Integrated Solutions for Industry

Working globally, delivering locally
Businesses today are continually seeking ways to streamline their business to meet stakeholder expectation, to remain competitive while embracing sustainability, innovation and improving margins.

Increasingly our clients must deliver high quality products, continual performance improvement, responsible strategies, demonstrable value and total people commitment.

Looking ahead, operations need to be more agile and responsive to customer needs than ever before.

Getting the right help, when you need it, could make a big difference to how you position your business to capitalise on the opportunities and challenges yet to come.

We understand the need for return on capital, the high standards that companies demand and the importance of meeting time and cost targets.

Arup is ideally positioned to support at every stage of development. We work at a strategic, operational and tactical level and can draw on a global pool of experts in finance, technology, business operations, risk, security design, sustainability and programme management to provide the right level of support just where and when you need it.
Arup offers a complete range of industrial engineering competencies and technical skills, providing a joined up approach to planning, engineering design and project delivery.

Multi-disciplinary teams apply innovative strategic, financial and technical experience to achieve integrated solutions reflecting both the operational and financial needs of your business.

This approach supports the optimisation of the design and construction process as well as life-cycle benefits and facility functional performance.

Our skills are applied to a wide range of large and small projects worldwide, and cover every stage of the design process, from inception to completion and operation. The availability of our specialists allows us to provide the optimal range of skills required to match the demands of each project.

“Arup globally are one of our six strategic go-to consultants and have helped us on a number of occasions with some challenging assignments. They have great depth of resource from specialist technical capability through experienced senior management advisory.”

Jim Lawson, Global Construction Director, Rolls-Royce Plc
Arup has been working with Rolls-Royce globally for over ten years as a key supply chain partner. Within a wide portfolio of integrated project delivery we have delivered projects in the UK, Germany, Norway, Singapore and North America. Recently, we have been responsible for an innovative approach to reducing global capital costs on a typical construction project by over 25%.

Carlsberg UK

During our 30 year relationship, Arup has provided multi-disciplinary project management and engineering throughout the construction, consolidation and redevelopment of breweries.

As development managers we have delivered the exit strategy for an existing brewery in Leeds, releasing benefits to Carlsberg in terms of land value and temporary use revenue.

“Arup’s flexibility and coordination with key stakeholders ensured their part of the project was on track, this coupled with their familiarity of Carlsberg’s business saved time and costs.”

Stephen Shoesmith-Evans, UK CAPEX Manager
Carlsberg UK Ltd
Strategy Development

There is no such thing as “business as usual”. Today’s commercial reality is that businesses need to deliver high quality products, continual performance improvement, responsible strategies, demonstrable value and total people commitment.

Understanding the drivers for change and the changes that are right for you can be a real challenge.

Arup can provide the right help when you need it. We develop a deep understanding of our client’s business and the environment in which they operate. We can support you with experts from a global pool of specialists to help with the development and implementation of change programmes that help build stronger businesses ready to capitalise on innovation and growth and to help you sleep at night.

We can help you to:

- Understand how global drivers of change could affect you and the markets around you.
- Seize opportunities to position your business for the future and to develop strategies that meet the needs of a changing world.
- Create operational performance improvement, turnaround and growth strategies to support the validation of business case funding.

Gerber Juice

In response to Gerber’s aspirations for significant growth and more efficient manufacturing solutions, Arup developed options for Gerber’s future site strategy. Our fully integrated consultancy team transformed the business case into reality resulting in a state-of-the-art greenfield development comprising production, packaging and storage. Delivered right first time, on time and to budget.

Contact: Matt Cooper  e: matt.cooper@arup.com  t: +44 121 213 3407
Infast’s manufacturing division was losing money. Arup was appointed to close the businesses and outsource supply. Arup identified and agreed an alternative turnaround strategy that converted loss into profit, saved jobs, increased capacity and generated cash benefits.

£1.5m annual savings on predicted write off costs, product savings of £600k p.a. and 200 UK manufacturing jobs saved for Infast.

“Arup had good experience of project management, production management, implementation of logistics, and HR advice and proved responsive and practical to work with.”

Dennis Holt, Director, API Plc

“I don’t usually use consultants, but I don’t view Arup as consultants. I view you as an important part of my senior team.”

Robert Sternick, Chief Executive Officer, Infast Group Plc

Arup undertook a detailed business case review on the proposal to consolidate two manufacturing facilities. Project implementation included the successful management of equipment moves, organisational development and design and people change.

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Transaction Advice

Dealmakers increasingly need to understand market drivers and complex technical issues to drive improved operational performance and to optimise the return from assets.

