

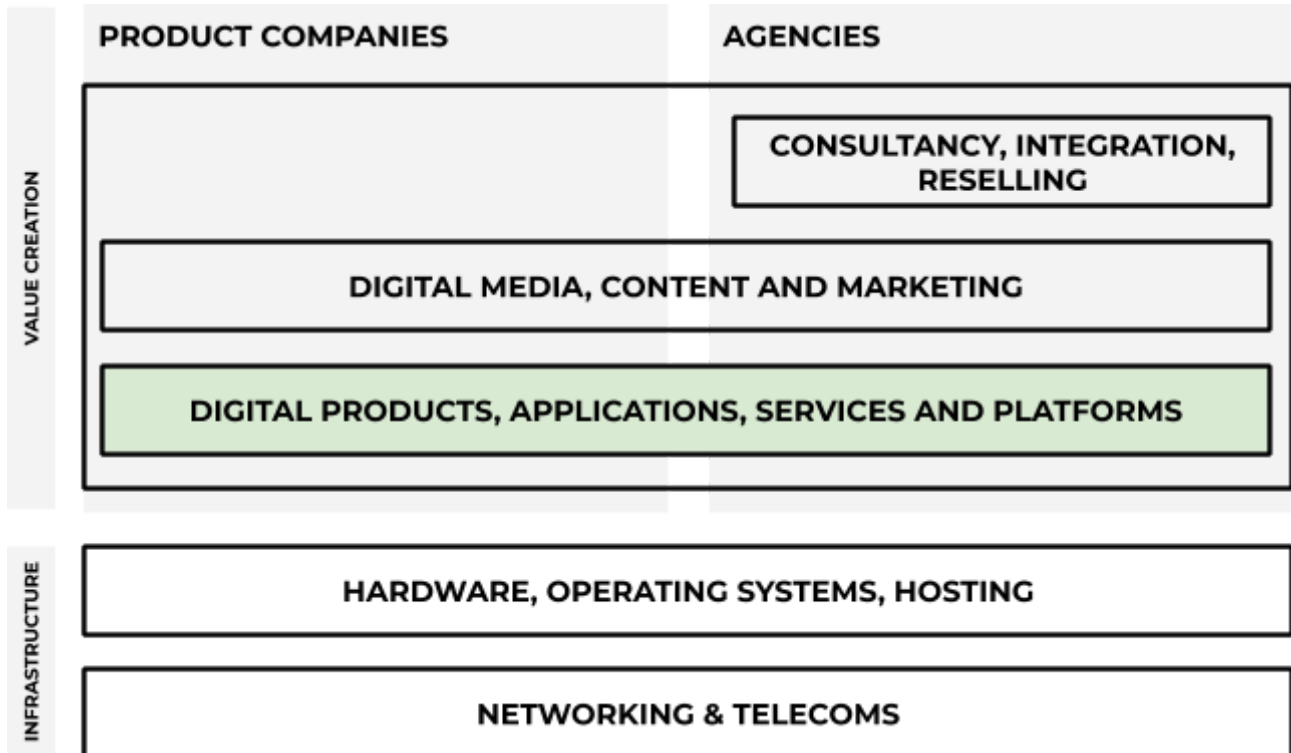
WHAT DOES “DIGITAL” MEAN? A PRIMER FOR POLICY MAKERS

How do we think of “Digital”

The term Digital describes a stack of technologies and value, from enabling infrastructure at the bottom, to digital media and advice at the top. Similarly, very different skills and competencies are required both to engage with the products and content produced by digital firms, and to make those products and experiences in the first place. There is also a distinction between firms that offer their services for hire, and those that develop products - these are the two prevailing business models in the industry, although there are many examples of agencies that also develop and market their own products it is fairly common for agencies to pivot into becoming product companies or split into separate entities if their experiments with products are successful.

Of great relevance to the SCR are the Innovation Driven Enterprises, which tend to come from the area shown green in the diagram below (although not exclusively).

This diagram shows the industry as an (over-simplified) ‘stack’ of activities:



Are all Firms Digital Firms?

It is often held that all firms are now digital firms, or are becoming digital firms, and that therefore digital technology is an enabler and not a sector in its own right, or that only certain parts of the industry are truly part of the digital sector, such as the infrastructure and agency portions.

However, firstly this view excludes some of the most valuable parts of the industry, and secondly there is still a marked difference between digital technology companies that have entered a particular market vertical and legacy firms in those verticals that are undergoing ‘digital transformation’.

Some of those differences have to do with the presence or absence of legacy technology, skill sets and entrenched ways of working, but the main difference is that digital technology firms design and build their own technologies and are organised around that process, rather than around traditional delivery processes. This means they operate at a different pace and market responsiveness and are able to scale and tailor their experiences much more iteratively. In addition, they are often able to pivot into other markets where their underlying technology and processes provide advantages.

These firms operate differently and have different requirements to most legacy firms. Not all digital tech firms are able to build systems of sufficient quality, and some do outsource design and build, at least initially. Equally, there are some legacy firms that have successfully reinvented themselves. However, this is still quite rare and the general distinction holds.

What is the Digital industry?

