

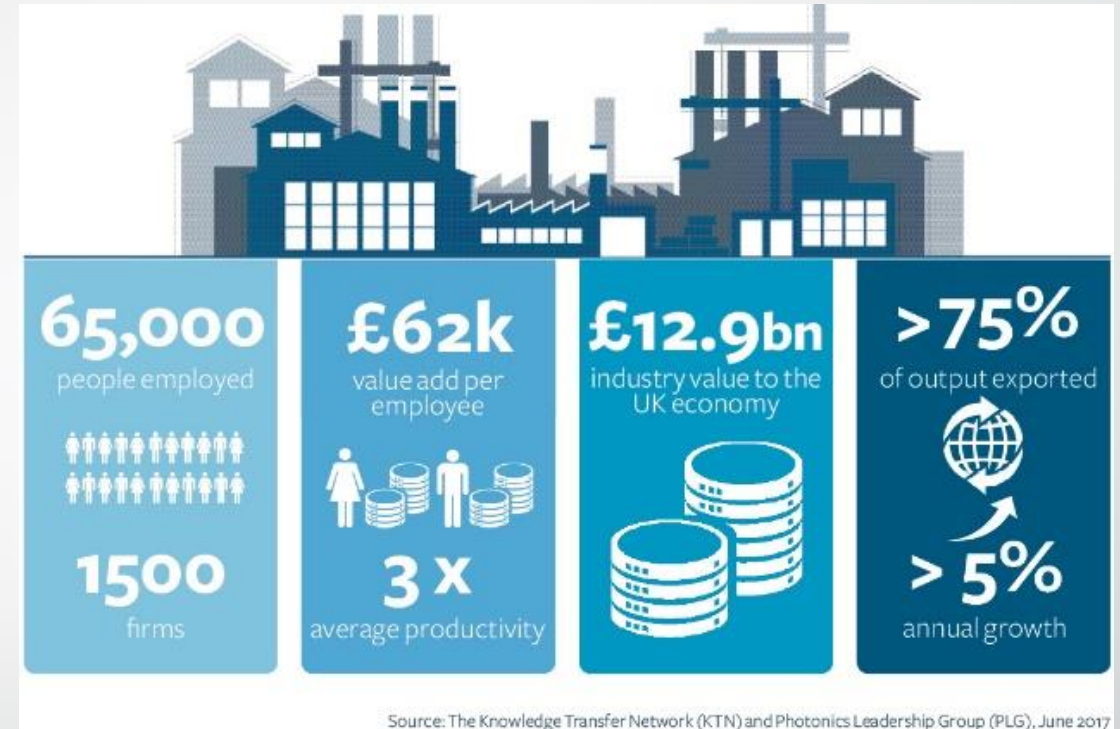
UK Photonics Industry Landscape- 2019 update

UK Photonics 2019 Update



July 2019

Context: UK Photonics 2017

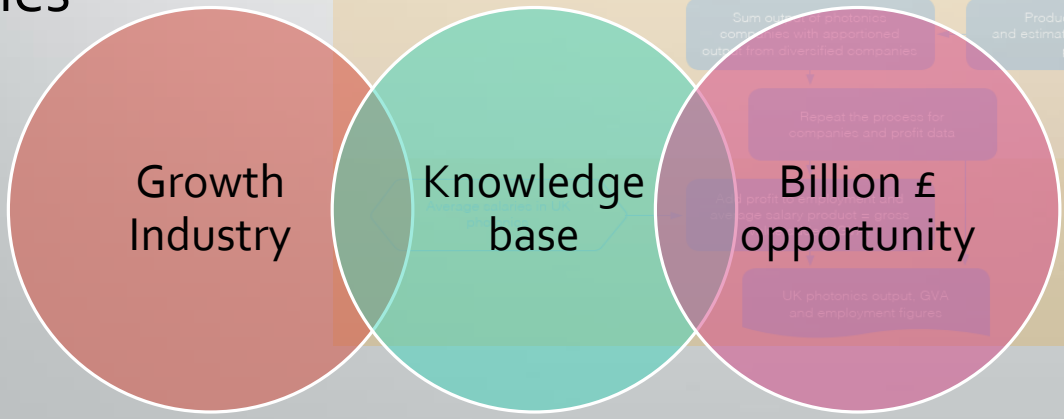
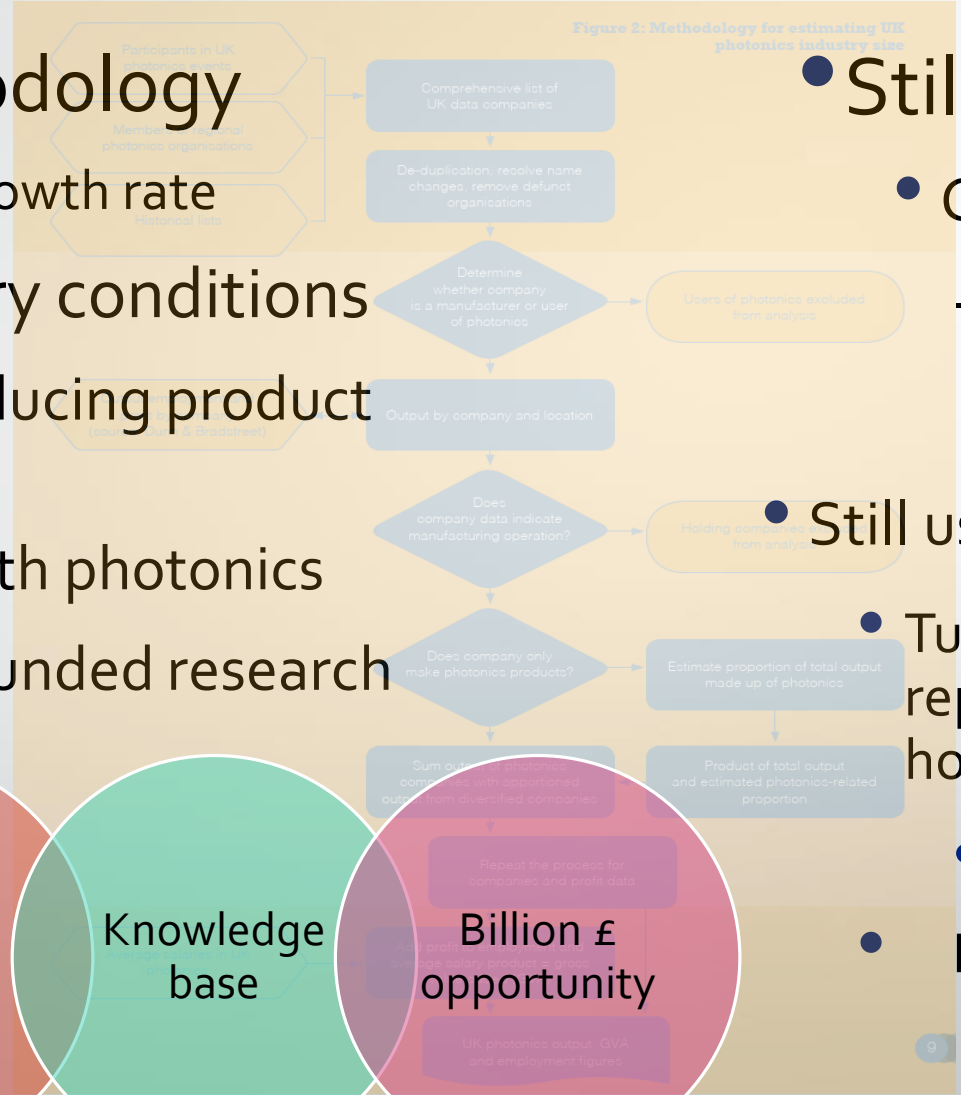


