

A Work Project presented as part of the requirements for the Award of a Master Degree in Finance from the  
NOVA – School of Business and Economics.

**PRIVATE EQUITY INVESTMENT COMMITTEE PAPER ON BIOTELEMETRY, INC. – COMPANY OVERVIEW**

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## **Abstract**

This Work Project was elaborated by a group of students from the Master in Finance Program and consists of an academic simulation of an Investment Committee Paper on BioTelemetry, a US-based company focused on providing remote cardiac monitoring, centralized research services for clinical trials, remote glucose monitoring, and original equipment manufacturing through its business units – BioTel Heart, BioTel Research, BioTel Care and BioTel Alliance. The value creation strategy and the related operating model explain the suggested leveraged buyout and resulted from a comprehensive analysis of the company and the markets it operates. In the end, potential exit options and target buyers were recommended.

## **Keywords**

BioTelemetry, Leveraged Buyout, Remote Cardiac Monitoring, Telemedicine

## **Disclaimer**

This Work Project was elaborated by students from the Master in Finance Program at NOVA – School of Business and Economics. As a group, we hereby certify that the submitted work is wholly our own work.

This Work Project's content is intended to be used for academic purposes only and we do not accept any responsibility or liability for investment, business, legal, or any other decisions taken based on this Work Project.

All data used was retrieved from publicly available sources, such as companies' annual reports, earnings call transcripts, and database websites, as well as from interviews and phone calls conducted with BioTelemetry's former employees and industry experts. All sources and aids used have been indicated as such. All texts either quoted directly or paraphrased have been indicated by in-text citations or their sources have been made available in footnotes.







This work used infrastructure and resources funded by Fundação para a Ciência e a Tecnologia (UID/ECO/00124/2013, UID/ECO/00124/2019 and Social Sciences DataLab, Project 22209), POR Lisboa (LISBOA-01-0145-FEDER-007722 and Social Sciences DataLab, Project 22209) and POR Norte (Social Sciences DataLab, Project 22209).

A close-up photograph of a doctor wearing a white lab coat over a blue shirt and a striped tie. The doctor's arms are crossed, and a black stethoscope is draped around their neck. The background is a plain, light-colored wall.




# Personal Reflection

# This Project enabled me to accomplish an important milestone for my academic life and develop relevant skills for my professional and individual life







## 1 Which hard/soft skills did you develop through the project?

Hard Skills	Soft Skills
 Development of <b>exhaustive knowledge</b> of the markets for <b>Remote Cardiac Monitoring, Clinical Trial Services, and Blood Glucose Monitoring</b> , the core markets BioTel operates in.	 Development of <b>communication skills</b> through midterm presentations, meetings with industry experts and former BioTel's employees, and constant contact with the other group members.
 Improvement of <b>forecasting and LBO model-building</b> skills, which are relevant subjects for someone who wants to pursue a career in Finance.	 Improvement of <b>time management</b> skills as a consequence of the constant need to conciliate my agenda with the agenda of the other group members, and have the capacity to meet the internal deadlines of the Field Lab.
 Enhancement of <b>Excel and PowerPoint</b> skills, the deliverables of this type of Work Project, due to the constant need to work with both.	 Enhancement of <b>critical thinking and synthesis</b> skills as it is important to have the capacity to read all available information about a topic and select the relevant parts for the Work Project.

## 2 What would you change in your individual or team approach if you had to do a similar project?

Individual Approach	Team Approach
 Introduce <b>team building activities</b> to bring the group closer and increase collaboration between members.	 Further <b>contact with the advisors</b> in order to receive feedback more often.
 <b>Further contact with industry experts</b> to effectively understand the markets BioTel operates in and the services it provides instead of searching online for the majority of the information.	 Follow the initial strategy of having <b>internal deadlines that are stricter than the advisors'</b> to leave more time to review the Work Project at the end of each stage.

## 3 What skills did the Masters' program gave you so you could be prepared for this kind of project?

General	Private Equity Course
 Ability to deal with and be prepared for an <b>intense workload</b> as during the curricular part of the Master's in Finance we are constantly complying with deadlines of individual and group assignments, quizzes, midterms, and exams.	 This course was a <b>prerequisite</b> to apply for the Private Equity Challenge.
 Opportunity to contact and work with <b>international students</b> , which revealed to be useful because my Work Project group is composed of two internationals, one Austrian and one German.	 Learn <b>specific Private Equity terminology</b> beforehand.
 Having a <b>Finance background</b> also enabled me to better understand the topics and develop a more in-depth quantitative and qualitative analysis of the Work Project.	 One of the assessment criteria of this course was to develop an <b>Investment Committee Paper with a similar work plan</b> , which made me more aware of what would be expected throughout the development of the Work Project.

# Company Overview

**Company Description**  
**Competitive Positioning**  
**Historical Financial Analysis**  
**Management Team**  
**SWOT Analysis**

# BioTelemetry is the leading remote technology company in the US with strong foot in the Clinical Trial Services market

## Company Overview

**BioTelemetry, Inc.** was founded in **1994** and is the leading remote medical technology company focused on providing remote cardiac monitoring, remote blood glucose monitoring, centralized core lab services for clinical trials as well as original equipment manufacturing that serves both healthcare and clinical research customers.

BioTel is **headquartered in Malvern, Pennsylvania** and holds **12 office locations across the US**. By the end of 2018, the company employed approximately **1,500 individuals**.

### Business Units, Revenue Split (2018)

**BioTel Heart** is focused on offering physicians a full spectrum of monitoring solutions, providing a single source of **cardiac monitoring devices and services** that allow the diagnosis of cardiac arrhythmias or heart rhythm disorders.

85%

**BioTel Research** includes **cardiovascular and imaging testing services for drugs and medical devices** across all phases of clinical trials, all major therapeutic areas and all global regions.

13%

**BioTel Care** provides the first cellular-enabled **blood glucose monitor** for patients with chronic diseases, such as diabetes.

1%

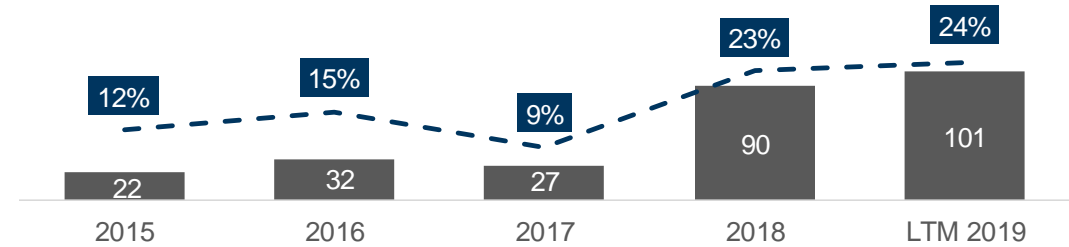
**BioTel Alliance** provides technologically advanced products and manufacturing services to highly respected names in the industry who have specific integration requirements.

1%

### Intellectual Property

- In total, BioTel holds **65 US and more than 130 international patents<sup>1</sup>** to protect BioTel's key technologies.
- BioTel's patents are **expected to expire, on average, in 2026**.
- The **expiration of patents is not expected to significantly impact the firm's revenues**. This is particularly due to the company's effort of improving and developing its key technologies, which is manifested in numerous outstanding patent applications. Additionally, the market for Remote Cardiac Monitoring is driven by close relationships, which make it difficult for market entrants, even with similar technology.

## Historical EBITDA and EBITDA Margin, In \$mn, In Percent



In \$mn	2015A	2016A	2017A	2018A	2019 LTM <sup>2</sup>	CAGR
Revenue	178.5	208.3	286.8	399.5	419.4	27.6%
Gross Profit	106.6	129.5	172.4	250.5	261.7	29.3%
Unlevered FCF	(1.9)	58.3	(20.6)	52.1	80.7	n.a.

### M&A

Over the past years, BioTel **acquired several key players**:

- BioTel Heart:** With the acquisitions of the ePatch Division of Danish Electronics and LifeWatch, BioTel positioned itself as a technological leader for cardiac monitoring. Its recent acquisitions of Geneva and ADEA Medical aim to help the firm to diversify with new services and in new markets.
- BioTel Research:** The acquisition of VirtualScopics enabled BioTel to add clinical trial imaging solutions to its service portfolio for contracted research.
- BioTel Care:** Telcare offered BioTel an inorganic entry to the fast-growing market for Remote Glucose Monitoring. ActiveCare involved merely an acquisition of customer relationships.



