

OEM PARTNERS TO DRIVE BIO-BANKING GROWTH

Investment Highlights

- Bluechiip Limited's (BCT) technology has the potential to displace the current incumbents in the chain-of-custody accessories segment of the bio-banking industry and potentially other logistic processes. The shift to an Original Equipment Manufacturer (OEM) partner model is accelerating with the Genea Biomedx License and Supply agreement being signed in December 2015 and talks currently being held with an extensive pipeline of additional partners. BCT may be able to take advantage of its disruptive technology in the growing bio-banking industry and leverage off its OEM partners to carve out a significant market share for itself. Given the Company's promising long term prospects and positive news flow expected in the short term, namely the signing of additional OEM partners, we feel BCT's depressed share price is unjustified and should re-rate. We maintain our Speculative Buy rating, but do highlight the need for a further capital raising in the near future.
- BCT has signed a License and Supply Agreement with Genea Biomedx to incorporate BCT sample tracking technology into its Assisted Reproductive technology (ART) instruments used in IVF clinics globally. The license and supply will progress through staged development phases including concept due diligence, product development and subsequent commercial release. The license includes milestone payments with minimum quantities on commercial release. This agreement is the first major step in BCT's shift in commercialization strategy. The agreement goes a long way in providing validation of the OEM strategy. This also highlights the quality of BCT's technology, with the validation of work in sub -196 degree Celsius cryogenic temperatures. While this agreement is in the IVF market, which is substantially smaller than the traditional bio banking market, BCT has an extensive OEM pipeline which should see further agreements come to fruition in the next 3 to 6 months
- The BCT system uses a patented and highly powerful MEMS chip ("smart chiip") that enables the chain-of-custody system. Every time a smart chiip is read, an instantaneous temperature is measured, time stamped and recorded. This allows an accurate temperature history to be recorded to provide a more complete chain of custody. The smart chiip will survive and operate in extreme temperature environments such as cryogenic storage and gamma irradiation. The technology also does not need to be handled or be in a visible line of sight to be read, thus is potentially more optimised, efficient and suitable for bio-banking applications.
- The bio-banking market is forecast to be worth c.\$15bn globally in 2015 and expected to grow to \$35bn by 2024, with BCT's total addressable market stated as \$1bn plus. The integration of MEMS devices in bio-banking is an example of the effect that the growth of the Internet of Things can have. Mundane objects such as biological vials, canisters and holders could be connected to a MEMS sensor and the internet, creating a "smart" device. While the initial focus is the bio-banking market, chain-of-custody is vital in a range of markets. Initially flagged secondary markets include cold storage logistics and security and defence. The size of these markets highlights the large potential for BCT's technology.
- As at 31 December 2015, BCT had \$0.36m in cash and cash equivalents (down from \$0.6m at the end of September 2015) and no debt, with the balance of the Finance Lease being paid in the December quarter. The Company currently has a quarterly burn rate of c.\$0.6m and, thus, given the current depressed cash position would need to return to market for a fresh capital injection. BCT last raised capital via a placement to sophisticated and professional investors in December 2015, when it raised \$0.45m at \$0.04/sh. BCT currently has a capital initiative underway in the form of a Share Purchase Place at \$0.04/sh.

11 February 2016

12mth Rating

SPEC BUY

Price	A\$	0.034
RIC: BCT.AX	BBG: BCT AU	
Shares o/s	m	180.56
Free Float	%	72.2
Market Cap.	A\$m	6.1
Net Debt (Cash)	A\$m	(0.36)
Net Debt/Equity	%	na
3m Av. D. T'over	A\$m	0.01
52wk High/Low	A\$	0.09/0.027

Analyst: Jon Scholtz
Phone: (+61 8) 9225 2836
Email: jscholtz@psl.com.au

An investment in this company should be considered speculative and note assumptions employed are contingent on broader market conditions remaining buoyant. These can change at short notice. Recommendations are current at the time of publication.

12 Month Share Price Performance



COMPANY OVERVIEW

Bluechiip Limited (BCT) is a Micro-Electro-Mechanical-Systems (MEMS) technology company that has developed a temperature and tracking solution for use in the health and life sciences industry, particularly in the storage of biological samples and bio-banking.

The Company was founded in 2003 in Melbourne, Australia; and listed on the ASX in 2011. BCT has developed a solid business platform with an extensive IP portfolio with 21 patents held in 7 families, key manufacturing partners in Europe, UK and Malaysia and has secured distributors globally.