- UK Photonics: The hidden Economic Engine – report 2018
 - Data published 2017
 - Time for an update

What's not changed

- Identical methodology
 - Like for like growth rate
- Identical boundary conditions
 - Companies producing product /services
 - Adding value with photonics
 - Exclude public funded research bodies

- Still not a market report
 - Captures size of industrial base - not future opportunities
- Still used Dun and Bradstreet data
 - Turnover, profit and employees reported annually to companies house
 - Algorithm for small and micro
 - Data lags by 12-18 months



The Process

Definition of Photonics

“Companies involved in the generation, manipulation, control , transmission and detection of light”

- Include services, design and hardware
 - Exclude public funded research bodies
- Use independent financial figures on turnover, employees & profit
- Gross Value added
 - = Sum profit and employee benefit

Figure 2: Methodology for estimating UK photonics industry size



The Key- Apportionment

- The larger the more diversified
 - include only relevant photonics fraction - apportionment
- What portion of output is photonics?
- Does company have internal photonics expertise?
 - In engineering
 - In production
 - In delivery
- Or does buy and integrate?

What % of company
output can be
considered photonics

Difficult ones

- Laser processing
 - In @ 20-75% dependent on other metal fabrication.
- Image processing software
 - In @ 20% where critical part of detection
- Ophthalmic lenses
 - Manufacture in, dispensing out
- Distribution
 - In at % level where add value.
- Lighting design - in, just.
- Fibre installation / networks- in
 - Major impact on figures.

What's changed

- Manually reviewed over 1500 records
 - Deleted ~280, added ~ 330
- 930 organisation in 2019
 - vs 591 in 2017
- 1030 legal entities
 - Multiple per organisation
- Multiple operational / registered addresses
 - 1100 operating locations
- Real salary data from average of >6000 employees

Backoffice

- Full database
 - Multi-user access
- Full companies house numbers for all entries
- Age of company
- Website for all
- Online list of all companies inviting updates
 - <https://photonicsuk.org/uk-photonics-companies>

PHOTONICS LEADERSHIP GROUP

UK Photonics Industry - New entry / revisions

Space for buttons

Entries the Master ID must be a unique number. The next number given to the right in blue. Next ID number to use 1511

masterName Harlin PhID 440
 other_name1 Harlin Ltd Type Ltd
 other_names website www.harlinltd.co.uk
 origin
 2018data source duns 2016 data source duns
 Modified 03/05/2019 08:23:31
 Modified By
 Created 17/12/2018 09:24:13
 Created By

Notes Specialist consultancy assisting in development of a new product line.

2018 additions- detail of any companies new for 2018. can have multiple entries where there is more than one companies house record

master ID 440 2018 Apportionment level 100% 2016 apportionment level 100%
 2016 impact level if defined

2018 additions- detail of any companies new for 2018. can have multiple entries where there is more than one companies house record

address_0 (New) ref address_1
 address_1 440 ref address_2
 ref address as in companies house ref address_3
 Master Name ref address_4
 ref town
 ref postcode
 if ref address is same as location address, there is a

