

Teleradiology Developments in the UK/Eire

February 2020

Signify Research will be publishing its new report "Teleradiology - World - 2020" in March 2020. This white paper provides readers with an example of the country-level analysis from the report. Similar analyses are provided for 20 other countries/regions in the main report alongside market size estimates and forecasts by product (IT Software and Reading Services), function (out of hours, overflow/capacity relief, specialist reports, etc.) and vertical (radiology groups, hospitals, etc.).



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Arun has 10 years' experience as a Senior Market Analyst covering the consumer tech and imaging industry with Futuresource Consulting and NetGrowth Consultants. Arun joined Signify in 2019 as part of the Digital Health Team focusing on EMR/EHR, Integrated care technology and Telehealth.



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Alex has 22 years' experience in technology market intelligence and leads on Signify Research's coverage of telehealth, PHM, EHR and digital health. Before joining Signify he served as a Senior Research Director covering IT at IHS Markit and as a Business Analyst with the NHS.



Teleradiology Developments in the UK/Eire - White Paper



Introduction

This white paper takes part of the UK and Eire country analysis from Signify Research's upcoming market report "Teleradiology – World – 2020". It is one of 21 different countries and regions on which a deep-dive

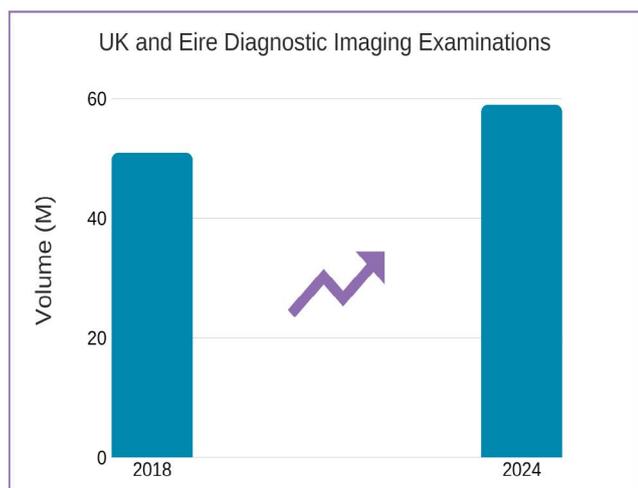
analysis is presented. Within this white paper and for the above-mentioned report, each regional analysis presents:

- An overview of the current Teleradiology market status
- Factors driving future market developments (technology, legislation, etc.)
- An overview of the leading Teleradiology vendors in the region/country

The above-mentioned report also includes market estimates and forecasts for each country/regional market by product type (software, services, hardware) and modality. At a regional level the reading services market will be further segmented by function and vertical, and the software market will be further segmented by architecture (on premise and cloud)

Signify Research has a high degree of confidence in the UK and Eire analysis market data presented in this white paper, based on government statistics (NHS England Diagnostic Imaging Dataset, NHS Hospital Episode and OECD) and vendor information.

Current Diagnostic Imaging Market Status

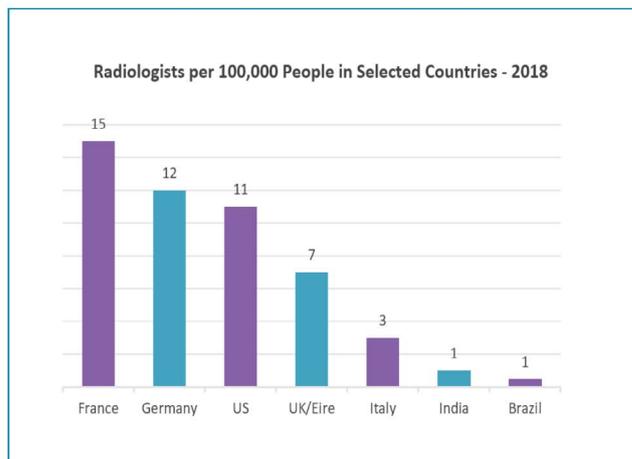


It is widely recognised that demand for diagnostic imaging is increasing each year. The volume of diagnostic imaging examinations in the UK and Eire reached 50.7m in 2018, a

rise of 1.7% versus 2017, of which x-ray accounted for over half of overall demand by modality. The rise in diagnostic imaging examinations has been driven by several factors, including increased A&E admissions, a move towards NHS seven-day working and the higher demand for specialist imaging scans, such as CT and MRI.

