cholesterol, or other substances). As the plaque grows, the space in the vessel gradually becomes smaller.

In a heart attack, the plaque on the wall of the coronary artery ruptures and the platelets respond by forming a clot of coagulated blood. When the plug completely clogs the vessel, the blood can no longer reach parts of the heart muscle and there is a severe lack of oxygen (ischemia). If the lack of oxygen lasts for more than 15 minutes, the heart muscle cells begin to die. The injury that occurs is a heart attack.

Each year, around 800,000 people in the US have a heart attack, and among these, around 200,000 occur in those who have had a heart attack before.

Arrhythmias are a typical complication following heart attacks. Therefore, continuous ECG monitoring takes place during the first 24 to 48 hours after a heart attack.

Heart Failure

Heart failure can occur if the heart's pumping ability deteriorates due to enlarged cavities in the left or right ventricle. Impaired pumping capacity can also be caused by a thickening of the heart muscle, for example. When this happens, fluid accumulation and swelling can occur in the legs and lungs, so-called edema. Fatigue and shortness of breath are other typical symptoms.

Heart failure can either be sudden or can develop over a long period of time. Acute heart failure can occur at the same time as a heart attack or in connection with sepsis, for example. The most common cause of chronic heart failure is damage to the heart muscle caused by a previous heart attack. Another common explanation for chronic heart failure is long-term high blood pressure. Chronic heart failure eventually leads to impaired blood circulation, low blood pressure, a high heart rate, and impaired function in both the lungs and kidneys.

According to CDC, around 6.4 million people in the US are diagnosed with heart failure, while around 500,000 new cases occur each year.

⁴ Ali, Ali N, and Ahmed Abdelhafiz. "Clinical and Economic Implications of AF Related Stroke." *Journal of atrial fibrillation* vol. 8,5 1279. 29 Feb. 2016.

Palpitations

A less severe but common form of chronic heart disease is palpitations. This means that the patient feels their heartbeats. The reasons for palpitations vary, but in most cases, the finding is benign. They may be due to a change in the heart's autonomous tone (mental stress, physical exertion, pregnancy, etc.) or harmless so-called extra heartbeats, which occur in all individuals to varying degrees, even if the vast majority do not feel them. Palpitations can also be a symptom of underlying non-cardiac diseases such as toxic goiter or other metabolic disorders.

For a small group of individuals, palpitations are likely to be caused by clinically significant arrhythmia, such as atrial fibrillation or other supraventricular arrhythmias, and to an even lesser extent by ventricular arrhythmias or ventricular extra beats.

Palpitations are common and often lead to worry, anxiety, and panic. The mental symptoms are typically based on concerns about an underlying severe heart disease or heart failure that may cause sudden death. Palpitations have a high burden on the healthcare sector with long waiting lines as a result. In the US, more than 77 million visits to primary care each year are for palpitations, which are the second most common reason for referral to a cardiologist.

Competitors

Today, there are many players offering products for remote cardiac monitoring and ECG. The largest players are found in the US, where the transition to new wireless and digital solutions has been more rapid than in Europe. In the US, insertable cardiac monitors (ICM), also known as implanted loop recorders (ILR), are often used for patients requiring long-term monitoring. These small monitors are placed under the skin and collect data that is downloaded via an external receiver. However, these products are expensive, invasive, and are not reimbursed by all insurance companies.

Competitive landscape

Consumer ECG (OTC)	Thumb ECG (Rx)	Remote, Long-Time Monitoring (Rx)	Patch ECG (Rx)	Insertable Cardiac Monitors (Rx)

Source: Redeye Research

Given the continuously growing number of people wanting to monitor their health parameters remotely, we have seen a great number of products and services reaching the market recently. However, few of these generate accurate diagnostic data and so there is a high amount of false positive indications. This is very problematic since it can, in the worst case, result in more physical visits and thus place a higher burden on the healthcare system.

Backed by strong clinical data and a unique offering for long-term monitoring with high accuracy, Coala Life’s products offer a strong proposition and attractive market position, we believe. However, there are some competitors to be aware of. We briefly describe the key ones below.

AliveCor

Founded in 2011, AliveCor is a Silicon Valley-based company that has developed the KardiaMobile system. KardiaMobile is a smartphone-based ECG system that patients can use in their everyday life by placing their fingertips on a small device for about 30 seconds. The results are then presented on the patient's smartphone and sent to the physician via the KardiaPro platform. KardiaMobile received FDA clearance in 2012 (CE approval in 2015) for detecting atrial fibrillation bradycardia and tachycardia. As of November 2017, AliveCor had recorded about 20 million ECGs. Its products are sold online for between USD 99 and USD 199. The platform is currently being marketed to the US healthcare industry to enable RPM programs.



Zenikor Medical Systems

Zenikor Medical Systems AB is a Swedish medical technology company that was founded in 2003 and is focused on early diagnosis of arrhythmias and stroke prevention. Zenikor conducts its own research and development, while research is conducted together with research partners in all markets.

