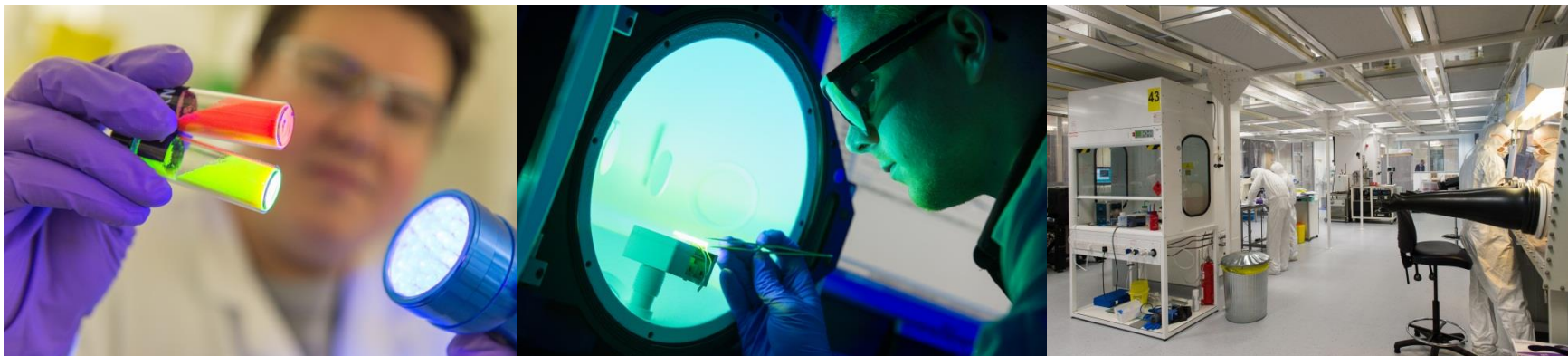




## **PRELIMINARY RESULTS PRESENTATION**

**13<sup>th</sup> October 2015**



*The following presentation is being made only to, and is only directed at, persons to whom such presentation may lawfully be communicated (“relevant persons”). Any person who is not a relevant person should not act or rely on this presentation or any of its contents. This presentation does not constitute an offering of securities or otherwise constitute an invitation or inducement to any person to underwrite, subscribe for or otherwise acquire securities in Nanoco Group PLC or any of its subsidiaries (“Nanoco”).*

*It should be noted that past performance cannot be relied on as a guide to future performance. This presentation contains forward-looking statements with respect to Nanoco’s plans and objectives regarding its financial conditions, results of operations and businesses. Some of the factors which may cause actual results to differ from these forward-looking statements are discussed in the Risk Factors set out in slide 39 of this presentation.*

*The financial information referenced in this presentation does not contain sufficient detail to allow a full understanding of Nanoco’s results. For more detailed information, the entire text of the preliminary results announcement for the full year ended 31 July 2015, can be found on the Investor Relations section of the Nanoco website ([www.nanocogroup.com](http://www.nanocogroup.com)).*

# PRELIMINARY RESULTS HIGHLIGHTS

- Substantial progress in the commercialisation of the company's technology in the display industry in partnership with worldwide licensing partner The Dow Chemical Company ("Dow")
- Construction of Dow's large-scale cadmium-free quantum dot manufacturing plant in South Korea completed during the year with customer sampling expected to begin in the very near term
- Robust display pipeline with Nanoco and Dow currently working with 11 display OEMs globally from countries including Korea, China, Japan, Taiwan and the USA
- Further joint development agreement announced today with Osram for the use of quantum dots in near-chip lighting applications. Other progress in lighting including the development of niche lighting products with Marl International Limited and the formation of a lighting business unit
- Progress in other target markets of solar and life sciences including the award of an Innovate UK grant for solar work with Loughborough University's Centre for Renewable Energy Systems Technology
- Team strengthened with the appointment of David Blain as Chief Financial Officer, Keith Wiggins as Chief Operating Officer, Brendan Cummins as a Non-executive Director and Caroline Watson as Investor Relations Manager
- Moved from AIM to the main market of the London Stock Exchange in May 2015, accompanied by a £20 million fundraising
- Balance sheet remains robust with cash, cash equivalents and deposits at 31 July 2015 of £24.3 million (31 July 2014: £12.2 million)

# FINANCIAL HIGHLIGHTS – OVERVIEW

	Year to 31 July 2015 £000	Change	Year to 31 July 2014 £000
<b>Revenue</b>	<b>2,029</b>	<b>596</b>	<b>1,433</b>
R&D Spend	5,580	662	4,918
EBITDA	(8,077)	(791)	(7,286)
Loss after tax	(8,975)	(1,164)	(7,811)
Cash & short term deposits	24,311	12,129	12,182
<b>Net assets</b>	<b>29,100</b>	<b>12,207</b>	<b>16,893</b>
<b>Employees (31 July)</b>	<b>113</b>	<b>15</b>	<b>98</b>

