



Sheffield Digital Briefing Q2 2019

.....

A Quarterly Overview
of Sheffield's Digital
Technology Industry

This Quarter's Sponsors

dotSHF
Sheffield Digital

.shf **sheffield**
.digital

Production Partners

Field Design



Content Partners

Sheffield Hallam University – SHU Business School
The University of Sheffield – AMRC

Sheffield
Hallam
University | **Sheffield**
Business
School

AMRC /  **The**
ADVANCED MANUFACTURING **University**
RESEARCH CENTRE **Of**
Sheffield.

Headline Info

Economic Figures

in association with Sheffield Business School

Employment in Tech Roles

22,034
(2017)

Employment in Digital Tech
Roles in Sheffield/Rotherham:
Tech Nation 2018.

Number of Tech Firms

995
(2018)

Total Number of Digital Tech
Firms in Sheffield: Sheffield
Business School 2019.

Employment in Tech Firms

8,000
(2017)

Approximate Employment in
Sheffield Digital Tech Firms:
Sheffield Business School 2019.

Businesses in Sheffield

37.9%
(2018)

Proportion of Sheffield City
Region's Digital Tech Businesses
located in Sheffield itself:
Sheffield Business School 2019.

Employment in Sheffield

53.3%
(2017)

Proportion of Sheffield City
Region's Digital Tech Employment
located in Sheffield itself:
Sheffield Business School 2019.

Sector Priorities

in association with dotSHF

1

**Formally define and
declare Sheffield's unique
Tech Specialisms.**

2

**Align city and tech
industry communications
(e.g. Sheffield Makes).**

3

**Deliver a tech skills
and growth conference.**

Quarter 2 — 2019

Creating a Narrative

.....

“It gives me a great deal of personal satisfaction to write this introduction to the first Quarterly Briefing on Sheffield’s digital economy.

For those of us who spend our working days immersed in the sector, it is easy to assume that everyone knows about the wealth of local talent that is driving innovation, job creation and financial growth into the regional economy. But from an outside perspective, it can be hard to grasp a sector that is largely intangible.”



Mel Kanarek, Co-founder and director of Sheffield Digital

This publication is an effort to bring the sector into focus by creating a quarterly snapshot that combines facts and figures with a more qualitative perspective in order to create a narrative that can be understood and shared.

I'd like to begin with a little bit of fairly recent history. When myself and the four other co-founders of Sheffield Digital decided about four years ago to create an organisation to act as a virtual hub for the digital industries, we were acting on something close to a hunch.

From the day to day contact that we all had with people and businesses working in and with technology, we were convinced that there was enormous potential in the sector. Our hope was that, by helping the local industry to come together to share information, form collaborations and communicate more consistently, we could support the realisation of that potential and help put Sheffield on the national (and international) map as the home of a significant digital technology cluster.

Text continues on the following page.

What do we mean by “Digital Industry”?

We adopt the DCMS and Tech Nation standard basket of SIC codes to identify and measure digital technology firms, and also employ standard ways of distinguishing between the digital economy, which includes many non-specifically tech firms, and the digital tech industry.

As an industry body we are a broad church, and try to connect, promote and represent the ‘full stack’ of digital technologies from content at the top, to tin and wires at the bottom, with code linking everything together.

Furthermore we are adamant that as much as digital technology is transforming and underpinning all other parts of the economy, there is nonetheless a distinct digital technology sector, and that digital tech companies that operate in vertical markets are categorically different to incumbent firms, and have a different mindset, approach and skills requirements.



Image Sheffield Digital Festival May 2019



Since then there have been a number of milestones that have shown that our hunch was a good one:

2015, 2016, 2017, 2018 & 2019

Sheffield highlighted as a tech cluster in the Tech Nation report.

2016

Incorporation of Sheffield Digital as a Company Limited by Guarantee.

2016

First Front End North conference.

2017

The University of Sheffield's Creative Digital Snapshot Report.

2017

Launch of Sheffield Hallam University's Digital Degree Apprenticeships.

2017

Creation of the Sheffield Digital Coalition (dotSHF).

2017

Two Sheffield start-ups are winners in the Tech North Northern Stars competition.

2018

Development of the Sheffield free city centre WiFi network.