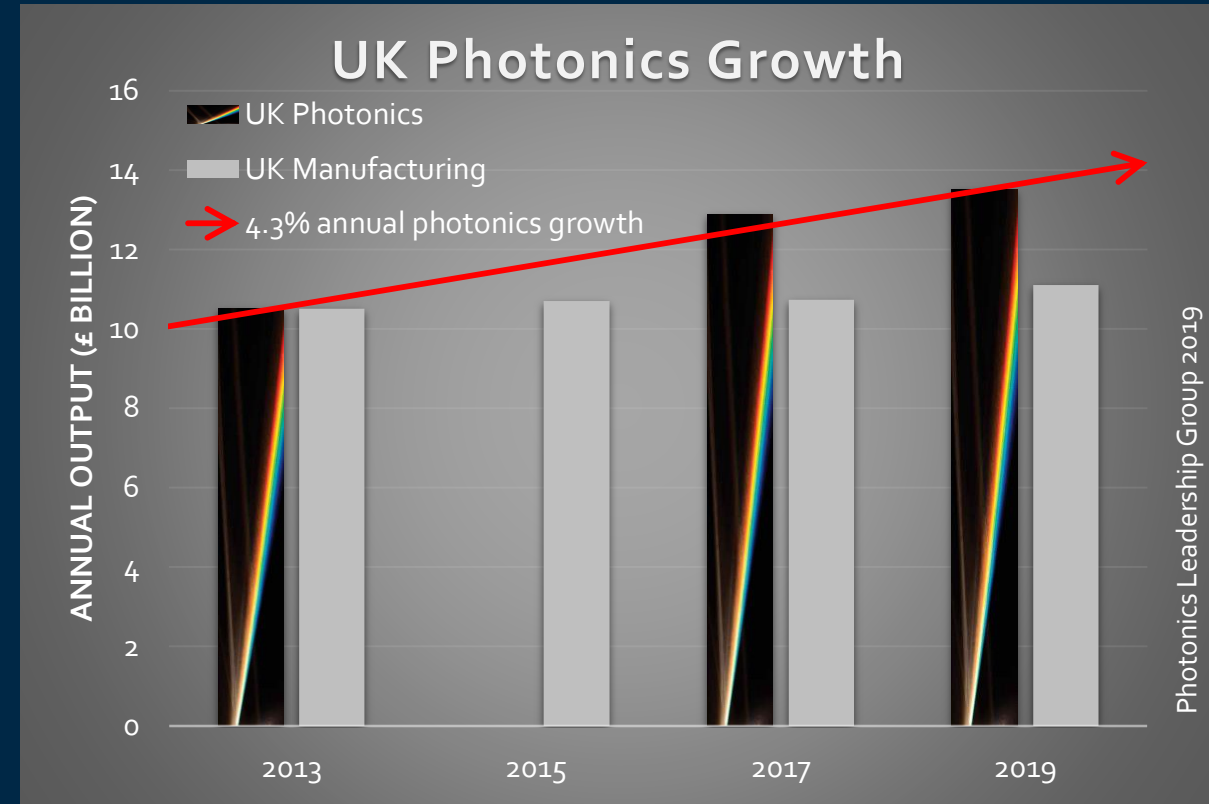
Operating locations. Multiple entries possible

sitefraction 100.0% city Salisbury
 address_1 36 Manor Road County Wiltshire
 address_2 postcode SP1 1JS
 address_3 Region South West
 address_4 Suggested region South West
 locaton notes

Record: 1 of 1

Growth

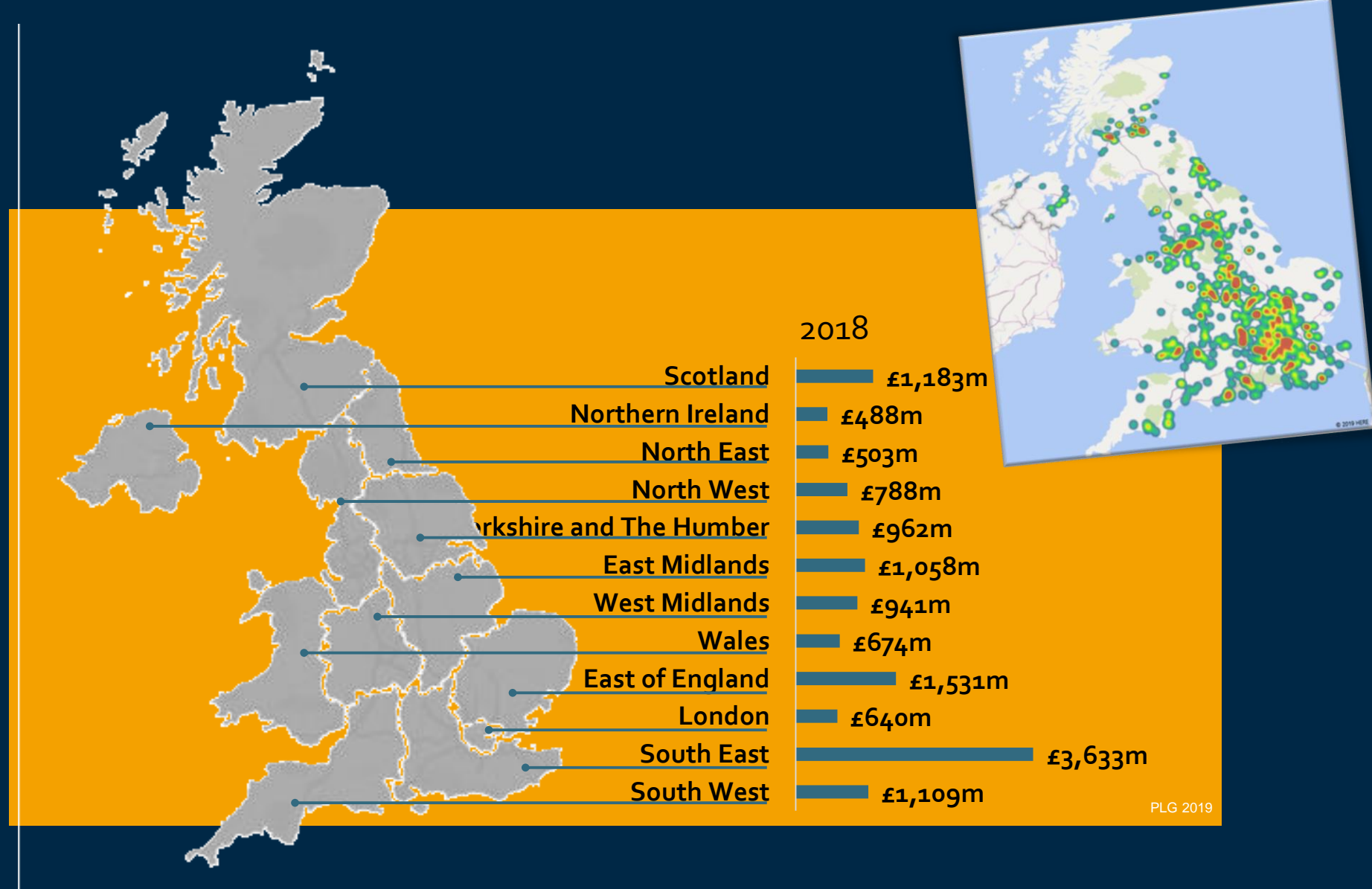
- **Photonics Like-for-Like growth 8.4% over 2 years (CAGR 4.1%)**
 - Only companies in 2019 and 2017 analysis
- **2013-2019 growth 4.3%/year**
 - 4X Average UK manufacturing growth
- Global photonics components growth 6.6% (SPIE)