## NANOCO OVERVIEW



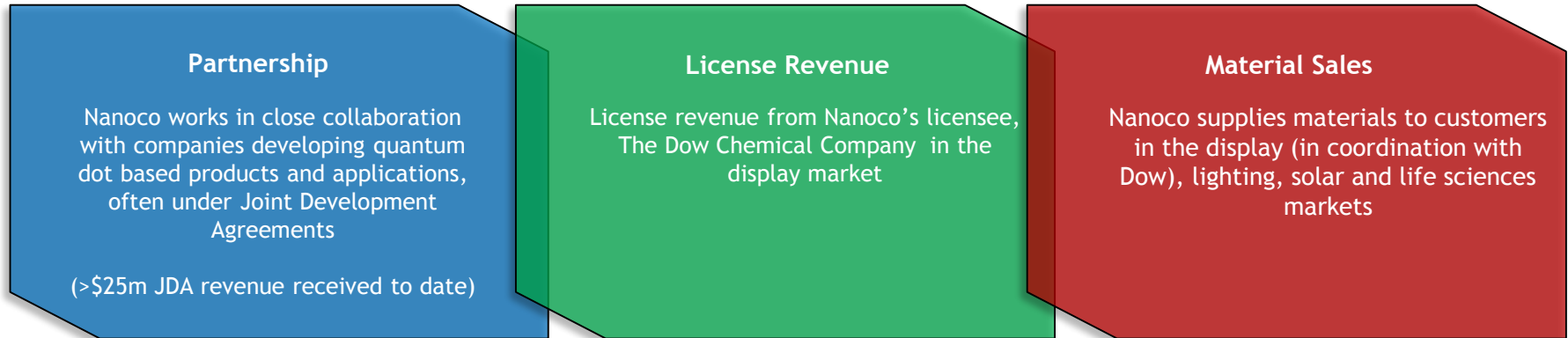
- A world leader in the development, manufacture and supply of fluorescent, heavy-metal-free semi-conducting materials called CFQD® quantum dots and other nano-particles (e.g. CIGS)
- Nanoco has developed partnerships with leading global electronics and chemical companies in order to incorporate Nanoco's technology into commercial products
- Key target markets are display, lighting, solar and bio-imaging
- Market for quantum dots forecast to be large and to grow quickly:
  - Global market for QDs in display is estimated to be valued at \$7.5bn in 2022<sup>1</sup>
- Signed major licensing deal in January 2013 with Dow to supply the display industry
- Dow's mass production manufacturing plant currently being commissioned
- 125 employees with the majority located at the Manchester HQ & Runcorn manufacturing facility many of whom are recognised as leaders in the field<sup>2</sup>
- Listed on premium segment of the main market of the London Stock Exchange
- Founded in 2001

(1) Market&Markets - Quantum Dots Market by Product, Application, Material & Geography - Forecast & Analysis (2013 - 2022)

(2) As at 13 October 2015

# COMPANY OVERVIEW

## Business model



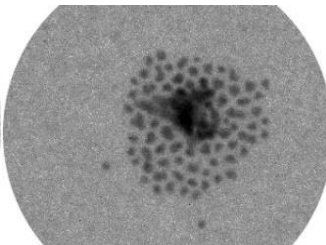
## Key territories and operations



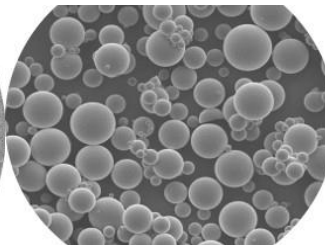
- Quantum dots are a platform technology
- Unique “seeding process” developed enabling the mass production of quantum dots
- World leader in heavy metal free quantum dot technology (CFQD® quantum dots)
- Extensive & growing patent portfolio (*ca.* 360 patents and patent applications)
- Patents cover five key areas:



**Process**



**Materials**



**Surface  
chemistry**




**Devices**



**Solar**



# KEY MARKETS ARE LARGE

	 <b>Display</b> 	 <b>Lighting</b> 	 <b>Solar</b> 	 <b>Biomedical</b> 
<b>Application</b>	LCD backlighting	High CRI LED lighting	Thin film solar	Biological imaging In-vivo & in-vitro diagnostic
<b>Technology</b>	CFQD® quantum dots CFQD® quantum dots resin	CFQD® quantum dots film	CIGS nanomaterials	Water soluble CFQD® quantum dots Functionalized CFQD® quantum dots
<b>Business Model / Timing</b>	License & materials sales / Near term revenue stream	Film sales / Niche near term potential with ability to grow	Partner license & Material sales (toll) / Medium term NRE	Partner license with upfront fees / Longer term
<b>Potential market size <sup>1</sup></b>	\$120bn (Global electronic display market - 2018) <sup>1</sup>	€110bn (Global lighting market - 2020) <sup>2</sup>	\$96bn (Global spend on PV capacity in 2013) <sup>3</sup>	\$169bn (Global cancer diagnostics market - 2020) <sup>2</sup>
<b>Anticipated addressable market size</b>	Directors believe \$7.5bn (2022 QD display market)	c.\$150m near term c.\$700m with further R&D	Expected to enhance the rapidly growing thin film solar market	QD's in healthcare = c.\$1bn in 2022 <sup>4</sup>

(1) MarketsandCompanies.com, published March 2014

(2) McKinsey & Company, Lighting the way: Perspectives on the Global Lighting Market, published 2011)

(3) International Energy Agency (IEA), Technology Roadmap: Solar Photovoltaic Energy: 2014 Edition, published 2014

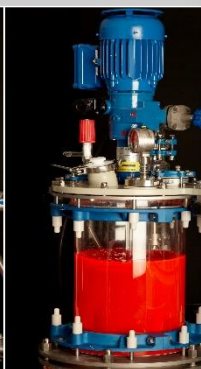
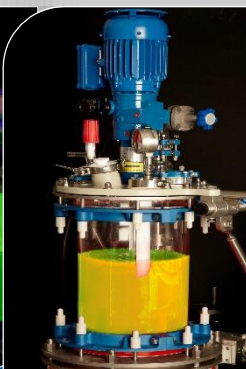
(4) MarketsandMarkets report, 2012



## 1) CFQD® quantum dots

### CORE BUSINESS

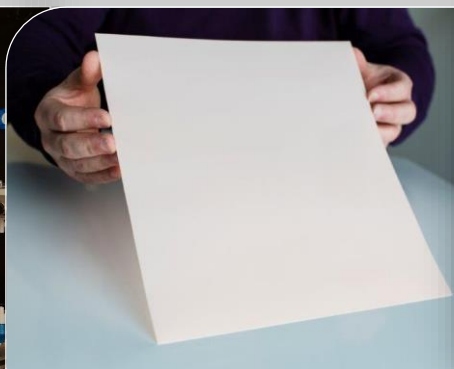
Developing & manufacturing heavy-metal free quantum dots fit for purpose



## 2) CFQD® quantum dots + Resin

### CORE BUSINESS

Ensuring Nanoco's CFQD® quantum dots work in customers' resin systems



## 3) CFQD® quantum dots/Resin in device

CFQD® quantum dots are incorporated into film, lens, capillary, LED, etc. Nanoco partners with end user customer or device producer such as a film manufacturer









## 4) CFQD® quantum dots product

Nanoco's near term focus for CFQD® quantum dots is on backlighting for LCD display and LED lighting.

