PhD Advert Template

Your advert (including section headings) should **not** exceed **550** words.

Project title:

The intersection between industrialised construction, digitilisation and automation:

evaluating successes, failures, and everything in between

Project ID (optional):

Accept all year-round applications

Funding information: Self-funded students only

Project description:

Industrialised Construction (IC) or Modern Methods of Construction (MMC) have emerged to help meet the rising need for housing, particularly for affordable housing. There is a consensus within the industry, although the argument is largely rhetoric, that IC/MMC can improve quality, cost effectiveness and ultimately productivity. There are also emerging claims that IC/MMC can attract new talents into the industry and help achieving decarbonisation.

Various IC/MMC business models (e.g. vertical integration, horizontal integration) and initiatives have been developed and tested over the years but they had mixed success. News of IC/MMC businesses, large and small, shutting down are becoming the norm. Success and failure in the IC/MMC market depends on various dynamics and factors at the market, organisation, and project levels. However, a key area of influence is the intersection between the business model adopted for IC/MMC and the breadth of digitilisation and automation supporting the organisation strategy in overcoming the various constraints and fragmentation present within the current modus operandi of the construction industry (e.g. separation between design and construction, sub-contracting culture, sell-long buy-short, etc.). Another key gap in the literature around IC/MMC is the lack of rigorous evidence about its effect on quality, safety, shift in the skill base, productivity, profitability and affordability.

This research will address these two gaps. It will investigate and theorise the interconnection between the chosen business model for IC/MCC and its supporting digitilisation and automation. It will evaluate the impact of this interconnection on key IC/MCC indicators and their role in aiding IC/MCC businesses to overcome limitations and constraints of existing structures and processes within the construction industry. Using the theorised interconnection and the identified IC/MMC indicator, the research will also develop an evidence-based approach to the measurement of such indicators. The approach will be mainly using comparative case analysis of IC/MMC organisations and will benefit from access to primary data from IC/MMC businesses linked to the supervisory team.

Newcastle University is committed to being a fully inclusive Global University which actively recruits, supports and retains colleagues from all sectors of society. We value diversity as well as celebrate, support and thrive on the contributions of all our employees and the communities they represent. We are proud to be an equal opportunities employer and encourage applications from everybody, regardless of race, sex, ethnicity, religion, nationality, sexual orientation, age, disability, gender identity, marital status/civil partnership, pregnancy and maternity, as well as being open to flexible working practices.

References (optional):

Application enquires:

[**Prof. Mohamad Kassem**](https://www.ncl.ac.uk/engineering/staff/profile/mohamadkassem.html)

mohamad.kassem@newcastle.ac.uk

**We will also need to link your PhD advert up to the subject keywords below so that your PhD studentship can be found on findaphd.com. Please highlight up to three relevant keywords from the lists provided below.**

