



Innovating the Pacemaker Industry

Meet Ty'Meisha



THIS IS THE REALITY.



3 MILLION PEOPLE

A faint, grayscale world map is visible in the background, centered on the Atlantic Ocean. The continents of North America, South America, Europe, Africa, Asia, and Australia are outlined in a light gray tone against a white background.

600,000 Surgeries a Year

Medical.

Medical.
Financial.

Medical.
Financial.
Emotional.

No Trauma.

**No Trauma.
No Surgeries.**

**No Trauma.
No Replacement.
Less Financial Distress.**



Innovating the Pacemaker Industry

EVOLUTION OF PACEMAKER TECHNOLOGY



1958

Weight: 73.4g
Size: 35cc



1981

Weight: 55g
Size: 25cc



1995

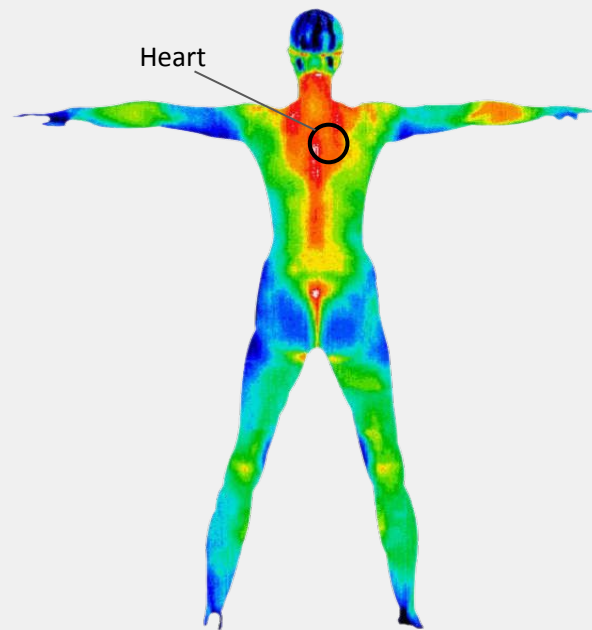
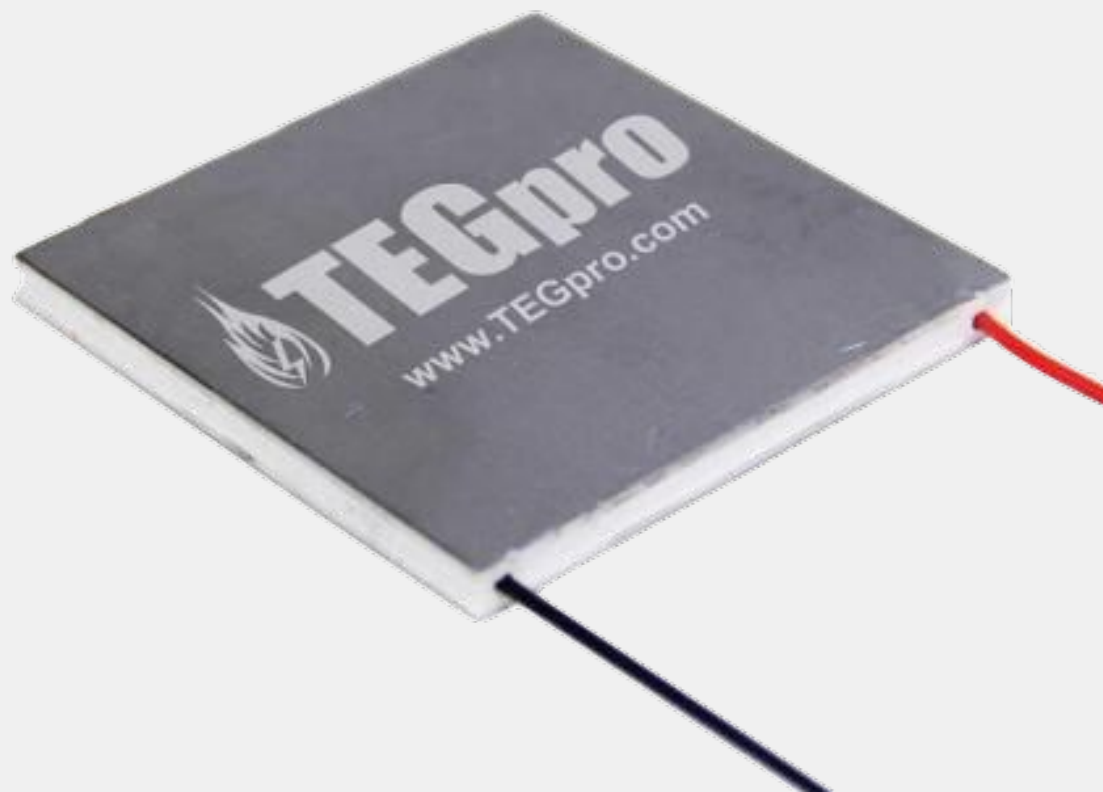
Weight: 14g
Size: 6cc