Together with researchers at Karolinska Institutet, Zenikor has developed its Zenikor ECG system to easily and effectively identify and diagnose atrial fibrillation and other cardiac arrhythmias at an early stage.

The company provides a complete system solution optimized for healthcare that can perform investigations with patient registering ECGs over a long period. The results are transferred to a central ECG database and then presented to the caregiver via the internet.



iRhythm

Founded in 2008, iRhythm is a US digital healthcare company providing a biosensing technology with cloud-based data analytics and machine-learning capabilities to monitor cardiac arrhythmias. The company is listed on NasdaqGS (market cap of around USD 3bn), and its 2020 revenues amounted to USD 265m.

The company has developed two types of single-use cardiac monitoring patch systems called Zio^{XT} and Zio^{AT}, which patients can use remotely. If a patient using the Zio^{XT} feels anything unusual, they log this in the "MyZio App" or note it down in a booklet. The single-use Zio^{XT} patch and the booklet (if the patient is not using the app) are then sent to the prescribing physician by mail. The physician reviews the heart data generated by the iRhythm report. This time lag between the problem appearing and the physician reviewing it presents an obvious problem. However, the Zio^{AT} uses real-time data, making it more comparable to Coala Life's offering.

Worth noting, however, is that the two Zio systems are not applicable for long-term monitoring (only a maximum 14 days). Accordingly, iRhythm could potentially be seen as an enabler rather than a competitor to Coala Life since a diagnosis made following Zio usage could lead to long-term monitoring.



Coala Life's Target Population

Coala Life's products have the potential for use by patients in both primary and specialty care. A few examples are:

- **Patients experiencing intermittent palpitations:** As mentioned above, this group of patients accounts for around 77 million visits to US primary care per year, representing the second most common cause for visiting a cardiologist.
- **Patients with atrial fibrillation:** Around 3 million patients in the US today suffer from atrial fibrillation, and this number is expected to reach 6 to 12 million by 2050. Moreover, around 11 million people in the US suffer from arrhythmias annually.
- **Patients with chronic hypertension and heart failure:** Around 108 million US adults are hypertensive and only one in four of them have their condition under control. Furthermore, the US prevalence of heart failure is, according to CDC, around 6.4 million people, while the annual incidence amounts to around 500,000 cases.
- **Patients who have had a heart attack:** Each year, around 800,000 people in the US have a heart attack, and of these, around 25 percent have had a heart attack before. Furthermore, as much as 20 percent of all heart attacks are silent.
- **Patients undergoing cardiac rehab:** Excluding heart failure patients, there are roughly 1.4 million US patients eligible for cardiac rehab.
- **Patients on cancer drugs that cause arrhythmias:** As of today, there are around 1 million patients in the US undergoing cancer treatment, and among these, some 150,000 women take cardiotoxic drugs and thus require frequent ECG monitoring.

Given these figures, we see an enormous potential addressable patient population for Coala Life. However, in our Base Case scenario, we initially limit the target population to patients who have recently had a heart attack, new heart failure patients, and patients with symptomatic atrial fibrillation.

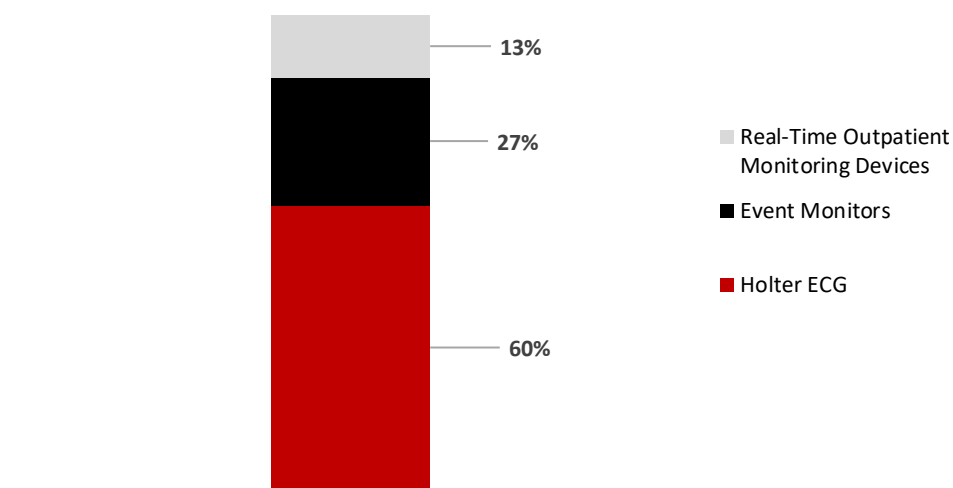
Atrial fibrillation market



Source: Redeye Research and iRhythm

When it comes to atrial fibrillation, real-time outpatient monitoring devices, such as the Coala Heart Monitor and iRhythm's Zio^{AT} system, have a relatively low penetration today in initial diagnosis for symptomatic atrial fibrillation, accounting for around 13 percent of all tests performed. However, penetration is likely to increase in the coming years thanks to the many benefits that these devices bring. Accordingly, we consider the opportunity in this segment to be significant.