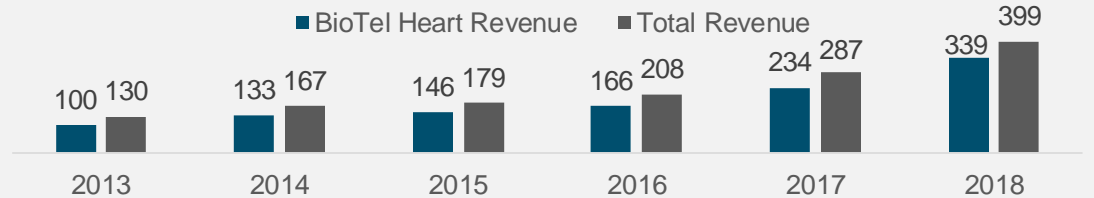
Notes: <sup>1</sup>As of August 2019; <sup>2</sup>As of 30<sup>th</sup> June 2019. Sources: BioTelemetry Website & Documents; Analyst Coverage; Bloomberg

BioTel Heart is the core business, driven by its successful flagship MCOT service solution, but dependent on reimbursement by public and commercial payors

### BioTel Heart – Business Unit Description and Overview

**BioTel Heart** comprises remote cardiac monitoring services and the Geneva Software Platform. The Remote Cardiac Monitoring business focuses on the **monitoring of the heart rhythm for the detection of cardiac arrhythmias**. BioTel offers cardiologists, electrophysiologists, neurologists and primary care physicians **both remote cardiac monitoring devices and services including data analysis**. The Geneva Software Platform, acquired in 2019, complements the offering with **unique software enabling physicians to monitor implanted cardiac devices**, such as Implantable Loop Recorder, Pacemakers or Defibrillators (See Page 8).

BU Revenue, In \$mn

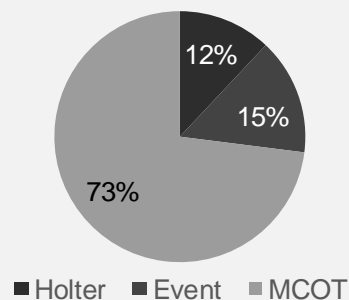


- BioTel Heart accounted for **~85% of the firm's total revenues in 2018**; recent years showed **organic growth** due to an increase in patient volume.
- The revenue generated in this business unit is driven by the **development of the reimbursement rates and the number of patients**.

Product, Service Portfolio

- BioTel offers an **extensive and diversified range of monitoring devices** to its customers, serving all stages of the diagnosis of cardiac arrhythmias.
- Offered devices include the **Traditional Holter, Extended Holter, Event Recorder and its flagship MCOT**.
- The target company's service offering pivots around its **24-hour monitoring centers** where patients' cardiac data, transmitted from BioTel Heart devices, is continuously monitored and analyzed; reports are elaborated and shared with physicians.

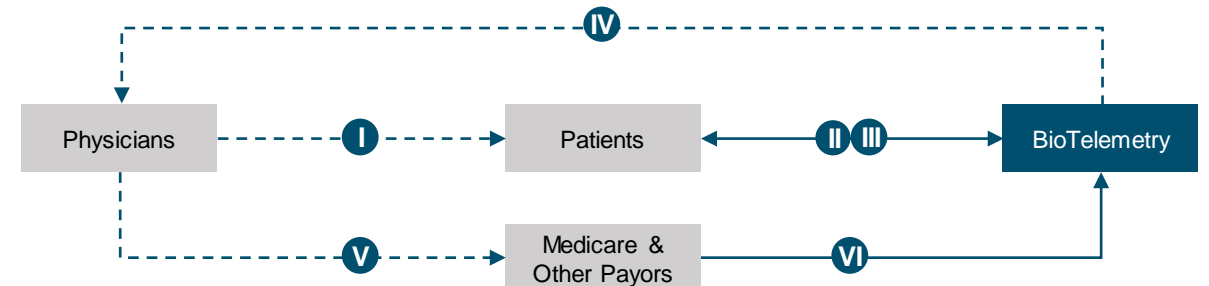
Revenue Split, In \$mn



### Business Model

BioTel **assembles and manufactures its cardiac monitoring devices in its own plants** in Minnesota and Massachusetts in the US. The company relies on a limited amount of suppliers, but the **current capacity** is expected to **meet production demand for the next years**.

- I Prescription:** Remote cardiac monitoring services **have to be prescribed by physicians** with the purpose of diagnosing suspected cardiac arrhythmias.
- II Shipment:** When the service is prescribed, **BioTel's devices are shipped to the patients** for individual use during the specified monitoring period (from 24 hours to 30 days).
- III Return:** After the monitoring period, the **devices need to be returned to BioTel**, which will maintain them for further use.



- IV Monitoring:** During and after the period of use, BioTel monitors, analyzes and shares the patient data with the physician.
- V Service Billing:** The physician bills the service to the public or commercial insurance, using unique codes set by public authorities.
- VI Reimbursement:** Pending approval, BioTel is reimbursed.

Reimbursement

- The reimbursement process involves the physician, insurances, and BioTel.
- The physician starts the process by **billing BioTel's services to public insurances as well as commercial payors** using unique CPT codes (i.e. the uniform language in the US Health Care system for coding medical services and procedures).
- In most cases, reimbursement is **attached to the state-imposed reimbursement rate** (See Page 9).

Sources: BioTelemetry Website; BioTelemetry Annual Reports & Documents

# BioTel has recently conducted strategic acquisitions including Geneva, a cloud-based software platform, and ADEA Medical, a Swedish remote medical technology company

## Geneva Software Platform



Aiming to strengthen its position as the leading provider of remote cardiac monitoring services, **BioTel acquired Geneva for \$45.9mn** in March 2019 in an all-cash transaction.

### Description

- Geneva is an awarded, **cloud-based platform** that was **founded in the US in 2010**.
- **The platform aggregates data from implanted cardiac monitoring devices**, such as Implantable Loop Recorder, Pacemaker, and Defibrillator, to enable physicians to **remotely monitor their patients** with such implants.
- It provides physicians with their proprietary portal for individual use to **order patient data reports, review monitoring results** and **request routine device checks**, helping drive significant in-office workflow efficiencies and patient compliance.

### Business Model

- ❶ **Prescription:** The implant of the cardiac monitoring device requires medical prescription.
- ❷ **Subscription:** The physician subscribes to the monitoring services of Geneva and gets access to the platform.
- ❸ **Monitoring:** Geneva collects, monitors and analyzes data and makes it accessible.



### Rationale

- **Breakthrough Technology:** The Geneva Software Platform transforms the way physician offices consolidate and manage data from implantable cardiac devices. This service builds on the largest and most profitable connected health platform, with a primary focus on remote cardiac monitoring.
- **Market Opportunity:** It creates tremendous value through access to the over \$1.0bn domestic implantable cardiac device monitoring market with BioTel's existing sales channel.

## ADEA Medical



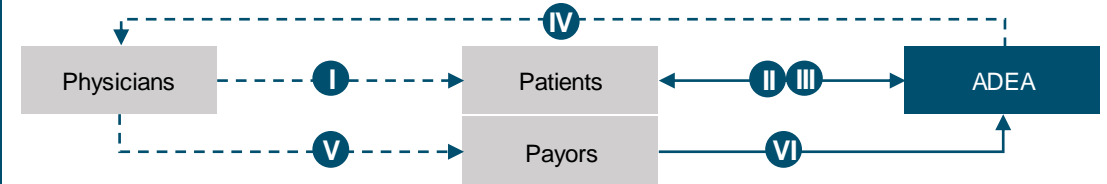
Aiming to reinforce its international footprint in the Nordics and the EU, **BioTel acquired ADEA Medical for \$0.2mn in cash and 50,000 shares of BioTel's common stock valued at \$2.1mn** in the 2<sup>nd</sup> quarter of 2019.

### Description

- ADEA Medical is a **medical technology company** that was **founded in Sweden in 2018**.
- Intending to improve quality of life and diagnostic efficiency to its patients, the company operates as a **distributor of remote cardiac monitoring devices** and as a **service provider** in the Nordics, i.e. Sweden, Norway, Finland, and Denmark.
- ADEA Medical's product and service offering evolve around its **proprietary, single continuous monitoring device, the ePatch**, which has similar features to BioTel Heart's Extended Holter device.

