

# AI and Advanced Manufacturing



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# Advanced Manufacturing








- Capacity

Part of the UK's largest manufacturing region by output (NW - £23.7bn, West Midlands - £16.4bn).  
2500 manufacturing businesses in the LCR employing 50,000 people.

- Productivity and Output

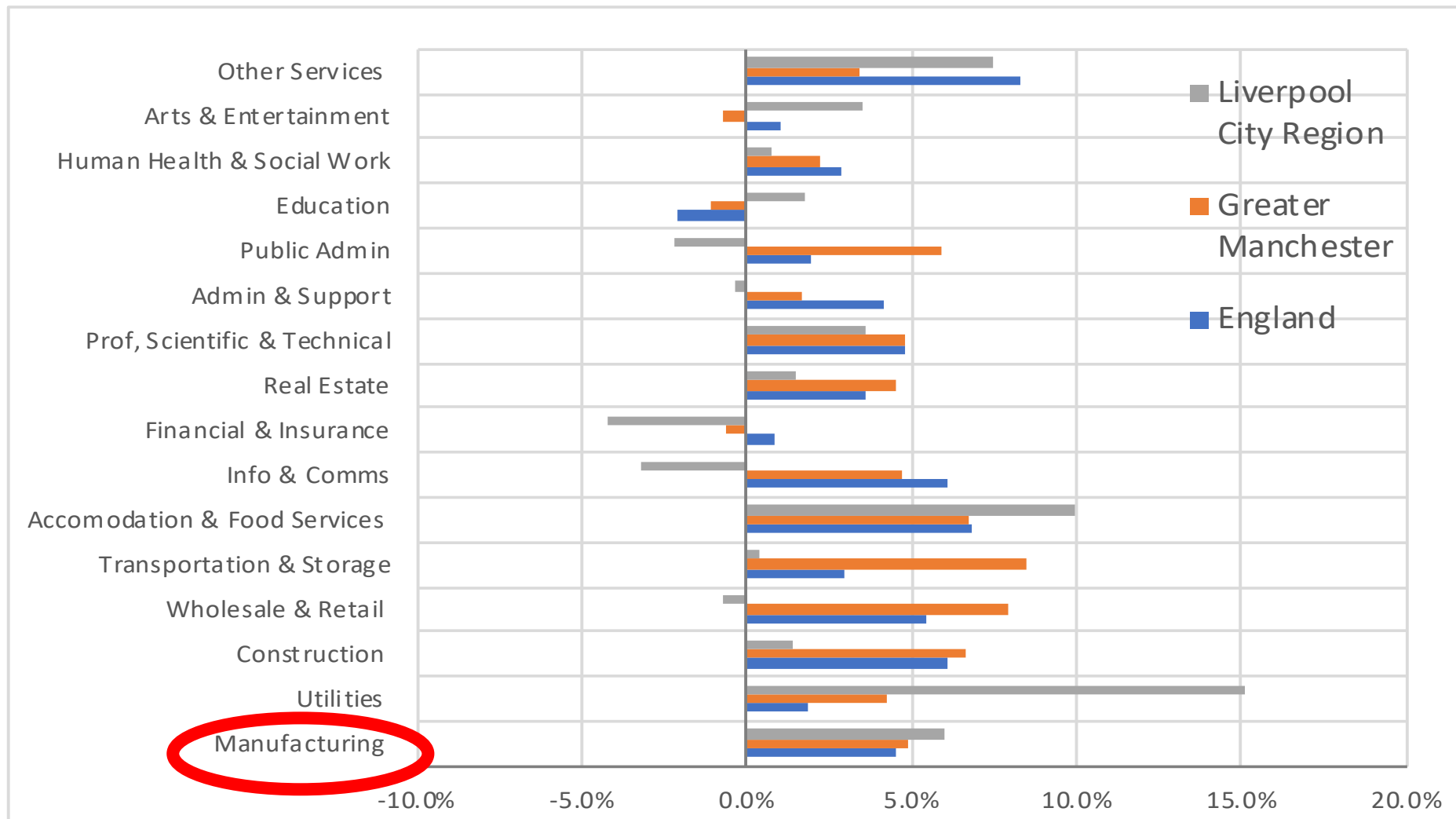
Economic output per job in LCR is £47,305 = **7% higher than UK sector average**.

