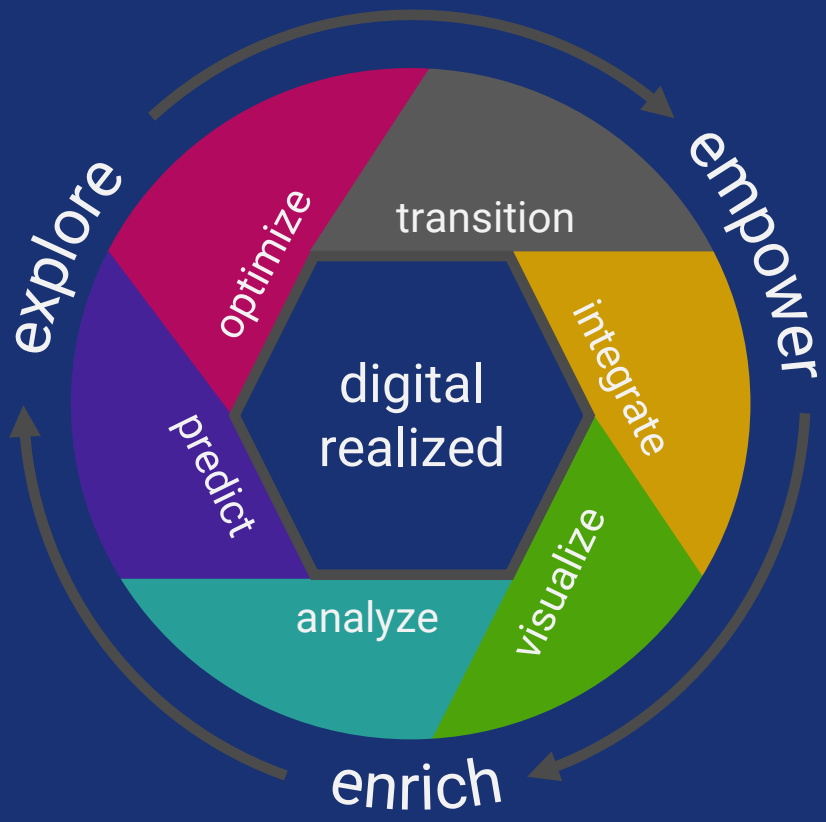
digital realized



real business benefit through
tailored digital journeys

The Case for Digital

Following the financial crisis of 2008, only a few of the largest manufacturing organisations were able to establish market leading positions and sustain growth for the subsequent decade.

The current disruption due to de-globalisation and the coronavirus is creating another watershed moment from which winners and losers will emerge.

Evidence is showing that the companies suffering least in the current crisis are those who are most able to adjust to the rapidly changing and irregular environment.

This agility is almost always exclusively attributed to the prior adoption of digital within these organisations.

Having accepted the need for the adoption of digital manufacturing, the logical next step is to understand how to incorporate digital transformation into the wider business strategy.

This vision is set-out in a digital roadmap.

There are two distinct movements at play within manufacturing today, both looking to achieve increased revenues and value, each of which will place its own particular demands upon a digital transformation program.

Digital Evolutionists

Those wanting to embrace digital within their organisations to optimise their business.

Looking to improve performance, efficiencies productivity, and customer experiences.

These organisations normally have significant constraints that restrict their flexibility.

Normally associated with brownfield sites, which have had considerable investment in infrastructure and equipment.

Digital Revolutionists

Those wanting to disrupt their manufacturing domain and market by changing their business model to introduce new digital products and service offerings to their customers.

Normally associated with visionary organisations, large corporate OEM's, disruptive start-up's and greenfield sites wanting world class manufacturing.

> "If the rate of change on the outside exceeds the rate of change on the inside, the end is near."
>
> **Jack Welsh**

Behavioral Shift

In manufacturing operations with systemic quality and safety problems, work is typically rigidly defined and enforced. Workers have little ability to integrate improvements and learning into their daily work.

In these environments there is commonly a culture of fear and low trust, where workers who make mistakes are punished and those who make suggestions are seen as troublemakers.

By these actions, leadership is actively suppressing learning and improvement which in turn perpetuates quality and safety problems.