### Business Model

- ADEA Medical's business model is **similar to BioTel Heart's** (See Page 7).
- **Physicians prescribe** remote monitoring services to their patients, who will **receive and return the device directly from and to ADEA**; **payment is conducted through payors**.



### Rationale

- **Internationalization:** ADEA Medical is BioTel's first step abroad, giving the company an increased chance of quick access to the attractive markets in the Nordics as well as in the EU. The acquisition was, therefore, one of the key steps in bringing its connected health products and services to more customers outside the US.
- **Building upon BioTel's brand and know-how** in Remote Cardiac Monitoring, ADEA Medical is expected to see accelerated growth compared to its peers.

Sources: BioTelemetry Website; Geneva Website; ADEA Medical Website; BioTelemetry Quarterly Reports



BioTelemetry receives its revenue from three different kinds of agents, while having limited control over the reimbursement rates that have been slightly decreasing over the past three years

### Reimbursement Payors

BioTel renders remote cardiac monitoring services as prescribed by physicians, which are then reimbursed by different agents that are either public, commercial or private:



Medicare & Medicaid (Public)

Commercial Payors

Private Payors

BioTel Heart

#### Medicare & Medicaid

- In 2018, ~34% of BioTel's total revenue was subject to reimbursement from the Medicare and Medicaid programs at rates that are set nationally and adjusted for certain regional indices.
- Medicare is divided into several plans (A, B, C, and D). Under the most used plans A/B, Medicare typically only reimburses 80% of the rates, while the beneficiary of federal health insurance is responsible for payment of the remaining 20%; beneficiaries might opt to fill that void with their private insurance.

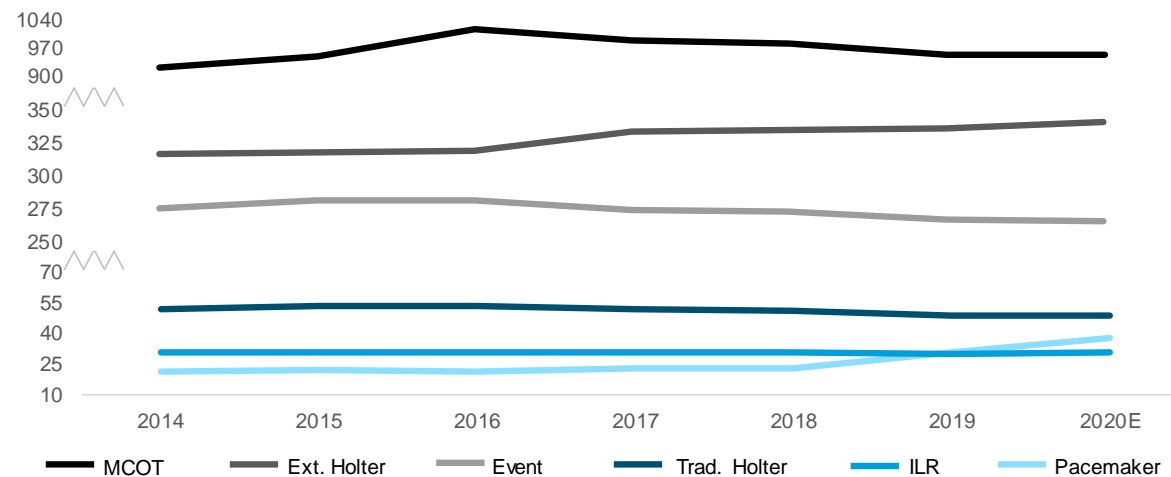
#### Commercial Payors

- Commercial insurances refer to health insurance provided and administered by non-governmental entities, which cover medical expenses based on health plans and monthly premia. Some of the most important providers include Aetna, Blue Cross Blue Shield, and Cigna.
- Commercial payors typically tie their reimbursement rates to the federally administered rates of the CMS. However, BioTel enters into one- to three-year contracts with commercial payors that define their reimbursement rates.

#### Others

- In fewer cases, BioTel enters into direct arrangements with physicians for the purchase of monitoring services that include the direct payment of the service fee.
- In rare cases, patients pay for their service out-of-pocket.

### Medicare Reimbursement Rates, In \$



#### Reimbursement Rate Development

- Medicare pricing in 2018 was almost flat but rates slightly decreased in 2019. In fact, average commercial reimbursement rates have declined over a three- to five-year period.
- BioTel has limited influence on the reimbursement rates administered by the CMS. External effects, such as changes in federal legislation, regulations, or political outlook and elections may negatively impact reimbursement rates and thus have an impact on revenue.
- In the 2020 Physician Fee Schedule released by the CMS, the conversion factor, which is an important multiplier in the calculation of reimbursement rates, is set to increase by \$0.05, hence positively affecting the reimbursement rates of services<sup>1</sup>.
- Reimbursement rates for Traditional Holter, Event and MCOT services have been decreasing for three consecutive years, while rates for Extended Holter services have experienced relatively high reimbursement growth, mainly due to its provisional reimbursement codes.
- Following the transition to permanent codes by 2023, Extended Holter rates will experience a significant reduction in its amounts.

Sources: <sup>1</sup>American College of Cardiology; BioTelemetry Website & Documents; CMS Physicians Fee Schedule

# BioTel served as the exclusive ECG distributing partner to Apple’s Heart Study, which is expected to increase the awareness for cardiovascular diseases

## Apple Heart Study Description



The **Apple Heart Study** is a research study whose primary objective concern was to detect irregular cardiac rhythms. This research study is virtually conducted with the use of the Apple Watch and iPhone.

**BioTel** functioned as Apple’s exclusive ECG distributor and monitoring partner in the study. It allowed BioTel to increase **brand awareness and value recognition**, **expand its network** with physicians and other industry key players, and **modestly increase its revenues**.

### Apple Heart Study Phases

**Step 1:** Individuals need to download the Apple Heart Study App to Apple Watch and iPhone.

**Step 2:** Individuals need to answer a demographic and medical history questionnaire that evaluates if he/she complies with the **inclusion and exclusion criteria**.

**Step 3:** The Apple Watch measures the blood flow passing through the wrist and generate a photo plethysmography, which is then used to determine the participant’s pulse. By continuously repeating this procedure, the Apple Watch is able to track the pulse rate.

**Step 4:** In case irregular pulse is detected for four subsequent times, the participant receives a notification on his/her Apple Watch and iPhone.

