



A rapidly changing world is increasingly impacting asset intensive industries. New advances in information management technologies can create greater certainty, mitigate risks, improve productivity, and deliver added value. Astral’s CEO Marie Felsbourg provides insights into how these new technologies can be implemented to bolster asset intensive industries during uncertain times.

Business has entered a new era of advanced digitisation, often called Factory or Industry 4.0. Advances in machine learning, artificial intelligence, automation, digital twin (virtualisation of objects and processes), augmented reality and cloud computing create opportunities for asset intensive industries.

Industries such as mining, energy distribution and manufacturing can benefit advances such as:

- Machines managing end-to-end industry value-chains.
- Better use of Data and Information to drive operational efficiency.
- Predictive Modelling to improve planning and risk management.
- Automated process analytics driving process optimisation and enabling continuous improvement.

Gartner estimates that around half of the major enterprises will invest in digital twin technology by 2023. One-third of mid to large-sized companies have adopted at least one instance of a digital twin.

In Astral’s 20 years of working with asset intensive businesses, we have never witnessed the potential productivity improvements that can be delivered. The drivers of these improvements vary. Some of the common ones are shown in the diagram below::

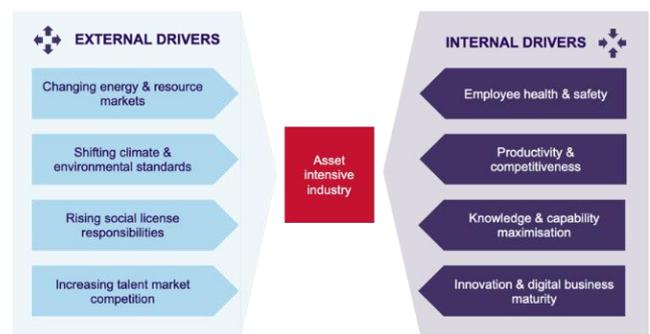


Fig 1: Common drivers of change in asset intensive industries

A group of undersea oil wells operated by BP off the coast of Angola using digital twin technology achieved 25% reduction in engineering man hours, a 5% reduction in the cost of major equipment, a 10% reduction in commissioning cost and 10% reduction in operational and maintenance services through better access and streamlined documentation.

**75% of digital twin investments**  
reported a positive ROI  
Gartner

**20% efficiency improvement**  
through data-driven digital twin capability  
Arup

Despite the broad range of possible solutions these technologies can provide in today’s world, these initiatives must align with a business strategy and be defined through a business case. It includes building the information and data governance and management capabilities fundamental to successful adoption, rather than seeing Industry 4.0 as the answer to legacy information and data management challenges.

One of the most challenging examples relates to ‘pricing in’ risk. Risk reduction is a key driver for Industry 4.0 initiatives.

It almost always includes risks to human safety, environment, law, asset integrity, and market volatility in asset-intensive industries.

Despite this, many businesses still exclude this important ‘intangible’ benefit from their business case methodologies simply because they are difficult to predict and quantify in monetary terms. It is often easier to cost risk after the event, so including examples and costings as part of the business case is one way for inclusion.

For this reason, our preferred approach to implementation of major digital transformation programs is based on a continuous improvement model, with a defined program logic and ‘SMART’ KPIs.

The program can be initiated as a COE, MVP or pilot based on a smaller level of advance investment. Incremental expansion of the initiative can be based on a direct evaluation of performance and business value.

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It can be challenging to define and measure all these factors in advance with large-scale, complex change.

A further challenge is that formal business cases are based on predictions rather than actual measurable performance improvements. The benefit needs to be defined before it is realised.

Most business leaders understand that digital innovation should be business rather than technology led, yet we still see companies implementing digital technology without paying sufficient attention to business fundamentals.

Business fundamentals can include:

- Alignment of technology with business strategy.
- Integration of technology into business services, functions and process
- Adequate preparation for business change
- Key information governance and management capabilities are in place.

Astral has worked with many clients over the past 20 years to bridge these gaps and ensure that our clients reap the greatest business benefits from their technology investment.

**6 to 18% savings**

Across green field projects design, procurement and maintenance.

- University of Cambridge

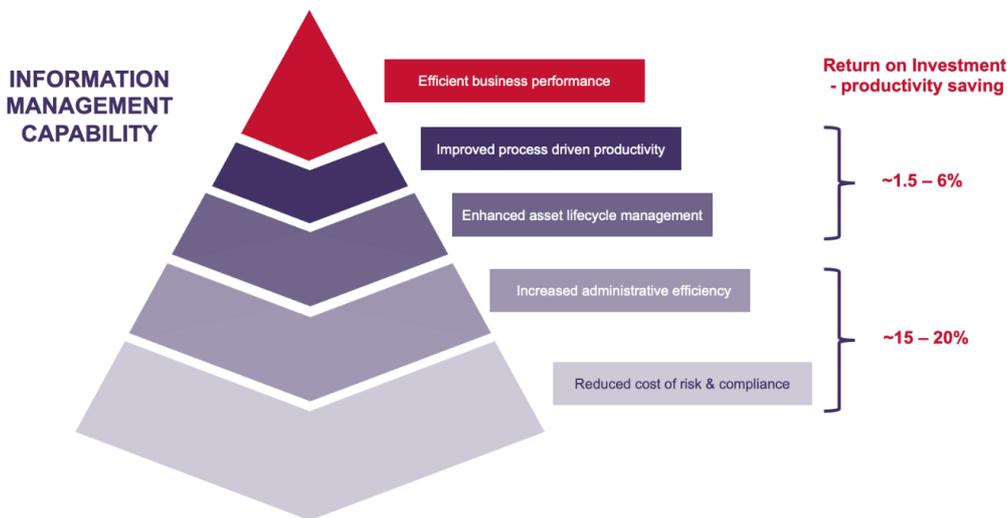


Fig 2: Return on Investment in Information Management Capability