In contrast, high-performing manufacturing operations require and actively promote learning. Instead of work being rigidly defined, the system of work is dynamic, with line workers performing experiments in their daily work to generate new improvements. This is enabled by rigorous standardization of work procedures and documentation of the results.

Our goal is to create a high-trust culture that reinforces process improvements and product development. We enable teams to rapidly and automatically adapt to an ever-changing environment which ultimately helps improve market share.

Within every organization, there will be teams with a wide range of attitudes towards the adoption of new ideas. New ideas are quickly embraced by innovators while others with more conservative attitudes may resist them.

Regardless of how we scope our initial effort, we must demonstrate early wins and communicate our vision, strategies and successes to the organization. In order to progress towards our goal it is essential that both the innovators and conservative members of the business are part of the journey.

In order to get a fast flow of work from concept into operations, with high quality and great customer outcomes we must organize our transformation teams to ensure an aligned and consistent approach.

> “You need to have unbound enthusiasm for what you’re building. Energy is contagious, so your team and everyone you interact with feels it.”
>
> **Tyler Haney**

The Statistics

Manufacturing companies

80% see digital operations as critical

37% have a digital strategy

90% plan to invest in digital

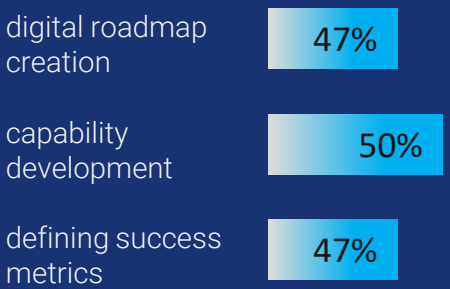
Digital performance

20% increase in revenue

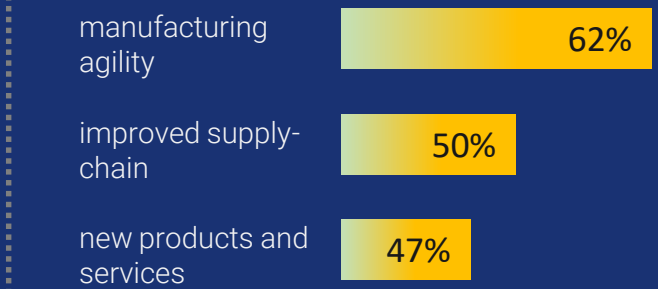
30% increase in profits

15% enterprise wide use

Key obstacles



Desired benefits



A recent survey found that 80% of manufacturing companies around the world see digital operations as being truly necessary to maintain or achieve a competitive position.

While the importance of digital operations is clear among the majority of manufacturing enterprises, fewer than a quarter of them have a digital strategy despite the fact that 90% of the manufacturers are planning on investing in some form of digital manufacturing capability.

While only 15% of global companies currently apply their digital approach on an enterprise wide level, digitally transforming or transformed companies have achieved an increase in revenue of around 20% compared to traditional companies within 7 years.

Furthermore, the profit performance of these digitised companies increased by 30%. while only a small portion of the businesses have started their digital journey, the results are already promising

The recognition of the importance of adopting digital across the enterprise is encouraging but significant challenges remain.

A recent study found that 47% of manufacturing enterprises experience difficulties in creating a roadmap for investment in digital initiatives, 50% struggles to acquire or develop the capabilities and skills that are required when moving towards digital and 47% find it difficult to define clear KPIs to measure the success of their digital journey.

When embarking upon the digital journey, certain objectives are identified in terms of the benefits that this journey will bring to the company. Common desired benefits are agile production processes, improved supply-chain performance and being able to offer customers new products and services with much reduced lead-times

The Statistics

As more and more companies start to move towards a more digital version of their organisation, the journey is not always an easy one. After the first steps of small scale implementations difficulties occur and in many cases (>70%) businesses fail to achieve their objectives.