LCR manufacturing output is 13.9% of total economic output (UK = 11.6%).

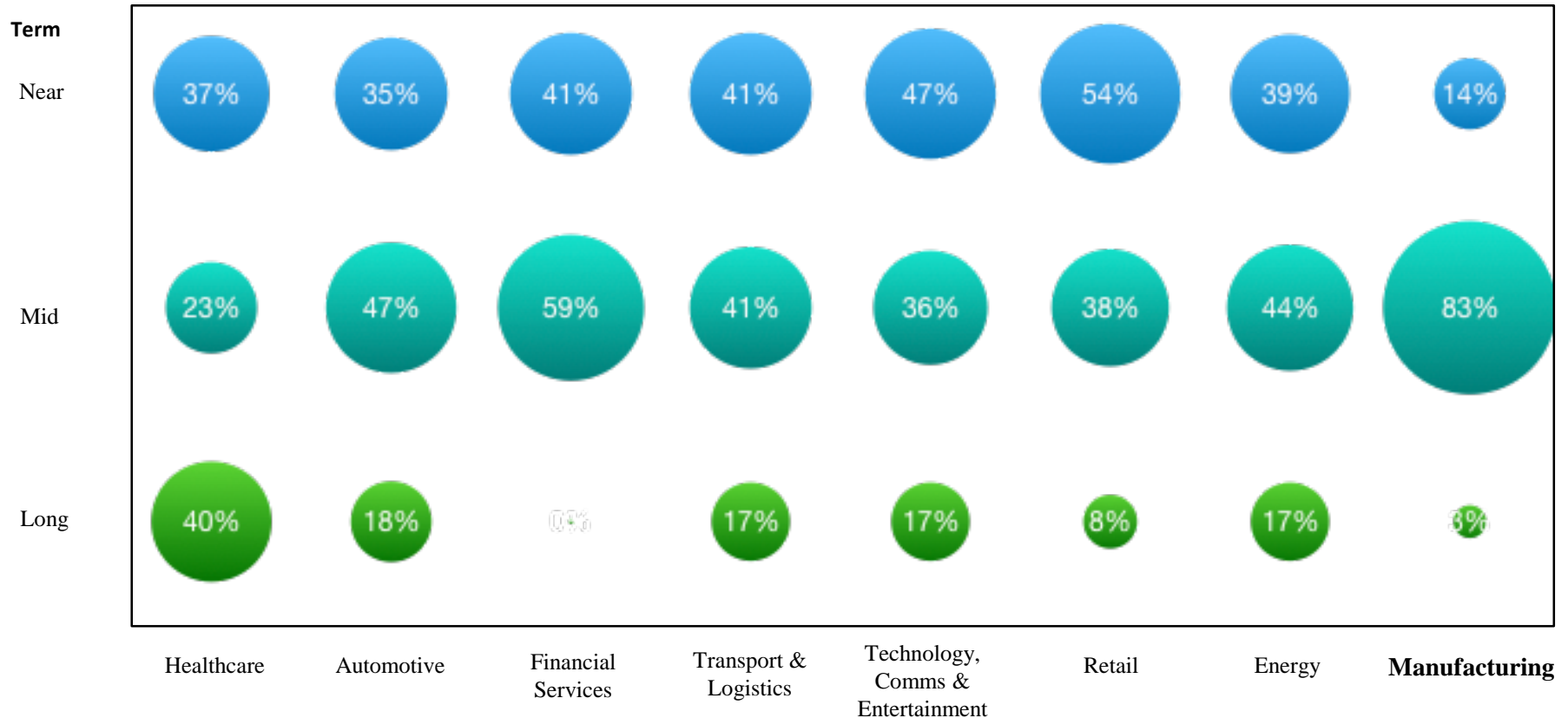
	Growth Sectors	Jobs		GVA (£bn)		NUMBER OF BUSINESSES	BUSINESS SIZE (Number of employees)			
		No.	Proportion	Amt (£bn)	Proportion		0-9	10-49	50-249	250+
	Advanced Manufacturing	47,200	6.6%	4.3	13.9%	2,265	74.4%	19.4%	4.2%	<1.0%
	Digital and Creative	11,300	1.8%	1.0	3.2%	2,450	95.1%	3.9%	<1.0%	-
	Finance and Professional Services	46,000	7.5%	8.5	27.3%	4,900	92.2%	6.1%	1.0%	<1.0%
	Health and Life Sciences	125,200	20.3%	4.4	14.2%	2,895	66.7%	26.8%	5.0%	1.2%
	Low Carbon and Energy	30,300	4.8%	2.0	6.5%	3,505	87.9%	10.3%	1.0%	<1.0%
	Maritime and Logistics	26,200	4.2%	0.7	2.4%	2,040	93.6%	5.1%	1.2%	<1.0%
	Visitor Economy	51,700	8.4%	4.2	13.6%	6,310	86.0%	12.3%	1.3%	<1.0%