BCT has researched, developed and is set to commercialise its product suite which includes a MEMS smart chip, a Reader and the Stream software. The unique product suite has been developed as a full temperature and tracking solution to disrupt the traditional labels, barcodes and RFID's currently used in chain-of-custody activities. The technology uses a passive device based on MEMS technology that contains no electronics and is either embedded or manufactured into cryogenic storage equipment such as vials, cassettes (canisters), racks and towers or liquid nitrogen tanks.

The BCT system uses a patented and highly powerful MEMS Chip ("smart chiip") that enables the chain-of-custody system. Every time a smart chiip is read, an instantaneous temperature is measured, time stamped and recorded. This allows an accurate temperature history to be recorded to provide a more complete chain of custody. The smart chiip will survive and operate in extreme temperature environments such as cryogenic storage and gamma irradiation. The technology also does not need to be handled or be in a visible line of sight to be read, thus is potentially more optimised, efficient and suitable for bio-banking applications.

The BCT technology has initial applications in the healthcare industry particularly those businesses which require cryogenic storage facilities (bio-banks and bio-repositories). Several potential uses outside of healthcare, including cold-chain logistics/supply chain, security/defence, industrial/manufacturing and aerospace/aviation, have been identified as potential follow-up markets for the technology.

In addition to the general bio-banking uses, BCT's current primary market pipeline includes the tracking of samples in protein crystallography and regenerative medicine and can also track eggs and sperm used and stored for In-vitro fertilisation.

Figure 1: BCT Competitive Advantage

		LABELS	BARCODES	RFID	BLUECHIIP
	Gamma Resistant	●	●	●	●
	Cryo safe Survives extreme temps	●	●	●	●
	Non visual ID Reads through frost	●	●	●	●
	On-board sensor Temperature sensing	●	●	●	●
	Reduced human error	●	●	●	●
	Productivity improvements	●	●	●	●

Source: Bluechiip technology

PRODUCTS

BCT has researched, developed and is set to commercialise its product suite which includes a MEMS smart chip, a Reader and the Stream software. The unique product suite has been developed as a full temperature and tracking solution to disrupt the traditional labels, barcodes and RFID's currently used in chain-of-custody activities.

MEMS Smart Chiip

The smart chiip is a patented and highly miniaturised MEMS device that enables the BCT chain-of-custody system. The smart chiip features instantaneous measurement of temperature and identification while being immune to extreme environments such as cryogenic storage and gamma irradiation making it suitable for bio-bank operations.

The technology uses a passive device based on MEMS technology that contains no electronics and is either embedded or manufactured into cryogenic storage equipment such as vials, cassettes (canisters), racks and towers or liquid nitrogen tanks.

The technology can also be created specifically for the OEM, such as the blood bags and vials. BCT have also created the BlueChiip Button which can be retrofitted onto existing samples and multivendor cryovials, which potentially allows its technology to be fitted and used on all the current cryovials currently in circulation. This is important as it allows BCT to potentially target the entire established market.

Figure 2: Chiip Applications



Source: Bluechiip Limited

Matchbox Reader

The Matchbox™ Reader is the transaction point to read the BCT cryovials, cryotags and buttons to track and record the identification and temperature to the individual sample level. The Matchbox™ Reader is able to read both vials and BCT smart chiip enabled racks, cassettes, towers and tanks without interrupting the thermal stability of the biosample and its environment.

The Matchbox Reader comprises a web server together with a database that matches the readings against pre-recorded data related to the individual biosample. The reader comes in the established Multi Vial Reader which can be used for high volume bio-banking solutions and the hand held reader, which is currently in the final stages of development, for use in more mobile applications.

Figure 3: Reader Systems



Hand Held Reader – for mobile applications



Multi Vials Reader – for high volume biobanks

Source: Bluechiip Limited

Stream Software

The Matchbox™ Reader provides a graphical interface on the front of the unit that allows the Stream Software to deliver benchmark levels of consistency, reliability, efficacy and robustness to ensure quality and viability of biosamples from the time of collection to disposal or dispatch.

The Software was developed in-house and rounds out the product suite which allows BCT to offer a full start to end chain-of-custody solution.