2018

First LegalTech North conference.

2018

Sheffield Digital joins the UK Tech Clusters Group.

2018 & 2019

IoT Tribe North accelerator in Barnsley.

2018

National Videogame Museum moves from Nottingham to Sheffield.

2019

Opening of Kollider tech hub, incubator and event space.

2019

Sheffield Digital Awards and the inaugural Sheffield Digital Festival.

These are only a few highlights that demonstrate a growing momentum in the city region. However, what they don't do is provide much detail on what is happening inside the city's digital businesses.

Anecdotally, we know that businesses are growing: the number of jobs being posted on the Sheffield Digital jobs board has increased steadily over the past three years; most of the city's flexible workspaces are full or close to capacity, several new co-working spaces have opened and the demand for quality office space is increasing; local digital companies regularly win awards and a number of them have recently completed acquisitions or new funding rounds; to say nothing of the increasing number of external firms who have decided to relocate or set up satellite development teams in our city.

However, the statistics available to us from generally available sources do not seem to fully capture this picture. By creating this quarterly briefing, we hope to both provide more granular and up-to-date detail and help shape a narrative that will illuminate what makes Sheffield's digital cluster significant.

A first step towards this is the idea of four "pillars" of Sheffield's tech scene, which you can find in the following pages. This is a work in progress and is being developed in collaboration with national and regional policy makers – your feedback is encouraged. At the time of writing, we are also waiting to find out what data will be made available from the 2019 Tech Nation report, which had a more national focus than previous reports and so did not publish the comparative data between clusters that we have had before. Thus, there is a definite need for a consistent set of data points that we can use to track the development and performance of the sector and put that within the context of the wider regional economy. That ambition will form part of the development of this quarterly publication.

Mel Kanarek
Co-founder and Director
Sheffield Digital



This Quarter's Focus: The “Four Pillars” of Sheffield's Digital Tech Identity

Sheffield has a long history of computing and applied software development stretching back decades. Indeed, The University of Sheffield was one of the very first educational institutions in the world to offer Software Engineering as an undergraduate degree in the 1980s, and the city has been fertile ground for collaborations between academia and industry in computing ever since. This is one of the reasons the University is a key partner in the national Institute of Coding and also leads on Student Enterprise. Meanwhile the city's other University, Sheffield Hallam, has the 7th largest cohort of computer science students in the country (with 1,860 currently enrolled), and also leads the nation in providing degree apprenticeships in computing as it pursues its mission to become “The world's leading applied university”.

Combined, Sheffield's two city-centre universities support more than 60,000 students, with nearly 1,000 graduating in computing-related subjects each year, along with many more in other disciplines that are in high demand in the digital technology industry, such as mathematics, information science, design and creative disciplines.

On top of this, Sheffield College serves over 13,000 further education students and supports apprenticeships in subjects such as cyber security, network engineering and software development. An increasing number of the city's secondary schools are offering specialisms in digital subjects, including the two University Technical Colleges which support courses in computing and creative digital media between them, as well as robotics, CAD and other digital engineering skills at the AMRC training centre.

This history of talent development and research collaboration has given birth to several significant technology firms. Some of these have remained

independent, such as WANdisco, Zoo Digital and the Floop, while others have been acquired by larger companies but have remained in the city, notably ARM's acquisition of Infinite Designs in 2000, Autodesk's acquisition of Navisworks in 2007, BT's takeover of Plusnet in the same year, and, more recently, Siemens' acquisition of Lightworks Design at the end of 2018 and Pendo's acquisition of Receptive earlier this year. The city is also increasingly attracting major digital employers to relocate to the city, with the likes of Sky Betting and Gaming, Jet2, Perkbox, TES Resources, Bossanova, MindBody and many others arriving over the last few years.

As a result of all this activity, over 22,000 people are now employed in digital technology jobs within the Sheffield postcode area (according to Tech Nation), and the industry spans many application areas and verticals. There are, however, a number of domains in which Sheffield can boast of specific and unique capabilities – four “pillars” of the local tech industry, which are increasingly at the heart of Sheffield's digital economic strategy. There are many firms and capabilities in areas outside these four, of course – Sheffield is a large, vibrant city after all – but we believe that there is a strong argument to be made that Sheffield has particular “unique specialisms” in these areas, and over the next few pages we've teased out some, but by no means all, of the key assets and narratives...