Real-time outpatient monitoring devices as % of symptomatic AF diagnosis, 2021



Source: iRhythm and Redeye Research

Given the above, we estimate the initial addressable target population in the US to be around 7.3⁵ million patients.

⁵ 800,000 heart attack patients, 500,000 heart failure patients, and 6,000,000 atrial fibrillation patients.

Historical Financials

Looking at historical financials, we can see that Coala Life's sales have been in the SEK 1-3m range over the past three years.

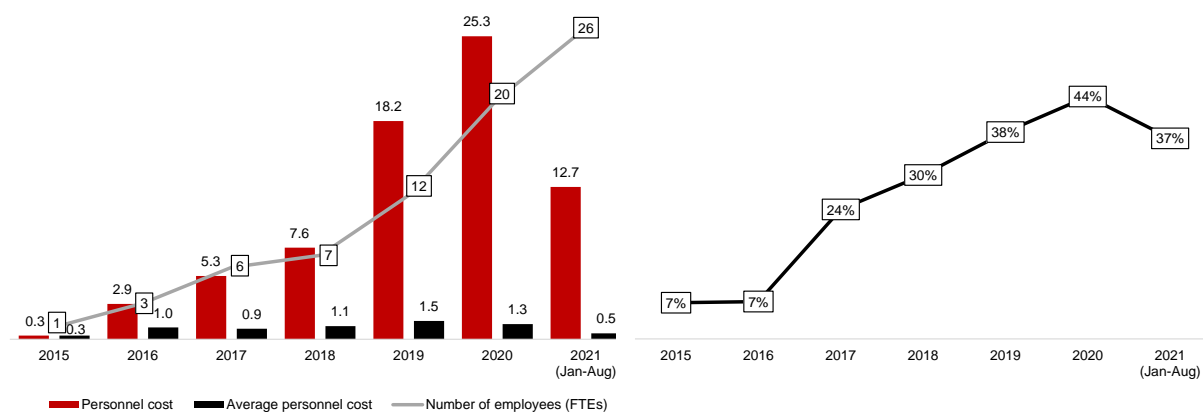
Financials, 2015-2021 (SEKm)

	2015	2016	2017	2018	2019	2020	2021 (Jan-Aug)
Sales	0.0	0.1	1.1	3.0	2.0	3.4	3.6
Other operating income	0.0	0.0	0.8	0.3	0.1	1.0	0.2
OPEX	-4.7	-42.9	-22.3	-25.5	-48.1	-57.0	-34.6
EBITDA	-4.7	-42.8	-20.4	-22.2	-46.0	-52.6	-30.8
D&A	0.0	0.0	-0.9	-0.9	-1.1	-1.5	-2.2
EBIT	-4.7	-42.8	-21.3	-23.1	-47.0	-54.1	-33.0
Net interest income	0.0	0.0	0.0	0.0	0.0	-0.1	0.0
Tax	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net profit	-4.7	-42.8	-21.3	-23.1	-47.0	-54.3	-33.0

Source: Redeye Research

Moreover, EBIT has been declining, amounting to around SEK -54m in 2020, as a result of heavy investments to establish a presence in the US and the growing work force.

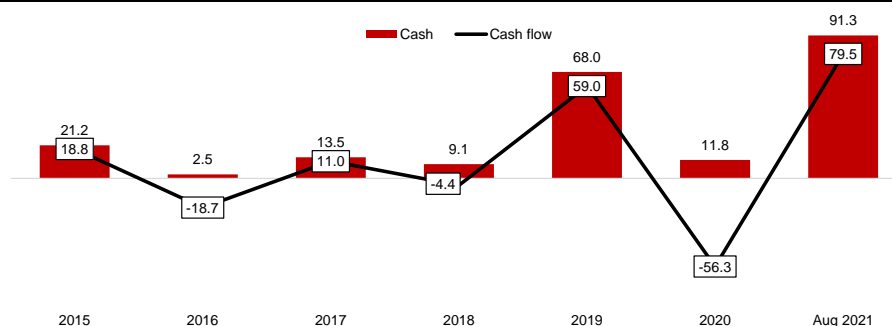
Personnel costs and number of employees, 2015-2021⁶ (SEKm) Personnel costs as % of opex (2015-2021)



Source: Redeye Research

Coala Life had cash and cash equivalents of around SEK 91m as of the end of August 2021. Given the company's burn rate, which we expect to increase as the US commercial activities intensify next year, we believe Coala Life will need to raise additional cash before it reaches break-even. Thus, we expect a capital injection within 12-18 months.

Cash position and cash flow, 2015-2021 (SEKm)



Source: Redeye Research

⁶ For Jan-Aug 2021, we use the average number of FTEs (20 by the end of 2020 and 32 today).

Forecasts

Coala Life is currently on the verge of a more comprehensive commercialization phase and is thus still not profitable. The company is working hard to build a strong sales force in the US and start penetrating that market in the near term. However, it has established a few financial goals to be achieved by 2024 as part of its long-term strategy:

- Recurring sales exceeding SEK 250m
- A gross margin of more than 80 percent
- Being cash flow positive

We consider these goals ambitious but obtainable, and we argue that the business model of recurring monthly revenues offers attractive commercial potential with high operating leverage.

