

#### Nanofilm Technologies International Limited

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#### Nanofilm Technologies International Limited

# Nanofilm Group

Introduction

# Leading Deep-tech Nanotechnology Solutions Provider

#### Differentiated technology-based solutions provider

- Advanced Materials, via proprietary vacuum deposition process, with superior surface properties
- Proprietary nanofabrication technologies for affordable mass-production of critical components
- Redrawing the boundaries of materials science to enable new end-product possibilities

#### Mission-critical products to enable our customers

- Joint collaboration and R&D with customers
- Single source supplier to many of our top customers

**Multiple avenues of growth** with projected TAM<sup>(3)</sup> for advanced materials of **US\$24.3bn** by 2023F with additional **US\$423.0bn** components manufacturing TAM

Proprietary and versatile in-house nanotechnology platform

Listed on SGX Mainboard in 2020 Track record of strong financial performance

 Revenue growth together with high and stable Adjusted EBITDA margins

#### We tackle the business opportunity through our 3 BUs



Advanced Materials BU Nanofabrication BU Industrial Equipment BU



72 Patents and Trademarks<sup>(2)</sup>

241

Employees engaged in R&D and Engineering

#### >5,000,000

Daily turn-around parts capacity with flexibility to handle close to 300 product types

#### **Vision and Mission**



**Our Vision** of our Advanced Materials and nanoproducts being integrated in the daily lives of consumers NT

**Our Mission** is to be the key catalyst to enable advancement of our customers' products in a sustainable manner



# **BU's Demonstrated Strong Track Record & Capabilities**

#### **Advanced Materials BU Nanofabrication BU** Industrial Equipment BU ("NFBU") ("AMBU") ("IEBU" Provides mission critical Combining our proprietary Manufactures turnkey surface solution services synergistic nanofabrication and equipment systems for AMBU based on vacuum coating coating technologies to cement and for sale to selected technologies and processes our market place position customers<sup>(1)</sup> Technology & Footprint CAM software Patented materials like TAC-FCVA in-line coating systems ON<sup>®</sup>, iTAC<sup>®</sup> and MICC<sup>®</sup> FCVA (Tooling) PVD in-line coating systems Singapore and China China, Japan, Vietnam facilities facilities **Optical Lens Automotive Components** 3C End-Markets **Optical Sensory** Aspherical Glass Lens and Automotive Components Plastic Lens mold **Precision Engineering** Solar Cells н. Printing & Imaging

# We have Leveraged our Technology know-how to Evolve Over Time



 Executing growth pillars

# Company's Nanotechnology Solutions are Being Used in Our Daily Lives Across a Range of Industries



# **Spectrum Technology Pillars Leveraging FCVA Platform**

Complementary pillars built upon an enabling technology solution



Source: Frost & Sullivan, Company information.

# **Product Offering Underpinned by Proprietary Technology**

Offering significant advantages compared to conventional offerings



# **Current Global Footprint**



- (1) Shanghai Plant 2 is expected to commence operations in 1Q2021.
- (2) As of 30 June 2020.
- (3) Includes gross floor area of Shanghai Plant 2 when fully operational.
- (4) Nanofabrication R&D facility.

# **Overview of Nanofilm Technology Ecosystem**

Blend of In-house Expertise and Client-Driven Customization



(1) Based on average revenue per equipment and average cost of equipment in the six months ended 30 June, 2020. Please refer to financial section for additional details. Source: Company information.



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# Nanofilm Group Global Growth Plan

#### **Current Sizeable TAM with Strong Growth Trajectory**

#### **Total Addressable Market Size**



Source: Frost & Sullivan, Company Information.

#### Forward Growth Strategy - Multiple Avenues for Growth

TAM is growing strongly with increasing adoption of our solutions across end-markets



### Increase Market Share in Existing Markets and Capture New Applications / End-Industries While Pursuing Value-Chain Integration Strategy



#### Value-Chain Integration Strategy...



# **Execute Operational Improvement and Maintain Commitment to R&D While Pursuing Strategic Inorganic Opportunities**

Key Building Blocks of Operational Excellence Framework





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# Nanofilm Group Key Strengths