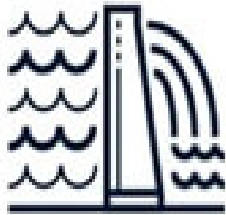
# Latest ONS Figures (2016)



## Speed of impact of AI by sector

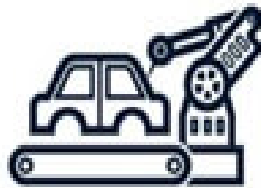


Source – PWC 2017  
Near term – 0-5 years, Mid – 5-10, Long 10+



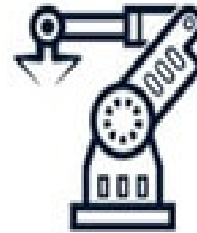
1<sup>st</sup>

Mechanization,  
Water Power,  
Steam Power



2<sup>nd</sup>

Mass Production,  
Assembly Line,  
Electricity



3<sup>rd</sup>

Computer and  
Automation

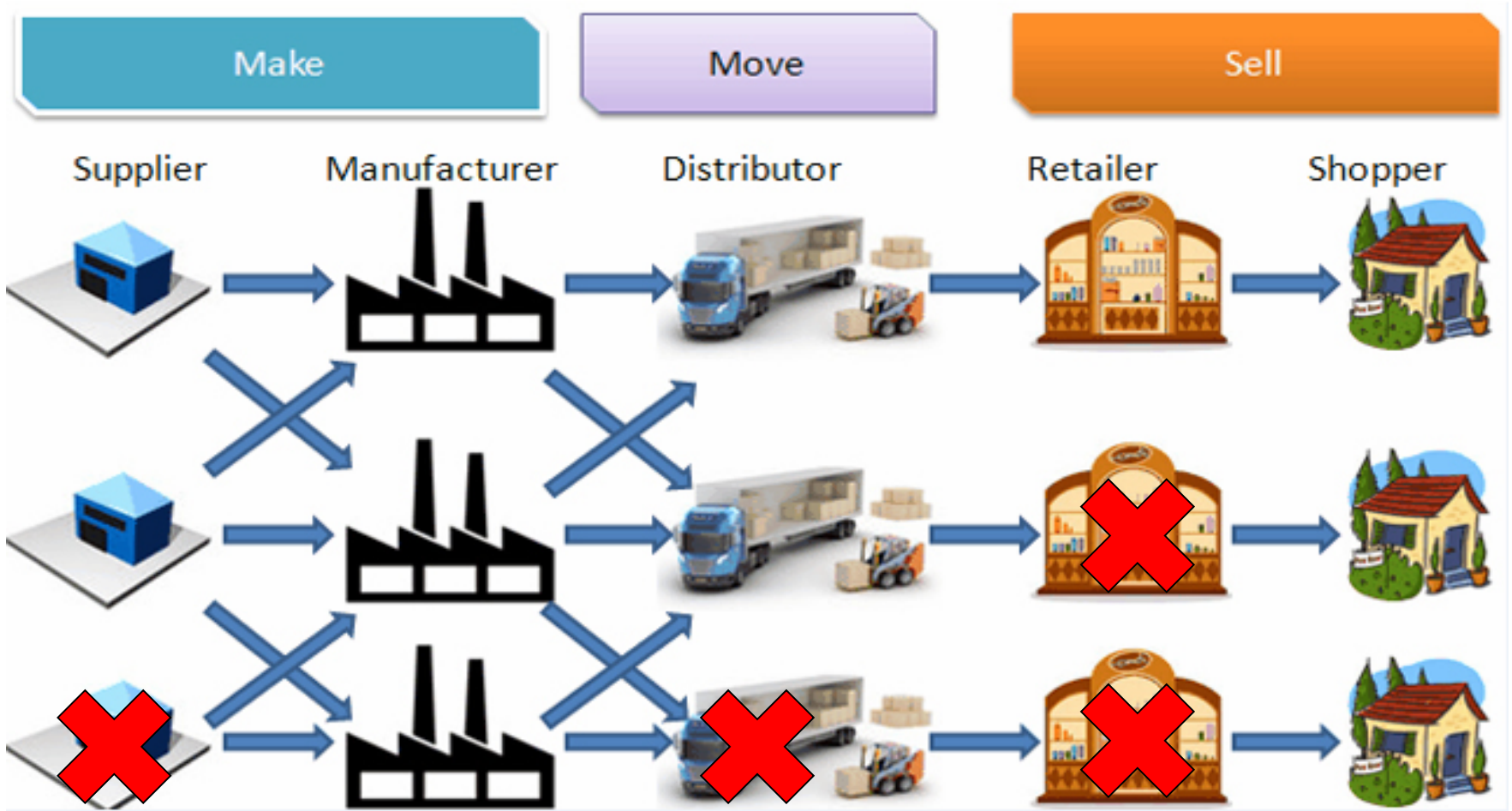


4<sup>th</sup>

Cyber Physical  
System









**NETFLIX**

# LCR4.0

Together for Manufacturing.



**European Union**

European Regional  
Development Fund

VIRTUAL  
ENGINEERING  
CENTRE



Part of the Local Growth Hub.



**European Union**  
European Structural  
and Investment Funds





- LCR 4.0 launched November 2016
- 170 Companies actively engaged
- Developed an IDT ecosystem
- Convergence of digital & manufacturing companies
- Nationally Recognised (“best practice” – Made Smarter Review 2017)
- Case Studies – [www.lcr4.uk](http://www.lcr4.uk)
- Digital Manufacturing Week launched 2016



## AI and SMEs – two LCR 4.0 examples

- **Ciivsoft**

- Build a software tool that automates recruitment tasks
- Hartree Centre utilised IBM Watson to build a beta stage personality profiling module
- Able to integrate social media into candidate selection
- Company now has a working prototype

- **Custerian**

- The company works with clients to enhance productivity
- Uses IBM Power 8 data collection and analysis platform
- Identify stress in an organisation
- Profile logistics in relation to customer experience / satisfaction



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SMARTER**



# WHAT WILL THE PILOT ACHIEVE?

- £20 million government backed investment Comprehensive outreach to connect with 3000 NW SMEs
- Comprehensive outreach to connect meaningfully to 3000 NW SMEs
- 1:1 triage, diagnostics and specialist advice, including IDT and skills for 600 SMEs
- 480 match funded grants to purchase specialist advice and equipment (Capital + Revenue)
- 100 SME leadership and management development courses
- **300 Student placements and 20 emerging technology start ups**
- Increase GVA by c. £115M over 4 years.