Nanoco partners with end user customer

# KEY PARTNERSHIPS / ROUTE TO MARKET

	Display	Lighting	Solar	Life Sciences
Key partners	  <b>11 display OEMs:</b> <ul style="list-style-type: none"> <li>• Korea: 2</li> <li>• China: 4</li> <li>• Taiwan: 2</li> <li>• Japan: 2</li> <li>• USA: 1</li> </ul>	 <b>OSRAM</b>  <b>USA Photo-therapy Company</b>	 <b>Innovate UK</b> Technology Strategy Board	 <b>Innovate UK</b> Technology Strategy Board
Route to market	Exclusive license with Dow for display industry only	Direct sales of CFQD materials and film to OEMs	UK Grant funded  Exploring partnerships	UK Grant funded  Exploring commercial partnerships

DISPLAY BUSINESS



# DISPLAY MARKET TRENDS FAVOUR QDs<sup>1,3</sup>

25m

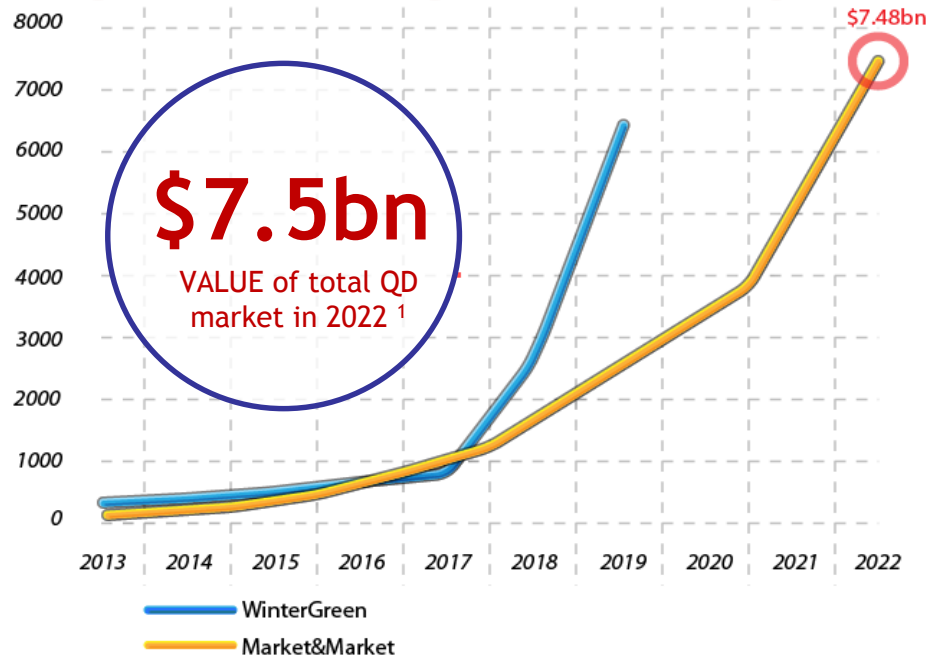
Units / year  
shipped of QD  
TVs in 2020<sup>2</sup>

471m

Units / year  
shipped of QD  
SMARTPHONES in  
2020<sup>2</sup>

91.5m

Units / year  
shipped of QD  
TABLETS in  
2020<sup>2</sup>



## MAJOR DISPLAY TRENDS

- Rise of the 4K LCD TV
- OEMs losing interest in costly OLED TVs
- Colour is the next battle-ground
- QDs improve LCD TV colour
- Great picture quality important for consumers
- First QD products launched

Source:

1) Market&Markets - Quantum Dots Market by Product, Application, Material & Geography - Forecast & Analysis (2013 - 2022)

2) DisplaySearch - Quantum Dot Technology and Market Forecast Report, 2014

3) WinterGreen Research - Quantum dot and QLED: Market Shares, Strategy & Forecasts, Worldwide, 2013-2019



# QUANTUM DOTS EXPLODE ONTO THE SCENE

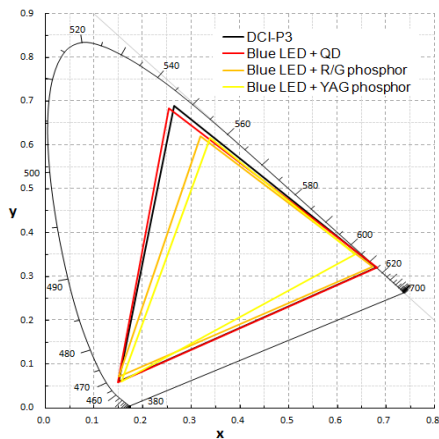


- Quantum dot-based TVs from major manufacturers took centre stage at CES 2015 & IFA 2015
- Initial focus is on high end 4k LCD TVs
- LG / Dow have announced that Dow will supply Nanoco licensed CFQD® quantum dots to LG
- The directors believe that the company is likely to supply the major display manufacturers in the future

# CLEAR BENEFITS FOR OUR LCD CUSTOMERS

## Better Colour Gamut

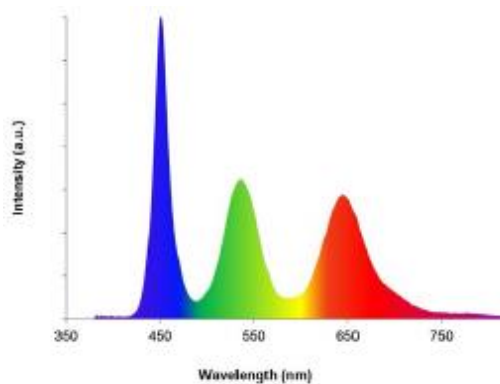
- Much improved colour saturation
- Improved colour enhancement over LCD → similar to OLED



Dramatically improved  
colour quality

## Energy Efficient

- Narrow bandwidth = more light extraction through colour filters
- Enables use of blue LED instead of less efficient white LED



