

Advancing HealthTech and Pharmaceutical Innovation with CPI

Let's innovate together

Claire Hope, Neha Mathur, Natasha Newell, Róisín Thompson, and Edwin Ntainjua

From Innovation to commercialisation

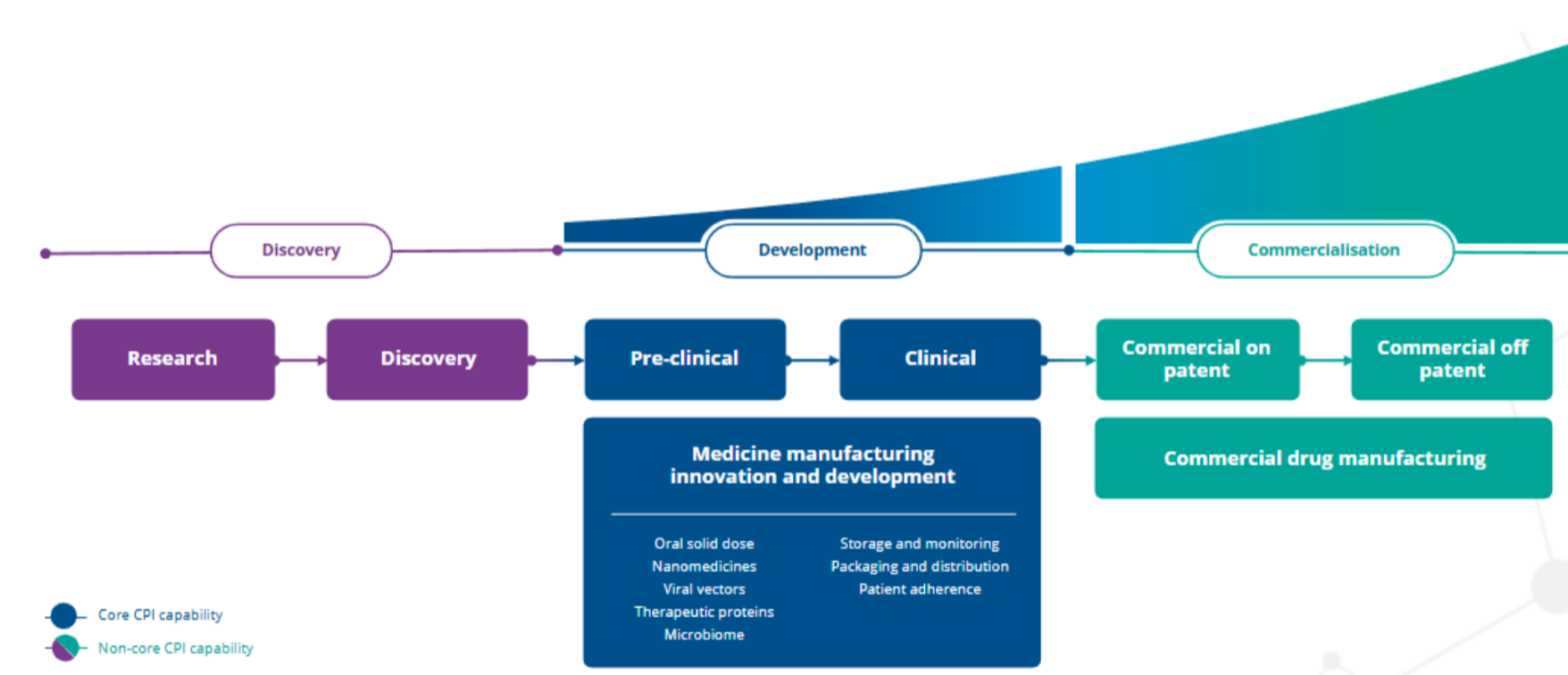
CPI is a leading independent technology innovation centre and a founding member of the UK Government's High Value Manufacturing Catapult. Established in 2004, CPI acts as a catalyst bringing together academia, businesses, government and investors to translate bright ideas and research into the marketplace. We work with our partners across diverse markets in the UK and around the world, driving their innovations forward and helping them to reduce the risk and cost associated with product development.

Why work with CPI?

