
Digital Transformation

Crossing the chasm between
artificial intelligence and
practical intelligence

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Digital gold

Data is to this century what gold was to the last.

Rapid advancements in artificial intelligence (AI) and internet of things (IoT) are producing rich datasets and with it the power to radically transform everything from everyday households, to the functioning of entire cities.

AI and IoT is helping to make businesses more efficient and profitable too.

Where humans would have manually inspected pipes on an oil rig, now automatic sensors can produce a maintenance alert.

It's the new gold rush - companies spending up to millions of dollars on digital transformation with the aim of increasing workplace productivity and profitability.

And with the outbreak of the COVID 19 pandemic the pace of adoption has stepped up.¹

But this pursuit of IoT and AI methodologies by companies to realise their digital transformation goals misses the mark.

Why? Because AI is typically data driven, not workflow driven.

For many businesses, this pursuit of AI has failed to deliver real, tangible efficiency and productivity outcomes.

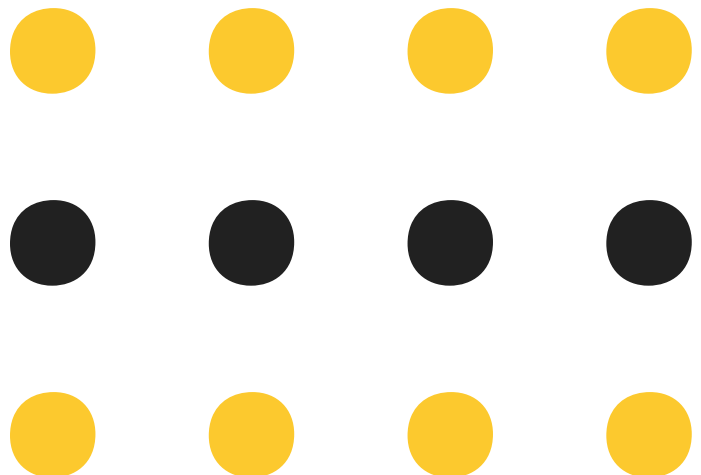
Too often, companies implement AI, robotics and IoT into their operations, but fail to strategically integrate them into workflows that inevitably contain humans.

So even whilst being able to identify problems ahead of a breakdown, IoT sensors often cannot alert as early as a human can through a visual inspection. This is practical intelligence.

Take the example of pipe leak detection. An inspector is able to identify early signs of degradation which could lead to a leak well in advance of a sensor detecting that there is a leak. This is a practical example where human input is invaluable.

Companies should therefore focus on integrating IoT and AI with efficient workflow management to ensure that insights gained from data are put into action as efficiently as possible. This can have a big impact on productivity and a company's bottom line.

This Whitepaper aims to help companies to understand the value of combining data, technology and the practical intelligence of humans in their workflow, and how this can drive better results for business.



What a smart fridge can teach the oil & gas sector

One of the flagship IoT technology in the mainstream consumer market is the Smart Fridge.

Early versions used sensors to tell householders that certain items within the fridge, such as milk, were running low. But you could do that yourself simply by opening the door and looking.

While the first Smart Fridges were exciting, they didn't truly add tangible value to people's lives until more advanced versions appeared that focused on improving the "workflow" of their use.

Modern smart fridges now use their sensors to detect shortages, but they also add needed items to digital shopping lists for people to act upon, or allow householders to authorise the fridge to add items to an online order they then approve.

The point here is that while the gathering of information is important, it's nothing without a process that collates it into something actionable by a person.

Looking at wider industry, IoT-enabled devices or infrastructure are very useful in triggering alerts based on the condition of equipment or situations, but they can't take effective action.