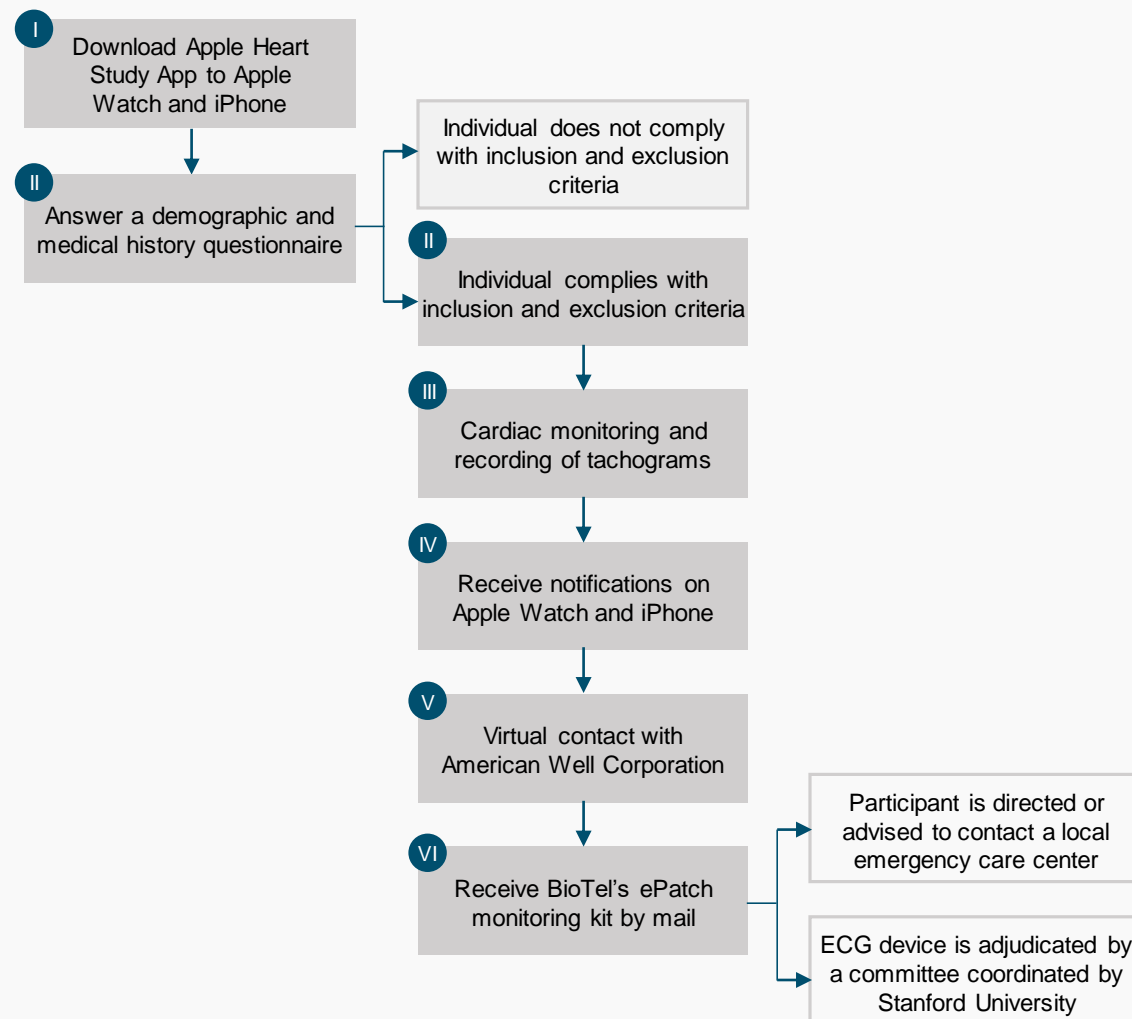
**Step 5:** Once alerted, the individual is advised to use the iPhone to virtually contact the telemedicine technology services company – American Well Corporation.

**Step 6:** Individuals without severe heart problems who receive notification and are not on an anticoagulant therapy or are on an anticoagulant therapy that only started after the beginning of the AHS **receive by mail an ambulatory ECG monitoring device from BioTel**. Participants are required to wear this device for up to seven days.

- In case the ECG device detects abnormal heart rhythms that require urgent attention, the participant is directed or advised to contact a local emergency care center.
- Otherwise, the ambulatory ECG device is adjudicated by a committee of certified physicians coordinated by the **Stanford Center of Clinical Research**.

Throughout eight months, this study enrolled more than **400,000 participants across the 50 US states**.

## Apple Heart Study Dynamics



Sources: BioTelemetry Website; Apple Website; Science Direct Website – “Rationale and design of a large-scale, app-based study to identify cardiac arrhythmias using smartwatch: The Apple Heart Study” (2018)

Over the past years, BioTel Research has been developing important partnerships with leading clinical research organizations, clinical pharmacology units and central laboratories

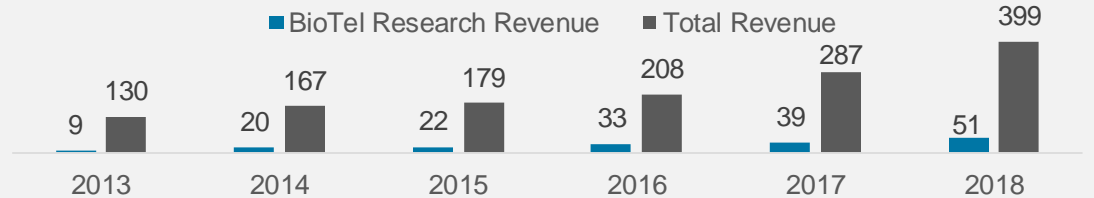
### BioTel Research – Business Unit Description and Overview

**BioTel Research** is engaged in central core laboratory services that provide cardiac monitoring, medical imaging services, scientific research consulting and data management services for clinical drug and medical device trials.

Primary customers in this segment are **Pharmaceutical and Biotechnology companies as well as larger multinational Contract Research Organizations.**

The acquisition of VirtualScopics in 2016 added the full range of medical imaging solutions to the existing service offering of BioTel Research, further developing its value proposition.

BU Revenue, In \$mn



- Revenue in this segment is generated on a **contracted fee-for-service basis** and driven by **the increasing outsourcing of clinical research** by Pharma and Biotech companies.
- Additional drivers of revenue are **therapeutic expertise, experience and strong networks** with academic organizations and other research companies.

Product, Service Portfolio

- BioTel Research's capabilities include **cardiovascular testing modalities and medical imaging solutions**:
  - **Cardiovascular testing** includes modalities, such as electrocardiographies, echocardiographies, multigated acquisition scans, Holter monitoring, and ambulatory blood pressure monitoring.
  - **Medical imaging solutions** include the full range of imaging services, protocol development, expert reporting and statistical analysis in therapeutic areas, such as cardiology, neurology, oncology, musculoskeletal and metabolic diseases.
- In addition to its clinical trial services, BioTel also provides a **full range of support services** that include project coordination, setup and management, equipment rental, data transfer, processing, analysis, and 24/7 customer support and site training.

### Partnerships

BioTel Research conducts the contracted clinical trial services in its own facilities in Rochester, NY and Rockville, MD. The business unit leverages synergies with BioTel Heart in terms of know-how and expertise, and by using the self-produced cardiac monitoring devices for research purposes.

Over the past years, **BioTel Research has been developing important partnerships with key players that provide assistance and minimize conflicts of interest.** These encompass alliances with multinational CROs working with BioTel Research on sub-contract as well as technical knowledge partners:

Important Partnerships

- **PRA Health Sciences** provides innovative drug development solutions across all phases and therapeutic areas. Side by side with this partner, BioTel strives to move forward clinical discovery and develop life-saving and life-improving monitoring devices.
- **Covance**, a global contract research organization, is the world's most comprehensive drug development company. BioTel Research is Covance's preferred provider for late phase studies and qualified imaging vendors' approval.
- **PPD** is one of the leading global contract research organizations providing drug discovery, development, lifecycle management, and laboratory services. This partnership has been important to accelerate and maximize the returns of BioTel Research's R&D investments.
- **AMRA's** cloud-based analysis service offers precise, automated insights that have valuable implications for BioTel's R&D process and clinical practice.



PRAHEALTHSCIENCES



Other

- Other important alliances include:
- **Imaging Specialists:** AG Mednet, Precision Image Analysis, RadMD and Vitalograph.
  - **Research and Knowledge Centers:** Cardiac Safety Research Consortium, DaVita Clinical Research, Global Clinical Trials, Metrics Champion Consortium, Mortara, Myrian, QuantifiCar and Worldwide Clinical Trials.

Sources: BioTelemetry Website; BioTelemetry Annual Reports & Documents; Analyst Coverage

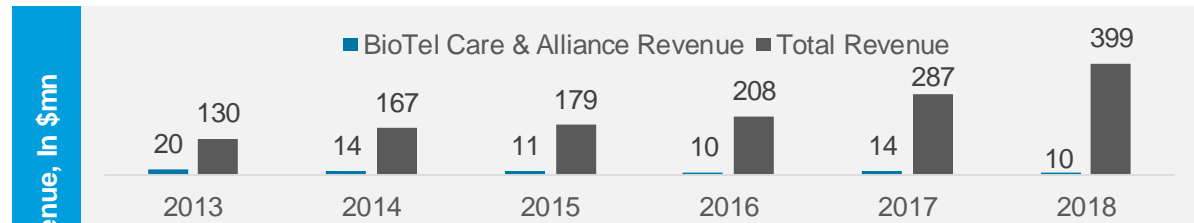
BioTel Care is relatively new to the company, but fills hopes of strong future revenue contribution, while BioTel Alliance is expected to continue to be the firm’s support division

**BioTel Care & BioTel Alliance – Business Unit Description and Overview**

**BioTel Care** engages in glucose monitoring services and is seen as BioTel’s first step into the field of chronic disease management, which is one of the strategic pillars of the target company.

BioTel entered the Glucose Monitoring market in **December 2016 with the acquisition of Telcare**, which developed the first cellular-enabled diabetes management solution that connects people with diabetes to healthcare professionals, family and friends.