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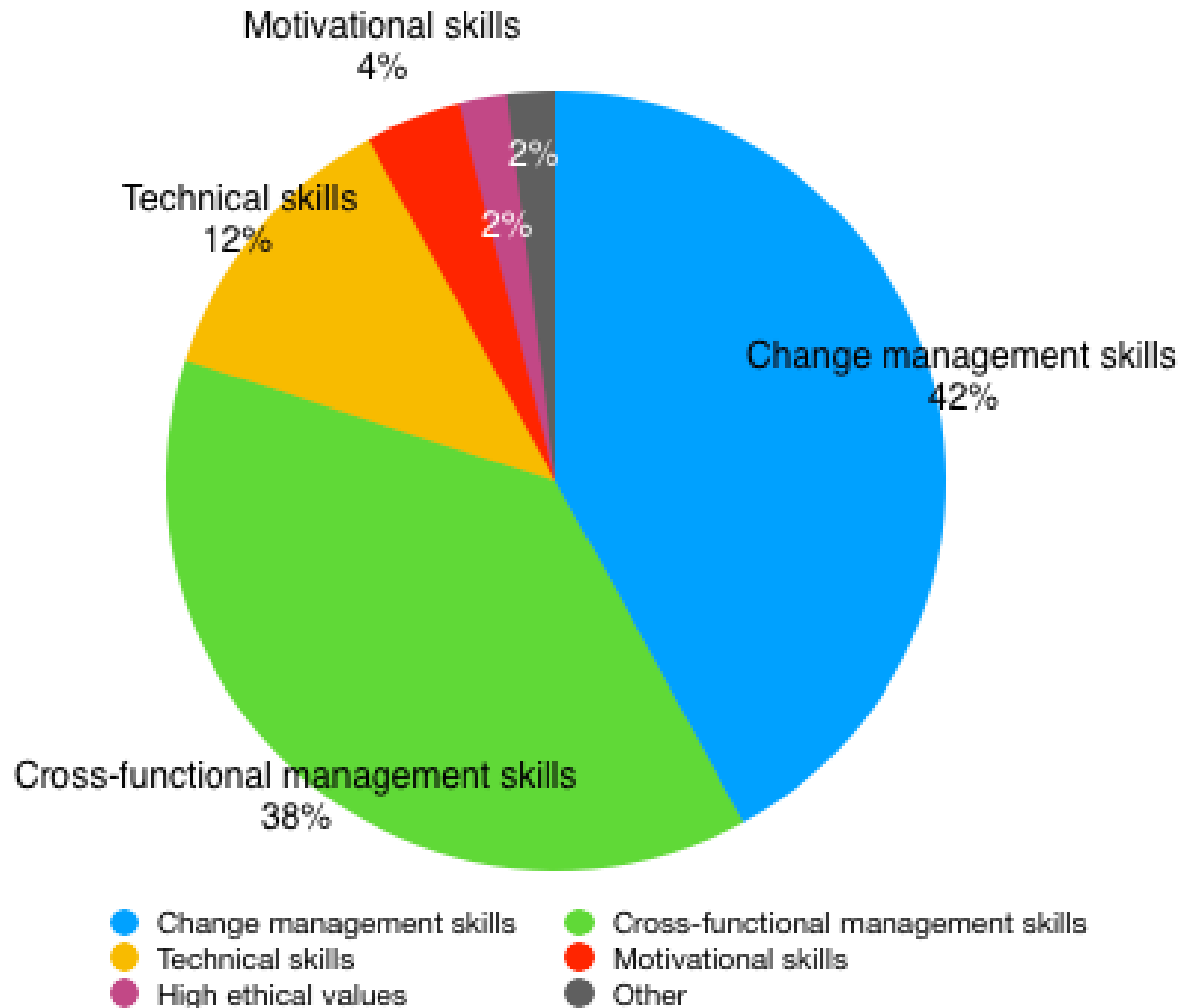
# HOW CAN NEW TECHNOLOGIES TRANSFORM MANUFACTURING?