Regional Output

Using Manufacturing locations

- Significant shift in regional distribution
- 7 regions with ~£1bn photonics output



Largest most significant contributors

Top UK photonics operations (alphabetical)

Arris International	20.00%
Bae Systems Plc	5.00%
Carl Zeiss	100.00%
Cobham Plc	5.00%
Delphi Automotive	1.00%
Ex-OR	75.00%
Gooch & Housego	100.00%
Halma Plc	50.00%
Iqe Plc	75.00%
Johnson Matthey	1.00%
Leonardo	20.00%
Luceco Plc	50.00%
Oclaro Technology	100.00%
Olympus Keymed	50.00%
Openreach	50.00%
QinetiQ	20.00%
Renishaw	50.00%
Rolls Royce	1.00%
Smith & Nephew	5.00%
Teledyne E2V	100.00%
Thales UK	50.00%
Virgin Media	20.00%

- Only 10 employ more than 1000 people in photonics
 - Only 20 with apportioned photonics turnover > £100m
- =4% of large companies aren't that large
- Most productive not necessarily largest
 - Large companies with modest photonics activity have big impact

Regional Productivity

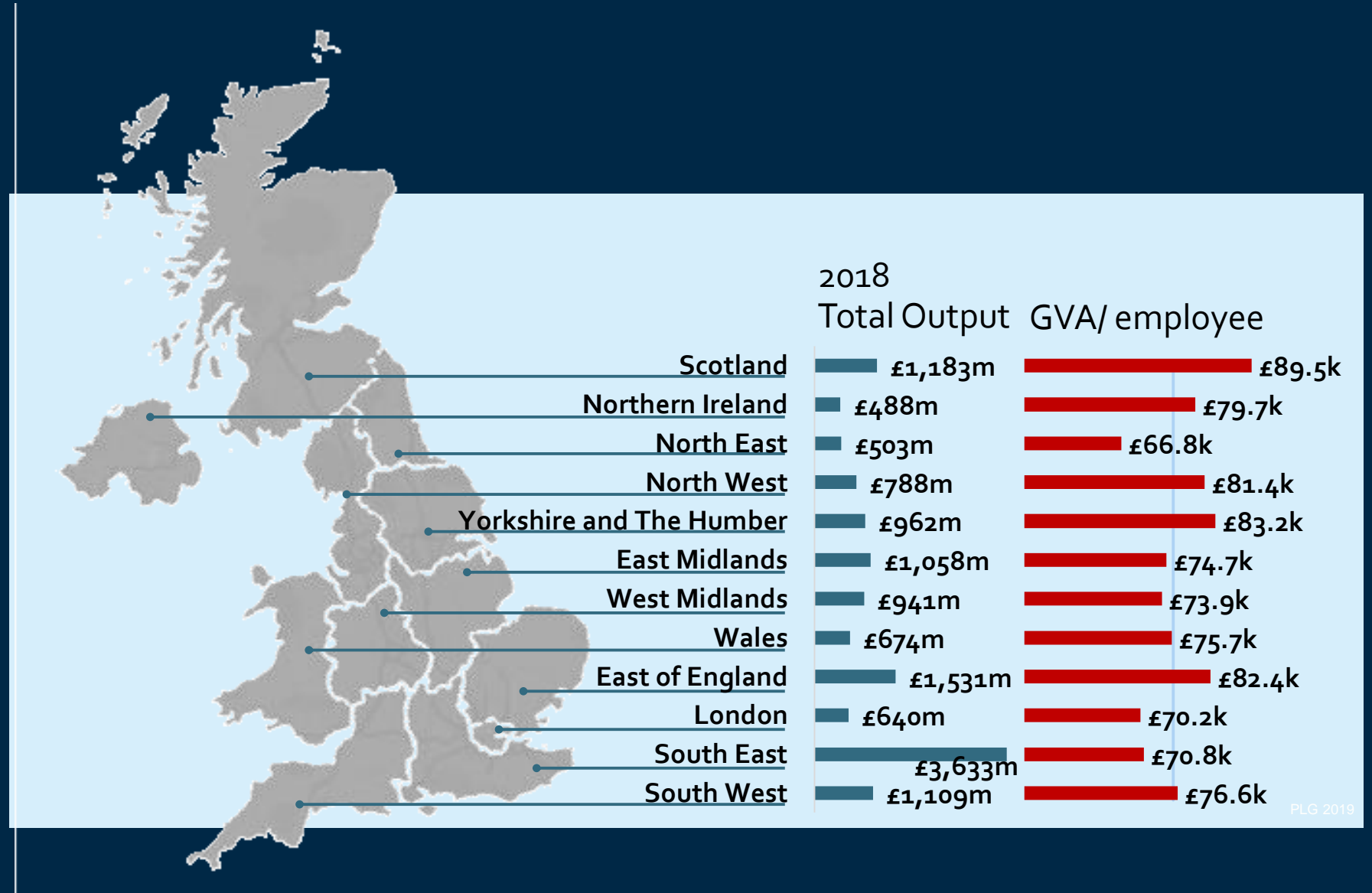
Regional GVA/
employee

£70-£89,000 per

vs national
average £76,400

30 companies
with >£100k per
employee

Assumes uniform
wages

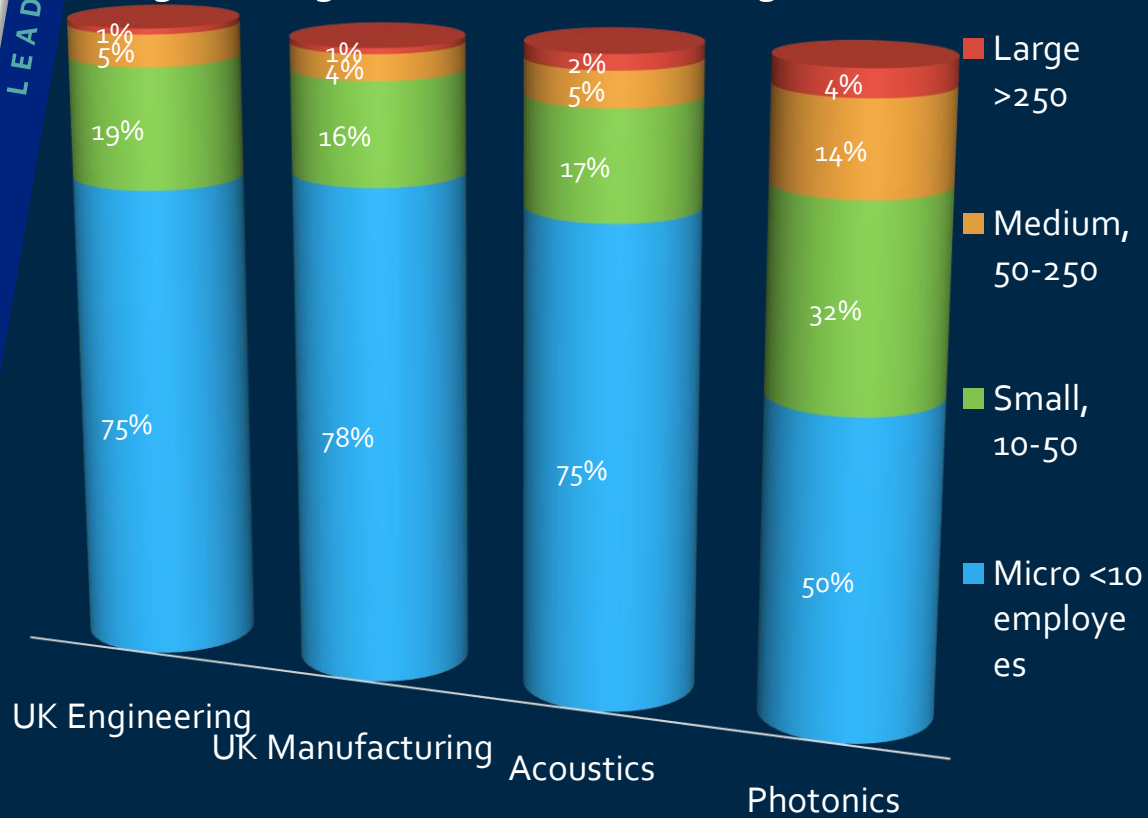


Productivity and economy

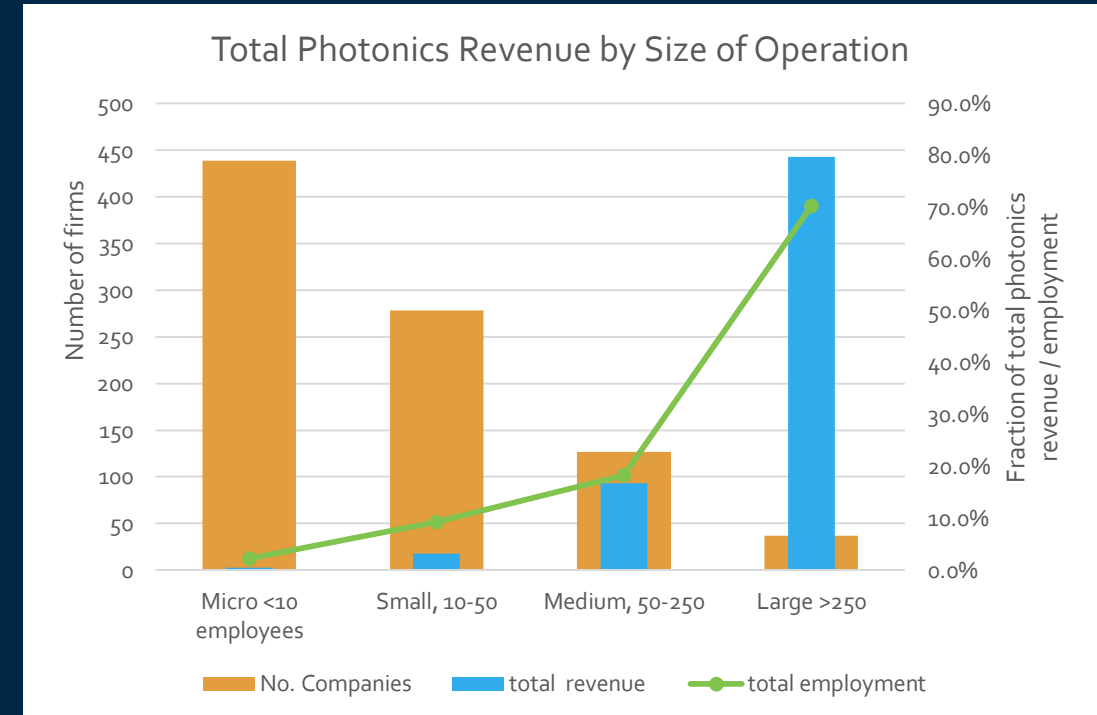
- £13.5bn photonics output=
5.7% of total UK Engineering output
- Photonics total £5.3bn GVA=
>3% UK manufacturing GVA
- 69,000= ~2.6% manufacturing
employment
- GVA at £76,400 per employee
 - 114% of UK manufacturing average
 - 134% of overall UK average
(56.7k/employee)
- One in every £17 of UK
engineering output is Photonics
- Photonics is a High Productivity
Sector