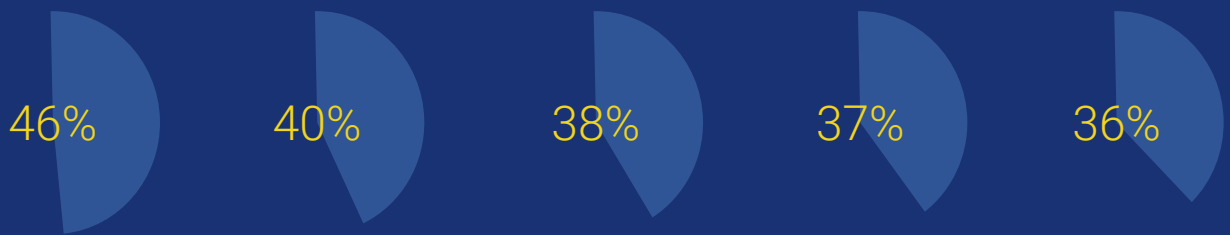
Difficulties that businesses often experience on their digital journey are security concerns, higher than anticipated infrastructure cost, unscalable technologies, inability to integrate legacy or corporate systems and lack of global support from the digital journey partner.

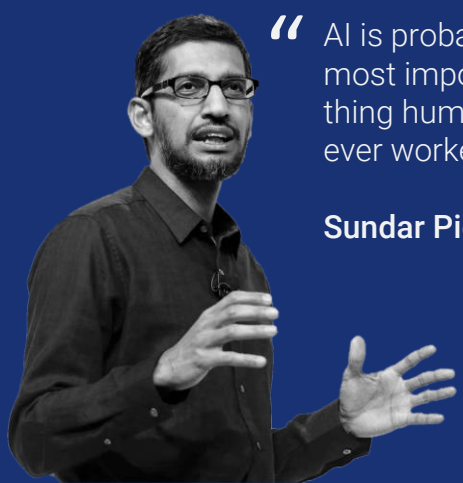
While local (pilot) implementations might be successful, these difficulties which occur only after the digital journey has started, prevent companies from reaching their goal of a digital enterprise and reaping the benefits that come with it.

To successfully incorporate digital in their business, it is crucial to find a suitable partner to guide this journey. In response to a survey a majority of manufacturers (81%) replied that they considered it "very important" that their digital partner has experience in their industry.

The majority of companies surveyed believe they will reach break-even on their investment in digital within 2 to 3 years.

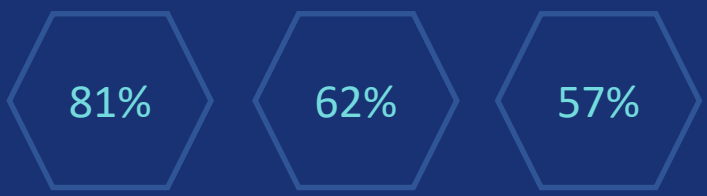
While many organisations attempt some form of digital adoption or transformation, often in small scale pilot implementations, many fail. Common reasons for this are:





"AI is probably the most important thing humanity has ever worked on."

Sundar Pichai



What is Digital Realized?

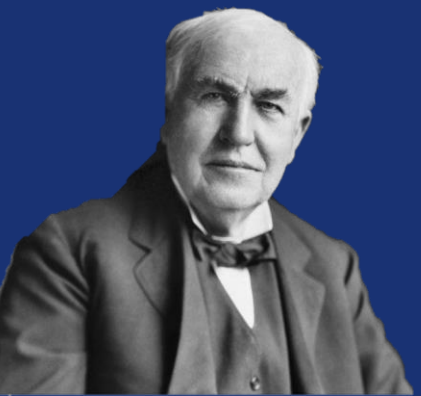
Digital realized is a strategic procedural method that enables your manufacturing business to fully realise its digital ambitions irrespective of their size and scope.

Our method is based on over 100 man-years of accumulated knowledge within our digital transformation team gained from real-world experience of designing and implementing manufacturing solutions of all shapes and sizes over the past 20 years.

We have seen and experienced first-hand the changing nature of markets and how the associated manufacturing industries have been impacted together with the ways in which they have changed to respond to meet these challenges.

We have seen at close quarters the evolving complexity and levels of sophistication required in manufacturing solutions and the extent to which digital technologies have been developed to support the new capabilities that are now required in order to preserve market position or to achieve a competitive advantage.

