**EPSRC STRATEGIC DELIVERY PLAN 2022 TO 2025** - EPSRC’s five year plan is focussed in three areas:

**Discovery research** through **three priorities** across core disciplines: *physical and mathematical sciences powerhouse*, *frontiers in engineering and technology*, *digital futures*.

**Mission-inspired research** targeting world-class impacts in **four priority areas:** *engineering net zero***,** *artificial intelligence (AI), digitalisation and data: driving value and security***,** *transforming health and healthcare***,** *quantum technologies.*

***Building an effective ecosystem*** for EPSRC research by developing skills, enhancing research infrastructure, catalysing business co-creation and investment, supporting regional research and innovation clusters and working with international partners

These eight *priorities* will be delivered through a framework centred around UKRI’s six strategy objectives, outlined below with a summary of key activity:

Objective one: world-class people and careers

EPSRC will Investing implement the recommendations of their doctoral education review, ands have planned an autumn 2022 call for new CDTs in key interdisciplinary engineering and physical sciences needs aligned to discovery and mission priorities, and to regional, national and global drivers. It will seek significant business leverage and co-creation

Objective two: world-class places

EPSRC will strengthen existing **local, regional and national partnerships** and clusters and develop new co-created opportunities using

* £50M to develop complementary place-based impact acceleration accounts, supporting growth in regional clusters and capabilities
* building new relationships with key local stakeholders through heads of regional engagement
* considering regional diversity in recruitment for our advisory structures
* establishing place-based investments, including £2 million for a network to develop academic- business partnerships aligned to regional clusters of financial services businesses.
* facilitating co-delivery of research with local civic and business leadership

EPSRC will invest in **international partnerships** with

* c.£30M for centre-to-centre grants
* c.£10 million for ECR international collaborations and additional joint funding agreements
* new joint activities with overseas partners e.g. Canada, Germany, India and Japan
* build on partnership with the USA NSF to grow co-funded collaborations in priority areas of artificial intelligence (AI), net zero and quantum technologies
* c.£11M to develop partnerships to position community for future ODA calls

EPSRC will support and enhance **research infrastructure** at all scales and will

* invest up to £190M in two further rounds of strategic equipment funding each year, and two institutional core equipment investments
* secure and deliver pipeline of specific facilities - £18M for high-field NMR, £29M for ultra-high field human MRI (with MRC), £3M for relativistic ultrafast electron diffraction and imaging
* work to develop digital research infrastructure e.g. large-scale compute, data, skills and software infrastructure and a business case for UK-based exascale compute capability
* pilot UKRI problem driven, interdisciplinary approaches to developing next gen. tech. in sensing and imaging (c.£1M) and community data infrastructure in physical sciences (c.£2M)

Objective three: world-class ideas

**Physical and mathematical sciences powerhouse** – EPSRC will:

* catalyse new ideas and creativity - £6M to fund feasibility studies and short research projects through the small grants scheme in mathematical sciences
* nurture high-risk discovery research in areas of high reward, connecting with industry and other partners to accelerate translation in areas such as catalysis, digital chemistry and materials discovery (c.£7M)

**Discovery research** – EPSRC will ringfence a minimum of 30% of financial headroom for purely responsive, discovery-led research - at least £200M investment, and evolve and simplify the Big Ideas initiative, making it easier for community to influence future funding opportunities

**New Horizons** - £15M supporting new paradigms in computer science, information technologies and engineering research with c,£10M in a further round subject to first phase outcomes

**Frontiers in engineering and technology** – EPSRC will fund transformative ideas to enable step changes in delivery of greener, healthier and more resilient future e.g. engineering biology; support breakthroughs in core engineering understanding, tools and techniques e.g. evolving capability in UK systems engineering and £3.5M for fellowships in fluid dynamics**; and** improve the UK’s defence capabilities aligned to the government’s Integrated Review, (£3M in hypersonics)

**Digital futures** – EPSRC will:

* support high risk, high reward research in hardware and software that deliver future computing paradigms, such as neuromorphic computing
* £8M for research in sustainable low-powered, low-cost computing to enable energy efficient devices and components
* invest in future communication systems across satellite, wired and wireless connectivity, semiconductors and photonics technologies via hub-based research and innovation ecosystem for industrial-academic coworking and business creation, with first phase of £6M
* provide world leading infrastructure to tackle the most challenging simulations in science and engineering, taking full advantage of ARCHER2 and preparing for exascale compute capability. High-end computing consortia refreshed (£3M)
* £6.5M in software and skills required to take advantage of next-generation large-scale research computing, including in high-performance, high-throughput and exascale computing, artificial intelligence (AI), machine learning and data science

Objective four: world-class innovation

EPSRC will facilitate **coworking with business** use sector-based networks and other approaches:

* £88M in Prosperity Partnerships of which c.£20M for earlier-stage collaborations to catalyse future strategic partnerships, and to support cross-sector including collaborations aligned to local strengths. Exploration of enhancing model to increase participation among SMEs
* three residential workshops to co-design transformative research with end-users for £3M to develop trustworthiness of autonomous robotic systems, ultrasensitive sensors and novel computing architectures for machine learning
* £18 million per year for industrial CASE Studentships

EPSRC will connect research and innovation,and **accelerate translation, commercialisation and knowledge exchange** by catalysing long-term partnerships and accelerate innovations and technologies from critical mass investments e.g. Turing, Rosalind Franklin and will invest £60M through impact acceleration accounts.

Objective five: world-class impacts

**Engineering net zero** - £20 million to support coordinating investments in energy systems integration; foundation of a virtual carbon-negative institute to push frontiers of carbon removal technologies

**Manufacturing and circular economy** – £124M for 11 manufacturing hubs for a sustainable future

**Artificial intelligence (AI), digitalisation and data: driving value and security** - £80M for eight hubs across foundational AI, AI for real data and a number of application areas; refreshing the portfolio of AI CDTs in line with the government’s announced intention to fund an additional £117 million, uplifting Turing activity by £10M per year; £7.5M in cyber security research and scope future priorities, including building opportunities indigital twins

**Transforming health and healthcare** - £8 million for digital health hubs to maximise potential of AI and digital health; £20M programme in design and development of future and affordable healthcare technologies including biopharmaceuticals, medical technologies, genomics and diagnostics; £15M for future healthcare manufacturing investments

**Quantum technologies** - £100M for third phase of National Quantum Technologies Programme

Objective six: a world-class organisation

EPSRC will continue with improvements e.g. to simpler, better funding processes and peer review and with EDI e.g. by including unconscious bias observers at panels.