

Emerging ASX Technology Sector

4 April 2016

The Rise of the Robots



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Company Information

ASX Code	RAP
Last Price (\$)	\$0.23
12 month share low	\$0.02
12 month share high	\$0.27
Shares on Issue (m)	580
Market Capitalisation (\$m)	\$133
Daily Volume	5.5m

Bloomberg, DJC Research

Business Description

ResApp Health Ltd. is engaged in the research and commercial development of drugs. It develops smart phone medical applications for the diagnosis and management of respiratory disease. The technology is based on a machine learning algorithm that uses sound alone without the need for additional hardware to diagnose and measure the severity of a respiratory condition. The algorithm has been successfully tested for pneumonia and asthma diagnosis in a clinical proof of concept study. The company is also engaged in mineral exploration. The company was founded on September 13, 2000 by John Majewski and is headquartered in Perth, Australia.

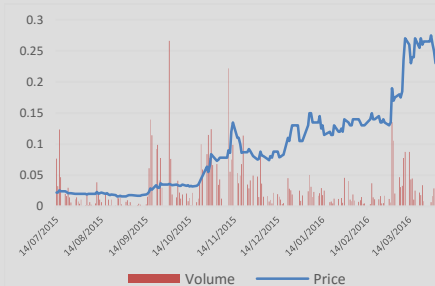
Factset, DJC Research

Directors

Roger Aston	Non-Exec. Chairman
Tony Keating	CEO/MD/Director
Brian Leedman	Exec. Director
Chris Ntoumenopoulos	Non-Exec. Director

Major Shareholders

Uniqwest Pty Ltd	7%
Freeman Road	5%
Peterson Superfund	4%
Brian Leedman	3%

Performance

Source: Factset

Analyst Details

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ResApp Health (RAP)

Calling the Doctor on my smartphone

ResApp is an Australian based medical diagnostic technology development company that is developing health care solutions that can have a positive impact on patients and healthcare costs.

Key Points

- RAP has developed a respiratory disease diagnostic tool that runs on a smartphone:** RAP has developed an application that runs on a smartphone that “listens” to patients cough and determines an appropriate diagnosis using machine learning technology from the sound signature of the cough. The system was originally developed by researchers at the University of Queensland using funds from the Bill and Melinda Gates Foundation. The system can be likened to a digital stethoscope but its real value besides the diagnostic ability is that it can be used to perform a remote diagnosis, which makes this an ideal tool for the telemedicine market. The system runs on a smartphone, which eliminates the need for specialist equipment thereby reducing costs.
- RAP is undertaking a clinical trial with encouraging results:** RAP is currently conducting a trial at two hospitals in Perth: Joondalup Health Campus and Princess Margaret Children’s Hospital. The trial has been expanded to 524 subject datasets, which is more than double the initial datasets from previously released results. The app correctly detected lower respiratory tract disease in 91% to 98% of patients. The app is also achieving success rates in the ~90% mark in terms of diagnosing pneumonia, which normally is diagnosed with an x-ray. Another key result from this ongoing study is that the app also detected lower respiratory tract disease in 97% of patients who had been diagnosed as clear by experienced clinicians using stethoscopes. The trial is ongoing.
- The diagnosis of respiratory disease is the most common outcome from a visit to the doctor:** It is estimated that 125 million doctor visits in the US and 6 to 8 million doctor visits in Australia are for respiratory disease. Globally there are over 700 million doctor visits for respiratory disease, which makes respiratory illness one of the main reasons patients visit a doctor or hospital.
- Telemedicine is a growing sector:** Healthcare costs have far outstripped inflation over the years and if the trend continues healthcare will dominate all other areas of public spending. It is believed that increasing the use of telemedicine is a way of containing spiralling costs.
- RAP is about to apply to the US FDA for approval:** RAP is in the process of preparing an application for the FDA and has already held its pre-submission meeting this quarter, confirming that it will pursue a premarket submission for ResAppDx initially for paediatric use and then later for adult use. As part of the submission RAP will have to perform clinical studies at one or more US hospitals. FDA approval for medical devices is not nearly as onerous or expensive as drug approvals and once RAP is granted approval the entire US health market opens up to the company.
- Multiple potential revenue streams:** RAP intends to partner with telehealth providers and charge per consultation, and then move to a consumer distribution model and ultimately partner with device manufacturers and telecommunication providers.