2009

Weight: 23g
Size: 12.8cc





NO BATTERIES!!!

NO REPLACEMENT SURGERIES!!!

Value Proposition/Competitive Advantage

1

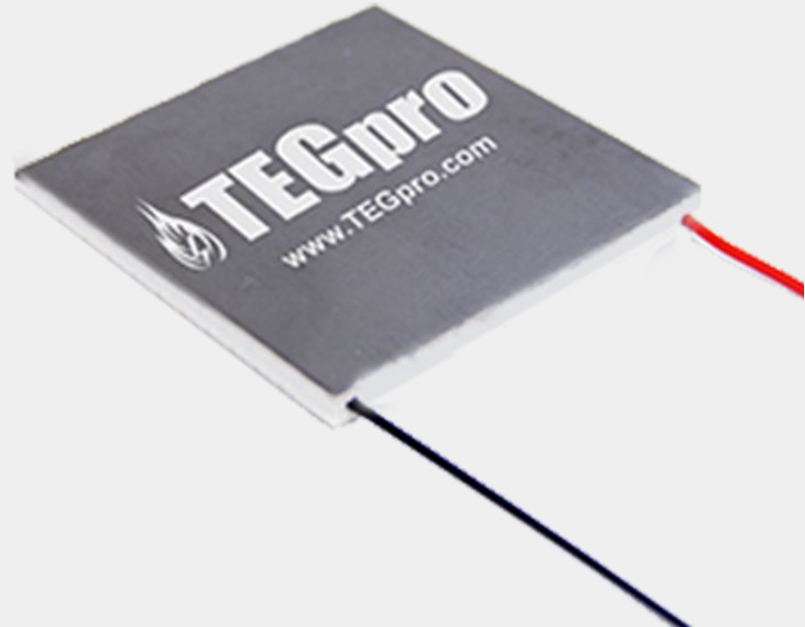
Value Proposition

The value proposition of ThermoBeat is to create a product that provides users health and peace of mind without the stress and worry of repeated surgeries to replace their conventional pacemaker batteries

2

Competitive Advantage

Our competitive advantage is that we provide greater benefits for customers, through the reduction of medical, financial and physical stress at similar costs.



Meet our Team

19



William Blair

CEO

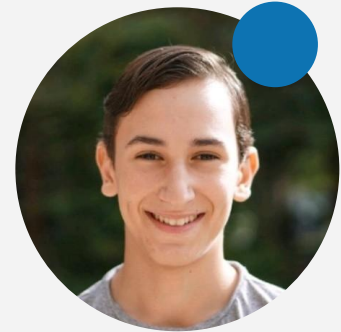
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CTO

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Two Key Features

1. Powered By YOUR Body Heat

Make & Model	Type of Charging	Battery Life	Replenishing
Lithium Iodide Battery >99% of Implementations	Standard Batteries	5-7 years	Replace Battery (\$)
Micra Battery	Standard Batteries	12.5 years	Proprietary docking station
ThermoBeat	Thermal Charging	∞	Body heat