The University of Sheffield was one of the very first educational institutions in the world to offer Software Engineering as an undergraduate degree

Quarter 2 — 2019

Learning Technologies

Sheffield has been a nationally significant centre for online learning and educational technologies since even before the decision by New Labour to site Ufi, the University for Industry, here in 1998.

Since then, there has been a steady stream of talent and new businesses born of this activity, developing resources and platforms for learning across many different industry verticals. The success of Twinkl and Kineo, and the recent relocation of TES Resources to the city, mean that platforms hosting around 60% of all national teaching resources are now managed in the city.



Little Red Coding Club – © 2019 Twinkl

Twinkl

Twinkl has grown from being an evening “side-project” just ten years ago into the largest repository of high quality digital teaching materials in the world, with headquarters in Sheffield, a technology hub in Manchester and an Australian base in Wollongong. Twinkl now employs more than 500 people worldwide, supporting teachers, childminders, nursery workers, home educators and parents, who download over 8m resources each month. The firm is also breaking new ground in the use of Augmented Reality to enhance lessons, both with their range of collaborative learning environments such as Little Red and ARchitect, and by creating the world’s largest repository of free Apple Quick Look models.

[twinkl.co.uk](https://www.twinkl.co.uk)

Tribal Group

Tribal Group is an international educational technologies company, headquartered in Bristol but with a major presence at St Mary’s Court, Sheffield. The firm develops a wide range of management and operations software used by universities, colleges and alternative learning providers around the world. This includes the market-leading “SITS: Vision” student management system, which is in use by 70% of higher education institutions in the UK and many more abroad.

tribalgroup.com

TES Resources

Attracted by the city’s established capabilities in learning technologies, TES Resources, the learning resources arm of TES Global, recently relocated a significant portion of their operations from London to Sheffield, taking two floors of the new 3 St Paul’s Place building in the city centre, with room for up to 200 staff. The firm brings with it the management of one of the world’s largest teaching materials repositories, with over 700,000 items shared across its distribution platforms. Their presence further underlines Sheffield’s prominence in this field alongside other global providers based in the city such as *Leo Learning*, *Kineo* and fellow new arrivals *Sponge*.

[tes.com](https://www.tes.com)

DESQ

Established more than 20 years ago, DESQ is among a number of local digital media agencies to have developed strong specialisms in the creation of learning experiences and platforms. Over the years they have worked with a vast array of blue-chip brands, and are at the forefront of creatively combining gaming and learning elements into their solutions. Along with other local creative learning agencies such as *Can Studios*, *Learning Light* and *The Workshop*, DESQ well represents the connections between the learning tech and creative tech pillars of the local digital economy.

[desq.co.uk](https://www.desq.co.uk)

Tutorful

Tutorful are another Sheffield startup success story in the learning technologies space, having been founded (as Tutora in 2015) in order to develop a platform to connect students and home tutors with each other across the country. With several rounds of funding behind them, and along with winning the 2017 Northern Stars startup competition, Tutorful has now emerged as the UK market leader with more than 11,000 active tutors on their platform and in excess of one million lessons served.

[tutorful.co.uk](https://www.tutorful.co.uk)

Creative Technologies

30 years ago, in the wake of the collapse of both the coal mining and steel making industries, Sheffield took a bold strategic decision to invest in the creative and cultural industries, designating part of the city close to the train station as the Cultural Industries Quarter and building production capabilities in music, film, theatre, arts and crafts.

As these disciplines have digitised, so has much of the activity in the CIQ, alongside a substantial video game industry born from the 8-bit microcomputer era and the legacy of companies such as Gremlin Graphics and Particle Systems.



Superconsumers, The Hyundai department store, Seoul – © Universal Everything 2019

Alternate Realities @ Doc/Fest

Alternate Realities is the Sheffield Documentary Film Festival's programme of interactive and immersive works of non-fiction. Doc/Fest (or simply "Sheffield" as it is known within the global documentary and factual programming industry) attracts thousands of film makers, commissioners and producers to the city every year, and has become the third largest factual film festival in the world since its start in 1994. The Alternate Realities exhibition and accompanying Summit conference, now showcases world-leading projects at the very cutting edge of digital experience design.