Investment Points

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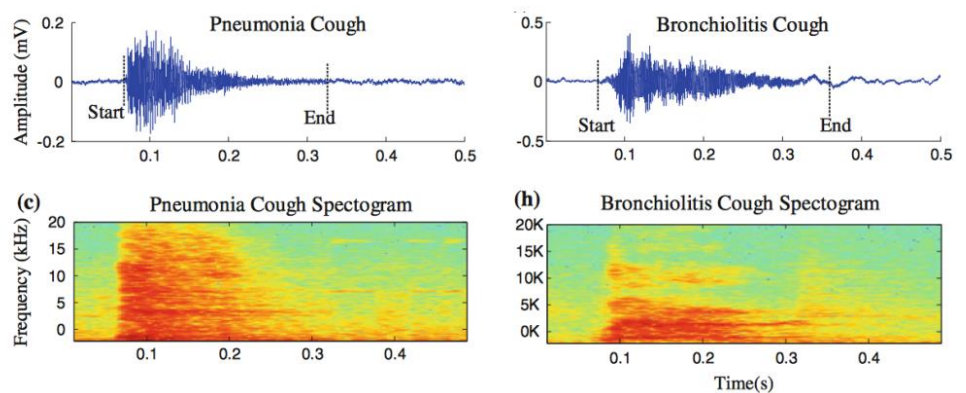


Figure 12: Digital signature of a cough.

Source: RAP

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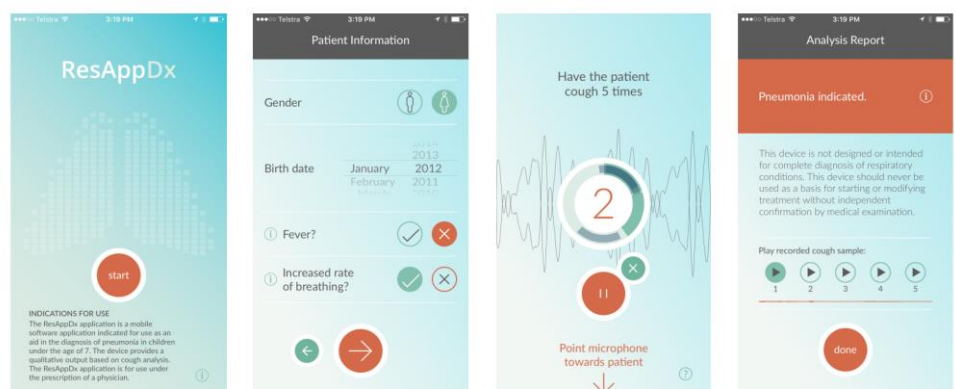


Figure 13: The interface of RAP's diagnostic tool.

Source: RAP

The diagnosis of respiratory disease is the most common outcome from a visit to the doctor: It is estimated that 125 million doctor visits in the US and 6 to 8 million doctor visits in Australia are for respiratory disease. Globally there are over 700 million doctor visits for respiratory disease, which makes respiratory illness one of the main reasons patients visit a doctor or hospitals.

Telemedicine is a growing sector: Healthcare costs have far outstripped inflation over the years and if the trend continues healthcare will dominate all other areas of public spending. Some observers say that if the trajectory in healthcare costs in Australia is extrapolated into the future the entire Federal and State budget will be spent in this area. This means there will be no money for defence, social programs, education etc. It is believed that increasing the use of telemedicine is a way of containing spiralling costs. The cost of hospitals is a hot button political topic and containing costs via the use of technology is going to be one of the view interventions available to planners. Helping to drive the move to telemedicine is that it is expected that there will be an uptake in digital health largely, which will be driven by increasing use of smartphones and miniaturisation of health care sensors.

According to Deloitte there were 75 million telehealth consultations in 2014 and telehealth consultations have been growing by 56% per year, which represents a \$12 to \$16 billion market opportunity. Large US companies such as the pharmacy group Walgreens are entering this space as they see this as the future of affordable healthcare. RAP's remote diagnostic tool for respiratory illnesses is very important as these disease make up a large portion of presentations to doctors and hospitals.

RAP is about to apply to the US FDA for approval: RAP is in the process of preparing an application for the FDA and is has already held its pre-submission meeting this quarter and have confirmed that it will pursue a premarket submission for ResAppDx initially for paediatric use and then later for adult use. As part of the submission RAP will have to perform clinical studies at one or more US hospitals. FDA approval for medical devices is not nearly as onerous or expensive as drug approvals and once RAP is granted approval the entire US health market opens up to RAP.