2. Leveraging AI

THERE'S A LOT OF WASTED DATA

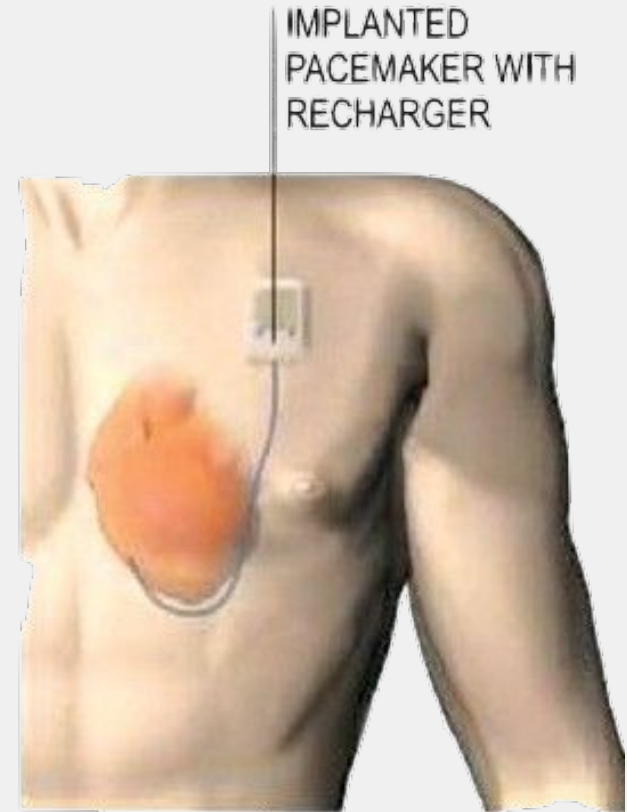
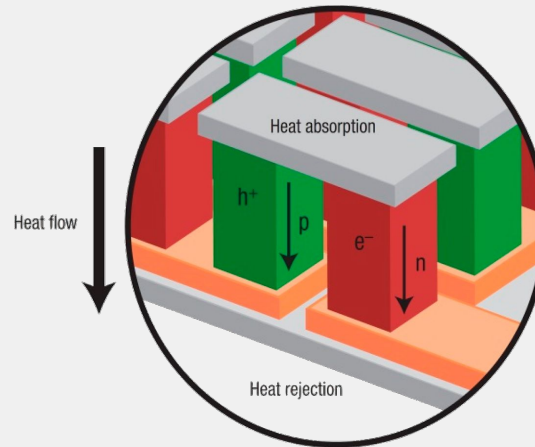
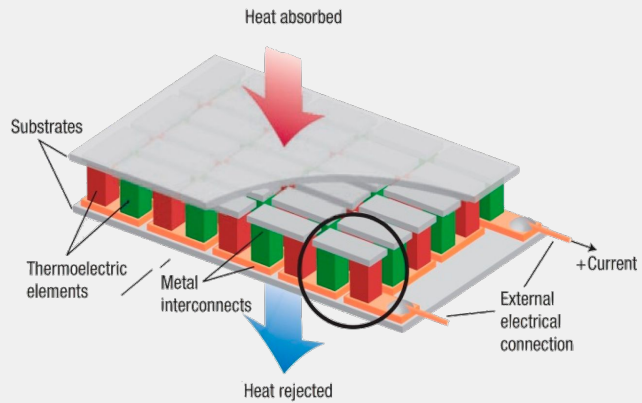
Data Dump → Functionality + Efficiency

Thermoelectric Generator (TEG)

Thermoelectric Generator (TEG)



Data Gathering Sensors



Thermoelectric Generator (TEG)

Thermoelectric Generator (TEG)