> “Many of life's failures are people who did not realize how close they were to success when they gave up.”
>
> **Thomas Edison**



Our team can also draw on detailed understanding and experience of many industry sectors and the typologies therein.

A combination of extensive experience of traditional, modern and innovative technologies including enterprise systems, manufacturing solutions, machines and equipment with in-depth knowledge of integration and communications is our guarantee of your digital success.

The primary focus of digital realized is your manufacturing business, it considers your way of working today, looks to identify the difficulties you face, and considers your short term requirements and long term objectives.

It is important to take a holistic approach considering both manufacturing and enterprise domains to ensure investments are complimentary and align to a single vision to maximise their potential.

The output of the process provides you with a personalised digital roadmap focusing on a programme of rapid change to drive value into your business.

This is achieved through an iterative approach tailored to the specific requirements, budget and time horizon of your organisation.

Whether you are a large multinational with legacy facilities or disruptive start-up considering a new installation, your digital journey is defined and delivered to fulfil your needs.

Beyond a roadmap it also defines the steps required to achieve the objectives identified, in effect turning your digital vision into a digital reality.

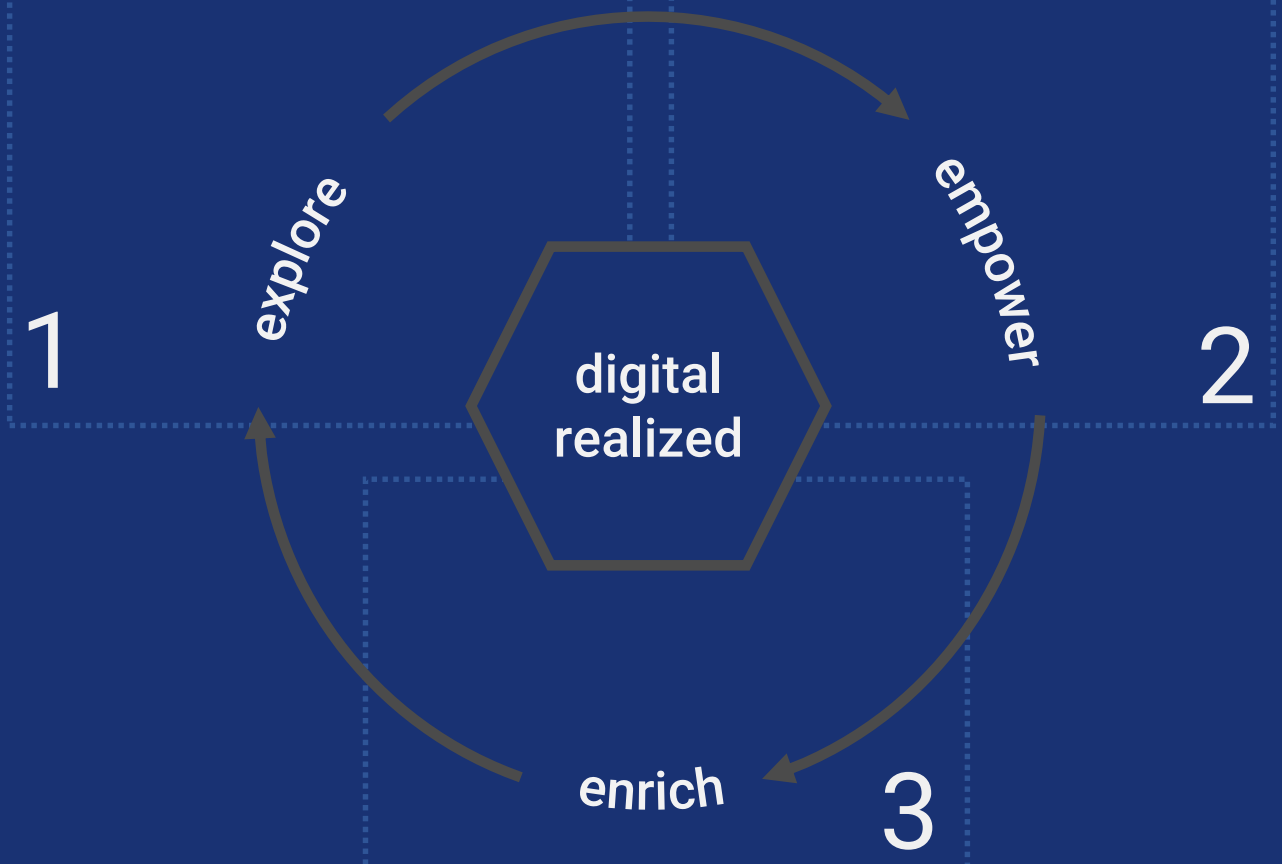
The Process

the improvement cycle in any business is continuous, the same is true for digital, as new challenges arise, new business objectives defined and new technology becomes available to the market digital strategies should be revised and adjusted accordingly

to enable this digital realized is broken into three distinct but connected themes that are considered within each iteration of the continuous digital cycle, these are used to mature strategies as required and extend digital manufacturing capability:

explore
considers business drivers, future manufacturing strategy and desired benefits. the scope of this delivery cycle is defined and appropriate technologies are then identified in a digital roadmap with a clearly defined delivery plan

empower
seeks to implement and leverage digital technologies to provide business insight, digital success is achieved by the implementation of informed decision making, is enabled in this phase

