

GOING GREEN WITH DIGITAL WORKERS



A New Sense of Urgency

As new stakeholders have emerged and heightened the focus on the environment, businesses can no longer afford to ignore sustainability. This includes private equity and institutional investors who routinely question companies about their sustainability plans and track record before investing in them.

It also includes governments, who are implementing an increasing number of regulations requiring all organizations to treat this topic seriously. As one example, companies have traditionally reported carbon emissions data voluntarily, but over the past 12 to 18 months, a variety of different stakeholders (shareholders, mutual funds, hedge funds and banking finance companies, etc.) have started asking for more of this information.

The market wants to know not only how a company is reducing its impact on the environment but also how climate risk impacts the company and its supply chain. In the U.S., shareholders have turned to the Securities and Exchange Commission (SEC) to help their cause. The SEC responded with stricter guidance around emissions reporting that's likely to take effect in 2023. In addition, EU Carbon Emissions Cap and Trade schemes have been operational for many years now.

The terms "circular economy" and ESG (environmental, social and governance) have become commonplace in today's business environment. ESG first appeared in a 2005 study "Who Cares Wins" by former U.N. Secretary-General Kofi Annan. Seventeen years later, ESG is playing a critical role in investing and buying decisions. Most large (and publicly held) companies have people dedicated to ESG, as do the top management consulting firms.

The 2019 Gartner Consumer Values and Lifestyle Survey revealed that 61 percent of consumers in Europe and 59 percent of consumers indicate they purchase from companies committed to positive social or environmental impact. 77 percent of consumers are motivated to purchase from companies committed to making the world better, while 73 percent of investors state that efforts to improve society and the environment contribute to returns.¹

Finally, the race to Net Zero, eliminating emissions either by capture/purification techniques or by offsetting (for example, planting trees), has picked up in recent years, with 131 countries now committed to Net Zero emissions by 2050. As most global organizations focused on climate change agree, achieving this goal will be a herculean task.

"The science shows clearly that to avert the worst impacts of climate change and preserve a livable planet...emissions need to be reduced by 45% by 2030 and reach net zero by 2050 ."²

United Nations

The Reality — More Must be Done (and Faster)

While the fervor around environmental sustainability is higher than ever before, organizations face significant challenges in their mission to treat the planet kindlier. Research conducted by Bain & Company shows that 31% of businesses that set and published 2020 Scope 1 and 2 emission reduction targets were unable to meet them, with more than a quarter falling short of their sustainability goals by as much as 80%.³ The gap between good intentions and great execution in the environmental sustainability space is tremendous, and something must change quickly to turn the tide.

Furthermore, while support for achieving Net Zero by 2050 is broad across the globe, most stakeholders realize it's an incredibly formidable task that requires a level of coordination unseen by all countries around the globe. It's widely considered the greatest challenge of humankind.

“Reducing global carbon dioxide (CO₂) emissions to net zero by 2050 is consistent with efforts to limit the long-term increase in average global temperatures to 1.5°C. This calls for nothing less than a complete transformation of how we produce, transport, and consume energy.”⁴

International Energy Agency

Intelligent Automation — The Environment's New Best Friend

Intelligent automation, the combination of robotic process automation (RPA) and artificial intelligence (AI), has been leveraged by thousands of companies around the globe for over a decade to drive efficiencies, reduce cost, enhance revenue and improve customer experience. Intelligent automation provides companies with an alternative labor source, a digital workforce that executes business processes 24/7 with incredible speed and productivity, never makes mistakes, has 100% auditability and can tap into one or more advanced AI skills to perform complex tasks. The role of intelligent automation in simultaneously mitigating climate change and delivering profitable sustainability outcomes, however, is much less heralded as a benefit. The time has come to correct that.

Companies around the world who have embraced intelligent automation as a core competency are seeing value in several specific areas, including efficiency, agility, speed and insight. The alignment of these value drivers to today's environmental sustainability objectives is remarkably strong.

Intelligent Automation Value Driver

#1 - Efficiency



Commercial Benefit: Reduce the effort applied to a given activity, process or program to free up human capital and reduce time spent.