**BioTel Alliance** is the business unit handling the **manufacturing, testing and repairing** of medical devices to BioTel and other medical companies.



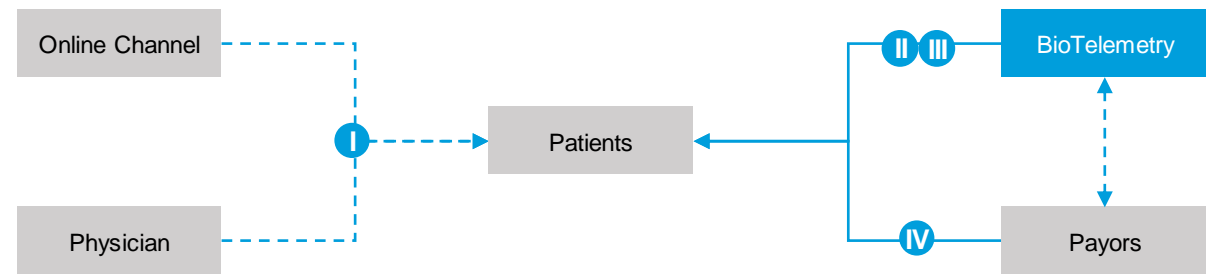
- BioTel Care’s revenue is driven by a **large addressable market**, the **number of care organizations** collaborating with healthcare providers to encourage patients to use remote glucose monitoring, and **monthly fees charged** for the BGM devices.
- BioTel Alliance is mainly driven by the **number of device repairs conducted** by the firm.

- **BioTel Care** offers the **first cellular-enabled BGM device** that automatically transmits blood glucose readings to BioTel’s secure cloud, allowing for remote access to data by patients, physicians, family and friends.
- The glucose monitoring service is offered via **monthly or annual subscriptions**, for which BioTel charges an **average monthly fee of \$24.99**. This price includes the BioTel Care BGM device, unlimited supply of blood test strips and access to the cloud platform.
- **BioTel Alliance** focuses on the development, manufacturing, testing, and marketing of medical devices to medical companies, clinics, and hospitals, respecting the specific requirements set by customers. Its major role is the manufacturing of BioTel’s own devices, which explains the relatively small contribution to revenue.

**BioTel Care – Business Model**

BioTel Care **assembles and manufactures its BGM devices in its own plant** in Minnesota, US. The firm believes that current facilities are adequate to meet the current production needs and additional properties will be available in the future on reasonable terms.

- I Collection of Information:** Glucose monitoring devices are marketed to diabetes patients directly, as there is no need for prescription by the physician who occupies an advising role. In order to choose the right device, patients often turn to online channels.
- II Shipment:** If the patient decided for BioTel Care’s BGM device, BioTel ships the monitoring device and supplies it to the patient and initiates the data analysis in the cloud.



- III Payment:** The diabetes patient pays BioTel directly according to the monthly or annual subscription, on average \$24.99 per month.
- IV Reimbursement:** If BioTel has entered into agreements with their insurance, the patients might be reimbursed, typically downstream. As this reimbursement is one of the key criteria for the decision of the device, it is considered critical for the success of the monitoring device.

- **Partnerships with physicians and commercial insurances are crucial for marketing** BioTel Care’s BGM device to diabetes patients:
  - BioTel’s connected BGM device does not have to be prescribed by physicians, who often **advise diabetes patients** on their choice of device.
  - An agreement with commercial insurances offers **access to all patients covered by their health plans**, while the insurance might even market your service to them.

Sources: BioTelemetry Website; BioTelemetry Annual Reports & Documents; Analyst Coverage

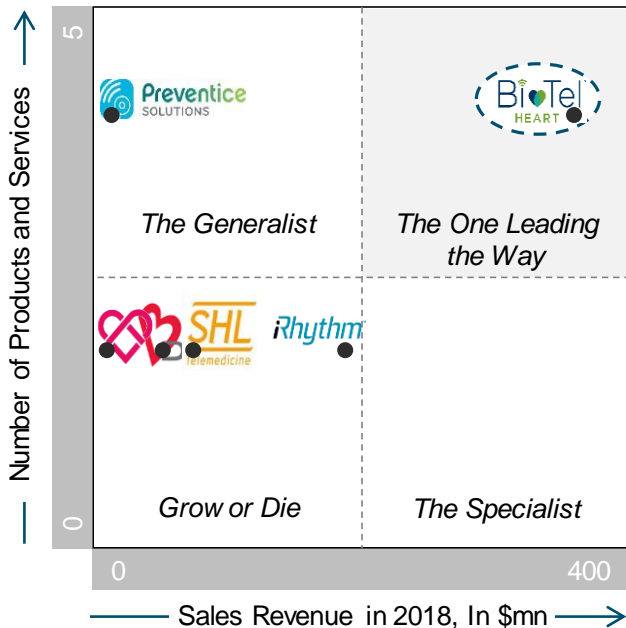
# BioTel Heart presents a strong competitive position, while BioTel Research and BioTel Care are facing fierce competition from large multinational companies

## BioTel Heart

- The market for Remote Cardiac Monitoring is **highly fragmented**.
- Competitors include large medical multinationals as well as mid- to small-sized regional players.
- Among its direct competition (i.e. companies providing services, such as monitoring centers and data analysis in addition to devices), **BioTel is the largest player** with \$338mn in Remote Cardiac Monitoring revenue in 2018. Direct competitors' revenue ranged from \$4mn to \$180mn.

### Competitive Advantages and Value Proposition:

- BioTel Heart offers the **most comprehensive product portfolio**, composed by Traditional and Extended Holters, Event as well as its flagship MCOT devices supported by services, such as its 24-hour monitoring centers.
- BioTel Heart's products and services are **technologically advanced** compared to its competitors.



The **matrix** demonstrates the competitive positioning<sup>1</sup> of BioTel Heart. The X-axis displays the **sales revenue for 2018**, while the Y-axis displays their **value proposition**, measured as the number of products and services offered by each player.

- **Grow or Die:** Players in this position are characterized by low levels of sales and value proposition.
- **The Generalist:** Players in this position are characterized by low levels of sales but high-value proposition.
- **The Specialist:** Players in this position are characterized by high levels of sales but low-value proposition.
- **The One Leading the Way:** Players in this position are characterized by high levels of sales and high-value proposition.

## BioTel Research

- The market for Clinical Trial Services is **highly fragmented**.
- The five largest players, IQVIA, LabCorp, Parexel, Pharmaceutical Product Development and PRA International, account for approximately **45% of the total global market**, while the rest is divided among other multinationals as well as mid- to small-sized regional players focused on niche services.

### Competitive Advantages and Value Proposition:

- BioTel Research offers **extensive expertise** in remote patient monitoring, providing easier management of patient groups.
- **Its strong focus on cardiac monitoring provides an important competitive advantage**, as it is vital to almost every clinical trial.
- Over the past, **BioTel has been developing important partnerships** with key players, including AMRA, Covance, Pharmaceutical Development, PRA Health Sciences, among others, that provide additional know-how and infrastructure to conduct clinical trials across all phases (I-IV).

## BioTel Care

- The market for Glucose Monitoring is **dominated by five multinational companies**, Medtronic, Abbott, Roche, Ascensia and Dexcom, which accounted for **65% combined market share in 2018**.
- The remaining **market is highly fragmented** with multiple mid- to small-sized players, such as BioTel.

### Competitive Advantages and Value Proposition:

- BioTel's remote blood glucose monitor is the **first FDA-cleared device ever to be cellular-enabled**, not requiring any additional hard- and software or connectivity through Wi-Fi.
- **The patient-oriented and easy-to-use technology is an advanced solution** compared to the existing offering in the market.
- BioTel can rely on **synergies** arising from operations in the BioTel Heart segment related to **the technology and the supporting service offering**.
- Other synergies include its **close relationship** with key industry players.