Light source cost saving  
Better TV experience

## Minimal Process Change

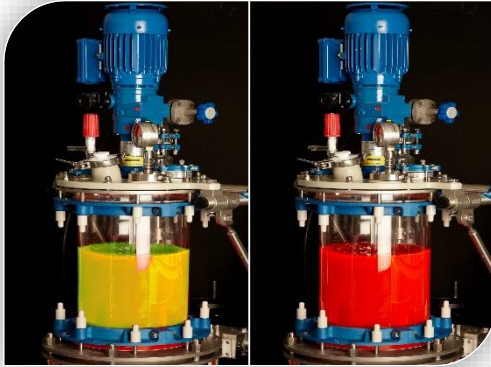
- Uses existing LCD manufacturing infrastructure
- Uses existing LCD supply chain



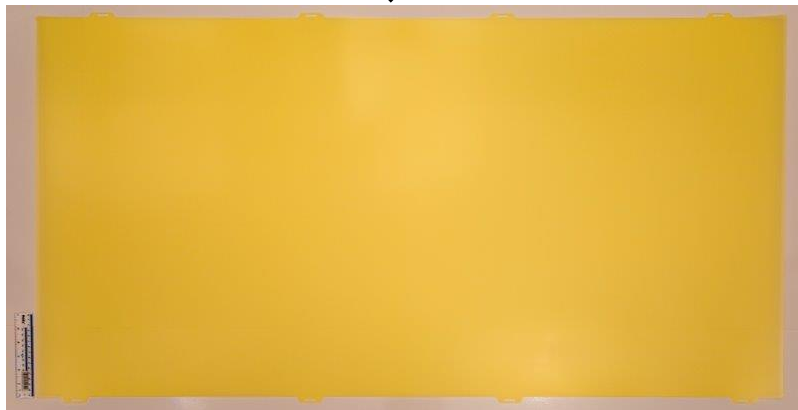
“Drop in system” for  
easy adoption

Without the use of cadmium or heavy metals

# CFQD<sup>®</sup> FILM ON BACK LIGHT UNIT



Red & Green CFQD<sup>®</sup> ready for processing into film



Finished 55 inch CFQD<sup>®</sup> films



CFQD<sup>®</sup> films assembled onto edge lit LCD backlight



# THE DOW LICENSING AGREEMENT



- Dow and Nanoco signed a 15 year agreement in January 2013 whereby Dow has an exclusive global license to manufacture, market and sell Nanoco's cadmium free quantum dot technology in the display industry
- Dow's electronic materials business gives Nanoco a significant channel to market through their global client base
- Customers will get access to a secure supply line of world-leading cadmium free quantum dots manufactured by one of the world's leading chemical companies
- Continued innovation by Nanoco linked to a new state-of-the-art Dow manufacturing facility targeted to keep pace with customers' future demands for cadmium free quantum dots in displays
- Key terms of the deal: long term, global, display industry only, royalty based, Dow funds its manufacturing facility
- Fees paid by Dow follow a commonly used structure whereby earn-outs are paid on achievement on agreed total sales milestones up to an agreed cap and royalties are earned on sales achieved for the lifetime of the agreement.
- Dow & Nanoco are working closely together in many areas including: commercial, production, R&D, E&HS, quality systems
- Dow will use the trademark TREVISTA™ to market the cadmium free quantum dot technology licensed from Nanoco
- Customers currently being sampled with CFQD film

## Dow's Cheonan 3 Facility in Korea - cadmium free quantum dot manufacturing



- The new Dow facility will enable mass production of cadmium free quantum dots to meet customers' requirements and product launch
- Capacity to support millions of large TVs
- Commissioning in process; customer sampling in the very near term
- Initial orders will be satisfied from Nanoco's Runcorn production facility until Dow's commercial production begins

# LIGHTING BUSINESS

A smaller version of the NANOCO GROUP PLC logo, featuring the same curved arc of colored circles.

- New Lighting business unit has been created
- Nanoco will be selling directly to lighting OEMs
- Initial sales starting to come in. Modest sales forecast for current year
- Commercial partnerships in place

**\$150m**

Potential size for  
niche LED lighting  
market

- \$150m niche market potential today
- \$700m additional market potential with further R&D

**Application  
Areas**

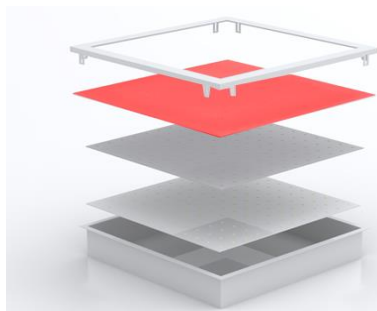
- General lighting
- Retail and specialty lighting
- Agricultural applications
- Architectural applications (Home and Office)
- Health care and beauty
- Automotive
- Defence

**Advantages**

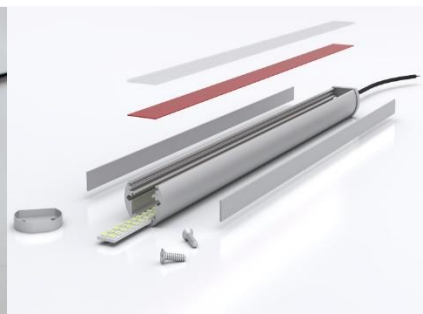
- Easy product integration
- Colour tuneable
- Cool, neutral and warm white correlated colour temperature
- High colour rendering index: > 90, high efficacy
- Even light distribution from quantum dot film
- Customizable film sizes and shapes
- Reduced power consumption