We use a bottom-up approach, based on the prescribed base of monitors, to estimate sales over the coming ten years. We expect the reimbursement to initially be around USD 100 per patient and month, and to take a conservative stance, we base our estimate on the RPM by Coala Model. Consequently, we account for Coala Life receiving around USD 50 per prescription and month. Moreover, we apply an average usage period of 12 months per patient. However, we assume that around ten percent of patients will use the monitor for at least 24 months.

Given an estimated lifetime for the Coala Heart Monitor of two to three years, combined with manufacturing costs in the range of SEK 1,000-2,000, we expect gross margins in the 80-90 percent range⁷. In our estimates, we apply a two-year lifetime per monitor and since the manufacturing costs largely depend on order volume, we apply a manufacturing cost of SEK 1,500 (gross margin of ~85 percent) at the beginning of the period. However, we account for increasing economies of scale and expect gross margins to approach 90 percent at the end of our forecast period.

Sales estimates, 2021-2031 (SEK)

	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E
No. of new prescriptions	1,000	7,000	24,000	44,000	47,000	57,000	80,000	110,000	145,000	160,000	172,000
Total outstanding monitors	1,000	7,100	24,710	46,471	51,647	62,165	86,216	118,622	156,862	175,686	189,569
Monthly fee (USD)	50	50	50	50	50	50	50	50	50	50	50
Annual sales (USD)	600,000	4,260,000	14,826,000	27,882,600	30,988,260	37,298,826	51,729,883	71,172,988	94,117,299	105,411,730	113,741,173
Annual sales (SEK)	5,400,000	38,340,000	133,434,000	250,943,400	278,894,340	335,689,434	465,568,943	640,556,894	847,055,689	948,705,569	1,023,670,557

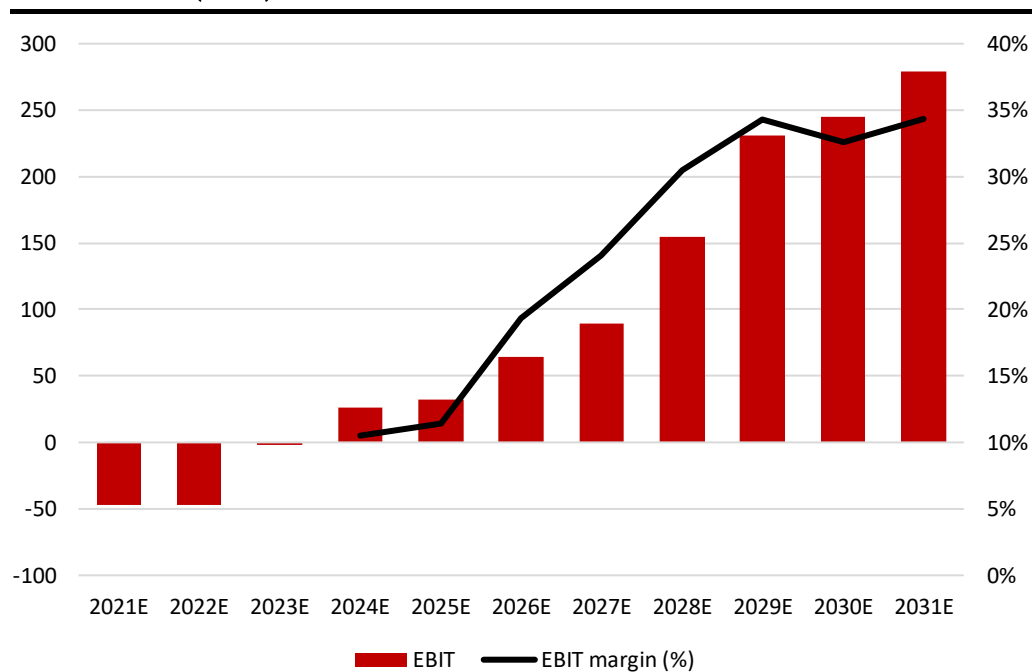
Source: Redeye Research

We believe that Coala Life will achieve its financial goal of recurring revenues exceeding SEK 250m by 2024, and we see sales potential of more than SEK 1bn by the end of the forecast period. As mentioned before, the potential lies in the US market, which we believe will account for the lion's share of Coala Life's revenues (in excess of 90 percent) over the coming years.

⁷ Since Coala Life operates a business model where it leases out the Coala Heart Monitor, COGS is booked as depreciation in the income statement. However, we still use the term *gross margin* to illustrate the profitability.

Coala Life has a history of high cash burn owing to heavy investments in commercializing its products and establishing its US business. We forecast that operating expenses will rise further because of higher sales⁸ and marketing costs over the coming years. Consequently, we estimate that the company reaches positive EBIT in 2024. Due to strong operating leverage, we see potential for EBIT margins in excess of 30 percent by the end of our forecast period.