Company size

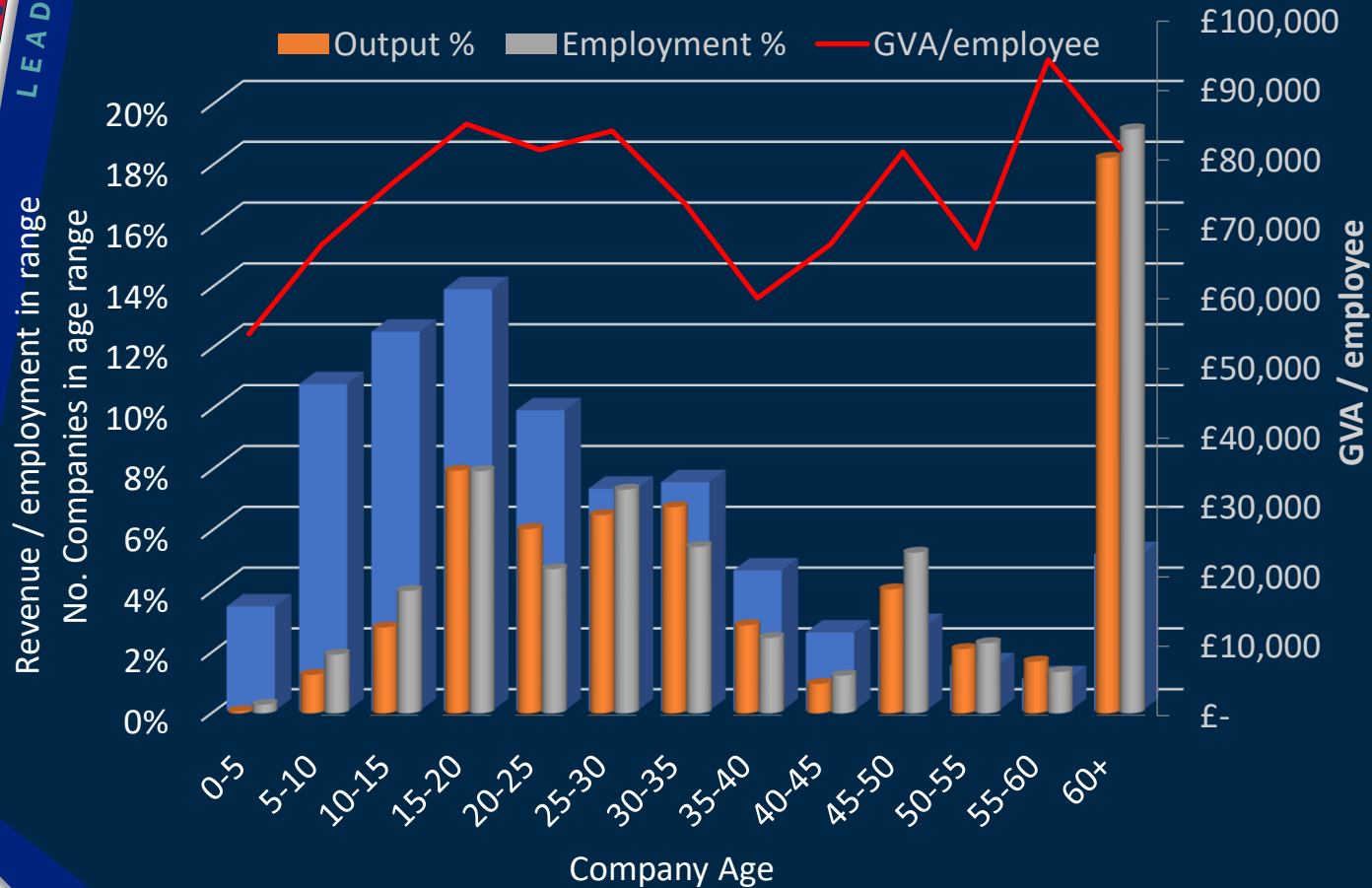
Size of Photonics firms relative to UK Engineering and all manufacturing



- Photonics firms larger than average
- 80% revenue & 70% employment from just 4% of large firms
 - Globally (SPIE) largest 3% of firms generate 78% revenue, largest 9% employ 80% workforce