That said, AR@Doc/Fest is just one of several major international events in the city that celebrate digital creativity, alongside the *Children's Media Conference*, *Sensoria* and *Algomech*.

sheffdocfest.com

Universal Everything

Universal Everything is a digital arts studio founded by ex-Designers Republic senior designer Matt Pyke in 2004. It has since then worked with a huge range of major brands, including Chanel, Intel, Nike, Hyundai, Microsoft, Samsung and Apple, to create interactive and visually astounding experiences, as well as collaborations with international arts institutions such as the Sundance Film Festival, Sydney Opera House and Radiohead.

UE created the launch animation for the largest screen ever built, the mega-screen in Times Square, in 2014. Based out of a studio in *Site Gallery*, itself a major institution at the intersection of art and technology, UE's work is characterised by fluid organic movement and the interaction of procedurally generated virtual life forms.

universaleverything.com

Joi Polloi

Multi-award winning creative agency Joi Polloi specialise in producing high quality interactive experiences and platforms for the broadcast, media and cultural industries. They have worked with Channel 4 and the BBC for many years, acting as digital partners for flagship drama and reality series including *Live from Space*, *Humans*, *BBC Glastonbury*, *The Great British Bake Off* and *The Circle*. Their award credits include two Baftas, six Royal Television Society Awards and a Webby, among a host of nominations from all over the world.

joipolloi.com

Sumo Digital

Sumo Digital can trace its lineage directly back to Gremlin Graphics, the quintessential British video game maker from the 8-bit era of the 1980s. Today, it is one of the largest and most successful video game companies in the UK, employing over 500 staff and with studios in 6 British cities as well as a development facility in Pune, India. With the main operation still firmly here in Sheffield, and with strong ties to the local talent base via Sheffield Hallam University, Sumo has been responsible for an array of major 'triple A' video games since its founding in 2003, including *Little Big Planet 3*, *Dead Island 2*, *Snake Pass* and *Team Sonic Racing*, and was instrumental in paving the way for the *National Videogame Museum* to relocate to Sheffield in 2018.

sumo-digital.com

ZOO Digital

ZOO Digital epitomises Sheffield's creative technology sector, as a software company that provides foundational services to the international content industry. The ZOOstudio platform provides comprehensive localisation and distribution tools to content owners and distribution partners across the world, and the firm now has offices in Los Angeles and Dubai from which it is able to serve clients such as Disney, Warner Brothers and Netflix who operate globally. The data volumes and ultra-tight security requirements demanded by modern cinema and TV releases mean that ZOO has long been a pioneer in cloud infrastructure, and is continually innovating new use cases that leverage their core technologies.

zoodigital.com

Movement Technologies

With the Peak District National Park accounting for a third of the city's area, and more trees per person than any other city in Europe, Sheffield is gaining a reputation as the "Outdoor City", a place that provides the best in city living and healthy, active lifestyles.

This, along with an historic commitment to sport-driven social and economic development and several Queen's Award winning mobility-tech companies, has led to a huge range of research and commercial activity around the technology of movement – from the transport of goods and people, to large-scale flow-sensing, assistive technologies, active travel, autonomous vehicles and robotics.



Railsmart EDS – © 2019 3Squared Ltd

The Floop

The Floop was founded in 2012 by academics from the University of Sheffield. Their ambition was to make vehicles safer, smarter and cheaper, by making better use of movement data and insights from the social sciences to change driver behaviour and lower the risks on our roads. In doing so over the last six years the company has significantly disrupted the global telematics industry and now has insurance customers across five continents, and offices in Italy, the USA and China in addition to their global HQ in Sheffield.

thefloop.com

3Squared

From its roots as a fledgling web development agency in the early 2000s, 3Squared has grown to become a major player in the digital railway solutions market, providing a range of software to the industry via its RailSmart suite of applications, covering areas such as train operations, compliance, safety and performance monitoring. The firm is now increasingly involved in the use of machine learning and data analytics to make performance gains, for example by analysing weather and foliage data from satellites to reduce "wheel flats" caused by trains skidding on wet leaves.