Notes: <sup>1</sup>Companies covered in the matrix: Grow or Die includes Cardio Diagnostics, BardyDx, SHL Telemedicine and iRhythm; The Generalist includes Preventice Solutions; The Specialist is empty; The One Leading the Way includes BioTel Heart

# BioTel experienced strong revenue growth during the period 2015-2019 LTM mostly driven by inorganic growth in its largest business unit, BioTel Heart

## Historical Revenue & EBITDA, In \$mn

In \$mn	2015A	2016A	2017A	2018A	2019 LTM <sup>1</sup>	CAGR
<b>Revenue</b>	<b>178.5</b>	<b>208.3</b>	<b>286.8</b>	<b>399.5</b>	<b>419.4</b>	<b>27.6%</b>
BioTel Heart	146.0	165.7	234.4	338.8	354.6	28.9%
BioTel Research	21.9	32.6	38.8	50.6	53.6	29.1%
BioTel Care & Alliance	10.7	10.1	13.6	10.1	11.2	1.3%
<i>in % of Revenue</i>						
BioTel Heart	81.8%	79.5%	81.7%	84.8%	84.5%	
BioTel Research	12.2%	15.6%	13.5%	12.7%	12.8%	
BioTel Care & Alliance	6.0%	4.8%	4.7%	2.5%	2.7%	
<b>(-) Cost of Revenue</b>	<b>72.0</b>	<b>78.9</b>	<b>114.4</b>	<b>149.0</b>	<b>157.7</b>	<b>25.1%</b>
<i>in % of Revenue</i>	40.3%	37.9%	39.9%	37.3%	37.6%	
<b>Gross Profit</b>	<b>106.6</b>	<b>129.5</b>	<b>172.4</b>	<b>250.5</b>	<b>261.7</b>	<b>29.3%</b>
<i>in % of Revenue</i>	59.7%	62.1%	60.1%	62.7%	62.4%	
<b>(-) Operating Expenses incl. D&amp;A</b>	<b>97.0</b>	<b>111.4</b>	<b>174.1</b>	<b>200.7</b>	<b>200.9</b>	<b>23.1%</b>
<i>in % of Revenue</i>	54.4%	53.5%	60.7%	50.2%	47.9%	
SG&A	75.8	84.5	118.3	152.6	158.1	23.4%
Selling & Marketing	27.9	28.6	35.3	42.8	45.7	15.1%
General & Administrative	47.9	55.9	83.0	109.7	112.5	27.6%
R&D	7.1	8.4	11.1	11.2	12.0	16.2%
Provision For Doubtful Acc.	8.0	9.9	13.3	22.2	21.0	31.8%
Other Operating Expenses	6.1	8.6	31.4	14.7	9.7	14.2%
<b>(+) Depreciation &amp; Amortization</b>	<b>12.5</b>	<b>14.3</b>	<b>28.6</b>	<b>40.2</b>	<b>40.4</b>	<b>39.8%</b>
<i>in % of Revenue</i>	7.0%	6.8%	10.0%	10.1%	9.6%	
<b>EBITDA</b>	<b>22.0</b>	<b>32.3</b>	<b>26.8</b>	<b>90.0</b>	<b>101.2</b>	<b>54.7%</b>
<i>in % of Revenue</i>	12.3%	15.5%	9.3%	22.5%	24.1%	
<b>(-) Depreciation &amp; Amortization</b>	<b>12.5</b>	<b>14.3</b>	<b>28.6</b>	<b>40.2</b>	<b>40.4</b>	<b>39.8%</b>
<i>in % of Revenue</i>	7.0%	6.8%	10.0%	10.1%	9.6%	
<b>Operating Income (EBIT)</b>	<b>9.5</b>	<b>18.0</b>	<b>(1.8)</b>	<b>49.8</b>	<b>60.8</b>	<b>70.0%</b>
<i>in % of Revenue</i>	5.3%	8.6%	(0.6%)	12.5%	14.5%	

Notes: <sup>1</sup>As of 30<sup>th</sup> June 2019. Sources: BioTelemetry Annual Reports; Bloomberg

### 1 Total Revenue

- Over the period, total revenue increased at a robust **CAGR of 27.6%** from 2015 to 2019 LTM.
- Total revenue was primarily driven by organic growth in BioTel Heart and BioTel Research, while the acquisition of LifeWatch, the company providing the MCOT technology, further boosted revenues starting in 2017.

### 2 BioTel Heart

- BioTel Heart is considered the target company's **core business activity**, accounting for approximately 85% of the firm's total revenue as of 2019 LTM.
- Over the period, revenue increased at a strong **CAGR of 28.9%** from 2015 to 2019 LTM.
- On an organic basis, revenue in 2018 grew 13.8% compared to the previous year driven by **double-digit growth of MCOT devices and expansion of the Extended Holter** as well as a **favorable payor-mix**.
- Inorganically, the acquisition of **LifeWatch** strengthened BioTel's technological leadership and led to a greater patient volume.

### 3 BioTel Research

- BioTel's second-largest business unit accounted for approximately 13% of total revenue as of 2019 LTM.
- Over the period, revenue in this business unit grew at a **CAGR of 29.1%**, the highest among all business units.
- Overall growth was particularly driven by a higher volume of clinical trials in oncology and higher number of early phase studies.
- With the **acquisition of VirtualScopics** in 2016, BioTel further strengthened its value proposition, supporting the award of research contracts.

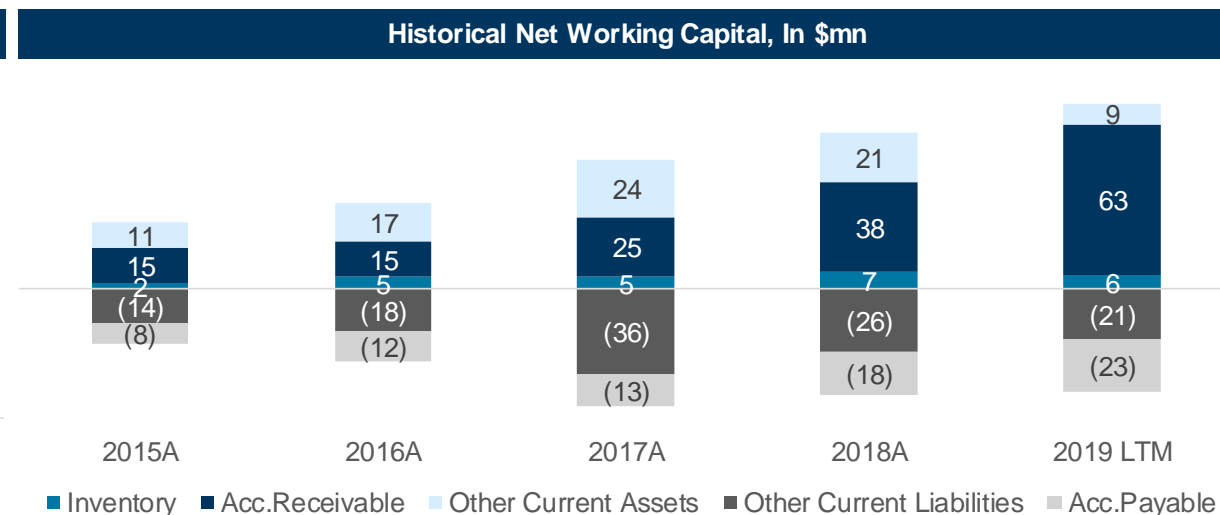
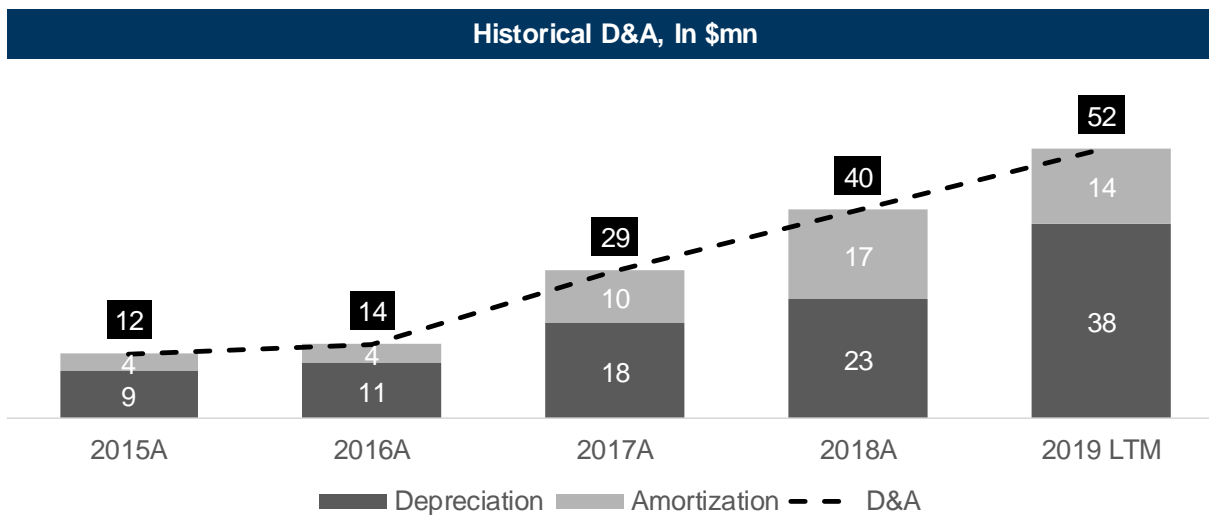
### 4 BioTel Care & Alliance

- Before 2017, revenue in this segment was merely coming from the manufacturing and selling of cardiac monitoring devices. Only in 2017, BioTel entered the Glucose Monitoring market with the **acquisition of Telcare**, which has not shown significant revenue contributions since then.
- Over the period, revenue growth was almost flat, increasing at a **CAGR of 1.3%**.

