### **Investor Presentation** March 2022

Nanollose Limited (ASX: NC6) www.nanollose.com









## A LEADING BIOTECHNOLOGY COMPANY

Nanollose Limited (ASX: NC6) is commercialising scalable technology to create tree-free fibres with minimal environmental impact.

Nanollose uses an eco-friendly fermentation process to grow microbial cellulose to make fibres that have the potential to become a sustainable alternative to conventional plant-derived cellulose fibres. Nanollose has developed its Tree-Free nullarbor<sup>™</sup> lyocell fibre for clothing and textiles and nufolium<sup>™</sup> for nonwoven fibre applications, including personal wipes.

In January 2021 the Company filed a joint patent application with Grasim Industries (NSE:GRASIM, Market Cap: US\$15B) for tree-free, nullarbor<sup>™</sup> high tenacity lyocell fibre, with development and commercialisation now progressing at an accelerated rate.





SUSTAINABLE

### nanollose



## **INVESTMENT HIGHLIGHTS**

### SUPERIOR TECHNOLOGY



- Developing scalable, revolutionary technology to create forest friendly fibres and fabrics, with minimal environmental impact.
- Growing IP portfolio including a joint patent application with Grasim Industries Limited for Tree-Free high tenacity lyocell fibre.
- No deforestation, wood-pulping process, pesticides or fertilisers with minimal demand for energy, land and water.
- Microbial cellulose raw material made from agricultural and food waste, by a natural fermentation process.
- First wearable garment made from Plant-Free rayon using standard industrial equipment.

#### **HIGH GROWTH MARKETS**



- · First mover advantage in the rapidly growing rayon market forecasted to grow to US\$20.9b by 2024, at a CAGR of 7.8%.
- The personal wipes market is a large, emerging market opportunity - estimated to grow to US\$24b by 2023, at a CAGR of 5.2%.

#### THE SHIFT IS HAPPENING

- Leading, global fashion companies have started the shift towards sustainability.
- Strong interest from major international clothing brands and super users of cellulose-based fibres – discussions with potential partners are well progressed.

#### SIGNIFICANT OPPORTUNITIES



- Opportunities to leverage Nanollose's core IP for applications beyond fibre and fabrics.
- Strategic investment to acquire a 20% holding in CelluAir, an Australian company developing an Advanced Filtration Technology ("AFT") based on nanocellulose.



- · Collaboration Agreement with Codi Group Europe's leading producer of personal wipes, to develop a viable consumer wipe product.



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### **STRATEGIC PARTNERSHIPS**

- Collaboration Agreement with Grasim Industries' business unit, Birla Cellulose, to accelerate development and commercialisation.
- Joint Patent Application with Grasim Industries for high tenacity lyocell fibre made from microbial cellulose.

### WIDESPREAD INDUSTRY PROBLEMS

Fashion is the second most pollutive industry after oil, and over 200m trees are chopped down annually to make cellulose-based fibres for textiles, a figure that is set to double in the next decade, making it commercially, environmentally and socially unsustainable.



### **POLYESTER - NYLON - ACRYLIC**

35% of global microplastic pollution comes from textiles<sup>1</sup>

- Non-biodegradable<sup>2</sup>
- Made from non-renewable petroleum resources
- Energy intensive production processes<sup>2</sup>



COTTON

#### 2,700L of water are used to produce 1 cotton t-shirt<sup>3</sup>

 Cotton covers approximately 2.5% of the world's cultivated land but uses 10-16% of the world's pesticides, more than any single major crop<sup>4</sup>

- https://www.fashionrevolution.org/our-clothes-shed-microfibres-heres-what-we-can-do/
- 2. https://www.greenchoices.org/green-living/clothes/environmental-impacts
- https://www.worldwildlife.org/stories/the-impact-of-a-cotton-t-shirt
- The Deadly Chemicals in Cotton. Environmental Justice Foundation in collaboration with Pesticide Action Network UK (2007): London, UK. ISBN No. 1-904523-10-2. 4.





### **RAYON (VISCOSE - LYOCEL)**

**Current Rayon production process** involves a 12-18 year grow cycle and results in:

- Destruction of forests
- Large amounts of waste and pollution
- An energy intensive wood-pulping process

## **UNSUSTAINABLE CURRENT PRACTICES**

The traditional rayon production process involves wood pulping which causes the destruction of forests, is hugely energy intensive and produces a significant amount of waste and pollution.

CURRENT FEEDSTOCK - TREES







- Destruction of forests
- 12-18 year growth cycle

**WOOD PULPING PROCESS** 



- Energy intensive
- Hazardous chemicals
- Waste and pollution







**TREE-BASED** CELLULOSE









# NANOLLOSE'S REVOLUTIONARY SOLUTION

Nanollose's technology is scalable and environmentally friendly. Our solution creates Tree-Free fibres and fabrics that have minimal environmental impact – the Company is well placed to alleviate entrenched industry problems.

Directly addresses the industry problem as Nanollose's fibres are produced from fast-renewable tree-free resources (microbial cellulose from fermentation of waste) and are produced via a low energy process.





# THE NANOLLOSE ADVANTAGE

Nanollose's revolutionary tree-free lyocell is a more sustainable solution to existing natural and synthetic fibres, while also being significantly stronger than conventional lyocell.

Our solution has minimal impact on the environment with low energy and water use.