EBIT, 2021-2031 (SEKm)



Source: Redeye Research

⁸ Average cost per US sales staff is around USD 250,000 per year.

Valuation

DCF

We value Coala Life using a DCF model with a WACC of 12 percent. We set the terminal year to 2031 and apply a terminal growth rate of two percent.

DCF valuation

Coala Life: Base Case assumptions (SEKm)					
Assumptions	2021-2031	2021-2024	2024-2031	DCF value	
Sales CAGR	69%	260%	22%	WACC	12%
EBIT margin (avg.)	-73%	-246%	25%	PV of FCF	177
				PV of Terminal value	932
Terminal				EV	1,108
Growth of FCF	2%			Net cash	75
EBIT margin	34%				
				DCF Value	1,183
				Number of shares (m)	35
				Fair value per share (SEK)	33

Source: Redeye Research

Given an estimated net cash position of SEK 75m, our DCF model suggests a fair value of **SEK 33** per share in our Base Case scenario. This corresponds to an EV and market cap of SEK 1,108 and SEK 1,183m, respectively. Accordingly, we see upside potential of some 133 percent from current share price levels.

We also provide a sensitivity analysis to show how sensitive our valuation is to changes in WACC and the terminal growth rate.

Sensitivity analysis

		WACC				
		10.0%	11.0%	12.0%	13.0%	14.0%
Terminal growth rate	1.0%	43	36	31	27	23
	1.5%	45	38	32	28	24
	2.0%	47	39	33	29	25
	2.5%	50	41	35	30	26
	3.0%	53	43	36	31	27

Source: Redeye Research

Peer Group

As a complement to our DCF model, we provide a peer group analysis that includes a number of Nordic medtech companies operating in various fields. As Coala Life is still some years away from profitability, we see the EV/sales multiple as the most relevant measure.

Peer valuation

Company	EV (SEKm)	EV/Sales			EV/EBITDA			EV/EBIT		
		2021E	2022E	2023E	2021E	2022E	2023E	2021E	2022E	2023E
Nordic peers										
Vitrolife AB	51,105	30.5x	16.1x	14.4x	79.7x	44.7x	39.1x	95.6x	52.8x	42.1x
Biotage AB	15,986	13.4x	11.5x	10.4x	45.5x	40.5x	36.5x	57.3x	49.7x	44.0x
CellaVision AB	7,525	13.5x	11.5x	10.2x	41.2x	33.4x	28.3x	48.2x	38.2x	32.1x
Sedana Medical AB	7,496	53.3x	28.5x	17.7x	Neg.	303.9x	65.9x	Neg.	592.9x	73.4x
Xvivo Perfusion AB	7,405	29.3x	20.6x	14.6x	235.7x	108.2x	73.4x	Neg.	231.3x	119.3x
Surgical Science Sweden AB	10,451	31.8x	15.9x	13.6x	114.9x	59.8x	42.3x	183.9x	90.1x	56.9x
Boule Diagnostics AB	1,061	2.4x	2.0x	1.8x	18.8x	10.9x	9.0x	30.5x	14.0x	11.3x
SyntheticMR AB	2,210	38.4x	23.9x	18.4x	149.8x	55.4x	37.5x	214.6x	62.8x	41.0x
Senzime AB	1,135	114.1x	26.5x	5.6x	Neg.	Neg.	14.1x	Neg.	Neg.	16.4x
BONESUPPORT HOLDING AB	2,031	10.0x	7.0x	5.1x	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.
Bactiguard Holding AB	5,326	22.4x	14.5x	10.8x	92.1x	33.4x	21.4x	567.1x	48.0x	26.6x
Acarix AB	170	28.3x	13.1x	5.2x	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.
Median	6,365	28.8x	15.2x	10.6x	85.9x	44.7x	37.0x	95.6x	52.8x	41.5x
Coala Life	420	77.8x	11.0x	3.1x	Neg.	Neg.	38.9x	Neg.	Neg.	Neg.

Source: FactSet (as of 7 December) and Redeye Research

Applying the peer group median EV/Sales multiple for 2023E of 10.6x to our estimated 2023 sales for Coala Life of SEK 133m, we arrive at an EV of SEK 1,410m. Given the estimated net cash position of SEK 75m, this corresponds to an equity value of SEK 1,485m and an implied share price of SEK 42.

Valuation Cases

Bear Case SEK 9

Our Bear Case scenario assumes that the sales ramp-up is slower than in our Base Case scenario and that the company struggles to gain traction in the US. Moreover, the company fails to reach its sales target for 2024, reporting sales of SEK 85m by that time.

We assume that there are around 100,000 outstanding monitors by 2031 and estimate sales at roughly SEK 600m by that point.

We set the terminal year to 2031 and apply a terminal growth rate of 2 percent, with an EBIT margin of 19 percent.

Base Case SEK 33

Our Base Case scenario assumes a sales CAGR of 69% for 2021-2031.

We assume that there are around 190,000 outstanding monitors by 2031 and estimate sales at approximately SEK 1bn by that time.