### 5 EBITDA

- BioTel's EBITDA margin** has developed positively over the past years, **moving from 12.3% in 2015 to 24.1% in 2019 LTM**.
- Over the period, EBITDA grew at a significant **CAGR of 54.7%**.

# Depreciation, Amortization and Net Working Capital increased significantly in 2017, particularly due to the acquisition of LifeWatch



**Total D&A**

- Total D&A increased from \$12.5mn in 2015 to \$51.9mn in 2019 LTM<sup>1</sup>, which equals an increase of 415% over this period.
- The main factor contributing to this development is the inorganic growth in the Remote Cardiac Monitoring business, boosting PPE and Intangible Assets.

**Depreciation**

- The major part of BioTel's PPE consists of **remote cardiac monitoring devices, device parts, and components**, also explaining the company's low value of inventory.
- After the acquisition of LifeWatch in 2017, PPE almost doubled from \$25.8mn in 2016 to \$49.2mn in 2017. Hence, depreciation increased from \$10.5mn to \$18.3mn.

**Amortization**

- The major part of BioTel's Intangible Assets consists of **customer relationships and intellectual property, such as patents to protect its technology**.
- Similar to PPE, Intangible Assets increased dramatically from \$33.5mn in 2016 to \$141.7mn in 2017 after the acquisition of LifeWatch, having a vast impact on amortization.

In Days	2015A	2016A	2017A	2018A	2019 LTM
<b>DIO</b>	12.5	17.5	16.8	15.5	15.6
<b>DSO</b>	31.0	26.1	25.3	28.8	30.0
<b>DPO</b>	55.0	48.4	40.9	38.4	38.4

**Assets**

- **DIO:** While experiencing an increase in 2016 and 2017, DIO have lowered in the past two years to see inventory turn into sales every **15.6 days**.
- **DSO:** Accounts Receivable have increased vastly over the past years, driven by the enormous boost in sales, while DSO have remained relatively stable at around **30.0 days**.

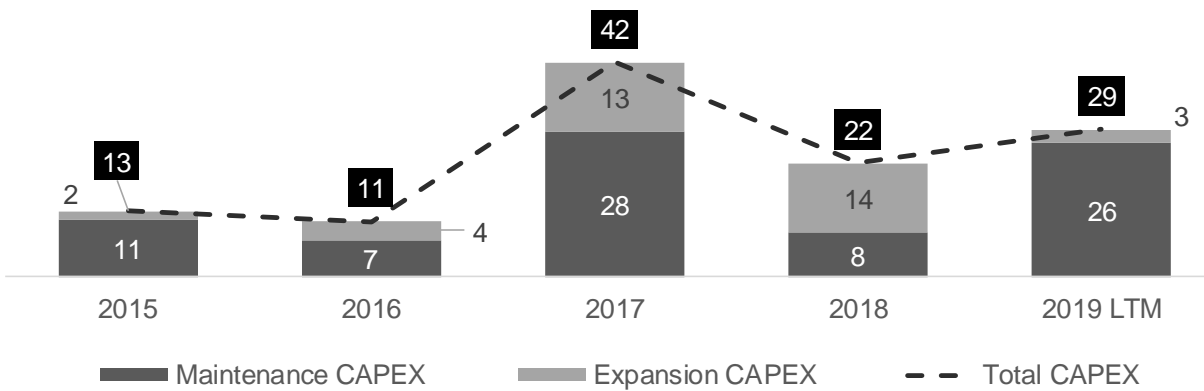
**Liabilities**

- **DPO:** Accounts Payable have moved up and down over the analyzed period, while DPO worsened from **55.0 days in 2015 to 38.4 days in 2019 LTM**.
- Other Current Liabilities have decreased, driven by the reduction in Accrued Liabilities and Capital Lease Obligations.

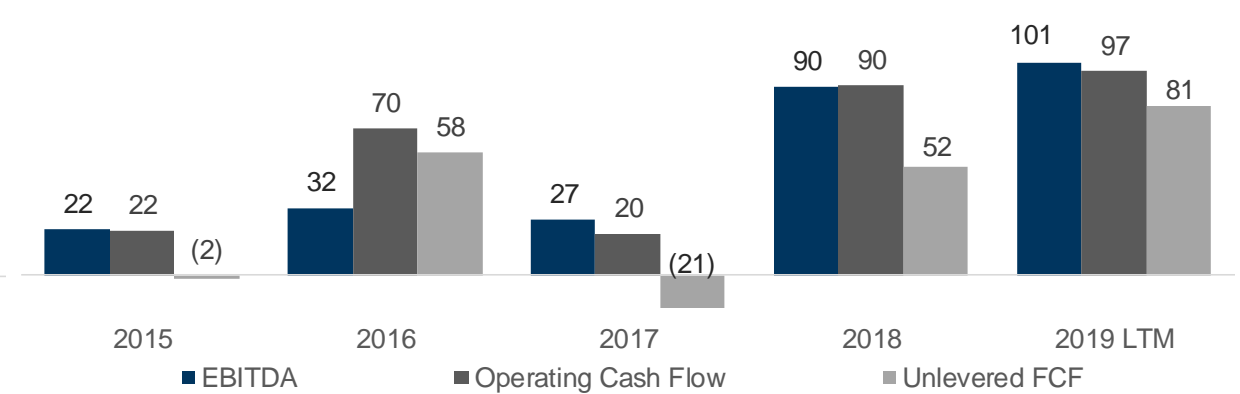
Notes: <sup>1</sup>As of 30<sup>th</sup> June 2019. Sources: BioTelemetry Annual Reports; Bloomberg

# Rise in CAPEX is mainly driven by expenditures associated with M&A, while recent growth in FCF was pushed by strong EBITDA performance

Historical CAPEX, In \$mn



Historical Unlevered Free Cash Flow, In \$mn



**Total CAPEX**

- **Total CAPEX remained relatively stable, except for the acquisition year of 2017.**
- The following proxy was used to assess the split of Total CAPEX:
  - The ratio PPE/Sales indicates the amount of PPE it takes to support each dollar of sales.
  - This ratio was then multiplied by the gross increase in BioTel's sales for each year.
  - The result was considered as Maintenance CAPEX, the remaining part as Expansion CAPEX.

**Maintenance**

- **Maintenance CAPEX experienced two peaks (in 2017 and 2019 LTM<sup>1</sup>) over the last five years, which are both related to the consolidation of acquisitions.**
- The high share of Maintenance CAPEX compared to Total CAPEX can be explained with the nature of BioTel's Remote Cardiac Monitoring business: monitoring devices, considered as the vast part of PPE, require high repair and cleaning maintenance in order to be re-used.

**Expansion**

- **Expansion CAPEX, similar to Maintenance CAPEX, experienced two acquisition-related increases while remaining at relatively low levels for other years.**
- Corresponding to the abovementioned importance of Maintenance CAPEX, Expansion CAPEX can be kept at relatively low levels because the monitoring devices can be re-used for several patients.