**FindaPhD.com**
You can select up to **10 subject areas**.

PhD Disciplines & Subject areas

Agriculture

[ ]  agricultural sciences

[ ]  agricultural technology

[ ]  arable farming

[ ]  livestock farming

[ ]  forestry & arboriculture

[ ]  other

Anthropology

[ ]  biological anthropology

[ ]  social anthropology

[ ]  other

Architecture, Building & Planning

[ ]  architecture

[x]  built environment

[x]  construction management

[ ]  landscape architecture

[ ]  rural planning

[ ]  surveying

[ ]  urban planning

[ ]  other

Biological Sciences

[ ]  bacteriology

[ ]  behavioural biology

[ ]  biochemistry

[ ]  biodiversity

[ ]  bioinformatics

[ ]  biophysics

[ ]  biotechnology

[ ]  cancer biology

[ ]  cell biology

[ ]  developmental biology

[ ]  ecology

[ ]  ecotoxicology

[ ]  entomology

[ ]  environmental biology

[ ]  evolution

[ ]  genetic engineering

[ ]  genetics

[ ]  genomics

[ ]  human genetics

[ ]  immunology

[ ]  marine biology

[ ]  microbiology

[ ]  molecular biology

[ ]  molecular genetics

[ ]  neuroscience

[ ]  parasitology

[ ]  plant biology

[ ]  plant cell biology

[ ]  reproductive biology

[ ]  structural biology

[ ]  systematic biology

[ ]  virology

[ ]  zoology

[ ]  other

Business & Management

[ ]  accounting

[ ]  business

[ ]  e business

[ ]  education management

[ ]  event management

[ ]  hospitality

[ ]  human resource management

[ ]  management

[ ]  marketing

[ ]  project management

[ ]  sport management

[ ]  tourism

[ ]  other

Chemistry

[ ]  analytical chemistry

[ ]  applied chemistry

[ ]  computational chemistry

[ ]  environmental chemistry

[ ]  industrial chemistry

[ ]  inorganic chemistry

[ ]  organic chemistry

[ ]  petrochemical chemistry

[ ]  pharmaceutical chemistry

[ ]  physical chemistry

[ ]  polymer chemistry

[ ]  structural chemistry

[ ]  synthetic chemistry

[ ]  other

Communication & Media Studies

[ ]  broadcast media

[ ]  digital media

[ ]  journalism

[ ]  print media

[ ]  production

[ ]  public relations

[ ]  publishing

[ ]  other

Computer Science

[ ]  artificial intelligence

[ ]  computer architectures

[ ]  computer vision

[ ]  computer graphics

[ ]  cyber security

[ ]  data science

[ ]  human computer interaction

[ ]  internet of things

[ ]  machine learning

[ ]  networks

[ ]  quantum computing

[ ]  software engineering

[ ]  videogames

[ ]  other

Creative Arts & Design

[ ]  animation

[ ]  art

[ ]  crafts

[ ]  creative writing

[ ]  dance

[ ]  design

[ ]  drama

[ ]  fashion

[ ]  film studies

[ ]  fine art

[ ]  graphic design

[ ]  interior design

[ ]  music

[ ]  music technology

[ ]  photography

[ ]  theatre studies

[ ]  other

Economics

[ ]  econometrics

[ ]  financial economics

[ ]  macroeconomics

[ ]  microeconomics

[ ]  political economics

[ ]  other

Education

[ ]  further education

[ ]  higher education

[ ]  nursery education

[ ]  primary education

[ ]  secondary education

[ ]  special needs education

[ ]  other

Engineering

[ ]  acoustics engineering

[ ]  aerospace engineering

[ ]  atomic engineering

[ ]  automotive engineering

[ ]  bioengineering

[ ]  biomedical engineering

[ ]  chemical engineering

[x]  civil engineering

[ ]  communications engineering

[ ]  control systems

[ ]  cybernetics

[ ]  dynamics

[ ]  electrical engineering

[ ]  electronic engineering

[ ]  energy technologies

[ ]  environmental engineering

[ ]  fluid mechanics

[ ]  gas engineering

[ ]  geotechnical engineering

[ ]  integrated engineering

[ ]  manufacturing engineering

[x]  marine engineering

[ ]  mechanical engineering

[ ]  mechanics

[ ]  mechatronics

[ ]  nanotechnology

[ ]  offshore engineering

[ ]  petroleum engineering

[ ]  robotics

[ ]  solid mechanics

[ ]  structural engineering

[ ]  structural mechanics

[ ]  systems engineering

[ ]  thermodynamics

[ ]  other

Environmental Sciences

[ ]  climate science

[ ]  hydrology

[ ]  marine sciences

[ ]  meteorology

[ ]  pollution

[ ]  soil science

[ ]  other

Finance

[ ]  actuarial science

[ ]  banking

[ ]  financial management

[ ]  insurance

[ ]  investment

[ ]  taxation

[ ]  other

Food Sciences

[ ]  food hygiene

[ ]  food production

[ ]  other

Forensic and Archaeological Sciences

[ ]  archaeological science

[ ]  forensic science

[ ]  other

Geography

[ ]  agricultural geography

[ ]  cultural geography

[ ]  economic geography

[ ]  environmental geography