3squared.com

Advanced Wellbeing Research Centre

Sheffield Hallam University's Advanced Wellbeing Research Centre (the AWRC) is currently under construction at the Olympic Legacy Park, site of the former Don Valley Stadium. On its completion later this year it will become the most advanced research and development centre for physical activity in the world, providing state-of-the-art, fully instrumented indoor and outdoor laboratories and a team of over 70 researchers delivering collaborative research projects. The centre aims to leverage the University's decades of sports and movement science into the realms of preventative healthcare and active lifestyles, further reinforcing Sheffield's reputation as the 'Outdoor City'.

shu.ac.uk/awrc

MoveMore

MoveMore is a city-wide strategic programme, instigated by the *National Centre of Sport and Exercise Medicine* (NCSEM) and supported by a broad range of local public and private sector organisations. Its objective is to create a culture of participation in physical activity in the city, in order to improve the population's health over the long term. At the heart of MoveMore is an activity-logging app which puts teams of people into competition with each other to log the most activity, and provides updates on new opportunities for exercise and physical activity across the city, as well as generating a huge amount of aggregated movement data for analysis.

movemoresheffield.com

Sheffield Robotics

Sheffield Robotics is a joint research collaboration between the two Sheffield universities, set up to pursue responsible, ethical robotics research, and pioneer new products and processes that will transform manufacturing, healthcare, infrastructure and many other aspects of human activity and being. This research currently involves over 100 academics across the city, and traces its history back to the establishment of the AI Vision Research Unit (AIVRU) in the 1970s, set up to develop computer vision systems that exploited the principles underlying human vision. Sheffield Robotics now sits at the heart of a flourishing robotics industry in the city, with spin-outs such as *Consequential Robotics* and *Ibex Automation*, as well as recent arrivals like *Bossanova*.

sheffieldrobotics.ac.uk

Advanced Manufacturing Technologies

The cluster of tech-driven global brands growing up around the Advanced Manufacturing Research Centre (AMRC) was identified by the Brookings Institution's Bruce Katz in 2015 as "an innovation district unlike any other".

Four years on, the Advanced Manufacturing Innovation District is home to Boeing's European production facility, Rolls-Royce's "Factory of the Future" and McLaren Automotive who are "re-shoring" from Austria to build supercar bodies here in the North of England. All are drawn to Sheffield's R&D assets covering the full suite of industrial digitalisation tech, from immersive AR and VR, to artificial intelligence, machine learning, simulation, composites, additive manufacturing and "digital twins".



Factory 2050 testbed – © 2019 AMRC

Boeing Sheffield

Boeing Sheffield's £40m factory, which opened in 2018, has a fully digitally-enabled backbone that heralds the future of manufacturing. Before Boeing Sheffield opened its doors, the AMRC developed virtual production system models that allowed Boeing to optimise space, materials and machinery, and showed how the plant could increase productivity by 50%. Blanketed with location-tracking technology, the factory integrates location-aware tooling, parts and components with multiple systems to enable a digital thread across the factory and extending to the supply chain. This, together with performance data collected from automation, creates a digital twin of the factory which models the entire production system from goods-in to goods-out, and is the company's Industry 4.0 exemplar.

boeing.co.uk

Elements Technology

Elements Technology represent a new breed of local digital tech startups that are looking at the manufacturing industries and identifying areas where digital tools and techniques can make a transformative difference, by addressing pain-points with the right interfaces and data architectures. Their software automates many of the processes that in many small and medium sized manufacturing businesses are still done by hand or with outdated, cumbersome IT. There is now a rapidly expanding cohort of startups being born of this interaction between digital technologists and more traditional local engineering and manufacturing businesses, as mutual understanding of the challenges and opportunities increases on both sides.

elementstechnology.co.uk

The AMRC Group

Founded in 2001, the AMRC Group has close relationships with global digital transformation firms such as Siemens, PTC, Dassault Systemes, Autodesk, Accenture and IBM, and a manufacturing membership that includes the world's leading players in aerospace, defence, space, high performance automotive and energy sectors. This creates a fertile collaborative climate for the development and adoption of industrial digitalisation technologies, along with a network of digital champions who disseminate these processes across the membership base. Core to this mission is *Factory 2050*, the UK's first state-of-the-art facility entirely dedicated to conducting collaborative research into reconfigurable robotics, digitally assisted assembly and machining technologies in a factory setting.