SUSTAINABILITY

**Pacemaker Market Size
Worth \$10.3 Billion By 2025**

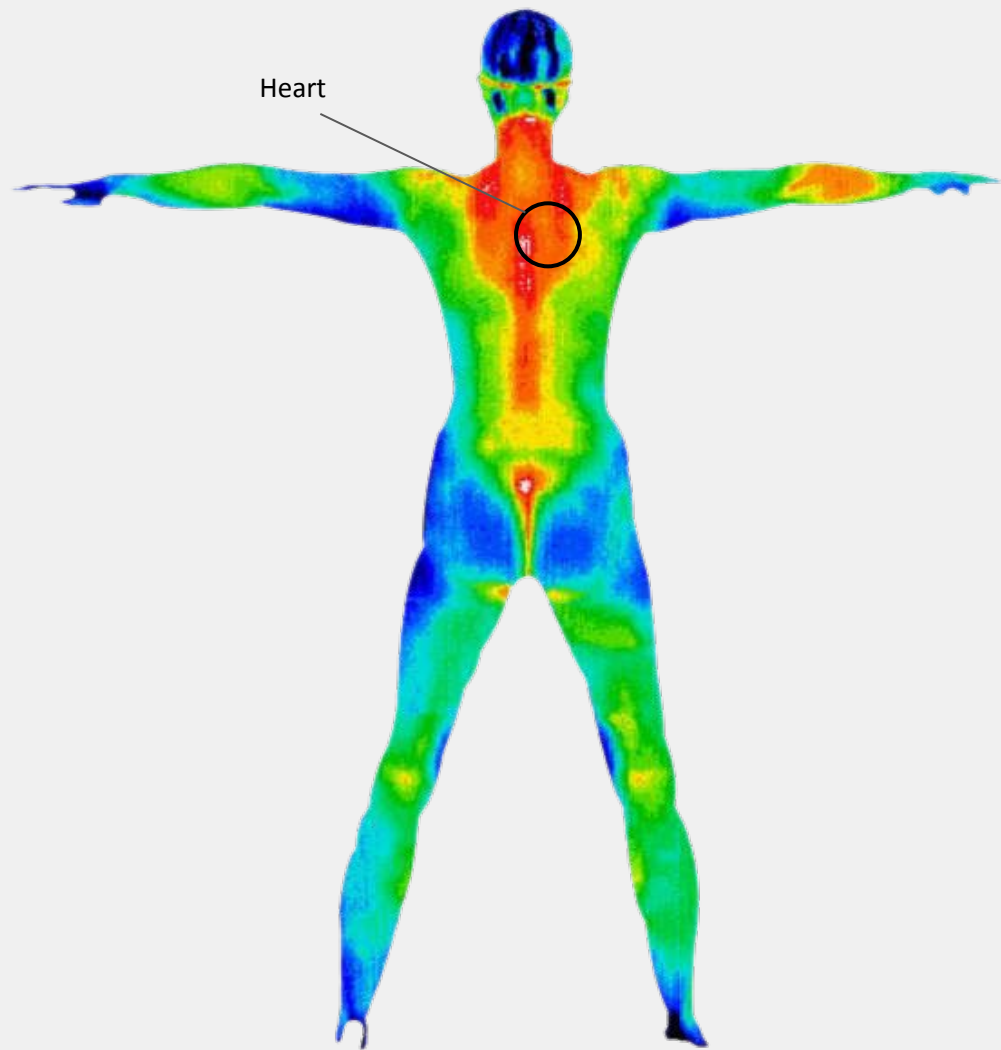
**7.2% Annual Growth in Pacemaker
Implantations**

WHY?

**Increasing prevalence of cardiovascular diseases (CVDs) is
a high-impact growth-rendering factor.**

Medical.
Financial.
Emotional.

Environmental



Heart

Batteries HARM the Environment.



EPA

2013 study found that Lithium Ion Batteries have “**highest potential for environmental impacts**”