**WOOD PULPING** 







**VERGY USE** 













**NO PESTICIDES** 



ER USE

## **COMPETITOR ANALYSIS**

	COMPANY	FIBRE MAKING INFRASTRUCTURE	CREATES NEW CELLULOSE FROM WASTE	TECHNOLOGY CONCEPT	STAGE OF DEVELOPMENT / RECENT CAPITAL RAISING	COUNTRY	FOUNDED	LISTED	MARKET CAP
<b>∧</b> nanollose"	Nanollose	$\odot$	$\bigcirc$	Production of tree-free cellulose & rayon	Working with world's largest rayon maker.	Australia	2014	$\odot$	~AU\$15.6m
<b>⊙ CIRCULAR</b> SYSTEMS <sup>™</sup>	Circular systems	$\odot$	$\bigotimes$	Extracting cellulose from waste	Small scale production. Total funding raised of ~US\$9.1m	USA	2017	$\mathbf{x}$	-
ORANGE FIBER	Orange Fiber	$\odot$	×	Rayon from orange peel cellulose	Pilot production and collaborations.	Italy	2014	$\bigotimes$	-
RENEWCELL	Renewcell	$\odot$	×	Recycled cellulose	Production capacity 60,000 tonnes/year.	Sweden	2012	$\odot$	~AU\$622m1
EVZNU	Evrnu	$\odot$	$\bigotimes$	Recycled cellulose	US\$15M Series B Financing completed to expand production.	USA	2014	$\bigotimes$	-
* 9 F. ฃ (* ฃ ัN ( <sup>*</sup> ฃ?)	Infinited Fiber	$\mathbf{x}$	×	Recycled cellulose with new rayon process	Flagship production factory under construction for completion in 2024. €30 million raised in 2021 financing round, with adidas and H&M among the new investors.	Finland	2016	$\mathbf{x}$	_
<b>Bolt</b> Threads	Bolt Threads	$\overline{\mathbf{x}}$	$\bigotimes$	Production of new synthetic "spider silk" and vegan leather	Commercial factory under construction. Latest Series E funding of US\$253m – total funding among ~US\$470m.	USA	2009	$\bigotimes$	-
Spinnova	Spinnova	$\mathbf{x}$	×	New eco-friendly cellulose fibre spinning process	Investment received for commercial production facility.	Finland	2014	$\odot$	~AU\$708m²
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## **PROGRESS TO DATE AND NEAR-TERM OPPORTUNITIES**

January 2020

Nanollose lists on ASX raising \$5

Nanollose signs Collaboration Agreement with **Grasim Industries** Limited - part of the Aditya Birla Group

### **April 2021**

Nanollose raises \$2.85m in **strongly** oversubscribed placement

### Next 12 Months

Enter into collaboration/ sample supply agreements with leading global entities in the fashion and apparel industry -negotiations already significantly progressed

### **August 2019**

**October 2017** 

million

Nanollose signs Cooperation Agreement with Codi International BV part of the Codi Group - Europe's leading personal wipes producer

### January 2021

Nanollose and Grasim file a **joint** patent application for High Tenacity Lyocell Fibres From Bacterial Cellulose

### February 2022

PAST

Nanollose successfully completes first pilot spin of Nullarbor™ lyocell fibre

Supply initial quantities of fibre, yarns, and textiles from pilot spin to selected partners and **commence** product trials





Undertake second pilot processing and spin of Nullarbor lyocell at increased scale

Explore commercial opportunities for second and subsequent pilot spins, including entering into additional sample supply agreements with partners in the fashion and textiles industries

Commence product trials in nonwoven sector as the Company seeks to commercialise nufolium<sup>™</sup> for nonwoven fibre applications

Refine processes and scale up production to facilitate entry into commercial supply agreements with selected partners



# **BOARD AND MANAGEMENT**



### **Dr Wayne Best**

**Executive Chairman** 

- 40 years' experience in organic chemistry and biotechnology, Fellow of the RACI, and Graduate of the Australian Institute of Company Directors.
- PhD from UWA, 2 years at Imperial College (UK), a year at ANU (Canberra), followed by 4 years at chemical giant ICI.
- 10 years at the Chemistry Centre (WA) then founded and managed Epichem, a globally competitive contract R&D company, for 14 years.



### **Heidi Beatty**

Non-Executive Director

- 20 years' experience developing consumer and health care products, and founder of Crown Abbey, a leading product development consultancy.
- Chemistry degree from the University of York, and worked with Johnson & Johnson for 10 years, developed wet wipes and Johnson's Baby®.
- In 2010 joined PDI Healthcare, where she led teams to launch surface disinfectants and skin antisepsis products.



### **Terence Walsh**

Non-Executive Director

- Former commercial lawyer and manager with over 20 years of experience in project development, mining and general commercial law.
- Initially worked with leading law firms in Perth & Sydney before moving to in-house Counsel with Rio Tinto Ltd and then Hancock Prospecting Pty Ltd.



### Winton Willesee

**Non-Executive Director** 

- Experienced company director, with significant experience in strategy, development, corporate governance, IPO's, M&A & corporate finance.
- Qualifications in Commerce, Economics & Finance, Accounting, Applied Finance and Investment, Applied Corporate Governance and Education.
- Fellow of the Financial Services Institute of Australasia, the Governance Institute of Australia and the Institute of Chartered Secretaries and Administrators, Graduate of the Australian Institute of Company Directors and a Member of CPA Australia.



### Carla Woidt

**Fashion Consultant** 

- Leading fashion consultant with 15 years' experience across all facets of the fashion industry, and has worked with leading fashion companies globally, provided consultancy services to leading international brands, with international experience working in London, New York & Rotterdam.
- Board member of The Australian Fashion Council, Australia's peak industry body.





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