[ ]  geographical information systems gis

[ ]  historical geography

[ ]  human geography

[ ]  marine geography

[ ]  physical geography

[ ]  political geography

[ ]  remote sensing

[ ]  social geography

[ ]  transport geography

[ ]  urban geography

[ ]  other

Geology

[ ]  applied geology

[ ]  geochemistry

[ ]  geophysics

[ ]  geoscience

[ ]  geotechnology

[ ]  hydrogeology

[ ]  marine geology

[ ]  palaeontology

[ ]  seismology

[ ]  volcanology

[ ]  other

History & Archaeology

[ ]  african history

[ ]  american history

[ ]  ancient history

[ ]  archaeology

[ ]  asian history

[ ]  australasian history

[ ]  british and irish history

[ ]  economic history

[ ]  european history

[ ]  heritage studies

[ ]  history

[ ]  history of art

[ ]  history of religions

[ ]  history of science

[ ]  medieval history

[ ]  military history

[ ]  modern history

[ ]  russian history

[ ]  social history

[ ]  world history

[ ]  other

Information Services

[ ]  information security

[ ]  information systems

[ ]  librarianship

[ ]  other

Languages, Literature & Culture

[ ]  african studies

[ ]  american studies

[ ]  asian studies

[ ]  australasian studies

[ ]  chinese

[ ]  danish

[ ]  dutch

[ ]  english language

[ ]  english literature

[ ]  european studies

[ ]  finnish

[ ]  french

[ ]  german

[ ]  italian

[ ]  japanese

[ ]  middle eastern studies

[ ]  norwegian

[ ]  portuguese

[ ]  russian

[ ]  spanish

[ ]  swedish

[ ]  other

Law

[ ]  criminal law

[ ]  commercial law

[ ]  contract law

[ ]  property law

[ ]  other

Linguistics & Classics

[ ]  ancient greek

[ ]  celtic studies

[ ]  classics

[ ]  latin

[ ]  linguistics

[ ]  other

Materials Science

[ ]  ceramics

[ ]  glass

[ ]  metallurgy

[ ]  polymers

[ ]  textiles

[ ]  other

Mathematics

[ ]  applied mathematics

[ ]  applied statistics

[ ]  computational mathematics

[ ]  data analysis

[ ]  engineering mathematics

[ ]  mathematical modelling

[ ]  medical statistics

[ ]  operational research

[ ]  probability

[ ]  pure mathematics

[ ]  statistics

[ ]  stochastic processes

[ ]  other

Medicine

[ ]  anatomy

[ ]  audiology

[ ]  biomechanics

[ ]  cardiology

[ ]  complementary medicine

[ ]  dentistry

[ ]  endocrinology

[ ]  epidemiology

[ ]  neural engineering

[ ]  neurology

[ ]  nutrition

[ ]  ophthalmology

[ ]  optometry

[ ]  pathology

[ ]  pharmacology

[ ]  pharmacy

[ ]  physiology

[ ]  physiotherapy

[ ]  podiatry

[ ]  radiology

[ ]  speech science

[ ]  tissue engineering

[ ]  toxicology

[ ]  other

Nursing & Health

[ ]  adult nursing

[ ]  community nursing

[ ]  counselling

[ ]  dental nursing

[ ]  environmental health

[ ]  health informatics

[ ]  medical nursing

[ ]  mental health nursing

[ ]  midwifery

[ ]  occupational health

[ ]  occupational therapy

[ ]  paediatric nursing

[ ]  paramedical science

[ ]  surgical nursing

[ ]  other

Philosophy

[ ]  ethics

[ ]  metaphysics

[ ]  philosophy of science

[ ]  other

Physics

[ ]  acoustics

[ ]  astronomy

[ ]  astrophysics

[ ]  chemical physics

[ ]  computational physics

[ ]  electromagnetism

[ ]  environmental physics

[ ]  experimental physics

[ ]  medical physics

[ ]  nuclear physics

[ ]  optical physics

[ ]  particle physics

[ ]  quantum mechanics

[ ]  solid state physics

[ ]  space science

[ ]  theoretical physics

[ ]  other

Politics & Government

[ ]  development studies

[ ]  government

[ ]  international relations

[ ]  politics

[ ]  public policy

[ ]  other

Psychology

[ ]  child psychology

[ ]  clinical psychology

[ ]  community psychology

[ ]  counselling psychology

[ ]  developmental psychology

[ ]  educational psychology

[ ]  forensic psychology

[ ]  health psychology

[ ]  neuropsychology

[ ]  occupational psychology

[ ]  organisational psychology

[ ]  psychotherapy

[ ]  sport psychology

[ ]  other

Sociology

[ ]  criminology

[ ]  disability studies

[ ]  gender studies

[ ]  socio economics

[ ]  social work

[ ]  other

Sport & Exercise Science

[ ]  sport coaching

[ ]  sport development

[ ]  sport performance

[ ]  sport technology

[ ]  sport therapy

[ ]  other

Theology & Religious Studies

[ ]  divinity

[ ]  religious studies

[ ]  theology

[ ]  other

Veterinary Sciences

[ ]  animal welfare

[ ]  veterinary dentistry

[ ]  veterinary medicine

[ ]  veterinary nursing

[ ]  veterinary nutrition

[ ]  veterinary pathology

[ ]  other