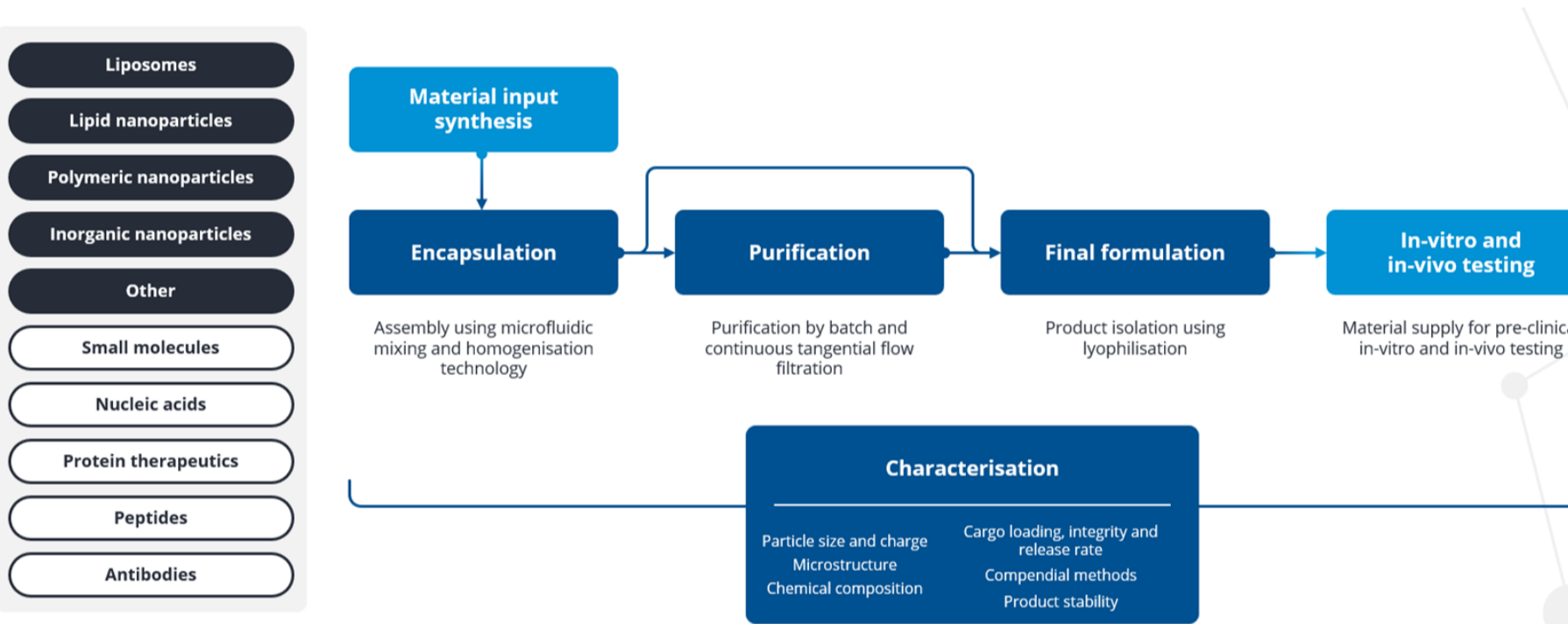
- Collaborative approach**
 We work closely with partners to accelerate innovation across ecosystems
- Cutting-edge capabilities**
 Access to advanced infrastructure, enabling efficient development and testing
- Global standards alignment**
 ISO13485-aligned facilities ensure the high-quality and compliant development
- Scalable infrastructure**
 Pilot and demonstration-scale facilities that mirror industrial environments
- Digital innovation**
 Digital modelling and automation to streamline pharma development and manufacturing
- Impact-led development**
 LCA and TEA support to evaluate environmental benefit and investment potential
- Experience-based training**
 CPD-accredited courses delivered by in-house manufacturing experts
- GMP-ready infrastructure**
 GMP-compliant environments for scalable, high-quality production
- Regulatory readiness**
 Regulatory network to support development processes