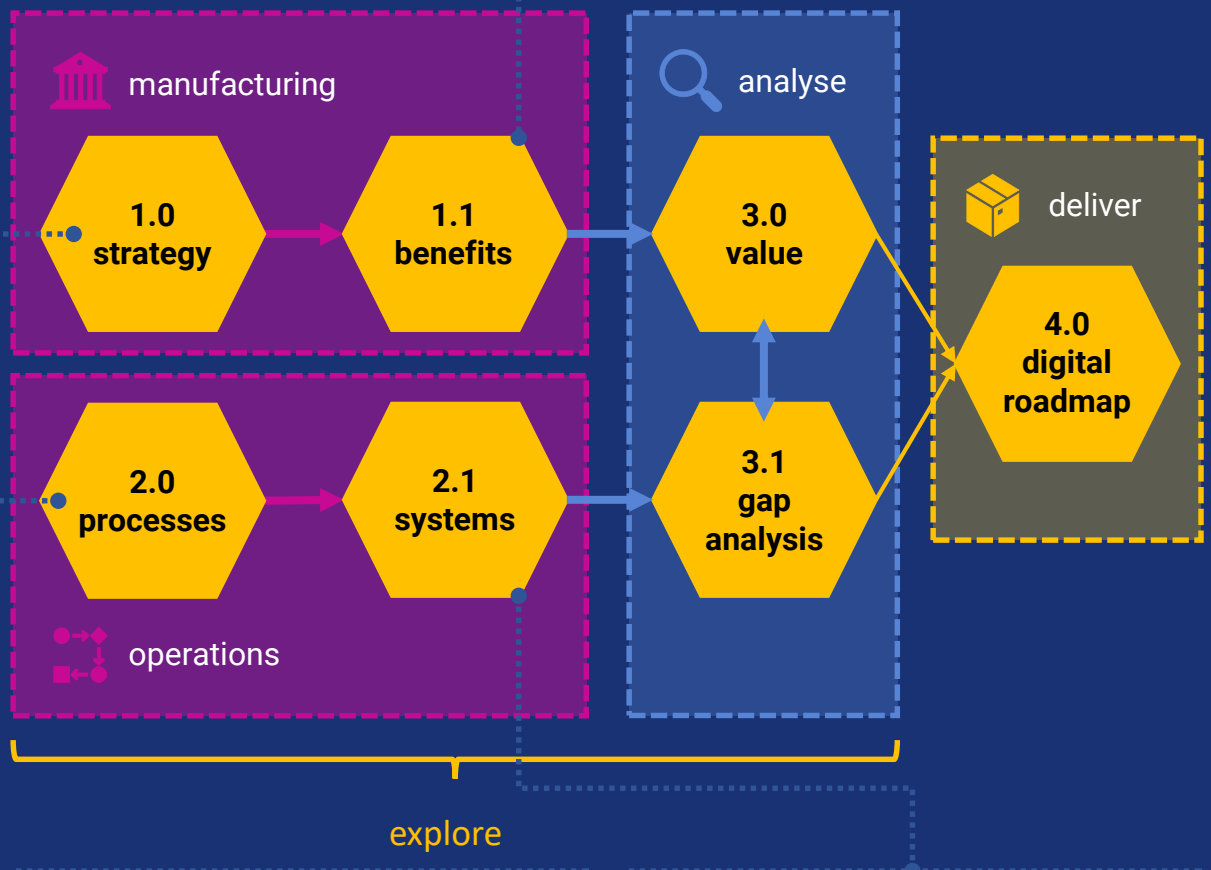


enrich
takes digital to the next level through the use of predictive techniques and advanced analytics, achieve manufacturing excellence through optimisation

Explore your Business

Current & future strategy
lets understand where you are today & where you plan to be in the future, providing insights into cost of quality, right first time, efficiency levels, lead times including the review of current digital strategies and IT infrastructure

Targeted benefits