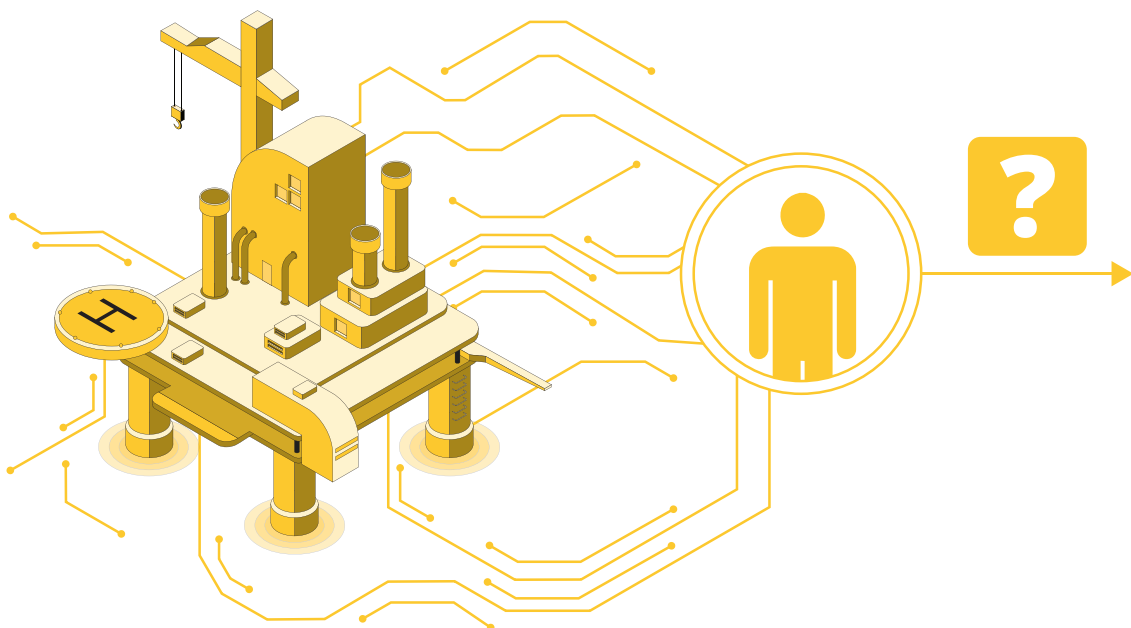
Switching to an industry example, an oil and gas company that places IoT sensors on an offshore drilling platform will gather plenty of useful information about the state of its equipment.

But unless that information is used to identify tasks that need to be accomplished - triggering a workflow that empowers a human worker to take action - then all it is, is background noise.

Digital transformation therefore, should focus on synthesising both AI and the practical intelligence of humans in order to deliver operational intelligence.

If the human factor is neglected, businesses can end up with a snow storm of information with no clear path through it, and create a system that tries to run itself and fails.

Successful examples of digital transformation all have one thing in common - they put the practical intelligence of humans at the centre, using technology as a tool that allows for better decision making and action taking.



A guide for creating workflow efficiency



STEP 1

Identify the workflow owner

Understand who the workflow owner is and who will execute the workflow.

This will provide context on data requirements and allow identification of the data source.

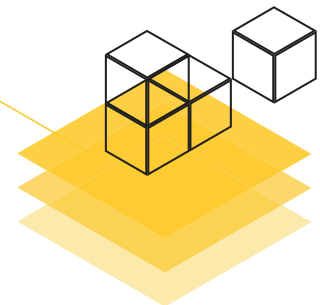


STEP 2

Create the changes

The next step is to look at existing workflows and use the data to see where there are redundancies, repetitions, missing or unnecessary steps, and elements that can be automated or altered.

Using data to streamline and redesign the process, derive a standard approach for executing tasks, while still allowing for exception handling. Generally, the more complex the workflow, the greater the value or efficiency that can be delivered.



STEP 3

Integrate data sources

Finally, identify and harmonise the data that is required to support the workflow and make it available at the coalface using digital applications enabling ongoing efficiency.



The power of one

Whilst gathering information from multiple data sources might be appealing, it should not be viewed as a 'silver bullet'.

A wide array of disconnected data points without synthesis can form a 'dirty' data picture that can't be relied upon for sound decision-making.