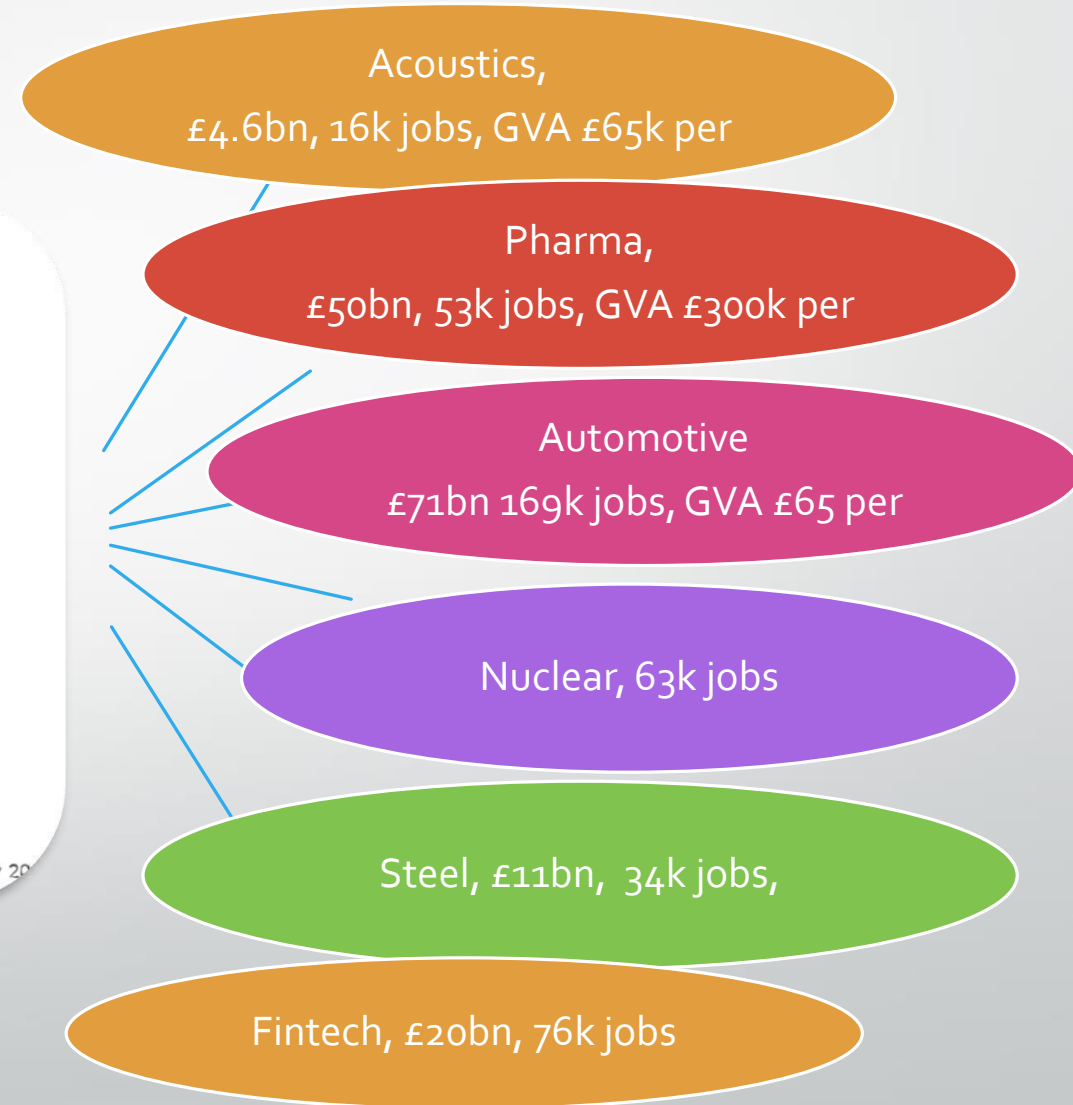
Company Age



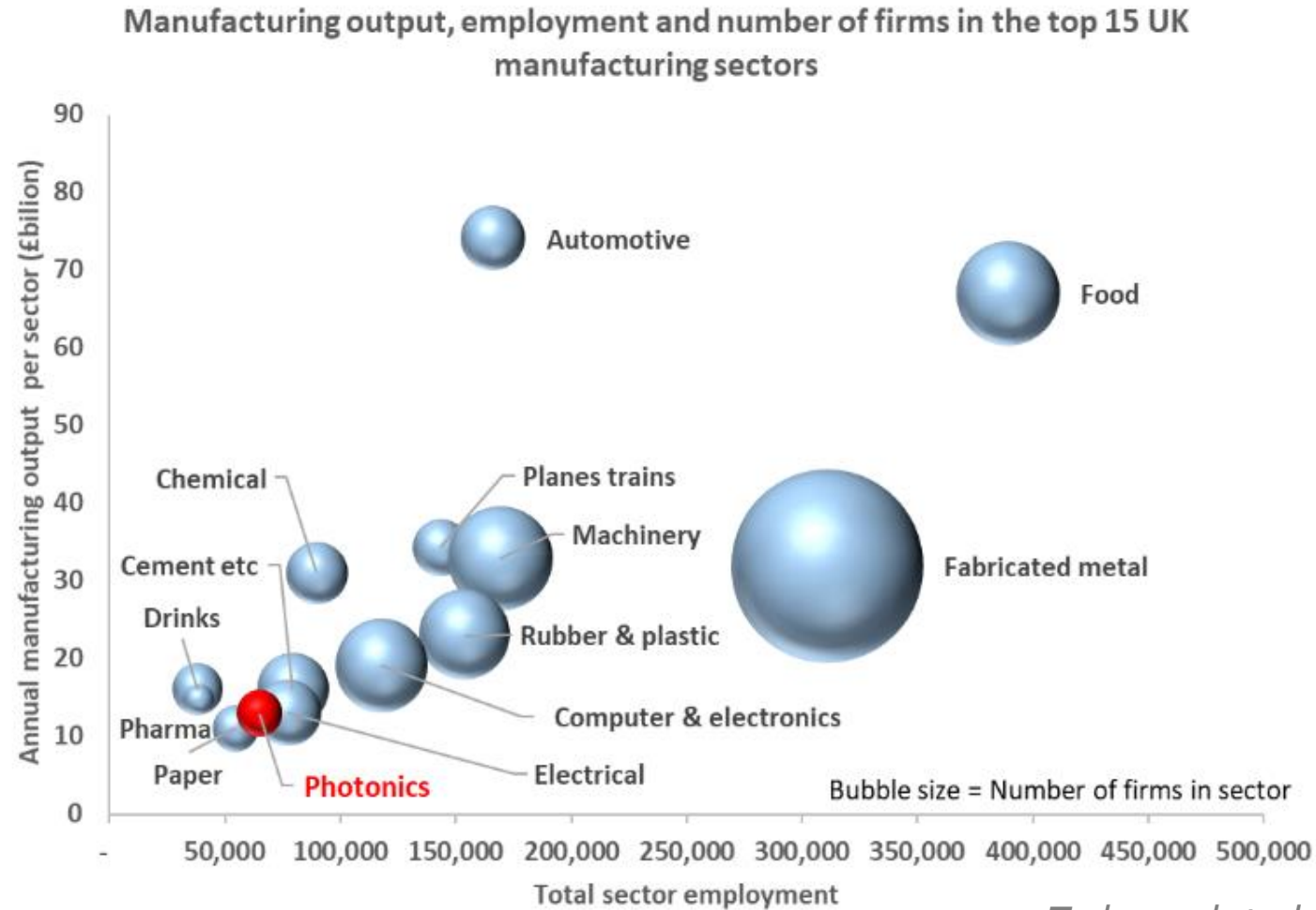
- Median age of UK photonics company 20 years
- 20% are over 50 years old
- Senior firms generate >20% revenue & employment
 - Only 10% employment in firms <15 years old*
 - Experiences counts / age ~ size
- Peak productivity reached after 15years+