# CFQD® LIGHTING PRODUCTS

**High CRI, cool white panel light**  
high quality light for office & retail purposes

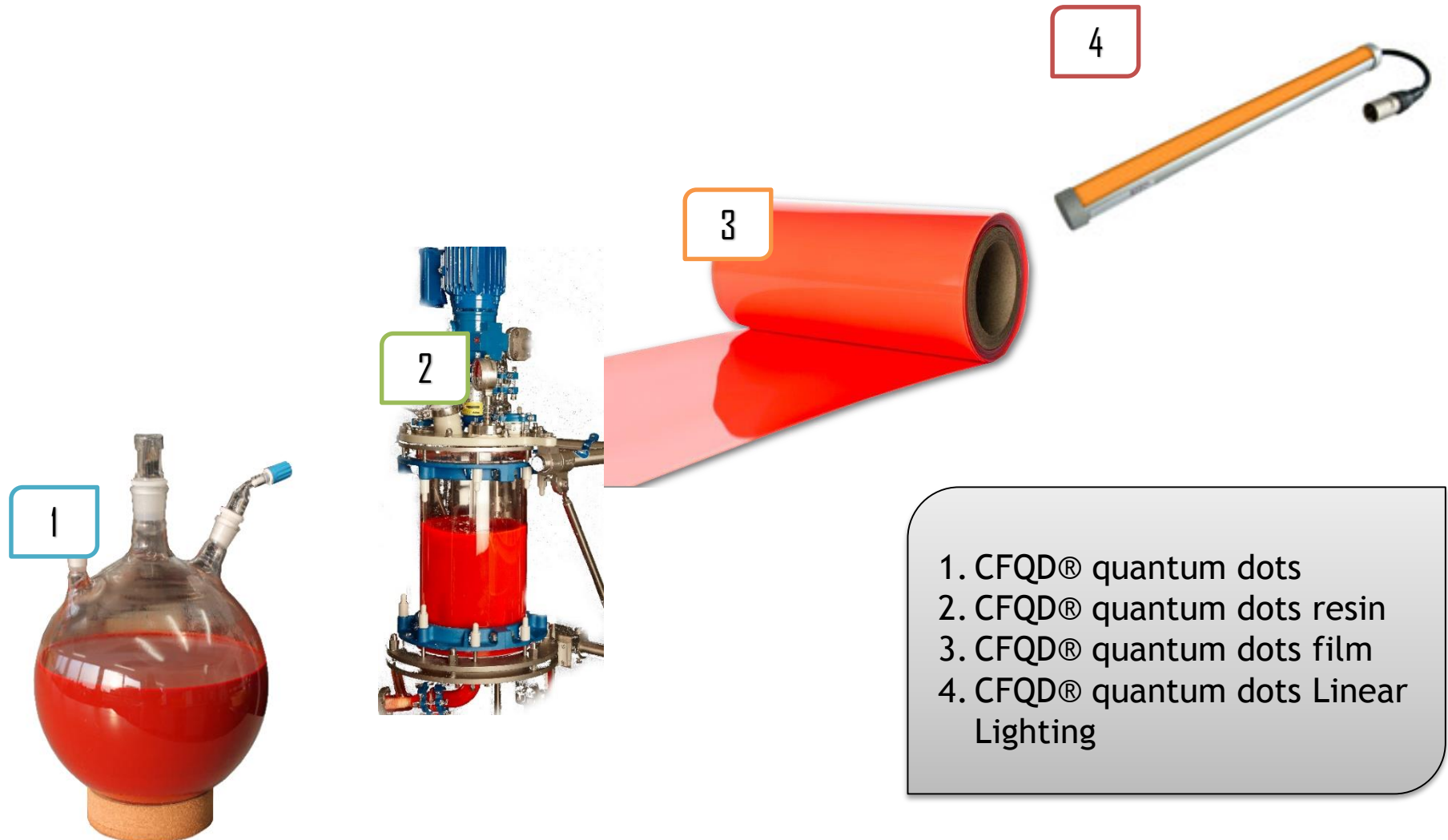


**Orion lights**  
used in plant growth





# LIGHTING VALUE CHAIN



## OTHER APPLICATIONS

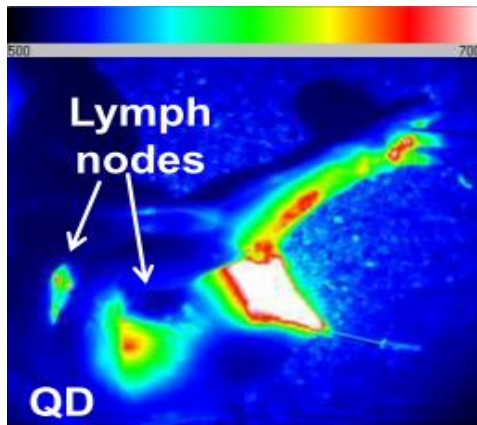


- Cancer imaging represents a significant opportunity for Nanoco
- Proof of principle studies in conjunction with University College London have been successful and the work is ongoing
- World leading team in the use of QDs in life science applications
- The company is developing a detailed business plan covering
  - Market opportunity
  - IP/freedom to operate
  - Regulatory framework
  - Target partners
- Once complete, we will set up a formal life sciences business unit and recruit a business leader and then additional team members
- Following proof of principle we will seek suitable partners
- We envisage starting with in-vivo medical device opportunities first

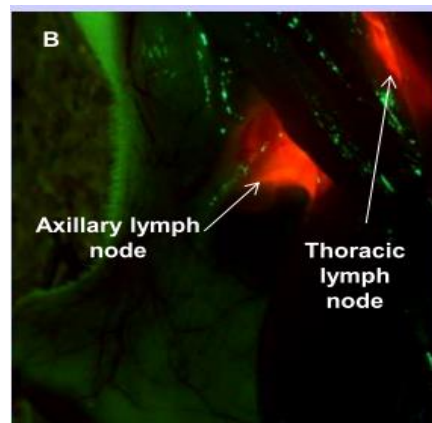


- Applications in cancer diagnostics, cancer imaging and bio sensing
- Nanoco's heavy metal-free CFQD® nanoparticles which can be tagged onto targeted cells
- Advantages over fluorescent dyes include:
  - Photo-stable
  - High and broad light absorption, enabling intense imaging signal
  - Narrow and tuneable emission spectrum, enabling multiplexed applications