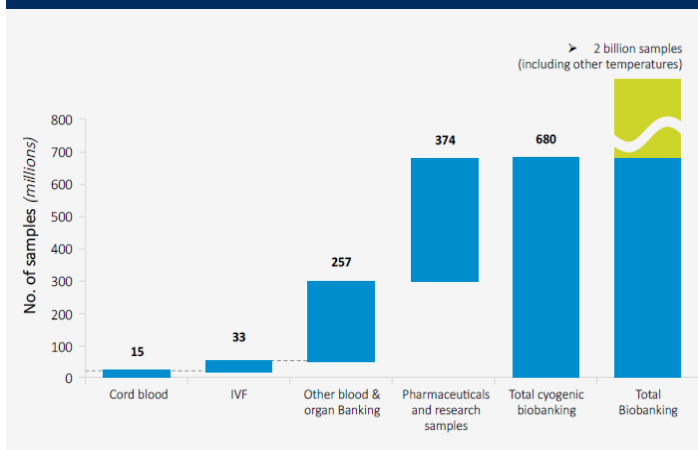
MARKET OVERVIEW

The bio-banking market is forecast to be worth c.\$15bn globally in 2015 and expected to grow to \$35bn by 2024, with BCT's total addressable market stated as \$1bn plus. The integration of MEMS devices in bio-banking is an example of the effect that the growth of the Internet of Things can have. Mundane objects such as biological vials, canisters and holders could be connected to a MEMS sensor and the internet, creating a "smart" device.

The number of samples stored in bio-banks has also increased substantially over the last decade and is expected to grow by c15% year on year over the next decade which coincides with the growth in the health and wellbeing market. Currently over 2.0bn biological samples are held in bio-banks which include cryogenic bio-banking, blood, pharmaceuticals and IVF samples (Figure 4).

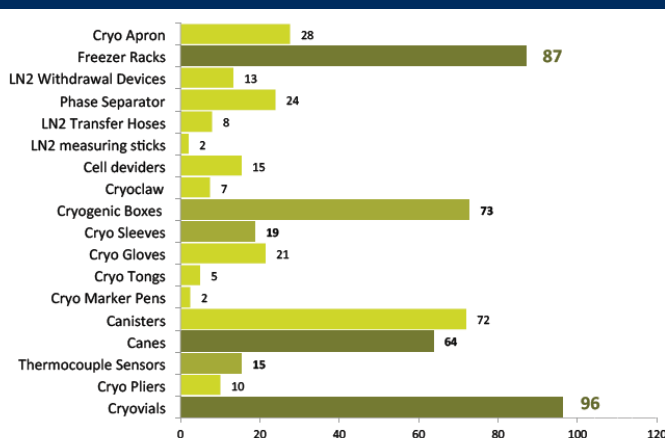
Figure 5 below highlights the cryogenic accessories market in which BCT directly operates. Just the Cryovial market alone is set to generate revenue of US\$97m in 2017, which is still traditionally identified and tracked via labels and barcodes. BCT is in a promising position to leverage its technology and establish a solid share of the cryogenics accessories market.

Figure 4: Cryogenic Bio-banking Samples



Source: Bluechiip Limited

Figure 5: Cryogenic Accessories by Market Revenue (2017)



While the initial focus is the bio-banking market, chain-of-custody is vital in a range of markets. Initially flagged secondary markets include cold storage logistics and security and defence (figure 6). The size of these markets highlights the large potential for BCT's technology.

Figure 6: Additional addressable markets



Source: Bluechiip Limited

OEM OPPORTUNITY

BCT have pivoted the business model to more of an Original Equipment Manufacturer (OEM) model, which will see it makes parts or subsystems for use in another company's end product. BCT will design and customise its current technological product suite for the end user and will design and integration process for all hardware and software. BCT will also provide global services and support to its OEM partners.