We set the terminal year to 2031 and apply a terminal growth rate of 2 percent and an EBIT margin of 34 percent.

Bull Case SEK 50

In our Bull Case scenario, the company enjoys huge commercial success with the Coala Heart Monitor. In this scenario, we assume a sales CAGR of 77% for 2021-2031.

We assume that there are approximately 300,000 outstanding monitors by 2031 and estimate sales at around SEK 1.6bn by that time.

We set the terminal year to 2031 and apply a terminal growth rate of 2 percent, with an EBIT margin of 35 percent.

Income Statement

Income Statement	2018	2019	2020	2021E	2022E	2023E
Revenues	3	2	3	5	38	133
Y/Y Growth (%)	n/a	(31.7%)	66.0%	60.8%	610.0%	248.0%
Cost of Revenues	2	0	1	1	7	23
Gross Profit	1	2	3	4	31	111
Gross Profit Margin (%)	23.7%	87.1%	75.3%	80.0%	82.0%	83.0%
EBITDA	(22)	(46)	(53)	(46)	(44)	11
EBITDA Margin (%)	(750.8%)	(2272.8%)	(1567.1%)	(845.9%)	(113.6%)	8.1%
D&A	1	1	2	1	4	13
EBIT	(23)	(47)	(54)	(47)	(47)	(2)
EBIT Margin (%)	(780.1%)	(2325.3%)	(1612.6%)	(870.0%)	(123.1%)	(1.6%)
Associated Income / (loss)	-	(0)	-	-	-	-
Interest Income	0	-	-	-	-	-
Interest Expenses	0	-	0	-	-	-
Interest Expenses, Lease Liabilities	-	-	-	-	-	-
Exchange Rate Differences	-	-	-	-	-	-
Non-recurring Income / (Expenses)	-	-	-	-	-	-
EBT	(23)	(47)	(54)	(47)	(47)	(2)
Income Tax Expenses	-	0	0	-	-	-
Effective Tax Rate (%)	0.0%	0.0%	(0.1%)	0.0%	0.0%	0.0%
Non-Controlling Interests	-	-	-	-	-	-
Net Income	(23)	(47)	(54)	(47)	(47)	(2)
Non-Recurring Items / (Loss), Post Tax	-	-	-	-	-	-
Recurring Net Income	(23)	(47)	(54)	(47)	(47)	(2)

Balance Sheet

Balance Sheet	2018	2019	2020	2021E	2022E	2023E
Current Assets						
Cash & Equivalents	9	68	12	75	60	70
Inventories	3	6	9	0	5	16
Accounts Receivable	0	0	0	1	6	22
Other Current Assets	1	2	3	0	1	3
Total Current Assets	14	76	24	76	72	110
Non-Current Assets						
Property, Plant & Equipment, Net	0	0	1	1	7	22
Goodwill	-	-	-	-	-	-
Intangible Assets	9	8	7	7	8	12
Right-of-Use Assets	-	-	-	-	-	-
Shares in Associates	-	-	-	-	-	-
Other Long-Term Assets	-	-	-	-	-	-
Total Non-Current Assets	9	8	8	8	15	34
Total Assets	22	83	32	85	87	144
Current Liabilities						
Short-Term Debt	0	0	0	17	12	59
Short-Term Lease Liabilities	-	-	-	-	-	-
Accounts Payable	2	3	4	0	2	7
Advances From Customers	1	3	4	-	-	-
Prepaid Income	-	-	-	-	-	-
Accrued Expenses	-	-	-	0	2	4
Other Current Liabilities	0	1	0	0	2	7
Total Current Liabilities	4	6	9	18	18	77
Non-Current Liabilities						
Long-Term Debt	-	-	0	0	0	0
Long-Term Lease Liabilities	-	-	-	-	-	-
Other Long-Term Liabilities	-	-	-	-	-	-
Other Long-Term Liabilities, % of Rev.	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Non-current Liabilities	-	-	0	0	0	0
Non-Controlling Interest	-	-	-	-	-	-
Shareholder's Equity	19	77	23	66	69	66
Total Liabilities & Equity	22	83	32	85	87	144

Appendix I – Reimbursement

To get a better understanding of how the Coala Heart Monitor is reimbursed in the US, we provide a brief overview of the different care models covering Coala Life's offering.

Remote Patient Monitoring (RPM)

RPM is a relatively new US care model that was introduced in 2019 to enable remote monitoring of patients in the home environment. Through RPM, healthcare can use new, connected, patient-centered technology to facilitate interaction between clinics and patients at home. RPM differs from telemedicine in that it includes connected medical technology products and aims to provide better care between care visits, find complications early on, and prevent them from worsening.

RPM can help keep people healthy and can allow the elderly and disabled to stay at home longer and avoid them having to move to specialized care facilities. RPM can also help to reduce the number of hospital stays, re-admissions, and length of stays, thus contributing to improving quality of life and limiting costs.