Environmental Effects





Revenue

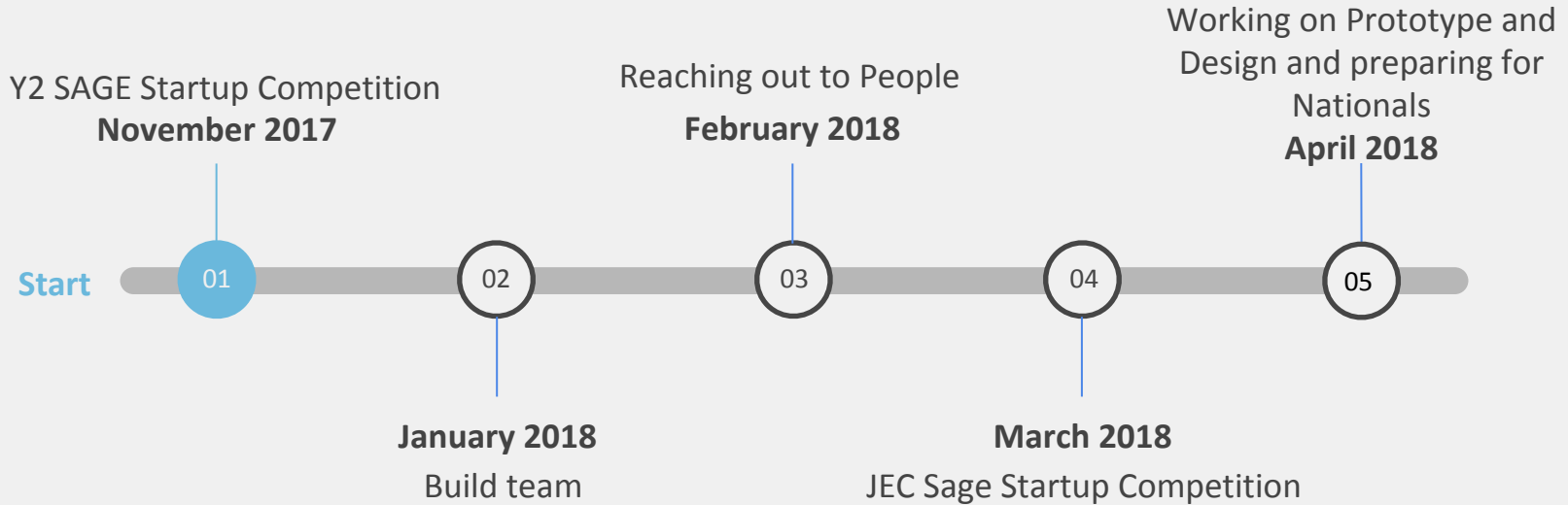
1. Initial Cost

2. Data Subscription

Financials

Option	2018	2019
Development	3000	5000
Production	0	3000
Marketing, PR	900	1800
Consulting	600	1500
Other	1000	100
Total Expenses	5500	12 300

Progression







Testimonials

Lionel Newton

Pacemaker Patient

“If the safety standard can be upheld, then a long term solution to decrease the number of surgeries [to replace a battery] could be a huge advantage ...”

Dr. Khalid Enver

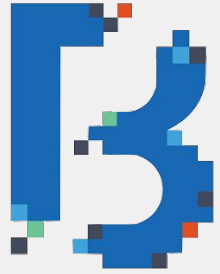
Surgeon at Fergus Ontario

“Pacemaker patients face problems well beyond their physical health. It is a systemic issue, affecting their emotional and physical wellbeing. They need to heal and recover, not count down the years until the next dangerous procedure.”

Anonymous

“My grandfather has a pacemaker and every couple of years or so, he has to get surgery to get his pacemaker’s batteries changed. It really worries our family because we never know if the surgery will be his last.”

Community Resources + Engagement



Biomedical
Zone

DMZ



ST. JUDE MEDICAL™



Boston
Scientific

Medtronic

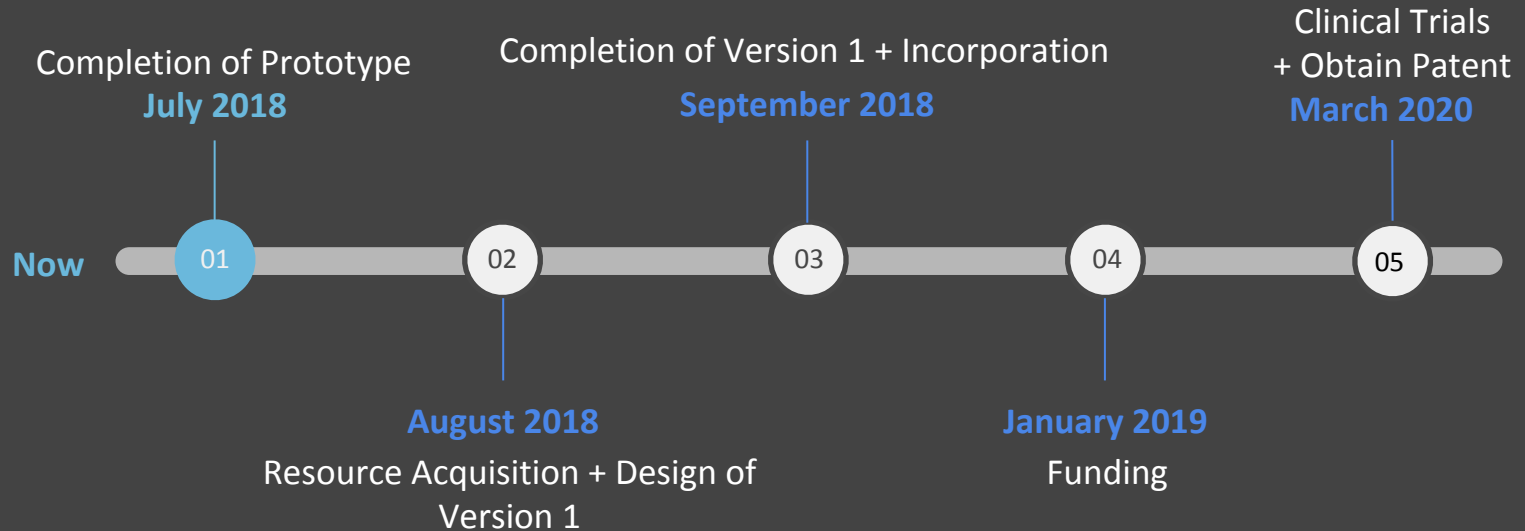
These three companies
account for 90% of
Pacemaker Approvals

A woman with long brown hair and a man with short dark hair are standing in profile, facing a large presentation screen. The woman is on the left, wearing a grey ribbed sweater and dark pants. The man is on the right, wearing a grey hoodie and dark pants. The screen behind them has a green and yellow gradient background and displays the text "2. Non-invasive Software".