% of total photonics employment/ revenue, *age data on ~80% firms, no corrections for restructuring

Comparisons



Relative Impact



To be updated

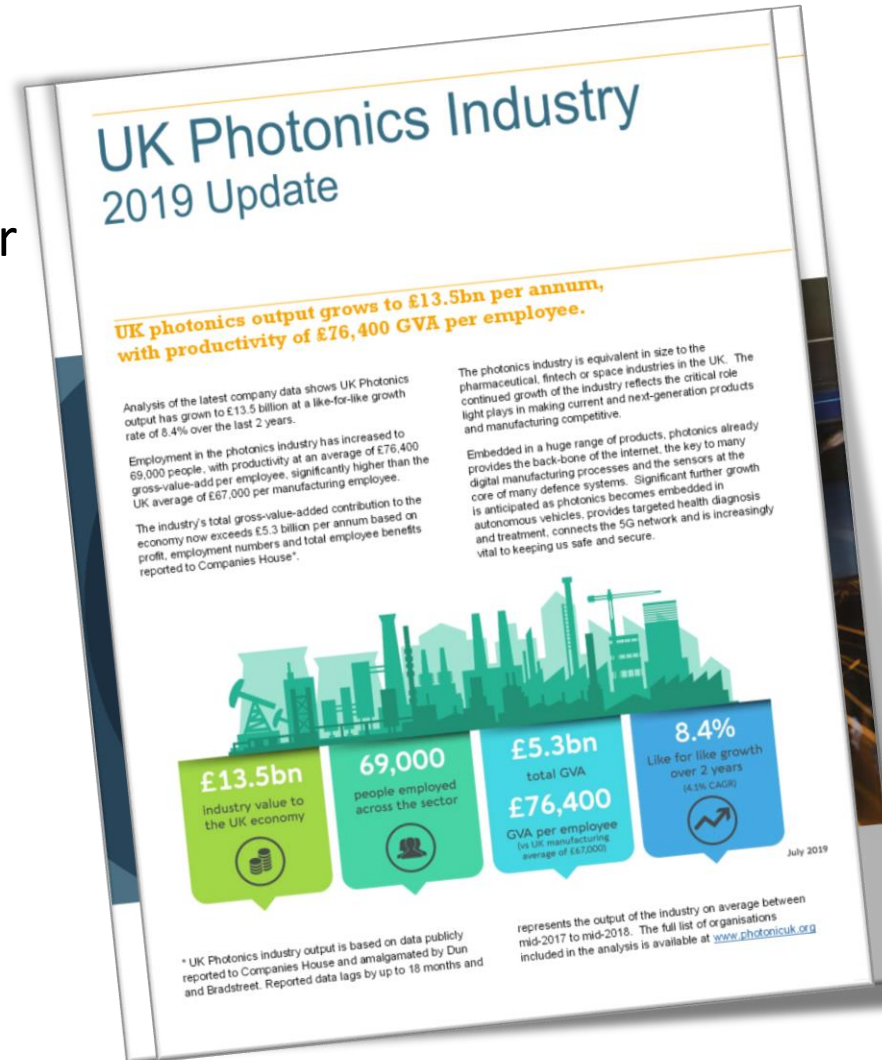
- Photonics 14th largest manufacturing sectors in UK
- £195,000 output per employee
- Productivity: Gross Value Add £76,400 per employee



Additional comparisons
<https://www.mta.org.uk/system/files/resource/downloads/20180405%20MTA%20report%20-%20ofinal%20v2.pdf>

Release plan

- Full figures released Laser World of Photonics in Munich 24 June 2019
- Released to Parliamentarians at Westminster Photonics showcase 3 July.



- Appendix to the Hidden Economy report
 - New info graphic
 - New regional breakdown
- Additional key stats on monthly basis to PLG website
 - Age of companies
 - Sub-sector breakdown
 - Industry comparison
 - National manufacturing comparison

Photonics Leadership Group

Bringing industry, academia, support agencies and government together

Making UK Photonics bigger, faster, stronger

Get involved today

www.photonicsuk.org , @photonics_UK

**UK has world leading photonics industry
Stand tall be Proud – we are the future**