The regulations regarding RPM require that FDA-approved medical equipment be prescribed to the patient and that data be reported automatically to the care provider via cloud service. Data must be reported by the patient for at least 16 days per month and the care provider must review the collected data for at least 20 minutes per month. RPM systems normally sound an alarm automatically when data is outside the set parameters or guidelines.

Typical products used in RPM systems are connected blood pressure monitors, ECGs, scales, and heart rate monitors. In November 2018, the Centers for Medicare & Medicaid Services (CMS) officially approved a set of rules and a number of new CPT reimbursement codes for RPM. These CPT codes are currently being replaced by all major insurance companies in the US, including Medicare. The caregiver's average compensation for RPM amounts to some USD 150-200 per patient and month, depending on geography, technology, and how much time is spent monitoring the patients at home. The average primary care physician in the US can thus generate more than USD 400,000 extra in revenue per year by running an RPM program as a complement to their conventional activities.

RPM has been developed gradually, and as of April 2020, it is covered by four CPT codes: CPT 99453, CPT 99454, CPT 99457, and CPT 99458. There is no time limit on how long a patient is in an RPM program; it is governed by the clinical need.

Chronic Care Management (CCM)

CCM services are recognized by the CMS as a critical component of primary care and have been paid separately under the Medicare Physician Fee Schedule (PFS) to Medicare patients with multiple chronic conditions since 2015. Patients with two or more chronic conditions expected to last at least 12 months or until death and that carry a significant risk of death, acute exacerbation/decompensation, or functional decline, are eligible to receive CCM services.

Chronic conditions targeted by CCM are Alzheimer's disease, arthritis (osteoarthritis and rheumatoid), cancer, diabetes, asthma, and cardiovascular disease, among others, and services can be billed by physicians, certified nurse midwives, clinical nurse specialists, nurse practitioners, and physician assistants.

By proactively managing patient health rather than just treating severe or acute disease, CCM can reduce the need for more costly services in the future.

There are four CPT reimbursement codes for CCM: CPT 99490, CPT 99491, CPT 99487 (complex CCM), and CPT 99489 (complex CCM). Patient cost sharing applies to CCM services, but a high degree of patients have additional

insurance that covers these costs. However, the practitioner must inform the patient and receive their consent in advance.

Appendix II – Management and Board

Name	Position	Holdings	Experience
Management			
Dan Pitulia	CEO	797,057 shares	Dan Pitulia has been the CEO of Coala Life since 2019. Mr. Pitulia has extensive executive and management experience from the life science industry and has been involved in several successful growth journeys including the sale of Carmel Pharma to the global medtech company Becton, Dickinson and Company (BD). Prior to joining Coala Life, Mr. Pitulia served as CEO and Vice Chairman of QleanAir Scandinavia AB. Other assignments include Chairman of Neoventa Holding AB and Board Member of Pitulia&Co Ltd. Mr. Pitulia holds a MSc in International Business from the Stockholm School of Economics.
Philip Siberg	Chief Strategy & IR Officer and Co-Founder	712,502 shares	Philip Siberg operates as Chief Strategy & IR Officer and is one of the co-founders of Coala Life. Mr. Siberg is a serial entrepreneur in the life science sector and has held various management and board positions including CEO of Stille and CEO of Acacia Designs BV, among others. He has also experience from board assignments in listed companies, including Chairman of the Board in Sensime and Acarix. Mr. Siberg holds a MSc in Industrial Engineering and Management from KTH.
Magnus Samuelsson	CTO, Medical Director and Co-Founder	9,242 shares	Magnus Samuelsson serves as CTO & Medical Director and is one of the co-founders of Coala Life. Mr. Samuelsson has previous experience from several due diligence processes, including Abbott Laboratories' acquisition of Radi Medical Systems AB. Other assignments include Board Member of Canel Consulting. Mr. Samuelsson holds a MSc in Electrical Engineering from KTH.
Lars Gusch	Technical Product Owner	No holding	Lars Gusch is the Technical Product Owner of Coala Life. Mr. Gusch has extensive experience of leading organizations and managing research and development portfolios. Previous assignments include Development Manager at Pharmacolog AB and Manager of Engineering at Elekta among others. Mr. Gusch holds a MSc in Electrical Engineering from Ilmenau University of Technology.
Richard Roa	CFO	No holding	Richard Roa serves as the company's CFO. Mr. Roa has previously held leading positions within finance at companies including Cherry AB, Sandvik, and RNB Retail and Brands. Other assignments include owner and Board Member of ROA Finance AB and Apelsin AB. Mr. Roa holds a MSc in Business, Economics and Accounting from Stockholm University.
Jane Wall	Sales & Clinical Director Nordic	No holding	Jane Wall operates as the company's Sales & Clinical Director in the Nordics. Mrs. Wall has previous experience from leading positions and holds a degree in Nursing from Malmö University as well as a specialist education from Lund University.
Amy Davalle	President Coala Life, Inc	No holding	Amy Davalle serves as President of the US subsidiary, Coala Life, Inc since 2021. Mrs. Davalle has a comprehensive sales background within the medtech sector and has been working at companies including Guidant and Boston Scientific. Mrs. Davalle holds an MBA from Northwestern University - Kellogg.