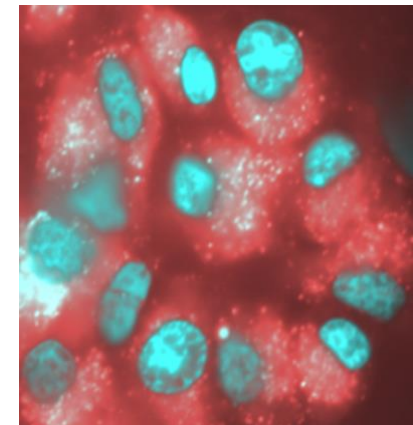
Colour coded image



Fluorescence image



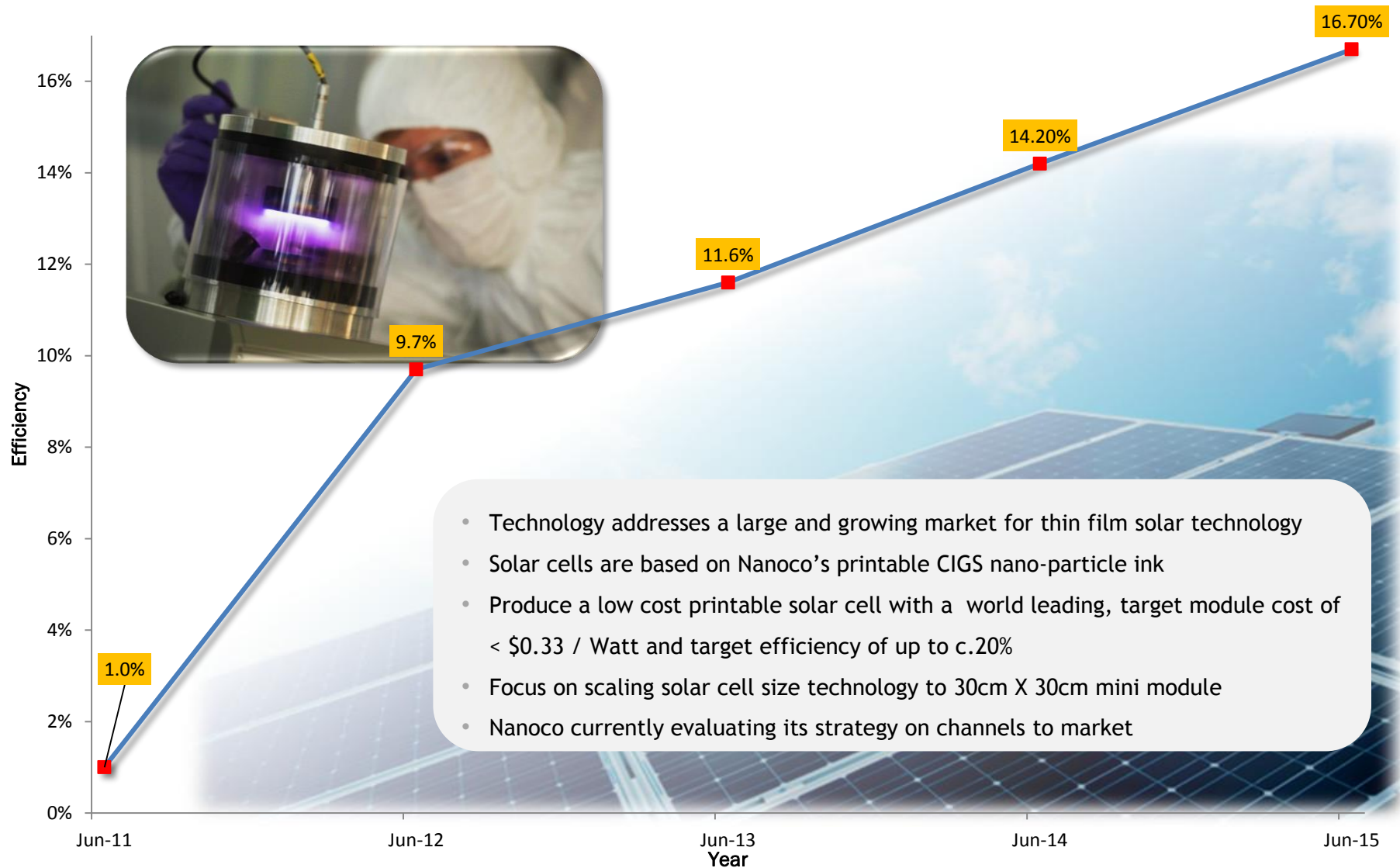
Labelled stem cells



Detection of sentinel lymph nodes surrounding the mammary gland in rat model using Nanoco red CFQD® quantum dot subcutaneous injection into the paw

Labelling live human stem cells using Nanoco red CFQD® quantum dots

# NANOCO THIN FILM SOLAR PROGRESS



- On 20<sup>th</sup> May, European Parliament voted 618 to 33 to reject the Commission's Directive to extend the ROHS exemption for cadmium QDs in display and lighting products, based on proven availability of cadmium-free alternatives and calling for swift action
- The Commission response has been to repeat a full technical review and leave the previous Exemption 39 in place, which was scheduled to end in July 2014
- MEPs and Nanoco have challenged the Commission position through formal channels, including a Petition
- If the Commission review continues, the final report is due in April 2016. This may be accelerated in response to the concerns raised by MEPS, Nanoco and other stakeholders
- The Commission will then take a decision in the form of a Directive and forward to European Parliament and Council who may either remain silent or may reject again. In case of silence, the delegated act will be published. The timetable has not been issued, but could take 6 to 12 months
- The legality of cadmium QD displays in the interim is being disputed by Nanoco and other stakeholders
- There may be a run-out period of 12-18 months allowed after a Delegated Act to end the Exemption for Cadmium QDs, but that may be irrelevant if manufacturers decide to take their products off the market earlier in response to the review findings
- The Exemption for cadmium QDs will end - only the final timing is uncertain
- Other markets are following the EU lead on RoHS restrictions for cadmium, including China