amrc.co.uk

Lightworks

Recently acquired by Siemens PLM Software, Lightworks specialises in developing software for 3D rendering and virtual reality (VR) experiences. By incorporating Lightworks' technology, Siemens is able to provide enhanced 3D data visualisation, high-end rendering and VR capabilities via its comprehensive suite of 3D product lifecycle management (PLM) applications. This will increase the accuracy of "digital twins" by adding critical visualisation information to the virtual product: through the entire product lifecycle from initial design prototyping and engineering, via collaborative design reviews, to simulation and testing. Using more realistic imagery, simulated physics and

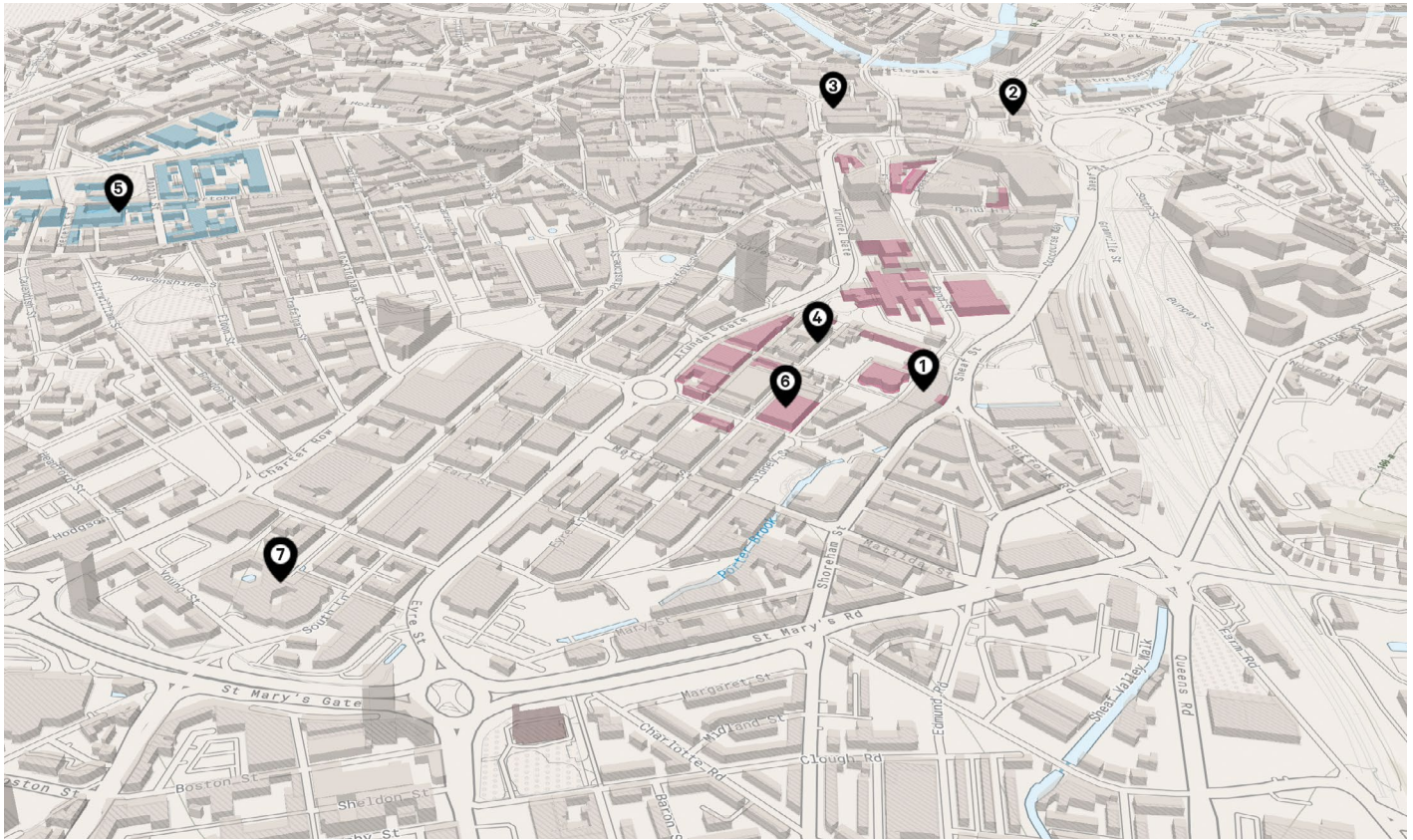
immersive environments helps customers identify and address potential problems very early in the life-cycle.