IDTs offer the promise of recapturing the UK's industrial spirit as a nation of 'creators and makers':

- Raising UK productivity and international competitiveness
- Creating new, higher-paid, higher-skilled jobs and positively offset the displacement of poor productivity and poorly paid jobs
- Strengthening UK supply chains and creating new value streams
- Addressing regional economic disparities & increasing exports through competitiveness
- Creating a new vibrant technology market serving UK industry & attracting FDI

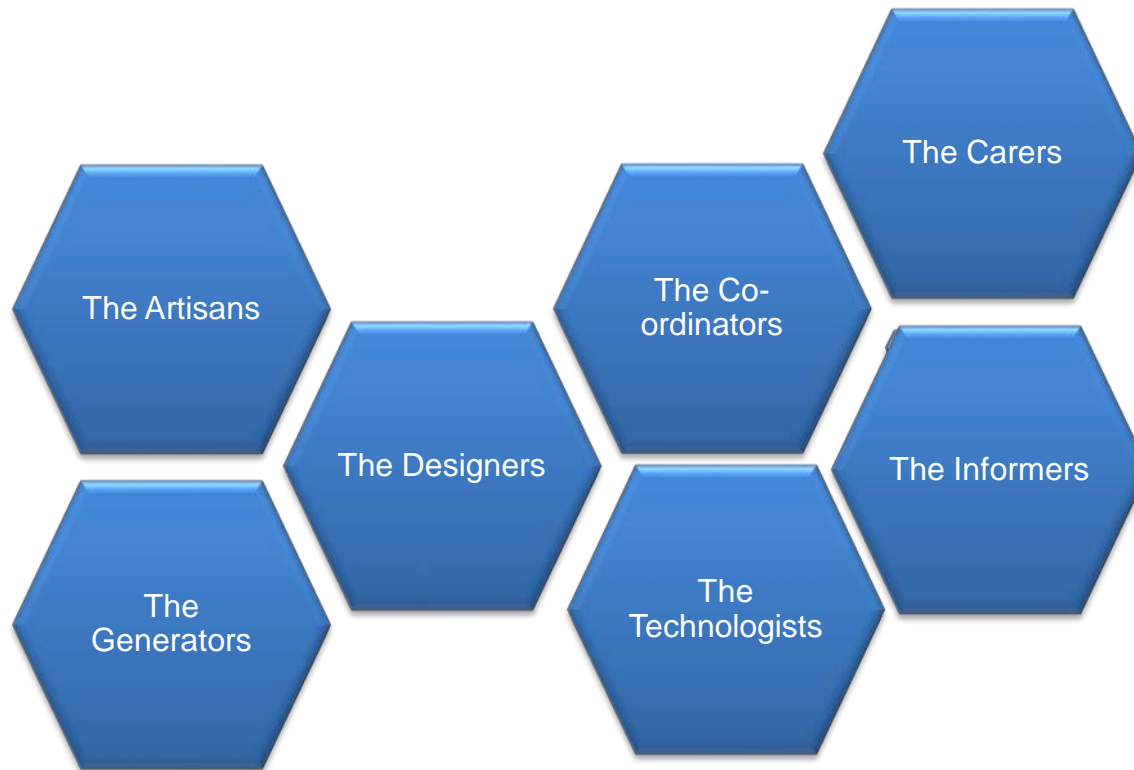
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SMARTER**

## Skills required for the 4<sup>th</sup> Industrial Revolution



Source: Stanton Chase 2017





- Seven clusters cover all new job roles
- Job clusters require similar skills that are often portable across jobs
- Working or training for one job also acquires skills for 13 other jobs

- Learning a portfolio of technical and enterprise skills most relevant to a chosen cluster
- Someone who has already trained for or worked in one job, 44 different jobs only request one additional skill
- Expect 17 different employers and 5-7 changes in a working life

## Key Considerations

- Market disruption
- Leadership
- The “mass production of one”
- Collaboration
- Cyber Security
- IP Protection
- Automation
- Digitisation
- Servitisation
- Ageing Workforce
- Digital Infrastructure
- Resource efficiency
- Longer investment horizons
- **Brexit!!!!!!**

# Thank You. Any questions?