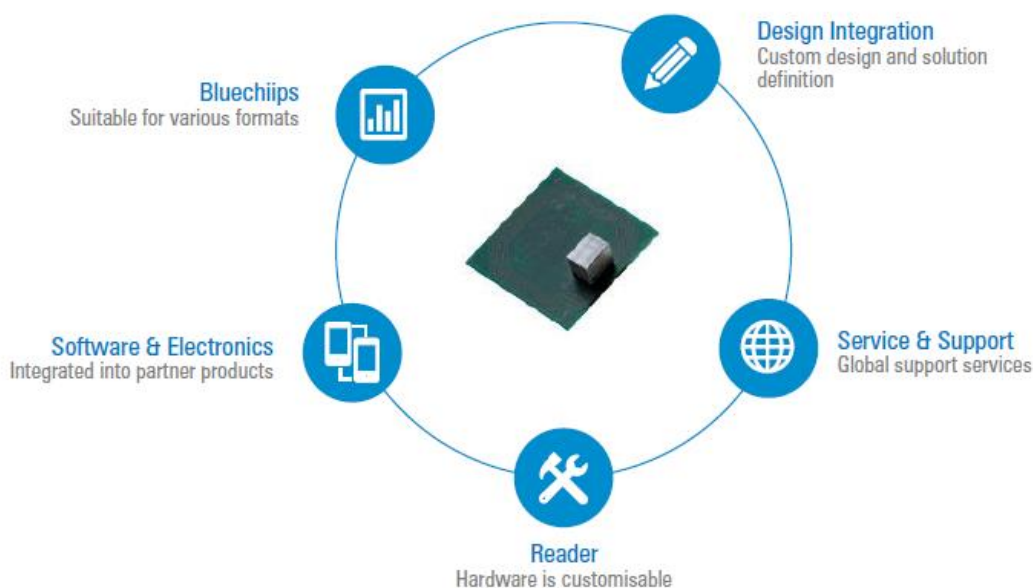
This will allow BCT to keep costs low as the sales force is able to be kept small and concentrate on key sales channels only. The OEM Model will also allow BCT to garner a substantially larger footprint from the start by leveraging off the OEM partners established distribution channels and current products in market (via retrofitting).

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This agreement is the first major step in BCT's shift in commercialization strategy. The agreement goes a long way in providing validation of the OEM strategy. This also highlights the quality of BCT's technology, with the validation of work in sub -196 degree Celsius cryogenic temperatures. While this agreement is in the IVF market, which is substantially smaller than the traditional bio banking market, BCT has an extensive OEM pipeline which should see further agreements come to fruition in the next 3 to 6 months.

The OEM partnership may also allow BCT to develop further products via co-developer agreements and research mandates with the OEM partners. BCT has named some initial OEM development partners and we view the naming of additional partners as a favourable short term catalyst.

Figure 7: Solutions of OEM Partners



Source: Bluechiip Limited

RISKS & CATALYSTS

Catalysts

- **OEM Partnerships:** The ability to customise its product suite to the needs of the product producers allows BCT to target a portion of the market that already has established sales channels and inventory in the public domain. We believe this will allow for additional retrofitting and could go a long way in proving up the BCT technology.
- **Infiltration into secondary markets:** While the initial focus is in the bio-banking market, chain-of-custody is vital in a range of markets. Initially flagged secondary markets include cold storage logistics and security and defence. The size of these markets highlights the large potential for BCT's technology.
- **Product expansion:** While the current BCT product suit fully services the bio-banking market, further research and development opportunities with OEMs and development partners may allow BCT to discover further market needs and innovations and potentially unlock new revenue streams.
- **Regulation:** As highlighted in risks, there may be increased regulatory pressure on the health and wellbeing sector. However, BCT's technology allows for quicker identification and tracking without the need to be handled or be in a visible line-of-sight, which means the technology may be more viable for bio-banking applications.

Risks

- **Technology:** BCT may be adversely affected by rapid macro changes in technology that renders its devices obsolete. BCT is also exposed to issues specific to its technology, such as hardware and software issues.
- **Competition:** The increase in market size of the chain-of-custody market, particularly in the health and wellbeing sector, may see increased competition from new entrants and the current encumbers. Technological advances may see the traditional label, barcode and RFID providers incorporate products which could match or rival BCT's technology.
- **Margin Pressure:** Given the price of medical accessories and MEMS in general are decreasing, BCT might encounter margin pressure. However we feel the Company's supply chain is robust enough that potential revenue pressure could be negated by cost optimisations.
- **Regulatory:** The increased regulatory environment in the health and wellbeing sector may see the accessories industry face regulatory concerns, particularly given the sensitive nature of the samples tracked. However we feel this is a market wide concern and not isolated to BCT.