## PRELIMINARY FINANCIALS



# FINANCIAL HIGHLIGHTS – OVERVIEW

	Year to 31 July 2015 £000	Change	Year to 31 July 2014 £000
<b>Revenue</b>	<b>2,029</b>	<b>596</b>	<b>1,433</b>
R&D Spend	5,580	662	4,918
EBITDA	(8,077)	(791)	(7,286)
Loss after tax	(8,975)	(1,164)	(7,811)
Cash & short term deposits	24,311	12,129	12,182
<b>Net assets</b>	<b>29,100</b>	<b>12,207</b>	<b>16,893</b>
<b>Employees (31 July)</b>	<b>113</b>	<b>15</b>	<b>98</b>

# FINANCIAL HIGHLIGHTS – INCOME STATEMENT

	Year to 31 July 2015 £000	Change	Year to 31 July 2014 £000
<b>Revenue</b>	<b>2,029</b>	<b>596</b>	<b>1,433</b>
Cost of sales	(316)	(12)	(304)
<b>Gross profit/(loss)</b>	<b>1,713</b>	<b>584</b>	<b>1,129</b>
Adjusted staff costs*	(5,623)	(1,089)	(4,534)
Adjusted overheads before depn / amortn*	(4,167)	(286)	(3,881)
<b>Adjusted EBITDA**</b>	<b>(8,077)</b>	<b>(791)</b>	<b>(7,286)</b>
Depreciation and amortisation	(1,375)	15	(1,390)
<b>Adjusted operating loss**</b>	<b>(9,452)</b>	<b>(776)</b>	<b>(8,676)</b>
Share-based payment charge	(619)	(46)	(573)
Costs of move to main market	(926)	(926)	-
Net interest income	116	(73)	189
<b>Loss before tax</b>	<b>(10,881)</b>	<b>(1,821)</b>	<b>(9,060)</b>
Tax credit	1,906	657	1,249
<b>Loss after tax</b>	<b>(8,975)</b>	<b>(1,164)</b>	<b>(7,811)</b>

\* Adjusted staff costs are before the share-based payment charge

\*\* Adjusted figures are before share-based payment charge and costs of move to main market

# FINANCIAL HIGHLIGHTS – CASH FLOW

	Year to 31 July 2015 £000	Change	Year to 31 July 2014 £000
<b>Adjusted EBITDA*</b>	<b>(8,077)</b>	<b>(791)</b>	<b>(7,286)</b>
Costs of move to the main market	(926)	(926)	-
Working capital movement	256	524	(268)
(Decrease)/increase in deferred revenue	(119)	(126)	7
<b>Cash outflow from operations</b>	<b>(8,866)</b>	<b>(1,319)</b>	<b>(7,547)</b>
Net interest income and tax	1,413	272	1,141
<b>Cash outflow from operating activities (net of interest)</b>	<b>(7,453)</b>	<b>(1,047)</b>	<b>(6,406)</b>
Capital expenditure and patent costs	(918)	112	(1,030)
Loan repayment	(63)	-	(63)
Net proceeds from issue of share new equity	20,563	10,826	9,737
<b>(Decrease)/increase in cash</b>	<b>12,129</b>	<b>9,891</b>	<b>2,238</b>
Balance at start of period (including short term deposits)	12,182	2,238	9,944
<b>Balance at end of period (including short term deposits)</b>	<b>24,311</b>	<b>12,129</b>	<b>12,182</b>

\* Adjusted figures are before the share-based payment charge and costs of move to the main market

# FINANCIAL HIGHLIGHTS – BALANCE SHEET

	Year to 31 July 2015 £000	Change	Year to 31 July 2014 £000
Tangible fixed assets	2,062	(721)	2,783
Intangibles (patents)	1,821	264	1,557
Cash & short term deposits	24,311	12,129	12,182
Other current assets	1,110	343	767
R&D tax debtor	1,800	590	1,210
Liabilities excluding loan	(1,909)	(461)	(1,448)
Loan	(95)	63	(158)
<b>Net assets</b>	<b>29,100</b>	<b>12,207</b>	<b>16,893</b>



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CONCLUSION



- Developed key "platform technology" with multiple markets and product applications in major growth markets
- Extensive and growing patent portfolio
- Key partnerships and routes to markets established
- Dow licence in Display is a major endorsement
- Lighting business unit is in place and commercial sales have begun
- Delays in commercialising technology are unavoidable but the Company remains convinced by the potential market opportunities
- Company structure and people is being enhanced to enable the transition from development to commercialisation
- Well funded for the foreseeable future

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## APPENDICES



# THE BOARD

## Anthony Clinch - Non Executive Chairman

- 20 years private equity experience with CVC Capital Partners, Rolls Royce, experienced industrialist and financier

## Michael Edelman - CEO

- Led spin-out of Nanoco from University of Manchester
- GE / Bayer JV, founded [www.yet2.com](http://www.yet2.com) Europe, commercial director Colloids Ltd, Brunner Mond, ICI

## Dr Nigel Pickett - Co-founder & CTO

- Inventor of Nanoco's key patented scale-up technology
- Leading expert on semi-conducting nano-crystals
- Japanese Government, US Office of Naval Research, Saint Andrews University

## David Blain - CFO

- Experienced Quoted Company CFO, Renovo, Drew Scientific, Price Waterhouse

## Keith Wiggins - COO

- 30 years senior executive experience. 23 years with The Dow Chemical Company.

## Robin Williams - Non Executive

- Experienced NED and Executive, Investment banking, Xaar, Manufacturing background

## Gordon Hall - Non Executive

- Led IPO of Axis-Shield, flotation at £20m, acquired by Alere Inc for £235m

## Peter Rowley - Non Executive

- Led £25m MBO of Victrex from ICI in 1993, floated for £125m in 1995. Retired end 1999
- Current market cap of >£1 billion

## Brendan Cummins - Non Executive

- 40 years of industry experience mostly with Ciba Geigy. His last role was CEO of Ciba and was responsible for selling Ciba to BASF
- NED of US Headquartered, Ashland Inc