Diagnostic Imaging Market Suffering from Radiologist Shortages

The UK and Eire's diagnostic imaging market has suffered from the similar growing pressures on healthcare resources across many countries globally. However, the UK and Eire has an exceptionally high shortage of radiologists; in 2018 there were an estimated seven radiologists per 100,000 people in the UK and Eire, which is particularly low compared to the European average (13 radiologists per 100,000 people) and the US (11 per 100,000). Additionally, the UK and Eire had the lowest diagnostic imaging scans to population ratio in 2018 (71.5%).



In comparison, the ratios in France (122.1%) and the DACH region (144.1%) were substantially higher. These shortages are fundamentally due the NHS lacking the in-house capacity to read the rising quantity of diagnostic images; only 2% of the UK's NHS trusts were able to meet their reporting requirements within their radiologists' contracted hours in 2018, down from 8% in 2014. There is also a shortage of radiologists capable of interpreting more specialist and complicated scans. In the five-year period between 2014-2018 there was a 54% increase in demand for CT and a 48% increase in MRI exams; however, workforce growth over this five-year period (10% Compound Annual Growth Rate) has been unable to keep up with the increase in diagnostic

Teleradiology Developments in the UK/Eire - White Paper

workload (30% CAGR) over this period. Additionally, the retention and recruitment of radiologists is a significant challenge for the NHS. The financial constraints placed on the NHS limit its ability to invest in trainee radiologists.

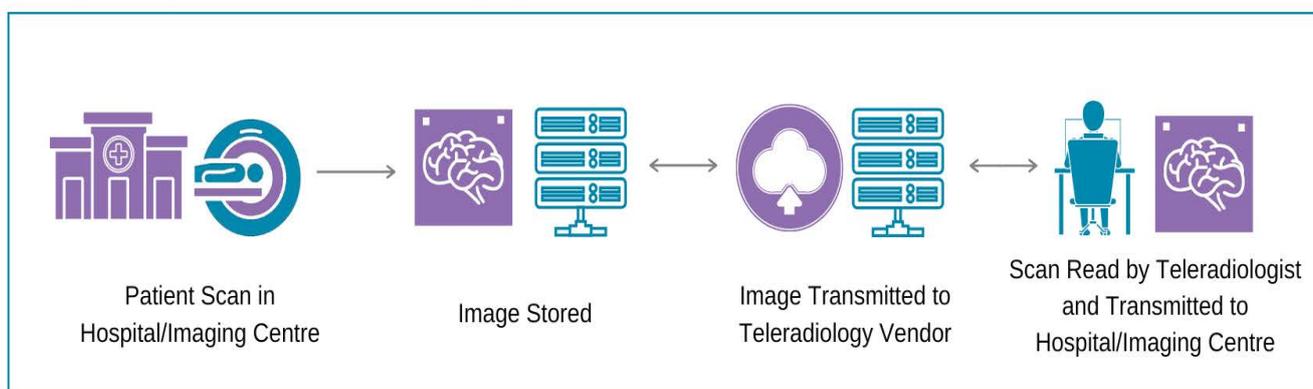
With the demand for diagnostic imaging growing at a faster rate than the supply of radiologists, radiology groups, imaging centres and hospitals are increasingly becoming reliant on outsourcing their diagnostic reporting workload.

What is Teleradiology?

Teleradiology is the transmission of radiological patient images (e.g. x-ray, CT, MRI), from one location to another for the purposes of remote diagnostic interpretation and reporting. The process involves an imaging centre or

The costs of a teleradiology reading service is dependent on factors such as the length and complexity of the read, varying from a more affordable x-ray (average length two minutes) to an MRI (average length 20 minutes), which costs almost twice as much.