if you have already identified improvement opportunities and have future KPI targets, lets discuss these in detail to enable us to focus our efforts to ensure alignment with your objectives, here we determine what good looks like



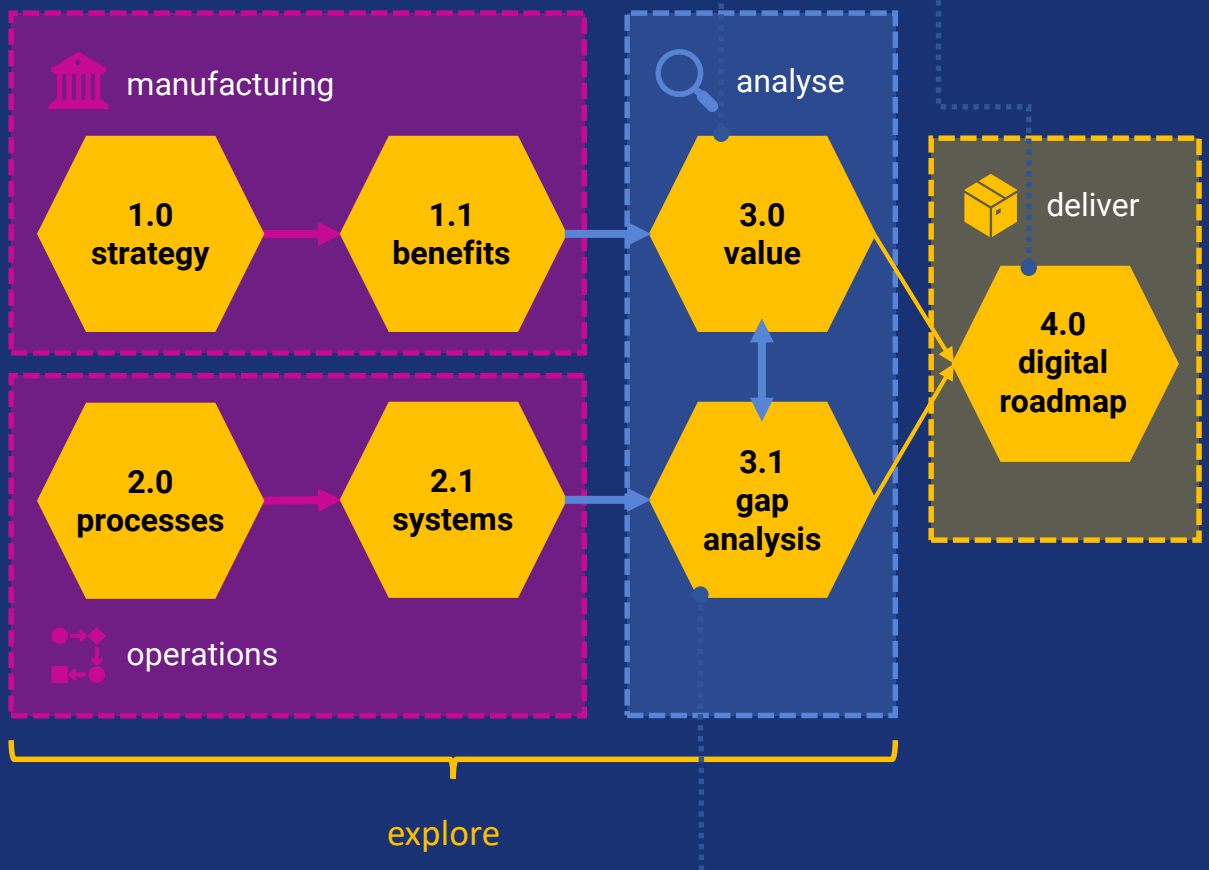
Current process & challenges
either physically or virtually walk the manufacturing process from planning through to dispatch including maintenance and inventory / warehouse, this provides a great insight into the way you operate and can highlight areas needing attention