# **Key Strengths**



# 1

#### Differentiated Technology-based Solutions Drive Sustainable Competitive Advantage



### 2

#### **Mission-Critical Products Enable Customers and Create Stickiness**

Enabling customers to achieve high value-add improvements in their end-products



#### Mission-Critical Products Enable Customers and Create Stickiness Case study

Showcasing customers' reliance on our nanotechnology

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Segment / Product(s)	3Cs (Wearables)	Automotive (Piston Rings)	Printing & Imaging (Multi function printers components)	Precision Engineering (HPLC Components)	
Pain Points	<ul> <li>Constant movement leads to wear and tear and discoloration etc.</li> </ul>	<ul> <li>High wear and tear leading to engine friction loss</li> </ul>	<ul> <li>High wear and tear leading to engine friction loss</li> <li>Wear and tear due to frequent movement and high temperature</li> </ul>		
Our Solution	<ul> <li>Enabled wearables with higher wear resistance, lower friction and broader color choices</li> </ul>	<ul> <li>✓ Extended piston ring useful life by &gt;5x</li> <li>✓ Lower emissions and energy loss</li> </ul>	<ul> <li>Provided components with superior properties (hardness, wear resistance, low temperature deposition)</li> </ul>	<ul> <li>Deposit on ceramics and plastics</li> <li>Maintain hardness, cohesion, wear resistance</li> </ul>	
Our enablement	<ul> <li>Enabled Customer Z to produce affordable wearables with longer useful life</li> </ul>	<ul> <li>Enabled auto suppliers to meet Euro VI emission standards</li> </ul>	<ul> <li>Extended useful life of components and reduced replacement cost for Canon and Customer F</li> </ul>	<ul> <li>Enabled Customer W to use a wider range of materials for HPLC</li> </ul>	
Segment % of 2019 Revenue <sup>(1)</sup>	(Wearables & Accessories)	1.8% 9.0% (Automotive) (Printing & Imaging)		(Precision Engineering)	
Revenues (S\$m, YoY Growth) End-market AMBU Revenues YoY Revenue Growth Source: Company inform	71% 32.2 20.5 2019 1H2020 (Wearables & Accessories) nation, Note: (1) Proportion of AMBU revenue	521% 2.6 2019 (Automotive) 2019 th2020 (Automotive) 2019 total rev	19% (11%) 12.9 5.6 2019 (Printing & Imaging) renues for NTI.	21% ◆ 5.1 2.6 2019 1H2020 (Precision Engineering)	
Technology	Mission-Critical	Growth	Execution Track Reco	ord Team	

#### **Mission-Critical Products Enable Customers and Create Stickiness**

Entrenchment with Customers Will Grow Even Stronger With Time



**Mission-Critical Products Enable Customers and Create Stickiness** 

Strong Track Record with Blue-chip Client Base with Single Source Supplier Status for most of our customers



 Including customers where Nanofilm is partially sole source. Including 4 direct customers and 5 end-customers. Source: Company information.

 Technology
 Mission-Critical
 Growth
 Execution
 Track Record
 Team

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# 3 Multiple Avenues for Growth from a Large TAM and Favorable Secular Industry Trends

Selected case studies of value chain integration

Product(s)	Piston Rings and Engine Parts	3C / Logo and Button	Optical Sensing	Device Modules	Functional Enablers (MFP, Fuel Cells)
Customer Pain Point	<ul> <li>Piston rings account for 30% of engine friction loss</li> </ul>	<ul> <li>Logos require high aesthetic and functional coating</li> </ul>	<ul> <li>Requirement for miniaturization while maintaining performance</li> </ul>	<ul> <li>Demand for vertical integration in FMCG modules</li> </ul>	<ul> <li>Coatings critical to impart features like electro-chemical properties</li> </ul>
Our Solution	<ul> <li>Extended piston ring useful life by &gt; 5x</li> <li>Enabled component suppliers to meet Euro VI emission standards</li> </ul>	<ul> <li>Laser cut stainless steel plates for deposition</li> <li>Thin layer deposition with fashionable color choices</li> </ul>	<ul> <li>Integrated coatings for electro- mechanical sensor systems</li> </ul>	<ul> <li>Vertical integration from substrate shaping to polymer molding along with additional color choices, corrosion resistance</li> </ul>	<ul> <li>Integrated coatings with electronics / electric functions</li> </ul>
Value Chain Integration	<ul> <li>JV supplies components to CYPR</li> <li>Enables NTI to produce more components for CYPR and diversify to other suppliers</li> </ul>	<ul> <li>Become one-stop supplier for logos</li> </ul>	<ul> <li>NTI presence across value chain from mechanical structure molding to coating and testing</li> </ul>	<ul> <li>New and more effective way to make modules for FMCG products</li> </ul>	<ul> <li>Facilitate new device architecture through reverse processing of epoxy</li> </ul>

Value chain integration enables NTI to provide benefits to customers like lower cost, shorter supply chains, higher margins and increased control over procurement while expanding its own addressable market