CAPITAL STRUCTURE & SUBSTANTIAL HOLDERS

BCT has a fairly straight forward capital structure, with 180.5m shares outstanding and currently trading at \$0.034/sh, BCT has a Market Capitalisation of \$6.1m. As at 31 December 2015, BCT had \$0.36m in cash and cash equivalents (down from \$0.6m at the end of September 2015) and no debt, with the balance of the Finance Lease being paid in the December quarter.

The Company currently has a quarterly burn rate of c.\$0.6m and, thus, given the current depressed cash position would need to return to market for a fresh capital injection. BCT last raised capital via a placement to sophisticated and professional investors in December 2015, when it raised \$0.45m at \$0.04/sh. BCT currently has a capital initiative underway in the form of a Share Purchase Place at \$0.04/sh.

Figure 8: BCT Capital Structure

Current Capitalization

Price in AUD	0.034
x Shares Outstanding	180.56
Equity Value	6.14
- Cash and ST Investments	0.36
+ Total Debt	0.0
+ Unpaid Capital	0
+ Minority Interest	0
Enterprise Value (EV)	5.78

Source: Patersons Securities Limited

Iain Kirkwood, who is a long serving board member and current Chairman, owns a 5.2% stake in BCT. The top 20 shareholders account for 45.2% of all shares outstanding while the initial founders own 2.5% of the shares.

Figure 9: Substantial Holders

Substantial Shareholders	No. Shares (m)	%
Stephen Woodford	17.1	9.45
Australian Executor Trustees	10.3	5.7
Iain Kirkwood	9.3	5.2
Top 20 Shareholders	75.3	45.2
Founder	4.2	2.5

Source: Patersons Securities Limited, Bloomberg



1300 582 256

patersons@psl.com.au

www.psl.com.au

Research

Rob Brierley - Head of Research
Hira Sakrani - Research Assistant
Mia Wang - Research Assistant

Phone: (+61 8) 9263 1611
Phone: (+61 3) 9242 4052
Phone: (+61 8) 9263 1650

Email: rbrierley@psl.com.au
Email: hsakrani@psl.com.au
Email: mwang@psl.com.au

Strategy & Economics

Tony Farnham - Economist
Andrew Quin - Research Strategy Coordinator
Kien Trinh - Senior Quantitative Analyst

Phone: (+61 2) 9258 8973
Phone: (+61 8) 9263 1152
Phone: (+61 3) 9242 4027

Email: tfarnham@psl.com.au
Email: aquin@psl.com.au
Email: ktrinh@psl.com.au

Commodities

Jason Chesters - Analyst
Simon Tonkin - Senior Analyst
Matthew Trivett - Analyst

Phone: (+61 8) 9263 1144
Phone: (+61 8) 9225 2816
Phone: (+61 7) 3737 8053

Email: jchesters@psl.com.au
Email: stonkin@psl.com.au
Email: mtrivett@psl.com.au

Industrials

Martyn Jacobs - Analyst
Conor O'Prey - Analyst
Jon Scholtz - Analyst

Phone: (+61 3) 9242 4172
Phone: (+61 2) 8238 6214
Phone: (+61 8) 9225 2836

Email: mjacobs@psl.com.au
Email: coprey@psl.com.au
Email: jscholtz@psl.com.au

Institutional Dealing

Dan Bahen
Michael Brindal
Artie Damaa
Paul Doherty
Chris Kelly
Stuart Murray
Jeremy Nugara
George Ogilvie
Phil Schofield
Josh Welch
Sandy Wylie

Phone: (+61 8) 9263 1274
Phone: (+61 8) 9263 1186
Phone: (+61 2) 8238 6215
Phone: (+61 3) 8803 0108
Phone: (+61 3) 9242 4078
Phone: (+61 2) 8238 6210
Phone: (+61 3) 8803 0166
Phone: (+61 8) 9263 1627
Phone: (+61 2) 8238 6223
Phone: (+61 8) 9263 1668
Phone: (+61 8) 9263 1232

Email: dbahen@psl.com.au
Email: mbrindal@psl.com.au
Email: adamaa@psl.com.au
Email: pdoherty@psl.com.au
Email: ckelly@psl.com.au
Email: smurray@psl.com.au
Email: jnugara@psl.com.au
Email: gogilvie@psl.com.au
Email: pschofield@psl.com.au
Email: jwelch@psl.com.au
Email: swylie@psl.com.au

Disclosure: The preparation of this report was funded by the Company in accordance with the terms of an agreement with Patersons.

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