Multiple potential revenue streams: RAP intends to partner with telehealth providers and charge per consultation, and then move to a consumer distribution model and ultimately partner with device manufacturers and telecommunication providers.

Corporate Summary

RAP is developing digital healthcare solutions to assist doctors and empower patients to diagnose and manage respiratory disease. The company is creating easy to use, affordable, clinically-validated and regulatory-approved diagnostic tools that only require a smartphone. The solutions are designed to be easily integrated into existing telehealth solutions and RAP is also working on apps to provide respiratory disease diagnosis and management directly to consumers and healthcare providers.

Directors and Management

Dr Roger Aston - Non-Executive Chairman

Dr Roger Aston, BSc (Hons) PhD, is currently the Executive Chairman of OncoSil Medical. He has had extensive experience on boards of many pharmaceutical companies, and has been Chief Executive Officer of Pitney Pharmaceuticals Ltd, PSIMedica, pSiOncology Pte Ltd, Peptech and Cambridge Antibody Technology.

In 2001, Dr Aston co-founded pSivida Limited. He served as the Chief Executive Officer of Mayne Pharma Group Limited until 15 February 2012. During his career, Dr Aston has been closely

involved in start-up companies and major pharmaceutical companies. Aspects of his experience include FDA and EU product registration, clinical trials, global licensing agreements, fundraising through private placements, and a network of contacts within the pharmaceutical, banking and stock broking sectors.

Dr Aston is both a scientist and a seasoned biotechnology entrepreneur, with a successful track record in both fields. He currently has several executive and non-executive board positions with prominent biotechnology companies.

Dr Tony Keating - Chief Executive Officer and Managing Director

Dr Tony Keating has over 9 years' experience in commercialising technology. Dr Keating created the initial business strategy for ResApp and has led the commercialization of ResApp's technology to date. Previously, Dr Keating was Director, Commercial Engagement at UniQuest Pty Ltd, one of the global leaders in commercialisation of university technology. While at UniQuest, Dr Keating held roles as interim Chief Executive Officer and Non-Executive Director for a number of privately-held, venture-capital funded start-up companies. Prior to joining UniQuest Dr Keating held business development and engineering management roles at Exa Corporation, a US-based software company that is now listed on the NASDAQ.

Dr Keating holds a Bachelor of Engineering, a Master of Engineering Science and a Doctor of Philosophy (Mechanical Engineering) from The University of Queensland. Dr Keating also has an Executive Certificate of Management and Leadership from the MIT Sloan School of Management, and is a Graduate Member of the Australian Institute of Company Directors.

Mr Brian Leedman - Executive Director and Vice President, Corporate Affairs

Brian Leedman is a marketing and investor relations professional with over 10 years' experience in the biotechnology industry. Mr Leedman was co-founder of ResApp Diagnostics Pty Ltd which was acquired by Narhex Life Sciences Ltd to form ResApp Health. Prior to ResApp, Mr Leedman co-founded Oncosil Medical Limited and Biolife Science Limited (acquired by Imugene Limited). Mr Leedman previously served for 10 years as Vice President, Investor Relations for pSivida Corp which is listed on the ASX and NASDAQ. He is currently the WA chairman of AusBiotech, the association of biotechnology companies in Australia.

Mr Leedman holds a Bachelor of Economics and a Masters of Business Administration from the University of Western Australia.

Mr Chris Ntoumenopoulos - Non-Executive Director

Mr Ntoumenopoulos is a partner at CPS Capital, a WA based Stockbroking and Corporate Advisory firm. He has worked in financial markets for the past 12 years, focusing on Capital Raisings, Portfolio Management and Corporate Advisory. Mr Ntoumenopoulos has advised and funded numerous ASX companies from early stage venture capital, through to IPO. He is an executive director of various private companies which span across finance, technology and medical sectors. Mr Ntoumenopoulos has a Bachelor of Commerce degree from the University of WA, majoring in Money and Banking, Investment Finance and Electronic Commerce

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Recommendation Definitions

SPECULATIVE BUY – 10% out-performance, but high risk

BUY – 10% or more out-performance

ACCUMULATE – 10% or more out-performance, buy on share price weakness

REDUCE - 10% or more under-performance, sell on share price strength

HOLD – 10% underperformance to 10% over performance

SELL – 10% or more underperformance

Period: During the forthcoming 12 months, at any time during that period and not necessarily just at the end of those 12 months.