



ASX ANNOUNCEMENT

5 May 2020

## **CardieX CEO Reports Progress on Significant Developments in Wearable Device Strategy, Partnerships, and Commercialization**

### **Highlights:**

- **Swiss global pharma company Roche selects CardieX co-development partner Blumio for medical grade diagnostic sensor pilot program.**
- **German semiconductor major, Infineon Technologies signs development agreement with Blumio.**
- **CardieX Joint Development Agreement (JDA) with Mobvoi leads to major wearables sensor breakthrough.**
- **CardieX progresses with “CardieX Sensor Development Kit” for third party wearable device makers.**

**CardieX Limited** (ASX: **CDX**, **CardieX**, the **Company**) CEO Craig Cooper reports to shareholders on significant developments relating to CardieX’s co-development and investment partner Blumio, the JDA with Mobvoi, and the Company’s recent wearable sensor technology breakthrough.

### **Chief Executive Officer, Craig Cooper:**

Today I am very pleased to be able to update shareholders on some recent milestones and achievements with regards to our mobile and wearable strategy as it relates to our:

1. Co-Development Agreement (CDA) with Blumio;
2. Joint Development Agreement (JDA) with Mobvoi; and
3. the Development of our “CardieX Sensor Development Kit” for licensing to third party device makers.

### **Overview**

Our strategy continues to be focused on developing the first “uncalibrated”, non-invasive and cuffless wearable sensor for monitoring blood pressure and other cardiovascular health vital signs - which is considered to be one of the “Holy Grails” in wearable health-tech monitoring.

There are existing wearable blood pressure monitors in the market that use sensors, but for those few that have FDA approval they all require calibration – meaning that they have to be used in conjunction



with a standard blood pressure (BP) monitoring device – so they are not considered to be satisfactory for clinical or user-friendly consumer applications.

Our strategy for achieving this “Holy Grail” remains focused on developing the first “uncalibrated” wearable sensor technology that can be used independently and without the need for a separate device for calibration or an invasive inflatable cuff. This development will open up significant commercial opportunities for us in both medical and consumer markets.

We are initially targeting three significant medical markets:

1. The massive global market for **24-hour ambulatory patient monitoring** with 1.56B people estimated to have hypertension by 2025;
2. **General patient monitoring** – an uncalibrated wearable BP sensor would displace the need for an invasive arterial line needing to be placed in patients during hospital admissions – with upwards of 316 million hospital admissions annually in the USA alone; and
3. **Vascular disease monitoring** – an uncalibrated sensor can also be applied to monitor vascular disease at the extremities, such as ankles and limbs. Up to 20% of individuals over 60 years of age have some form of vascular disease, and this is a market that is increasing due to the growing prevalence of disorders such as diabetes.

Whilst on the consumer side, a sensor based vital signs monitor such that we are developing also opens the way for medical grade applications to be developed for consumer devices - allowing for better health management and patient data to be remotely shared with physicians and health providers. Our partnerships and development efforts with Blumio, Mobvoi, and the development of our own CardieX Sensor Development Kit (see below) are driven towards meeting these commercial consumer goals.

### **CardieX and Blumio CDA**

Our collaboration with Blumio consists of two parts:

1. A **Co-Development Agreement (“CDA”)** that provides for the integration of CardieX’s algorithms and SphygmoCor® technology into the Blumio sensor allowing for a unique and patented set of cardiovascular data features to be extracted by the Blumio sensor; and
2. An **investment by CDX in Blumio for 7.5% of Blumio** with a potential to increase to 10% (for no additional cash investment) based on the achievement of certain additional milestones.

CardieX continues to successfully integrate its algorithms and technology into the Blumio sensor under the Co-Development Agreement and has met all important milestones and technology standards to date. Given the nature of the development activities under the CDA, Blumio and CardieX continue to operate remotely with little impact on day-to-day operations resulting from current global conditions.



### ***New Update: Release of Blumio Development Kit***

Importantly, Blumio has also recently completed their first-generation “sensor development kit” as one of the milestones under the CDA. The sensor development kit consists of a radar sensor board, a wearable enclosure, and a small processing unit which runs algorithms that generate an arterial waveform in real time. This is the first and a significant step towards making Blumio’s sensor technology commercially available to device makers as the kit enables their partners (including CardieX) to continue to execute on their product development efforts in parallel.