# POTENTIAL FOR LARGE VOLUME OF CFQD®

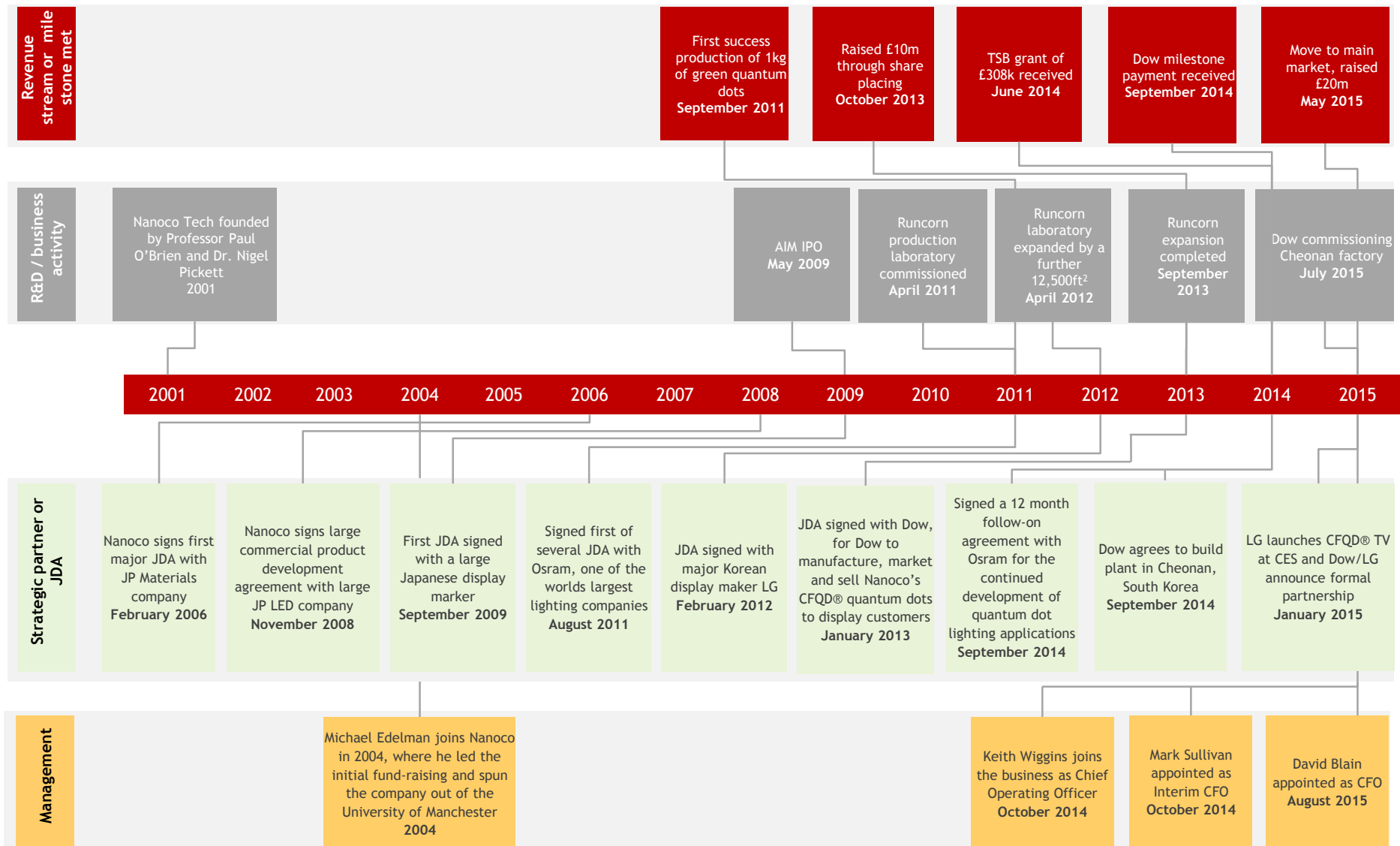
## LCD Display Volumes

		CAGR	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
			Mil units	Mil units	Mil units	Mil units	Mil units	Mil units	Mil units	Mil units	Mil units	Mil units	Mil units	Mil units
Smart Phone		5.3%	707	971	994	1,020	1,046	1,072	1,100	1,128	1,156	1,186	1,216	1,247
Notebook		-0.5%	232	226	249	244	241	238	235	232	230	227	224	221
Tablet		14.2%	145	223	302	380	442	464	487	512	537	564	592	622
TV size	<32"	4.5%	26	26	28	29	30	32	33	35	37	39	41	43
	32"	3.9%	95	89	95	99	102	107	113	118	124	130	137	144
	37"-42"	5.5%	64	71	76	79	82	86	90	94	99	104	109	115
	43"-50"	5.7%	29	33	35	37	38	40	42	44	46	48	51	53
	55"<	7.1%	15	20	21	22	23	24	25	27	28	29	31	32
Total TV's		4.9%	229	239	255	266	275	289	303	318	334	351	368	387

**Sources:** Smartphones: Canaccord (2012-2014); Other displays: Displaybank (2012-2014), all other forecasts are management estimates

- Potentially requiring thousands of kilograms of CFQD® quantum dots
- Dow license agreement allows for rapid ramp in CFQD® quantum dot volumes and gives the display industry a credible, well established supply chain partner

# History Timeline



- Technical milestones: customers' requirements are challenging and may take more time and resource to be achieved and may not be achieved at all
- Costs: manufacturing costs could be higher than anticipated
- Timing: it may take longer for Nanoco's technology to be adopted
- Intellectual property: Nanoco's IP could be challenged or Nanoco may infringe others' IP
- Pricing: The company or Dow may not be able to charge as much for its materials as forecast
- Other technologies: existing technologies that Nanoco is replacing may improve, new technologies may enter the market
- Customers: Nanoco and Dow rely on their customers to launch products containing its nano-materials. Large corporates with whom Nanoco deals may change strategic direction which could adversely affect Nanoco
- Contracts: Contracts are generally milestone based. If milestones are not achieved contracts can in certain circumstances be altered or terminated



**Nanoco Group PLC**

46 Grafton Street, Manchester, M13 9NT, United Kingdom,

Tel: +44 161 603 7900, Fax: +44 161 603 7901

Mail: [info@nanocotechnologies.com](mailto:info@nanocotechnologies.com)

[www.nanocogroup.com](http://www.nanocogroup.com)