2. Non-invasive Software

NEXT STEPS

Future Development Timeline



Barriers

Barriers

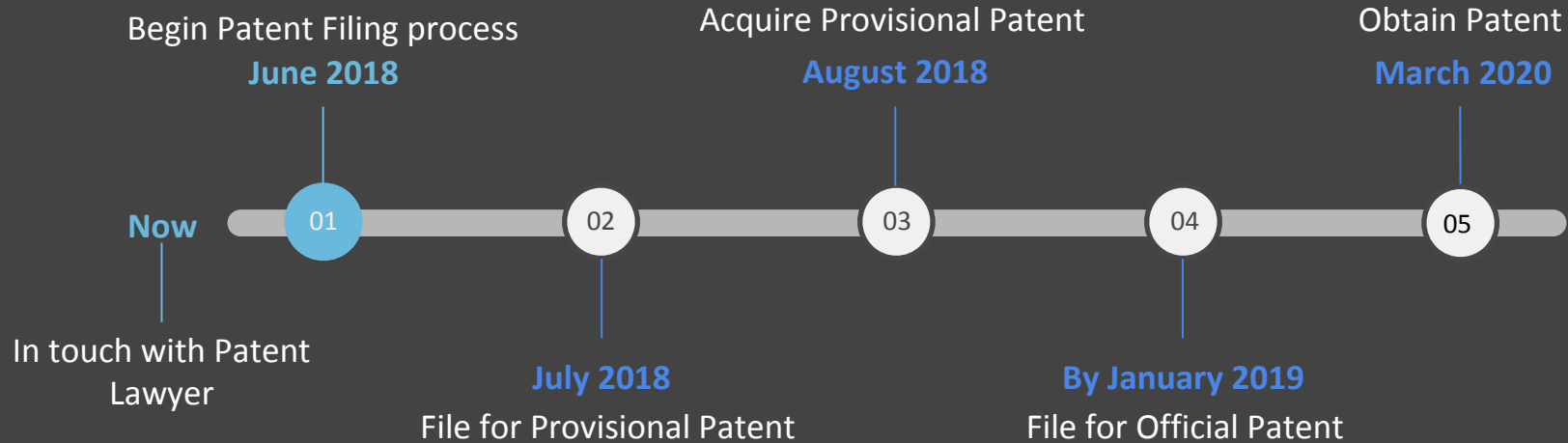
1. Obtaining Intellectual Property

Barriers

1. Obtaining Intellectual Property
2. Department of Health Canada and
FDA

Intellectual Property

The Regulatory Path



Department of Health Canada and FDA

Medical Device Approval

Preclinical Studies

Chemical, Physical,
Mechanical, Biocompatible
and Animal Studies



ITA Application

Investigational Testing
Authorization approval to
be received from the
Medical Device Bureau



Medical Device License

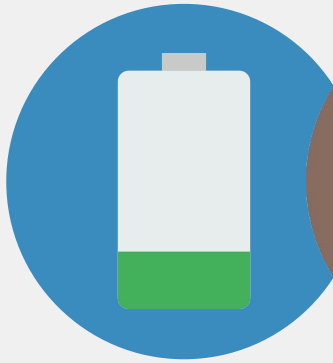
Approval received from
Health Canada after
approval of Human Clinical
Trials through ITA



Ty'Meisha Sloan



Summary



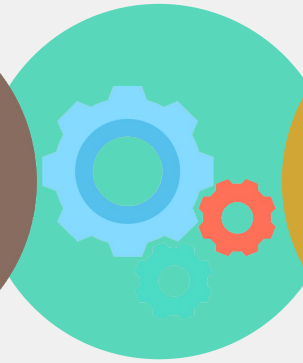
Problem

Batteries



Market

Over 3 million
have pacemakers
600 000 are
implanted every
year



Tech

Thermoelectric
Generator



Implications

Medical
Emotional
Financial



Future

Lower costs
Retain more
data
Flexible TEG