In \$mn	2015A	2016A	2017A	2018A	2019 LTM	CAGR
<b>EBITDA</b>	<b>22.0</b>	<b>32.3</b>	<b>26.8</b>	<b>90.0</b>	<b>101.2</b>	<b>54.7%</b>
(-) Statutory Tax Expense	0.5	(37.7)	6.7	(0.4)	4.0	84.7%
<b>Operating Cash Flow</b>	<b>21.5</b>	<b>69.9</b>	<b>20.1</b>	<b>90.4</b>	<b>97.2</b>	<b>53.8%</b>
(-) Δ in Net Working Capital	10.6	0.8	(1.1)	16.1	(12.3)	n.a.
(-) CAPEX	12.8	10.8	41.7	22.1	28.7	25.8%
<b>Investing Cash Flow</b>	<b>23.4</b>	<b>11.6</b>	<b>40.6</b>	<b>38.2</b>	<b>16.4</b>	<b>(9.6%)</b>
<b>Unlevered Free Cash Flow</b>	<b>(1.9)</b>	<b>58.3</b>	<b>(20.6)</b>	<b>52.1</b>	<b>80.7</b>	<b>n.a.</b>

**Operating CF**

- Operating CF increased at a **strong CAGR of 53.8%** during the period from 2015 to LTM 2019, driven by the **strong EBITDA growth**.
- This positive, historical trend shows BioTel's **capabilities of generating cash through its existing operations**.

**Unlev. FCF**

- Unlevered FCF can similarly look at a **positive development except for 2017**, which saw an **acquisition-related increase in Maintenance and Expansion CAPEX**.
- Considering non-acquisition years only, BioTel's FCF before financing and tax has experienced considerable growth, which enables the company to **support significant leverage**.

Notes: <sup>1</sup>As of 30<sup>th</sup> June 2019. Sources: BioTelemetry Annual Reports; Bloomberg



# BioTel's solid management team brings extensive expertise in their fields as well as proven leadership skills to the table

	Name	Position	Appointment	Age	Previous Experience	Key Strengths
	<b>Joseph H. Capper</b>	President and Chief Executive Officer	2010	56	<ul style="list-style-type: none"> <li>President and CEO of CCS Medical, Inc.</li> <li>President and CEO and board member at Home Diagnostics, Inc.</li> </ul>	<ul style="list-style-type: none"> <li>Extensive expertise within the Healthcare industry.</li> <li>Has been leading BioTel to robust growth rates since his appointment.</li> </ul>
	<b>Heather Getz, CPA</b>	EVP and Chief Financial Officer	2009	44	<ul style="list-style-type: none"> <li>VP Finance at Alita Pharmaceuticals, Inc.</li> <li>Finance Integration Director at Cardinal Health.</li> <li>Finance Director at VIASYS Healthcare, Inc.</li> <li>Financial Auditor at Sunoco.</li> </ul>	<ul style="list-style-type: none"> <li>Strong professional experience in various roles in Finance.</li> <li>Has been leading BioTel to robust growth rates since his appointment.</li> </ul>
	<b>Peter Ferola</b>	SVP and General Counsel	2011	50	<ul style="list-style-type: none"> <li>VP, General Counsel and Secretary at Nipro Diagnostics.</li> <li>Corporate and Securities Attorney with Greenberg.Traurig, LLP and with Dilworth Paxson, LLP.</li> <li>VP at Stephan Co.</li> </ul>	<ul style="list-style-type: none"> <li>Has been leading BioTel's legal agendas in a highly regulated industry with an often need for lawsuits and litigation.</li> </ul>
	<b>Manish Wadhwa MD, FHRS</b>	SVP and Chief Medical Officer	2019	n.d.	<ul style="list-style-type: none"> <li>Co-Founder and CMO of Geneva Healthcare, Inc.</li> <li>Cardiologist, Electrophysiologist and Medical Advisor at San Diego Arrhythmia Associates.</li> <li>CSO of Geneva Healthcare.</li> </ul>	<ul style="list-style-type: none"> <li>A key asset of BioTel's Geneva acquisition.</li> <li>Strong experience in the Healthcare industry might favor the expansion of BioTel in terms of clients and product portfolio.</li> </ul>
	<b>Tim Raher</b>	SVP and Human Resources	2017	n.d.	<ul style="list-style-type: none"> <li>Senior Vice President, Human Resources at LifeWatch.</li> <li>Human Resources Director at Johnson &amp; Johnson.</li> </ul>	<ul style="list-style-type: none"> <li>Extensive expertise in Human Resources.</li> <li>Background in working for a multinational company might favor BioTel's international expansion.</li> </ul>

International expansion and partnership development with key agents are some of the answers to overcome the major threats the company has faced over the past years

Strengths		Weaknesses	
BioTel Heart	<ul style="list-style-type: none"> <li>• <b>24/7 monitoring and cellular transmission of cardiac data.</b></li> <li>• High quality and straight-forward reporting capabilities.</li> <li>• Low dependence on devices' suppliers as the company currently assembles and manufactures its own cardiac monitoring devices.</li> </ul>	BioTel Heart	<ul style="list-style-type: none"> <li>• <b>Little influence over reimbursement rates.</b></li> <li>• When commercial payors combine their operations, the combined company may decide to reimburse for products at the lowest rate paid by any of the participants, which can be zero in an extreme scenario.</li> </ul>
BioTel Research	<ul style="list-style-type: none"> <li>• Strong expertise in testing cardiac monitoring devices.</li> <li>• Strong <b>partnerships with key players</b> in the Clinical Trial Services market.</li> <li>• Selected division to analyze and report the cardiac data collected in the <b>Apple Heart Study in 2019.</b></li> </ul>	BioTel Research	<ul style="list-style-type: none"> <li>• <b>High dependency on outsourcing of clinical research</b> by Pharmaceutical, Clinical Research and Biotechnology companies.</li> <li>• <b>Leading players are multinational companies</b> and have a <b>much larger dimension.</b></li> </ul>
BioTel Care	<ul style="list-style-type: none"> <li>• Target interventions and near real-time feedback.</li> <li>• Devices do not require Wi-Fi connection nor additional hardware.</li> <li>• <b>Low dependence on devices' suppliers</b> as the company currently assembles and manufactures its own cardiac monitoring devices.</li> </ul>	BioTel Care	<ul style="list-style-type: none"> <li>• <b>No guaranteed reimbursement by health insurances.</b></li> <li>• <b>Leading players have a much larger dimension.</b></li> <li>• Focus on non-continuous blood glucose monitoring devices.</li> </ul>
Opportunities		Threats	
BioTel Heart	<ul style="list-style-type: none"> <li>• <b>Increasing and aging population.</b></li> <li>• Increased demand and expenditure for cardiac monitoring solutions.</li> <li>• <b>Geneva Software Platform may be expanded to new diagnostic modalities.</b></li> <li>• International expansion and product placement.</li> </ul>	BioTel Heart	<ul style="list-style-type: none"> <li>• <b>Federal legislation, regulations, or political outlook/elections may negatively impact revenue</b> via reimbursement rates.</li> <li>• Fragmented industry, characterized by many small regional players.</li> <li>• <b>Patents expiring through 2032</b>, some of them relate to key products.</li> </ul>
BioTel Research	<ul style="list-style-type: none"> <li>• Public and regulatory agencies increased attention on Healthcare.</li> <li>• <b>\$1bn cardiovascular testing and \$400mn imaging core lab addressable markets.</b></li> <li>• Partnership development with key industry players.</li> <li>• Expand research capabilities to Blood Glucose Monitoring.</li> </ul>	BioTel Research	<ul style="list-style-type: none"> <li>• The largest five players account for more than a third of the global market.</li> <li>• <b>Trade-off between superior quality and demand</b> because introducing a superior product in a market that already as one that is good enough might not lead to additional revenues<sup>1</sup>.</li> </ul>
BioTel Care	<ul style="list-style-type: none"> <li>• Increased demand for remote patient monitoring and digital therapeutics.</li> <li>• Capture market share by focusing on the fragmented share of the market.</li> <li>• Introduce <b>reimbursement for the BGM device.</b></li> <li>• Further leverage the <b>connected cloud for the management of other chronic diseases.</b></li> </ul>	BioTel Care	<ul style="list-style-type: none"> <li>• The <b>market is dominated by five players</b>, which accounted for 65% of the market share in 2018.</li> <li>• The <b>average patents' expiration date is 2034.</b></li> </ul>

Sources: <sup>1</sup>Expert Interviews; BioTelemetry Website & Documents