Instead of focusing on bolting on new technology and hoping for the best, companies need to focus on the task of gathering the data and 'harmonising' it.

With data harmonisation, businesses can filter out what's needed and what's not, then use the right information to create a better workflow.

Significantly, the best workflow is one which is harmonised with workers to empower them to make decisions and take action.

Woodside, Australia's largest natural gas producer, recently committed to the entire process of digital transformation to improve its corrosion management processes at the Karratha Gas Plant in Western Australia.

Through deploying data harmonisation across information gathered at the facility, Silverhorse found areas that could be improved and created more efficient workflows.

The process started with Woodside recognising that there was a better way of executing tasks in the field.

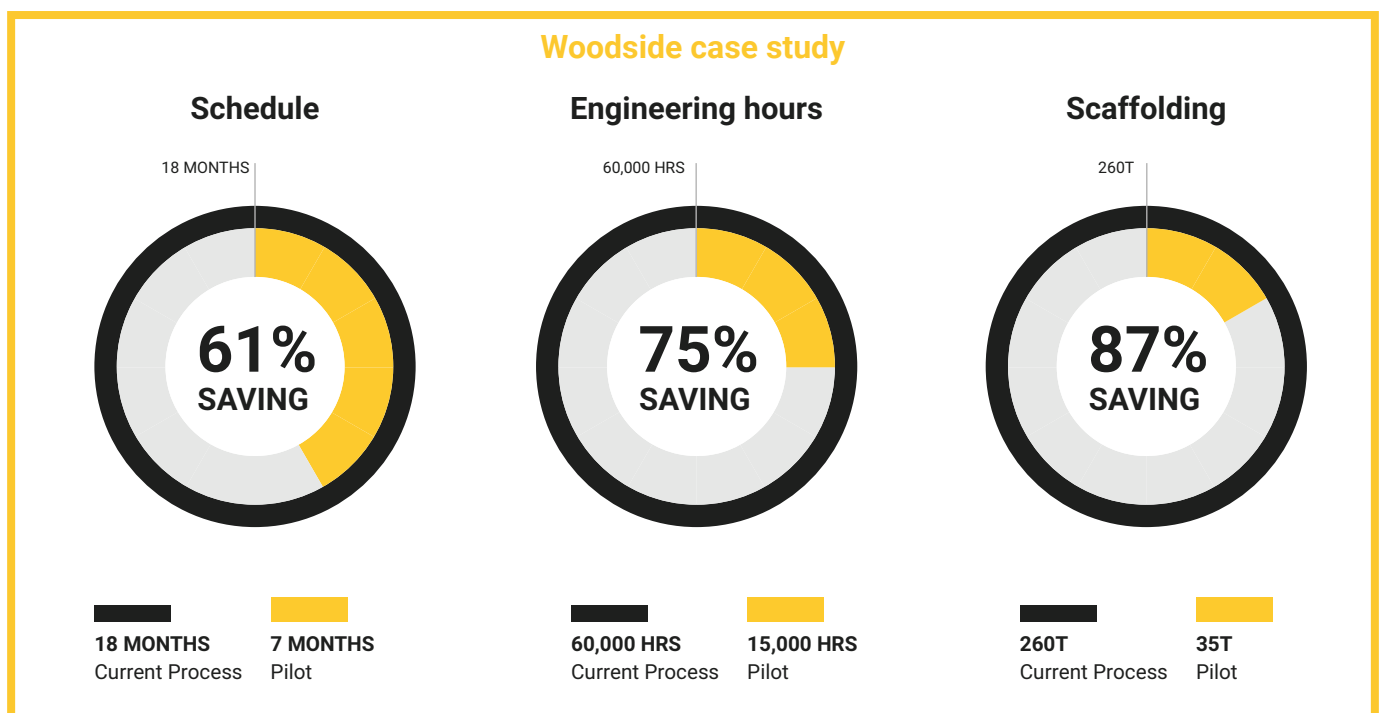
A redesigned workflow was put into place which streamlined the process for defect/anomaly detection and categorisation, and the selection of repair methods.