Arup has dedicated teams of transaction advisers that translate technical and commercial issues into financial analysis and strategic investment plans, enabling our clients to fully evaluate deal opportunities.

Despite the continued challenging market over the last few years Arup has advised over £39 billion of closed transactions worldwide, spanning industry, transport, social infrastructure and the built environment.

Strategy and economic advice

Our unique focus on putting the technical and environmental issues at the centre of the investment process, through to understanding the commercial, regulatory and financial drivers, enables us to provide information in a time pressured deal process.

Due diligence advice

Our due diligence is more than a technical health check enabling buyers to make better informed investments, and investors to transform the performance of existing assets. Clients seek our guidance in negotiating favourable deal terms through commercial, technical or environmental due diligence, vendor due diligence or lenders’ technical advice.

Corporate financial advice

Through insight into the technical and operating issues within transactions, our advice focuses on the deal drivers. Our corporate financiers provide financial advisory services on project finance, public-private partnerships (PPP) and merger and acquisition transactions globally.

Asset management

To support our clients in optimising asset performance, we bring together global transaction knowledge to benchmark asset management and operational performance, determining appropriate improvement and project delivery strategies.
Mitie Asset Management
Meeting the need to be responsible in energy consumption is a key differentiator in modern business. Arup helped Mitie to achieve preferred status with its industrial clients through the development of innovative energy centres, generating significant carbon savings.

VC Bank of Bahrain
Our strategic, financial and operational review for a Saudi-based steel fabrications business led to preparation and positioning of an investment prospectus. The result attracted a long-established, highly-reputable fabrications business into a joint venture.

Rolls-Royce Instruments & Controls
Arup’s review of business and operations strategies across the civil nuclear business in France provided the basis for a site consolidation strategy to support the growth of this core nuclear business for the next 20 years. In addition, our approach and support highlighted opportunities to improve stakeholder integration across the business.
Operations Improvement

Adapting your business to meet the demands of today’s competitive environment means becoming more flexible, more responsive and better able to deliver service and quality levels to the very highest standards. Getting this right realises real long-term benefits and sustainable improvements in business performance and bottom line results.

Our approach to operations consulting is based upon understanding and bringing together people, processes and assets. It is only through a detailed understanding of each of these and the relationships between them, that truly sustainable solutions can be delivered.

Manufacturing processes are dominated by the need for rapid response in terms of production and product development, coupled with the desire for lean production to minimise costs. Over the last decade, we have helped our clients achieve revenue growth, reduce production line unit costs, improve speed to market and exploit the opportunities presented by operating in or competing with lower cost regions and markets.

We can help you achieve:
- Strategic alignment.
- Improved asset utilisation.
- Robust supply chain networks and relationships.
- Successful consolidation and expansion planning.
- Efficient turnaround and delivery to market.
- Optimised production and process layouts.
- Reduced inventory and operating costs and increase ROI.
- Positive new product introduction (NPI).
- Improved customer service delivery.

Without disruption to existing operations, we can support all stages of your operations programme, from business case preparation through to implementation.

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Caterpillar Inc

Arup applied its Sustainable Project Appraisal Routine SPeAR® to identify the ‘triple bottom line’ of economic, social and environmental success.

Measurable improvements in customer service, waste reduction, recyclability and operational costs were identified.

GlaxoSmithKline

Arup created an overall master plan that provided flexible, agile production facilities that will not only provide the environment for a world class drinks producer now, but far into the future.

The plan was designed to facilitate a change in the operating culture, provide better visibility of operations and significant improvement of OEE.

Boots Manufacturing

Arup worked within a client team to develop an operational concept design and implementation plan for the transfer and consolidation of four sites and overarching manufacturing concept.

The consolidation considered skills and knowledge capture and transfer as well as optimisation of physical assets.

£5.5m annual cash benefits from operating efficiencies for Boots.

“I would like to commend you for the way in which you tackled the issues we were faced with; I have every confidence that implementation will complete successfully.”

Andrew Scott, Implementation Manager, Boots Manufacturing
Arup helps clients to achieve maximum efficiency in their operations and in the way their buildings are constructed and managed.

By recognising the value that can come from coherent, well-structured supply chains and processes, our consultants focus on working with you to find sustainable solutions. The benefits include operations that meet economic, environmental and social objectives; reduced operational and project risk and developments that deliver their operational requirements.

Whether designing new industrial facilities or assessing existing operations, Arup has a track record of helping you to achieve your operational objectives. Quite simply, better logistics means improved speed to market, increased reliability, lower costs and a greater quality of service.

**Operational efficiency**
Our solutions set out the requirements for staff, equipment and space utilisation to deliver the balance for a sustainable operation, compliant with health and safety requirements.