There are several advantages of outsourcing diagnostic reporting workload to teleradiology vendors, including 24/7 availability, second opinions, cost efficiency and fast-turnaround times. In addition, teleradiology removes the distance/logistical barrier for radiologists and patients, particularly in rural locations, and provides timely access to sub-specialists (e.g. neuroradiologist) during medical emergencies. For the outsourcers, the above factors comfortably outweigh any disadvantages, such as privacy concerns and miscommunication.



hospital scanning a patient image, which is then stored in an imaging IT platform and securely transmitted to the teleradiology vendor. The teleradiologist reporter interprets the image before reporting back to the imaging centre/hospital via the IT platform.

Teleradiologists are typically either full-time employees or part-time contractors, providing readings remotely from their home, offices in their domestic country or internationally. From a teleradiologists' perspective, the benefits include the flexibility and convenience of working remotely, and for part-time teleradiologists the ability to provide reads alongside their primary roles as outpatient imaging radiologists. Teleradiology vendors provide radiology groups, imaging centres and hospitals with 24/7 reading services. Typically, 50% of demand for the UK and Eire's teleradiology reading services are for "out-of-hours", followed by overflow/capacity relief and routine reporting, and to a lesser extent, specialist reporting and quality/clinical auditing. Teleradiology vendors also provide diagnostic imaging reporting for all modalities (x-ray, CT, MRI, etc.) and clinical applications (Neurology, Cardiology, Vascular, MSK, Chest, Abdomen, Breast, etc.).

UK and Eire Teleradiology Market Developments

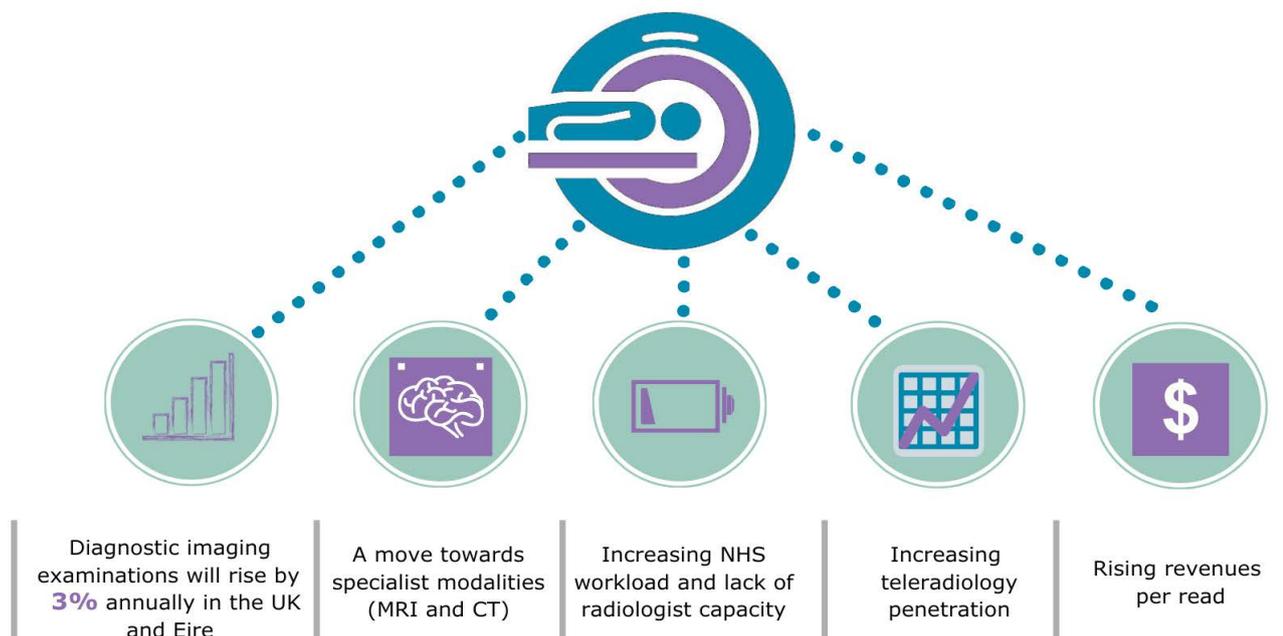
In 2018, the UK and Eire represented the fourth largest geography globally for teleradiology IT and reading services with a market size of \$100.3m.