Source: Coala Life and Redeye Research

Name	Position	Holdings	Experience
Board of Directors			
Per Carendi	Chairman of the Board	No holding	Per Carendi has been the Chairman of the Board since 2021. Mr. Carendi has an extensive background within insurance, venture capital, and investment companies and he has had board assignments in more than 60 companies, of which several have been listed. Other assignments include Chairman of Montico AB and Board Member of Paradinero AB, among others. Mr. Carendi holds a MSc in Business and Economics from the School of Business, Economics and Law at the University of Gothenburg.
Ebba Fåhraeus	Board Member	44,694 (indirect ownership)	Ebba Fåhraeus has been a Board Member of Coala Life since 2017. Mrs. Fåhraeus has more than 20 years of experience from board assignments in listed companies and she is currently a Board Member in Prevas AB, Carasent and Michi Capital AB, among others. Mrs. Fåhraeus holds a MSc in Management, Leadership and Organisation from the Stockholm School of Economics.
Beverly Huss	Board Member	No holding	Beverly Huss serves as Board Member of Coala Life. Mrs. Huss has more than 35 years of experience within medtech and her previous roles include CEO of Qool Therapeutics, Inc and Board Member of Kalera Medical, among others. Moreover, Huss is CEO, Board Member of Pagonia Medical, Inc. She holds a MSc in Technology Management from Papperdine University as well as a BSc in Metallurgical Engineering from the University of Illinois.
Peter Troija	Board Member	No holding	Peter Troija is Board Member of Coala Life. Mr Troija has a vast experience within the medtech industry, including leading positions at Abbott Laboratories and Danaher Corporation, among others. Other assignments include General Manager at Thermo Fisher Scientific and Board Member of the Swedish American Chamber of Commerce in San Diego. Mr. Troija holds an MBA from the Stockholm School of Economics and a MSc in Business and Economics from the School of Business, Economics and Law at the University of Gothenburg.

Source: Coala Life and Redeye Research

Summary Redeye Rating

The rating consists of three valuation keys, each constituting an overall assessment of several factors that are rated on a scale of 0 to 1 points. The maximum score for a valuation key is 5 points.

Rating

People: 4

Coala Life has an experienced board and management team with good knowledge of the industry. The long-term goals are ambitious but realistic and the management team is enthusiastic about the company and its products.

Business: 3

Coala Life has an attractive business model with monthly recurring revenue and high operating leverage. However, the company is still in the beginning of its commercialization phase and the business model has not been fully proven yet.

Financials: 1

Coala Life is currently focusing on scaling up the business and establish itself in the US market. Consequently, the company is not yet profitable.

Redeye Rating and Background Definitions

Company Quality

Company Quality is based on a set of quality checks across three categories; PEOPLE, BUSINESS, FINANCE. These are the building blocks that enable a company to deliver sustained operational outperformance and attractive long-term earnings growth.

Each category is grouped into multiple sub-categories assessed by five checks. These are based on widely accepted and tested investment criteria and used by demonstrably successful investors and investment firms. Each sub-category may also include a complementary check that provides additional information to assist with investment decision-making.

If a check is successful, it is assigned a score of one point; the total successful checks are added to give a score for each sub-category. The overall score for a category is the average of all sub-category scores, based on a scale that ranges from 0 to 5 rounded up to the nearest whole number. The overall score for each category is then used to generate the size of the bar in the Company Quality graphic.

People

At the end of the day, people drive profits. Not numbers. Understanding the motivations of people behind a business is a significant part of understanding the long-term drive of the company. It all comes down to doing business with people you trust, or at least avoiding dealing with people of questionable character.

The People rating is based on quantitative scores in seven categories:

- Passion, Execution, Capital Allocation, Communication, Compensation, Ownership, and Board.

Business

If you don't understand the competitive environment and don't have a clear sense of how the business will engage customers, create value and consistently deliver that value at a profit, you won't succeed as an investor. Knowing the business model inside out will provide you some level of certainty and reduce the risk when you buy a stock.

The Business rating is based on quantitative scores grouped into five sub-categories:

- Business Scalability, Market Structure, Value Proposition, Economic Moat, and Operational Risks.

Financials

Investing is part art, part science. Financial ratios make up most of the science. Ratios are used to evaluate the financial soundness of a business. Also, these ratios are key factors that will impact a company's financial performance and valuation. However, you only need a few to determine whether a company is financially strong or weak.

The Financial rating is based on quantitative scores that are grouped into five separate categories:

- Earnings Power, Profit Margin, Growth Rate, Financial Health, and Earnings Quality.

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Redeye Rating (2021-12-09)

Rating	People	Business	Financials
5p	32	15	4
3p - 4p	142	128	43
0p - 2p	5	36	132
Company N	179	179	179

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Erik Nordström owns shares in the company : No

Johan Unnerus owns shares in the company : No

Redeye performs/have performed services for the Company and receives/have received compensation from the Company in connection with this.