**Operational design**
Using design-based tools we can design logistics facilities, including consolidation centres, distribution centres, logistics parks, multimodal facilities, material handling facilities and associated staff facilities.

**Operational readiness**
Working with our clients, to ensure a system has been rigorously tested and evaluated, we develop the operational readiness plan and are able to deliver the programme through to handover.

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**Logistics**

**GlaxoSmithKline**
For over 20 years Arup has lead projects around the world. Arup’s understanding of GSK’s business and the challenges that it faces means we can provide highly responsive, tailored solutions to warehousing and logistics challenges globally.

**Diageo**
Through our long-standing relationship across global assignments in the UK and Africa, we support facility enhancement and capacity upgrades.

Our detailed logistics reviews have lead to significant financial benefit to facility expansions in Africa.

**The Crown Estate**
Arup assessed and implemented a series of logistics schemes to reduce the number of commercial vehicles in London’s Regent Street.

**80%**
Reduction in deliveries to participating retailers in Regent Street due to a new consolidation centre.

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“Arup provided a fast, reliable response to an immediate need. The team communicated well, were proactive and not frightened to challenge the status quo. The output was excellent and enabled us to easily manage stakeholders.”

Project Manager, Major UK based Pharmaceutical Company
The fundamental aim of distribution is to deliver the right items to the right place at the right time, with minimal erosion of profit. Combine this with the key objectives of improving service levels, reducing response times and increasing accuracy, there exists huge opportunities to address escalating costs and inventory levels.

For distribution systems to fulfil these objectives there needs to be a highly systematic approach to distribution operations; lean and agile supply chains (for minimum inventory) combined with sufficient flexibility to cater for the unexpected.

To produce innovative and robust warehouse systems design, Arup successfully employ state of the art technologies to deliver and create the link between facility and distribution channels. Adopting an ‘inside-out’ systematic approach to warehouse projects combines process design with maximising the use of buildings cubic capacity and the available site cover.

**We help you achieve efficient solutions through:**
- Fully automated storage and handling.
- Automated sorting and load assembly.
- Data-driven high throughput and order picking and assembly systems.
- Delivery vehicle site access and circulation and trailer parking.
- Pallet roll cage and crate control.
- Maintaining and integrating chill-chain.
- Efficient stock control and replenishment.

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Zappos.com

Our collaboration with the Zappos operations team lead to the successful design and installation of a new materials handling system which allowed orders to be received and processed within an hour.

Clarks Shoes

Arup provided additional growth capacity and improved efficiency to Clarks through the development, design and implementation of a 55,000m² warehousing and distribution facility in the UK that enabled the business to service all European retail operations. The operational and cost benefits delivered, resulted in Arup supporting a similar development to service its North American business.

416,000 sq.ft

distribution centre, including: shipping system, returns system, static racking storage and 120 carousels carrying 1.5 million pairs of shoes for Zappos.com
People and Organisational Change

Human capital is a more valuable asset today than ever before and staff increasingly expect more from their employers in terms of job satisfaction, development and career progression opportunities. However, a company’s greatest asset is not just their staff but how they empower people to form meaningful communities and to achieve objectives that drive the business forward.

Our clients often have a clear vision and aspirations for their business; the common challenge is translating this into a people strategy and understanding the journey that the business and its people must take to get there.

Through evidence-led diagnostic approaches, Arup understands the barriers to human performance and misalignment between people strategy and business goals. We can develop tailored solutions to address the gap between the ‘as is’ situation and the ‘to be’ vision.

In our use of practical and tangible tools we not only address the identified challenge, but ensure continuous improvement through skills transfer with our clients’ staff to allow tools and techniques to continue to be applied beyond the end of our intervention.

“To do work of quality, we must have people of quality. No matter how wonderful an organisation we can devise, success depends on the people working in it - and for it.”

Sir Ove Arup
Westinghouse
Arup engaged with key stakeholders to design and implement a suite of best practice, company-wide processes and tools for the implementation of training and talent management that enabled local roll-out of the approach and ensured employee ownership.

Urenco
With employee engagement and lean thinking at its core, Arup identified cost savings, eliminated waste and created a culture based on smarter working that helped Urenco UK achieve their vision for ‘sustained excellence in the delivery of their enrichment service’.

GlaxoSmithKline R&D
Arup engaged with a number of new product development teams to positively change behaviours and empowered staff to perform activities effectively and achieve a 30% increase in the capacity without compromising quality.
Programme and Project Management

Arup has over 30 years of experience in managing complex projects to tight time and financial constraints. We are practiced in articulating project objectives clearly and focussing team effort towards their achievement.