The penetration of teleradiology into overall UK/Eire scan volume was 7.4% in 2018, representing the highest penetration globally.

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The UK and Eire teleradiology market growth is being driven by several factors highlighted below.



Competitive Landscape Dominated by Teleradiology Specialist Vendors

The majority of the UK and Eire's leading teleradiology vendors are specialists in the provision of remote reading services. While outpatient groups also offer teleradiology reading services as part of their overall offering, this typically represents a relatively small share of an outpatient groups' revenue (i.e. <5%) and the return on investment is relatively low.

Medica Group was the UK and Eire's leading provider of teleradiology services in 2018, with 1.7m diagnostic imaging reports, up 13.7% from 2017. Its revenue performance was even more impressive, rising by 15.6% year-on-year to £38.9m.

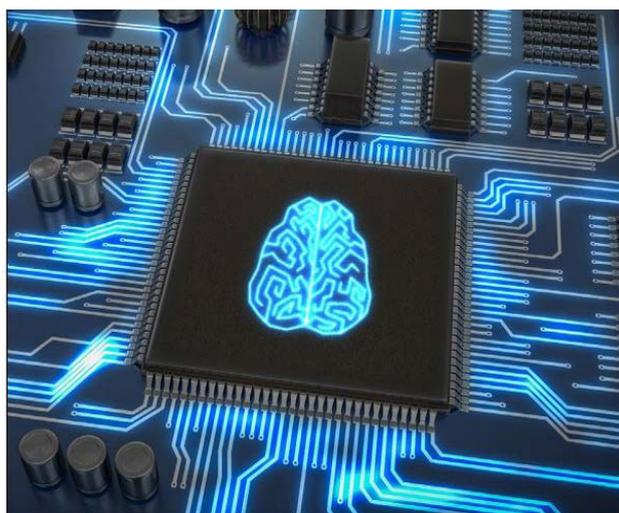
Medica's core business strategy involves working in partnership with NHS Trusts (>100 hospitals), clinics, private hospital groups and diagnostic imaging firms. For its urgent care (NightHawk) reporting service, Medica's average turnaround time was just 25.3 minutes. This is particularly important in an acute environment where an accurate and timely report can significantly improve a patients' chance of a positive outcome. Additional leading teleradiology specialists in the UK and Eire include Everlight Radiology, 4Ways Healthcare and Telemedicine Clinic (Unilabs).



Teleradiology Developments in the UK/Eire - White Paper

Artificial Intelligence Opportunity

While still in its infancy, Artificial intelligence (AI) has the potential to increase the volume of diagnostic imaging procedures performed by improving radiologist productivity and efficiency, reducing errors and supporting patient triage, escalating studies within a radiologist's queue or changing the priority of a study from a non-emergency to an emergency.



AI developments have been particularly prevalent across the Atlantic, with several US teleradiology vendors (including vRad) collaborating with AI software/algorithm developers on studies. These have included AI tools that increase the speed of MRI examinations, and the development of an algorithm for detection and worklist prioritisation of intracranial haemorrhage on head CT scans.

Image augmentation algorithms are also being developed to retrospectively enhance image quality in post processing and detect previously undetectable image features. In addition, the facilitation of quicker image acquisition will reduce the dosage of scan radiation on the patient, ultimately increasing the universe of addressable patients suitable for diagnostic imaging, and therefore increasing examination volumes.

In the UK, Behold.ai is an example of a radiology AI specialist implementing its algorithms in NHS Trusts; in June 2019 it partnered with Dartford and Gravesham to prioritise workloads and reduce reporting backlogs.

While AI has the potential to support the deployment of x-rays for triage and supporting radiologist decisions, the use of AI tools in diagnostic imaging appears most valuable in specialist and urgent areas (e.g. MRI and CT),

where reporting times are substantially longer and the visibility of images and abnormalities can be particularly challenging to interpret.

Signify Research believes the teleradiology vendors are best placed to collaborate with AI developers and deliver AI tools to imaging centres and hospitals, who are more likely to continue outsourcing diagnostic imaging workload, rather than invest in developing the technology themselves. The AI opportunity for teleradiology vendors is significant and has the potential to drive efficiencies, increasing teleradiologist capacity to provide reads and ultimately improve revenues and timely/accurate diagnosis. However, several barriers need to be overcome (including the regulatory process and lack of commercial AI deployments) before AI becomes mainstream in diagnostic imaging, therefore the impact of AI will be minimal in the next five years.