lightworkdesign.com

Razor

Working alongside software architects at the AMRC, and an Italian visual inspection system manufacturer, software development agency Razor have developed Artificial Intelligence solutions that are set to make a massive breakthrough in the inspection of critical aerospace components for a global OEM, delivering inspection rates up to 4,000 times faster than traditional methods. One of a growing number of pioneering digital SMEs in Sheffield who understand the potential of "digital meets manufacturing", Razor are now engaged in several major projects that will transform industrial processes over the coming years. Building a relationship with the AMRC's digital team has opened the door for Razor to grow its reputation within the industry, which has been crucial for encouraging further innovation and collaboration.

razor.co.uk



sheffield .digital

1

Sheffield Digital

The association for the people and businesses of Sheffield's digital industries.

The Workstation, 15 Paternoster Row, Sheffield, S1 2BX

www.sheffield.digital

[@SHFDigital](https://twitter.com/SHFDigital)

Contact

Sarah Lister Administrator
info@sheffield.digital

Invest Sheffield

Invest Sheffield

Invest Sheffield is an economic development arm of the City Council, dealing with external relationships and inward investment.

11 Broad Street West, Sheffield, S1 2BQ

www.welcometosheffield.co.uk/invest

[@InvestSheffield](https://twitter.com/InvestSheffield)

Contact

Dean Hughes Investment Manager
invest@sheffield.gov.uk

Business Sheffield

2

Business Sheffield

Business Sheffield is the economic development arm of the City Council that deals with tech starts, business growth and relocations.

11 Broad Street West, Sheffield, S1 2BQ

www.welcometosheffield.co.uk/business

[@SheffBusiness](https://twitter.com/SheffBusiness)

Contact

Yvonne Asquith Business Growth Manager
BusinessSheffield@sheffield.gov.uk

Kollider

3

Kollider Projects

Kollider provides workspaces, funding & networked platforms to enable innovators, entrepreneurs & investors, and foster social, cultural & economic regeneration.

Castle House, Angel St, Sheffield, S3 8LN

www.kollider.co

[@Kollider_CH](https://twitter.com/Kollider_CH)

Contact

Katie Taylor Sales & Marketing Manager
katie@kollider.co

Sheffield Technology Parks

4

Sheffield Technology Parks

Offering affordable space to start and grow digital businesses, along with professional support services, since 1988.

Cooper Buildings, Arundel Street, Sheffield, S1 2NS

www.shefftechparks.com

[@SheffTechParks](https://twitter.com/SheffTechParks)

Contact

Tom Wolfenden Centre Manager
enquiries@shefftechparks.com



5

The University of Sheffield – Department of Computer Science

World-class centre for CompSci education & research, and home to the Institute of Coding in Sheffield. Around 240 undergraduates join the department each year.

Regent Court, 211 Portobello, Sheffield, S1 4DP

www.sheffield.ac.uk/dcs

[@SheffCompSci](https://twitter.com/SheffCompSci)

dcs@sheffield.ac.uk

Sheffield Hallam University

6

Sheffield Hallam University – Department of Computing

Applied education & research in CompSci, information systems, networking, software engineering, cyber security & games software development.

Cantor Building, Arundel Street, Sheffield, UK

www.shu.ac.uk/about-us/academic-departments/computing

[@HallamComputing](https://twitter.com/HallamComputing)

Contact

Robert Drake Business Development Lead
r.drake@shu.ac.uk

.shf

7

dotSHF

dotSHF (pronounced 'dot sheff') is the name for Sheffield's Digital Coalition, on a mission to make Sheffield a thriving digital city.

Sheffield City Council, Moorfoot, Sheffield S1 4PL

www.wearedotshf.org.uk/

[@dotSHF](https://twitter.com/dotSHF)

Contact

Chris Lowry Policy & Improvement Officer
info@wearedotshf.org.uk