A distinction is often made between the Digital Industry and the Digital Economy (this approach has been adopted by DCMS and Tech Nation in their respective analyses since 2016 or so). Digital Industry is used to describe firms whose primary product or service is “digital” (delivered and/or engaged with primarily via computers), and the Digital Economy is used to describe the economic output of everyone involved in digital production wherever they happen to work. A further distinction is then often made between the Digital Technology industry, to indicate those firms that design and develop digital technologies, and other digital industries such as media, marketing, entertainment and games, etc.

None of these terms are uncontested, and there is overlap with other sectors such as the creative industries, telecommunications and any number of market verticals. It is nonetheless important to be aware of these distinctions when discussing the ‘digital industry’ and acknowledging it as an economic sector.

What are Digital Skills?

The term “digital skills” is used to describe a wide range of different capabilities and is therefore ambiguous and should be avoided unless it is qualified.

In order to be more specific, we recommend using the following terms:

Basic Digital Skills

These are skills required to access the internet, use search engines, receive and send emails, manage passwords, do simple word processing, etc. Skills designed to allow people to cross the digital divide and access public services.

Digital Literacy

These are skills required to navigate the internet and social media information environment, identify fake news, determine which sources are more trustworthy, manage online arguments, etc.

Coding / Computing

These terms are used to describe programming skills and using digital technology to build new applications and experiences. I.e. the skills required to begin to create interactive applications. These terms are generally used in education or informally, and are not used to describe professional skills. They provide a launching point for entry into digital careers, but are also extremely valuable to a wide range of other professions and careers. It's crucial that these skills are introduced and taught in creative ways and that learners are given the freedom to be creative, as there is currently a serious problem with these subjects being regarded as too hard and technical at Key Stages 4 and 5, resulting in very poor enrollment, nationally.

Digital “Middle” Skills

There are a large number of skills that lie between basic skills for access and employability and the professional skills involved in creating new digital products and applications. These are skills similar to the ones traditionally taught in schools as ICT, which have now been replaced by a curriculum that focuses on coding and computing. These skills cover such things as learning how to use specific applications, or the basics of how to do certain common computing and related tasks, often by using tools that have made the process easier and obviate the need to learn computer programming, such as manipulating data or writing simple artificial intelligence or mobile applications, etc.

These “middle skills” are crucial for progression and career changes, and the provision of these, especially for adult learners, should be reviewed as a priority.

Professional Digital Skills

These are the (myriad) specialist skills that professionals in the digital industries require. They are often acquired through higher education, either via general computer science, computing or design courses, or in more focused courses of which Sheffield's universities provide an excellent selection. There are still many people who are self-taught, or who left higher education before completing courses, and it is universally recognised that the bulk of these skills are acquired in practice and from the necessary continual learning demanded by the rapidly changing technology and practice environment in which digital work is done.

Non-technical Professional Digital Skills

There are a large number of digital professions which do not require a deep understanding of the technology or the ability to code. These professions fall into several broad areas:

- Digital User Research and Design Skills.
- Digital Media Production Skills.
- Digital Project Management Skills.
- Digital Marketing Skills.
- Digital Business Skills.
- Data Science Skills.

The local pathways into many of these professions are not at all clear.

Glossary

Digital Technology

The term 'Digital Tech industry' or 'Digital Tech firm' is often used to distinguish hardware and software development from digital media, marketing and content.

Digital Media

This is media content produced using digital tools and intended for digital distribution on one or more platforms. Digital media may also include interactivity, such as in video games, but generally speaking digital media are non-interactive, while digital applications are.

Digital Applications

Digital applications are software products that run on a particular platform, this could be the web or a mobile phone application, in a car's entertainment system or a voice assistant, etc. Applications are generally considered to be utilitarian rather than for entertainment.

Digital Services

This is often used in the public sector to describe a process or social service which has been designed and developed to be engaged with online, usually on the web. People who design such web-enabled processes are known as service designers.

Digital Products

Digital Products can mean any kind of product or service that uses hardware and/or software. People who oversee how such a product is developed and which features should be added are known as Product Managers.

Digital Inclusion

Digital Inclusion is about including everyone in the digital life of the region, through access to the internet and the tools needed to access the internet. This is both in terms of the skills needed to access these and the financial ability to access these. It can mean broadband, fibre and 4G/5G. It can also mean ensuring that accessibility for these meet all users' needs, including those that need assistive technology to access the digital world.

Digital Skills

Digital Skills is used as a generic term to describe the full range of capabilities listed in the "What are digital skills?" section above. It is sometimes used to describe just a subset of these and is therefore often ambiguous and should be avoided if possible.

Digital Industry / Digital Economy

Digital Industry is often used to distinguish firms who's core product or service is digital in some way, while the Digital Economy is used to describe the economic output of everyone who works in digital roles no matter what kind of company they work for. This is explained in more detail in the "What is the Digital industry?" section above.

Digital Infrastructure

Digital infrastructure is usually used to mean the physical networks that provide internet communications transport between points, via optical fibre, wireless or other means, and utilising a range of different communications protocols for different purposes. Data storage, management and governance is often also included with digital infrastructure to reflect the close relationship between network and data centre infrastructure.