### ***New Update: Roche Pilot Program & Infineon Development Agreement***

Recognizing the importance of the global market opportunity for the Blumio sensor Swiss pharmaceutical company Roche has now selected Blumio for a pilot project to explore the feasibility of integrating Blumio's sensor technology into Roche's next-generation diagnostics devices. As part of this pilot project, Blumio then introduced German semiconductor manufacturer Infineon Technologies into the dialogue with Roche, as Infineon currently manufactures a key component used in Roche's devices.

These discussions have now led to Blumio signing an agreement with Infineon (separate from the Roche Pilot) to undertake fully funded development activities over the next 18 months, relating to the integration of Blumio sensor technology into a range of Infineon’s semiconductor chips.

The Infineon development agreement and the Roche pilot project creates the foundation for global development and application of the sensor through the combined networks of both Roche and Infineon.

### **Mobvoi & CardieX Joint Development Agreement (JDA)**

CardieX has a JDA with Mobvoi for the development of novel and proprietary health technologies, applications, and features to be integrated into Mobvoi’s next generation of watches and smart devices. Mobvoi is Google’s “in-country” partner for Google’s Wearable OS platform in China. Mobvoi’s investors include Google, Volkswagen and Sequoia Ventures.

Separate to Blumio, our partnership with Mobvoi focuses on the use of the global standard in consumer sensor technology – the PPG sensor (photoplethysmogram - used to detect blood volume changes in the microvascular bed of tissue). Whilst Blumio is developing a novel and unique “radar-based” sensor for mainly clinical applications, the Mobvoi partnership focuses on the widely used PPG sensor technology enabling CardieX to have technology coverage and application across multiple sensor integrations.

On 24 April, 2020 CardieX provided an update to the ASX on a significant technology milestone for the Company as it relates to the Mobvoi JDA. In summary, CardieX has been able to achieve a major technology advance in the application of its technology to wearables and smart devices using a PPG sensor. For more details on that announcement I would refer you to that release. The full presentation to Mobvoi on that milestone and technology advance will be released to the market shortly.



As a result of this achievement CDX is now looking at expanding the opportunities under that JDA to new markets and other applications, such as the provision of data and related technologies to Mobvoi under a “services & subscription model”. More details will be provided as those discussions progress.

Finally, Given the nature of the development activities under the JDA, Mobvoi and CardieX continue to operate remotely with little impact on day-to-day operations resulting from current global conditions. Importantly, our ongoing communications with Mobvoi have been with the full China based team all gathered physically together and working from directly the Mobvoi corporate office.

***New Update: CardieX PPG Sensor Kit Development for Cardiovascular Health.***

The completion of the Mobvoi first phase milestone was also a significant step in the development for the CardieX Sensor Development Kit (CSDK). We have now shown that we can extract unique cardiovascular health features from a PPG sensor – a technology achievement that has not been achieved to date.

Given this achievement we are now moving forward with the development of a commercial sensor development kit including a reference design for a PPG sensor together with CardieX algorithms. This CSDK would allow other device makers such as Garmin, Apple, Fitbit etc, to incorporate our development kit into their devices given that they use the same PPG sensor technology that forms the basis of our CSDK. The first release of the CSDK will include the algorithms announced to the market on 24 April, 2020. The next phase of the CSDK will include further advanced algorithms and features that will become commercially available in Q2, 2021 for license to third party device makers.

Further updates will be announced as we make progress on all of the above.

Thank you for your continuing support as we continue to develop novel and valuable health-tech solutions for large scale market opportunities.

A handwritten signature in black ink, appearing to read "Craig Cooper", written in a cursive style.

**Craig Cooper**

**CEO & Managing Director**

**Authorised and approved for release by the Board of Directors**

For more information please contact:

**Investor Relations**

**Peter Taylor** [peter@nwrcommunications.com.au](mailto:peter@nwrcommunications.com.au)



## **About CardieX**

CardieX is a global health technology company that develops digital and device-based solutions for large-scale population health disorders. The Company's XCEL device is the world leader in measuring "central blood pressure" which is considered essential for the management of hypertension and related cardiovascular disorders.

CardieX also has a joint venture partnership with Blumio, Inc in Silicon Valley for the development of a radar-based blood pressure sensor incorporating CardieX technology. In November 2018 CardieX entered into an agreement with inHealth Medical, Inc allowing CardieX to acquire up to 50.5% of inHealth by way of a convertible note.

In September 2019 CardieX signed a joint development agreement with Mobvoi Information Technology Co Ltd (Google's official Wear OS partner in China) to jointly develop an ecosystem of "smart heart" and other consumer health applications for the Google Wear OS platform in China based on CardieX subsidiary, ATCOR, software and algorithms.