Our Pharma and Healthtech Research Activities

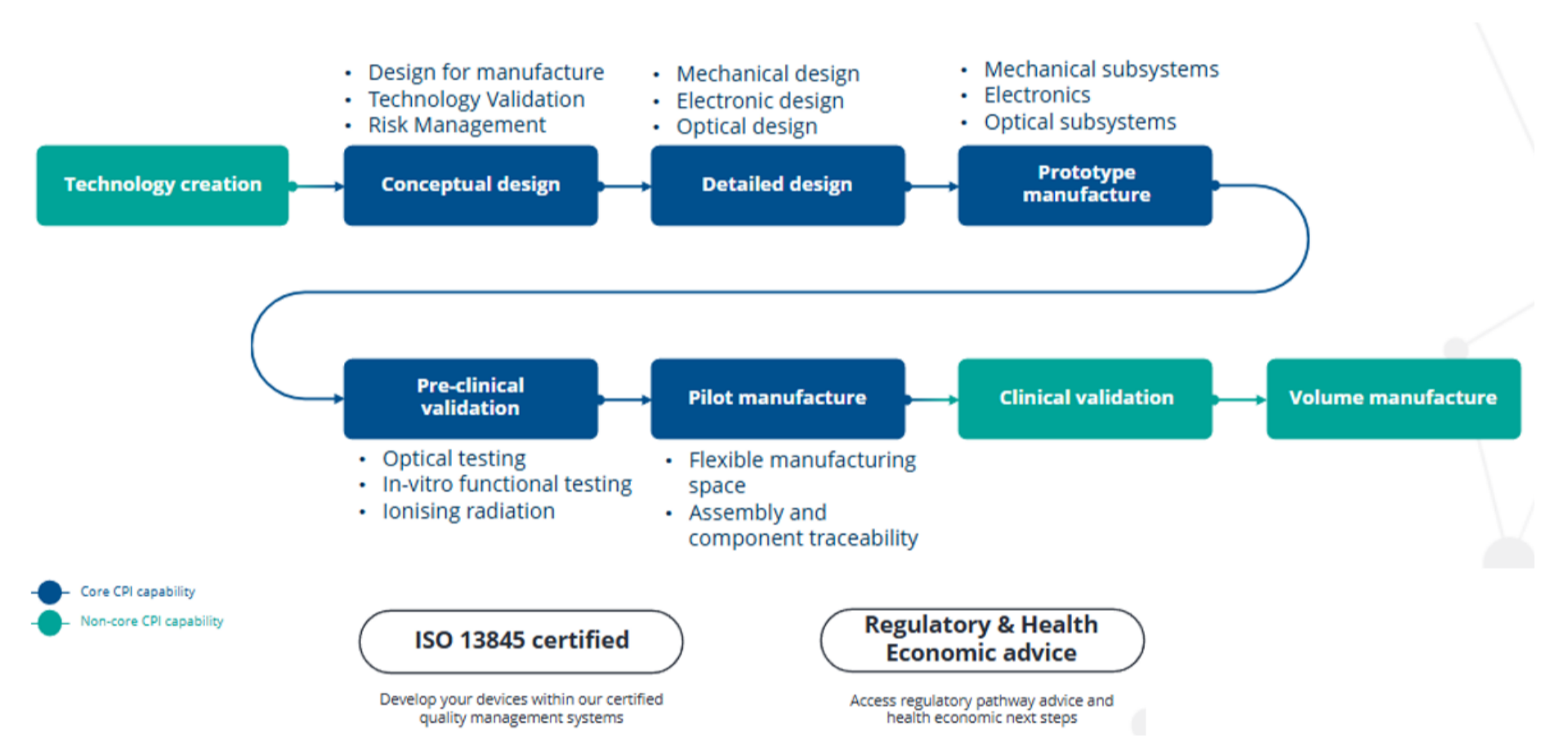
Pharmaceutical Development Pathway



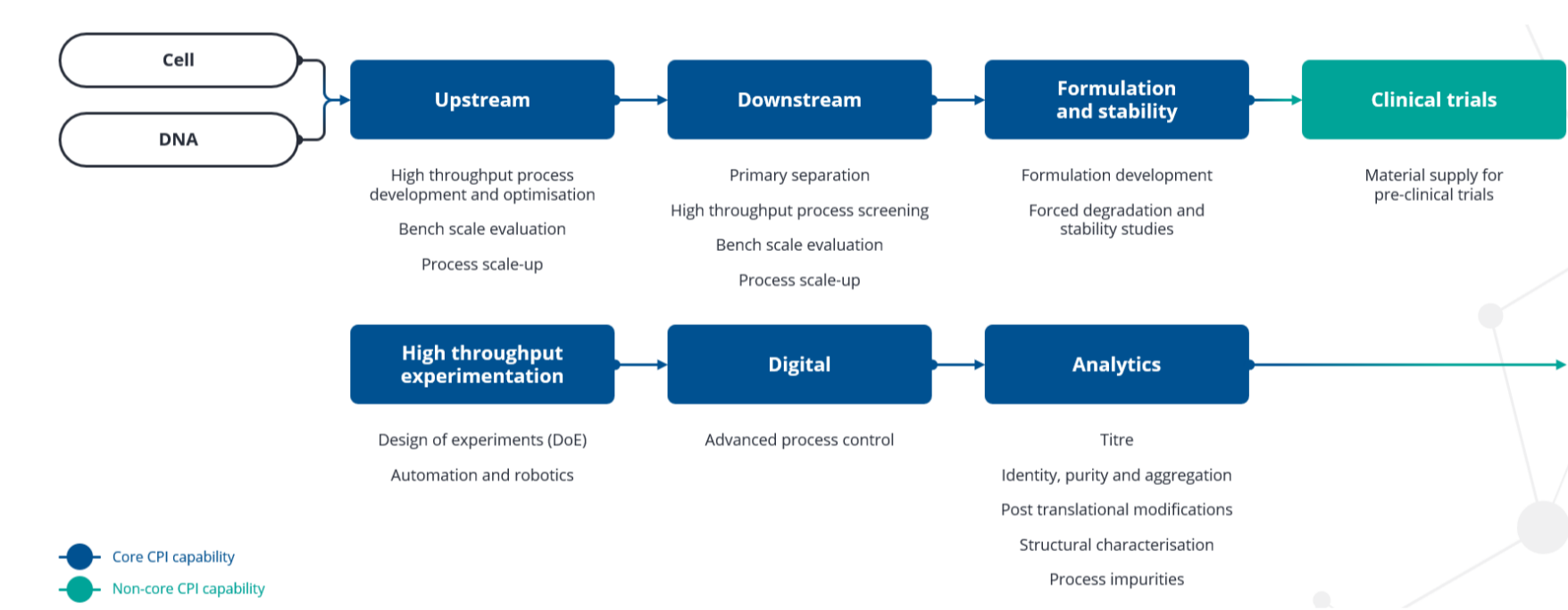
Nanomedicines Process development



Medical Device Development Pathway



Biotherapeutics



RNA Centre of Excellence



From concept to adoption



Recombinant proteins and antibodies
Therapeutic and vaccine products expressed in mammalian and microbial expression hosts

Viral vectors for gene therapy
Viral vectors expressed in transient expression systems

Microbiome products
Microbiome therapeutics and nutraceuticals

Batch
Stable and transient expression processes with purification, formulation and analysis

Continuous
Upstream and downstream processing, with particular interest in process automation and optimisation

Cell-free expression
Cell-free expression systems, both entirely synthetic and lysate based for expression of protein and nucleic acid products

Intracellular Drug Delivery Centre

payload transport and release in the body

Prediction of immunogenicity, safety and adverse reactions

in vitro in vivo correlation

Delivery beyond the liver

Thermostability and alternative delivery routes

Unclear pathways to product registration

Supply chains and manufacturing

Complex IP landscape and high licensing costs

LNP Formulation screening and characterisation

Enhanced methods to enable in vitro-in vivo correlation

Smart, next gen manufacturing

Supporting the ecosystem

Sustainable Oligonucleotide Manufacturing

Oligonucleotide process development and scale-up
Oligonucleotide analytical development and characterisation
GMP supply for preclinical and clinical studies

Oligonucleotide applications

- Antisense oligonucleotides
- siRNA and miRNA therapies
- Aptamer-based drugs
- Oligonucleotide conjugates

Department for Business, Energy & Industrial Strategy | Imperial College London | UK Vaccine Taskforce

Development, manufacture and supply of a saRNA COVID-19 Vaccine

Vaccine Taskforce funded programme to support manufacture and supply of Imperial College's saRNA COVID-19 Vaccine

Tech transfer, re-development, optimisation and scale up of a saRNA synthesis, purification and LNP encapsulation process

Establishment of a GMP Ready-Facility and supply chain