Inspection and repair teams were then combined into a collaborative unit and equipped with tablets that interfaced with Woodside's central data lake on a 3-D visual model, making the changes with minimal back-office support.

This resulted in a 61% saving in scheduling time, a 75% saving in engineering hours, and an 87% reduction in the use of scaffolding.

Armed with new workflows created from a single authoritative data source, Woodside's efficiency improved significantly.

But best of all, given the changes were interlinked to the central data lake, the workflows could be upgraded using metadata collected in real time, placing the power to make improvements directly in the hands of its workers.



How to press start on digital transformation

To succeed in digital transformation, businesses need harmonised data coupled with better, more efficient workflows.

But above all, they need the will and workforce structures to enable real, effective change.

To do this, businesses need to create collective intelligence that empowers people to make better decisions with the help of technology.

At Silverhorse, collaboration is central to the success of digital transformation. We work closely with our clients to understand the nature of the challenges they face with digital transformation.

The transformation process needs to start from the top within any organisation. There should be a clear strategy for digital transformation and the end goal should be to drive operational discipline.

To do this, top management needs to engage with the coalface to understand the problems that are faced on the ground.

It starts with a clear understanding of where the business is looking to deliver value and where a change can be made to improve efficiency.

Generally speaking, the more complex the workflow, the greater the opportunity for rationalisation and improvement, and the more critical the workflow, the greater the return on investment.

Our collaborative approach is centred on starting small then scaling out. Businesses can validate the initial outcomes and then scale across the business, ensuring there is flexibility to change the workflow when needed to support continuous improvement and build on the minimum viable process.

Why AI alone is not enough

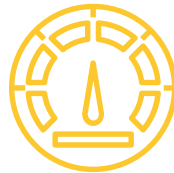
- Many AI technologies, including robotics, can only address specific tasks - this doesn't match the general intelligence which humans are able to apply when tackling practical challenges.
- AI doesn't allow for exception handling - the human touch and intuition is crucial in understanding how to respond to complex challenges.
- IoT allows for vast amounts of data to be collected but humans are still required when interpreting the data for decision making and action.



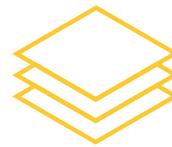
A blueprint for digital transformation



Create a culture of digital change – redesign workflows so that tasks are automated wherever possible. This does not mean eliminating human input, but it streamlines the workflow so that human efficiency is boosted.



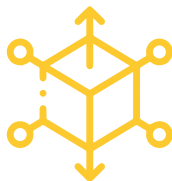
Identify where in the business a change can be made to improve efficiency.



Identify complex but critical workflows and focus on simplifying the process layers – this will produce a greater return on investment.



Understand the type of data that is needed to support the workflow, how the data will be collected and how it will be used, then link the data to the workflow.



Start small, validate the outcomes and scale across the business.



Ensure there is flexibility to change the workflow when needed to support continuous improvement and to build on the minimum viable process.



Digital transformation is not about taking existing processes and digitising them, it is about streamlining and standardising workflows for a digital environment.



The future is here

Our AssetHive technology delivers long-term value because rather than eliminating human input, it streamlines the workflow so that human efficiency is boosted.

As part of that culture of digital change, tasks are automated wherever possible. Using a unique metadata model, AssetHive enables an agile and flexible method of incorporating change to workflows which means that user feedback can easily be implemented - this is a truly iterative process of continuous improvement.

The most successful companies tomorrow will be the ones which synthesise practical intelligence, machines and harmonised data today.

They will cross the chasm between AI (data & technology) and practical intelligence (humans), recognising that the collective power of both is far greater.

Working in tandem, the effective use of big data generated by AI technologies, complemented by efficient workflows and processes will reap enormous benefits for companies who make the most of these synergies.

At Silverhorse, we have seen how this combination has delivered enormous gains for Woodside.

For more information about effective digital transformation or creating better workflows, please get in contact.





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