Current systems & solutions
review of your enterprise systems, PLM / ERP & Planning tools, then focus ion your manufacturing systems, tools & network configuration, this would also include a view into any planned expansions or modifications

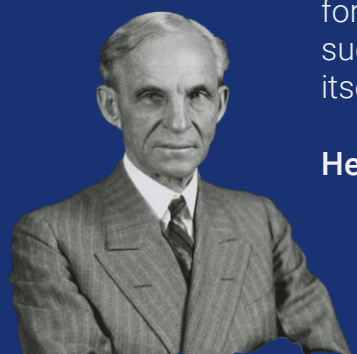
Constructing your Digital Roadmap

Affirm value
based on everything that has been discussed and witnessed we will work together with you to generate a business case and value proposition, this will include a review of all findings, estimations of the wasted effort & losses to affirm the potential value of digital

Digital roadmap
things now start to become real, for the first time we will look at your potential digital roadmap to enable you to achieve your goals and ambitions, depending on your requirements empower and enrich technology will be discussed



Missing capabilities & gaps
to understand what to improve and how to improve it we must define what is missing from the business, what improvements can be made and look into the future to workout what technologies needs to be considered during what timeframes



> "if everyone is moving forward together, then success takes care of itself."
>
> **Henry Ford**

Digital Realized in 6 Key Stages

empower

transition

moving away from manual paper-based processes and operations to digital processes enabled through the use of (and where necessary, the introduction of) automation, digital equipment and computer based systems

integrate

connecting datasets and point solutions in order to establish a coherent, connected digital solution. at this stage the automatic collection of process and machine data becomes a key enabler for many of the capabilities that will follow

visualise

providing digital dashboards, virtual representations of process elements and/or whole facilities. comprehensive real-time reporting capabilities including key metrics and other operational information of the manufacturing environment

enrich

analyse

providing actionable data and insights across all areas of manufacturing operations and the wider business to enable timely, informed decision making

predict

providing the ability to anticipate and simulate failures or other significant future events in order to model and mitigate the impact reducing the risk of unexpected outcomes or interruptions to manufacturing operations

optimise

develop and implement optimisation strategies that provide operational and process efficiency gains through continuous improvement and cost benefit analysis

within the roadmap **digital realized** recognises six fundamental stages of technology adoption of which all technical capabilities are mapped. The six stages are positioned within two groups, empower & enrich

in general it is a prerequisite to deliver empowering technology before we can move onto enriching a capability. for example, prior to the delivery of a predictive maintenance system (enrich) it would be required to have delivered a computerised system that automatically captures contextualised machine KPI & KPV datasets (empower)

building upon the foundational solution elements introduced during empower, this phase consists of the three advanced stages of technology adoption. these stages are closely related and provide incremental levels of sophistication in the capabilities that they enable

having undertaken a complete digital transformation cycle comprising each of explore, empower and enrich, time and effort should be set aside for an evaluate activity. this provides an opportunity to measure the success of the completed delivery cycle

this may also be a good time to consider subsequent inputs to a further cycle in the digital evolution, consistent with changes in business conditions or continuous improvement initiatives that have identified new requirements and capabilities to be incorporated