OUTCOMES AND IMPACT

- Established a UK RNA vaccine Centre of Excellence ready to support UK vaccine developers, and provide innovation, development and GMP manufacture in pandemic situations

Digital Capabilities

Modular continuous direct compression
Enabling you to flexibly and responsibly utilise your capital footprint to deliver a range of OSD products

Digital twin
Working with you to develop or utilise digital twins for prediction of process-to-product for batch and continuous compression leading to faster development

PAT enabled
Defining the right sensors to monitor and control the quality of your process to deliver consistent material with fast start-up times and minimised waste

Model-based control
Development of control strategies and scale-up in both continuous and batch modes to enable robust control with minimal effort

Modular automation
Working with you to automate your clinical supply chain to utilise your capital footprint and deliver OSD products flexibly and responsibly

Digital connectivity
By connecting your OP Registration to automation we are able to make individual patient orders to increase speed and flexibility to patient

Real-time
We can work with you to improve your responsiveness to changes in trial design and reduce waste through make to order approaches

Smart packaging
Development and scale up of smart packaging to improve traceability reduce losses in the supply chain and even improve patient adherence

Assay and Diagnostics Innovation



KnitRegen

Automated neural stimulation supports physiotherapy for stroke rehabilitation

KnitRegen's concept makes use of smart textiles to provide physical stimulation to nerve bundles in the arm for stroke rehabilitation.

Outcomes and Impact

- KnitRegen have design concepts which have potential for manufacture.
- CPI helped the company to progress their concept development towards a manufacturable solution.

Contact Us: Principal Bid Manager: Edwin.ntainjua@uk-cpi.com; Nanotherapeutics/Drug Delivery: claire.hope@uk-cpi.com; Advanced Manufacture/Oligonucleotides: neha.mathur@uk-cpi.com; MedTech/IVD: natasha.newell@uk-cpi.com; Biologics/Bioprocessing: roisin.thompson@uk-cpi.com

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