Technology	Mission-Critical	Growth	Execution	Track Record	Team
Source: Company information. lote: (1) CYPR is one of the le	ading automotive component suppl	ier for diesel engines in China.			2

Case study

### Strong in-house R&D, Engineering and Production Capabilities

**Drive Additional Value Creation** 



#### **Real Time Monitoring of Key Metrics**



## **Attractive Financial Profile With Strong Growth and Sustained** Margins

Strong and accelerating revenue growth

- 41% 1H2020 YoY growth
- AMBU 67% 1H2020 YoY revenue growth

#### High and resilient margins

- 43% adjusted EBITDA margin for 1H2020
  - Economies of scale from operating leverage

#### Strong returns

13% ROA for 1H2020<sup>(2)</sup>

#### Strong balance sheet

- Net cash position
  - S\$69.1m of undrawn facilities

#### Well positioned for sustainable growth

Shanghai Plant 2 expected to commence operations in Jan 2021



#### Adjusted EBITDA<sup>(1)</sup> – High and sustained margins



Source: Company information.

Adjusted EBITDA is reconciled from profit before income tax by adding back depreciation, amortization, other professional fees, finance expenses and deducting gain on disposal of PPE and finance income. (1)

ROA calculated using annualized 1H2020 PAT and 1H2020 total assets. (2)

Others includes NFBU and IEBU. (3)



### Experienced Founder and Management Team

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Significant strategic and operational experience in their respective fields

Founder and Executive Chairman					
<ul> <li>Founded Nanofilm in 1999, as a technology spin off from NTU</li> <li>Visionary founder of NTI who developed the Company's proprietary nanotechnology offering</li> <li>Recipient of National Technology Award from National Science and Technology Board in 2000, Innovatio Award from Economic Development Board in 2001, EY Entrepreneur of the Year (Singapore) in 2017</li> <li>Previously served as Associate Professor at NTU</li> </ul>			TU oprietary nanotechnology offering nce and Technology Board in 2000, Innovation repreneur of the Year (Singapore) in 2017		
Nanofilm Management Team					
Name	Position	Industry Experience (Years)	Selected Previous Experience		
Mr Lee Liang Huang	• CEO	c. 33	MI Holdings Pte Ltd.		
Mr Gary Ho	• CCO	c. 24	Hi-P International Limited		
Mr Ricky Tan	• COO	c. 26	Western HGST PEMSTAR		
Mr Lars Lieberwirth	• CTO	c. 21	Gillette RG RG		
Mr Kay Lim	• CFO	c. 13			
Technology     Mission-Critical     Growth     Execution     Track Record     Team       Source: Company Information.     27					



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# **Advanced Materials BU**

Summary

## **Key stats of Advanced Materials BU**



Source: Company information.

(1) Revenue per chamber is based on FY2018.

(2) Plant utilisation rate for 1H2020.

## **Our leading Advanced Materials BU at a glance**



## **Our AMBU value proposition**



Use of FCVA and FCVA-Hybrid vacuum coating technologies to deposit our Advanced Materials on key components

## Select key AMBU products



Note: The blue shaded portion of each of the images denotes NTI's contribution. Source: Company information.



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# **Nanofabrication BU**

Summary

# NFBU - Proprietary nanofabrication technologies for affordable mass-production of critical components

A fast growing business, further solidifying our value chain integration strategy, positioning us well to capture the nanoproducts (US\$8bn) TAM opportunities



### **Our Areas of Focus**



# Our NFBU produces customised nanoproducts designed to fit customer specific size and shape requirements

# **Overview of our NFBU Tooling Capabilities and CAM Software**

Unique original CAM software

#### **Tooling capabilities**



# **Selected NFBU products**

Fresnel lens	<ul> <li>Thin lightweight</li> <li>Used in smartphone camera to focus light</li> <li>Thin requirement is key to reduce thickness of smart phone</li> </ul>	Fresnel lens for smartphone Smart Phone
Wafer lens	<ul> <li>Wafer-level lenses used to form a microlens array in smart phones</li> <li>Utilised in biometric identification system</li> </ul>	Micro lens array for TOF 3D Face ID Smart Phone
Tooling inserts	<ul> <li>Tooling inserts used in wafer optics production line</li> <li>Proprietary CAM software used to overcome design limitations of commercial software</li> </ul>	Fine fabrication master tools

Specific products in the market



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# Industrial Equipment BU

Summary

# Our Industrial Equipment BU manufactures and produces equipment systems for AMBU and our selected customers





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# Thank You