Teleradiology - World - 2020

Publishing March 2020

This white paper takes an extract from Signify Research's upcoming market report on the global Teleradiology market. As well as descriptions of the market dynamics, similar to those presented in this white paper, the report will also include:

- Market forecasts in terms of revenues/volumes for the period 2018 to 2024 by country/region, product type (software, services, hardware) and modality
- Each region segmented by vertical, function and clinical application
- Vendor market shares by major region
- 35 in-depth vendor profiles of the leading global and country/regional Teleradiology IT and reading/reporting service vendors
- Expert insights on country, function, vertical and clinical application trends
- Explanation of the assumptions behind the forecasts along with "Our Take" on key issues

Teleradiology - World - 2020

Report Content

Market metrics presented for the period 2018 to 2024

The market will be broken down by geographic region into the following major regions and countries/ subregions:

Americas

US
Brazil
Rest of Latin America

Canada
Mexico

EMEA

Benelux
DACH
Nordics
Spain/Portugal
RO Western Europe

France
Italy
UK/Eire
E. Europe

Middle East
Africa

Asia

Oceania
India
Rest of Asia

China
Japan

At a **country** level the market will be further segmented by:

Product

Software

- Core Platform/ Viewing IT
- Specialist Structured Reporting IT
- Realtime Video/Diagnostic Consulting IT

Services

- IT/ Implementation
 - * Maintenance
 - * Implementation/consulting
- Teleradiology Reading/ Reporting

Hardware

At a **regional** level the market will be further segmented by:

Function

- Out of Hours Reporting
- Overflow/Capacity Relief
- Routine Reporting
- Specialist Reporting
- Quality/Clinical Audit

Vertical

Radiology Groups/ Imaging Centres

Hospitals

- <100 Bed/Outpatient
- 100-400 Beds
- 500+ Beds

Other

At a **regional** level the software market will be further segmented by:

Architecture

On-premise
Cloud

Teleradiology Developments in the UK/Eire - White Paper

About Signify Research

At Signify Research we are passionately curious about Healthcare Technology and we strive to deliver the most robust market data and insights, to help our customers make the right strategic decisions. We blend primary data collected from in-depth interviews with technology vendors and healthcare professionals, to provide a balanced and complete view of the market trends.

Whether our research is delivered as an off-the-shelf report or as a consultancy project, our customers benefit from direct access to our Analyst team for an expert opinion when they need it. We encourage our clients to think of us as an extension to their in-house market intelligence team.

Our major coverage areas are Healthcare IT, Medical Imaging and Digital Health. In each of our coverage areas, we offer a full suite of products including Market Reports, Market Intelligence Services, as well as Custom Research and Consultancy services. Our clients include technology vendors, healthcare providers and payers, management consultants and investors.

"We recently purchased one of Signify Research's reports. We felt we can trust the insights they provided to make informed strategic decisions." – Vera Borislavova, Global Customer & Market Insight Business Partner, GE Healthcare

"Signify Research's greatest strengths are its subject matter expertise and deep understanding of the industry." – Ken Sutherland, President, Canon Medical Systems Europe Ltd

Related Research & Products



Market Reports and Intelligence Services

Related reports to this White Paper include:

- Teleradiology - World - 2020
- Telehealth (Acute, Community, Home) - World - 2020
- EMR - World - 2020
- Machine Learning in Medical Imaging - Market Intelligence Service - 2019
- Population Health Management - World - 2019



Custom Research

We offer a custom research service for clients who need information that can't be obtained from our off-the-shelf research products or who require market data tailored to their specific needs. Our clients can leverage our wealth of existing market data and the knowledge of our highly experienced analyst team.



Consulting

For clients who require a more strategic, advisory engagement we offer a suite of consultancy services. Our consultancy work is research-based and draws on our existing market data and knowledge of the healthcare technology sector, to deliver targeted, meaningful and actionable strategic support to our clients.