Arup has developed systems to provide our clients with a clear and thorough understanding of their projects, including change control, timing, cost control and information flow. Value management of projects means regularly reviewing design, procurement and construction issues against project cost plan objectives.

The result is a highly effective range of skills and services, with the ability to deal with the needs of each project, no matter where or what form of procurement is utilised.

Critical to the successful implementation of all projects is good management, communication and commitment to deliver.

We can help you to:

- Achieve on-time delivery, including phased completions, to ensure rapid revenue generation.
- Understand critical success factors.
- Realise certainty in out-turn cost.
- Reach resilience in design, quality in construction, and reliability in operation.
- Gain awareness of project status at all times.
- Reach exemplary safety standards.
- Add value through best practice feedback.

We provide creative, practical advice in:

- Programme and project management.
- Design and construction management.
- Risk management.
- Cost management.
- Procurement management.
- Facilities management.
- Commissioning management.
- Information management.

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Cadbury

Arup acted as multi-disciplinary design leader for Cadbury in the construction of a major greenfield confectionery manufacturing plant in Poland, followed by the transfer of manufacturing operations from Cadbury’s Somerdale facility.

General Motors / Opel Automotive

Arup was project manager, engineering designer and construction manager for a new plant on a 30ha site in Poland - the facility was designed, built and equipped in just 27 months.

“Arup demonstrated the competence and expertise required for this project throughout and the plant commenced operation on the original deadline.”

Berthold Rothengatter, Manager Central Building Planning, General Motors

NKT Cables

Arup designed a scalable risk management system that accounted for best practice across numerous industry sectors and enabled NKT to manage risk at all project stages from decision-to-bid through to financial close.

“Arup helped us to develop a risk management system which was based on best practice, yet tailored to suit the specific needs of our organisation.”

Joern Scharenberg, Director of Engineering, NKT Cables
Facility Design

The direction of our creative design is led by the definition of a building’s function and by listening to the operational drivers of our clients. This allows us to create an understanding of what makes an asset valuable.

Our goal is to create vibrant and lasting facilities grounded in principles of resource efficiency and long-term sustainability.

We are passionate about understanding the overall functionality of an asset where the building can be considered as the “form” which follows “function”.

By designing from the inside out, we ensure the most effective relationship between the people, processes and surrounding building environment. We actively ensure both flexibility and agility are considered to ensure the overall longevity of an asset.

In response to the increasing need for better whole-life cost and associated carbon reduction, Arup actively integrates Building Information Modelling (BIM) technology into every building design project. We have a proven track record in the use of information-rich BIM technologies, processes and collaborative behaviours throughout the project life-cycle.

We find this integrated approach reveals interdependencies and relationships between stakeholders, institutions, uses, activities, and impacts. It allows us to collaborate, develop integrated solutions that create efficient operations, and establish clear and measurable outcomes and benefits.

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Aero Engine Controls
Our multi-disciplinary design of this new 28,000m² manufacturing facility has led to the delivery of a comprehensive 3D approach to integrating the facility design with the manufacturing requirements.

Working collaboratively in a 3D modelling environment, AEC have benefited from an enhanced understanding of overall project scope leading to a higher project certainty.

“We’re delighted our planning application has been approved. This is fantastic news for everybody at AEC and we can now look towards growing the business for the future.”

Simon Burr, CEO, AEC

Jaguar Landrover
This new 70,000m² facility will provide the capability to manufacture more than 300,000 new generation engines a year.

The building is a flagship for sustainable manufacturing through design, operational and process performance, focusing on reduction of carbon emissions and will achieve a BREEAM ‘Excellent’ rating.

“I toured your AJ200 project today; I was very impressed with the design and the quality of the building and engineering. In particular, how you’d driven the BIM agenda with JLR and integrating production and the building itself.”

Jim Lawson, Director, Construction, Rolls-Royce Plc
Arup is an independent firm of designers, planners, engineers, consultants and technical specialists offering a broad range of professional services all over the world. Formed in 1946, the firm now employees around 11,000 staff based in 90 offices in 38 countries and our projects have taken us to more than 160 countries.

We aim to help our clients meet their business needs by adding value through technical excellence, efficient organisation and personal service. We apply this at every stage of a project, from inception to completion and thereafter.

Our global networks allow us to share creative ideas and knowledge in an applied way. This grants our clients a valuable opportunity to tap into our capabilities; this makes Arup different.

Putting sustainability at the heart of our work allows us to exert a positive influence on the world.

Our ownership structure allows us to be truly independent and offer impartial advice with a high degree of integrity.

Collaboration is at the heart of what we do. By combining our international capability with enthusiastic inter-disciplinary working, we deliver complete solutions.

Each project is different and building the right team to suit specific client challenges is the key to success.
We shape a better world