Typical Focus per Technology Stage

empower

transition	network architecture & infrastructure	industrial standards & regulations	capable technology & machines	plant automation (PLC / tools)	mobile & remote devices
	location & tracking services	manufacturing operations management	finite capacity planning	defect & rework identification	definition & document management
integrate	overall equipment efficiency	dispatch & process execution	remote configuration & management	automated data collection	Contextualised & consolidated datasets
	standards based interface design	manufacturing & business intelligence	service bus integration platforms	intelligent automation & devices	integrated supply-chain & logistics
visualise	material & part verification	live key performance metrics	live executive reporting	real-time notifications & alerts	live facility dashboard & mimics
	condition based monitoring	real-time data capture & presentation	supply-chain visibility & estimates	real-time stock reports and triggers	live asset monitoring

enrich

analyse	lean / six sigma investigations	root cause exploration and analysis	correlation and relationship investigation	trend identification and analysis	advanced big data analytics
	artificial intelligence & independence	self monitoring equipment	self diagnostics facilities	closed loop manufacturing	preventative maintenance algorithms
predict	predictive maintenance scheduling	tool life analysis & optimisation	intelligent integrated supply-chains	predictive service regimes	predictive quality & test regimes
	adaptive processes & equipment	facility simulation & optimisation	digital twin manufacturing	digital thread maturity	utilisation of predictive web services
optimise	smart factories & smart buildings	optimised energy consumption	virtual & augmented reality services	machine learning & intelligence	cyber-physical systems & solutions
	self optimising processes and equipment	automated & autonomous decisions	optimised material & purchasing	rapid facility reconfiguration	new product & service opportunities

Executive Dashboard

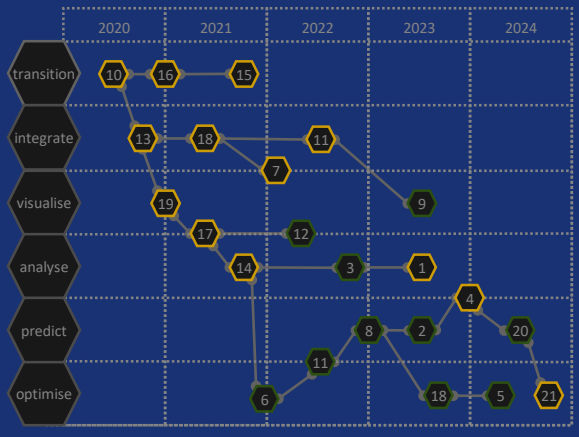
to determine which capability should be the main focal point of any digital roadmap we first need to evaluate the value and return that each would offer the business, this dashboard enables you to see the value of overcoming business challenges, this also shows mapping to the effected departments, benefit category that would be enhanced and the capability that should be considered

Drill into ROI Elements

the upper top item in the table displayed is considered to be the most valuable change to implement within your business, you can click on this or anything else to gain a more detailed view of the areas of the business that would see benefit and to what levels, what business objectives would be improved if delivered, the cost, total return and net profit over a 5 year period

Digital Roadmap

based on the financial mapping, criticality, business value, easy of deployment and the order in which deployments should take place a roadmap is generated, the roadmap is sequence and relationships built based on capability dependencies. The colour coding represents the areas of the business who would benefit most from the deployment



Smart Digital Transformation

our experience, your success

Established in 1986, ATS Global continues its journey on the path to digital transformation. Since then, we have been evolving our expert automation, quality and IT portfolio to suit customers across broad range of industries.
Our 1100+ People across more than 25 countries lead manufacturers in their digital transformation to achieve sustainable operational excellence.
ATS advises, implements and maintains enterprise software that allows companies to automate, control, monitor and optimize their manufacturing processes. ATS assists companies in their smart digital transformation reducing costs, improve quality and increase efficiency".

Our Global Presence

Contact Us

Email: mark.priestley@ats-global.com

Webpage: ATS Digital Realized

Location & Phone: Global Information

Australia- +61 1300 468 288
Germany: +49 (0) 561 95 29 90
United Kingdom: +44 (0)2476 352 481
The Netherlands: +31 (0)23 – 751 12 00
United States of America: +1 248 406 4800