In exploring where intelligent automation can enable organizations to take better care of the planet through greater efficiency, the supply chain is the obvious place to begin. Ensuring maximum efficiency in the supply chain is not simply a means to accelerate time-to-market. It also allows organizations to reduce waste. Digital workers can aggregate data in ways that cannot be achieved using standard data tooling. They then action the insights drawn from supply chain management data to optimize delivery routes and control stock, etc. so that fewer resources (water, carbon-based fuel, packaging materials) get wasted. This enables the electronics manufacturer to avoid over-ordering rare earth metals and the pharmaceuticals company to reduce its volume of cold storage. Effective supply chain planning, therefore, must be a key pillar in a manufacturer's environmental sustainability strategy, as well as its core operating model.

In the nascent days of the intelligent automation revolution, businesses were encouraged to focus on automating menial and repetitive tasks such as invoice reconciliation. This freed humans to focus on more valuable tasks and undoubtedly reduced paper usage. However, it was still only a first step in transforming business operations to support a greener, more sustainable model. A key inflection point was the shift from simply replicating business processes performed by humans to transforming them so that they're optimized for the unique capabilities of the digital workforce. Rather than just building a regular maintenance schedule for shopfloor tools, the digital workforce can take live data from onboard Internet of Things (IoT) sensors. It then dynamically updates a maintenance plan based on need before automatically booking the requisite internal and external resources, then updating production schedules to account for downtime. This transformed process reduces the business's operating costs and increases production capacity, but it also benefits the sustainability agenda by seeing less serviceable parts sent to scrap and reducing the amount of product wasted due to line faults.



Environmental Benefit: Avoid unnecessary consumption of raw materials, reduce energy costs, remove paper-based activities and avoid the need for physical presence (reduced travel).

Real-life Examples:

Central England Co-operative, one of the largest independent retailers in the U.K., uses digital workers to reconcile supplier accounts every month versus the previous 6 – 12 month cycle, eliminating the need to print more than 1,000 pages of paper.

Prosegur, a Madrid-based multi-national security company, uses automation to save over \$100k annually in paper cost, earning a “green” process designation.

The Very Group, a multi-brand online retailer and financial services provider in the U.K. and Ireland, uses digital workers to identify the best distribution method for every item shipped to a customer, increasing delivery efficiency and reducing energy consumption.



Intelligent Automation Value Driver

#2 - Agility



Commercial Benefit: React better and faster to changing circumstances, plan more effectively for the future and take rapid decisions based on insight not intuition.



Environmental Benefit: Reduce overconsumption and enable better traceability of assets and components.

The traditional approach to achieving supply chain accuracy is to undertake cascade planning. One team builds a forecast for future needs based on historical data. Subsequent teams then build their forecasts and develop plans based on each previous team's outputs. So, the marketing team may forecast customer demand, pass this to the production team to forecast capacity, and so on. However, in a dynamic and agile market, this approach rapidly falls apart. The speed at which data flows between business units is too slow, and the links in the chain too brittle. Businesses faced with a lack of logistics capacity or raw materials spend days planning a solution, or worse, jump to snap decisions that may have a disastrous impact on the bottom line and the environment.

Intelligent automation provides the power to act instantaneously and decisively to respond to changing market conditions, but its effectiveness can be limited by planning cycle time. To support a dynamic market, a more dynamic approach to planning is required, and this is where the "digital twin" enters the picture. While many descriptions of digital twins present them as an esoteric concept wrapped in specialist language, they are essentially just computer models. In the same way that meteorologists use models to predict the weather, we can build models —digital twins — to predict what will happen in our supply chains. By changing any parameter, such as the amount of logistics capacity available or the price of energy, we can instantly assess what impact this will have on the other parts of the chain.

Having a reliable analytical model means that when an unexpected event occurs, we can engage our digital workforce to assess the impact on the broader supply chain and take actions across the board: raising new purchase orders, replanning the manufacturing schedule and even updating prices. A global white-goods manufacturer exploits this capability to automatically manage outbound logistics capacity, scheduling road and rail transport that reduces the number of miles traveled, while still ensuring that goods get to market on time. It's a win for the bottom line and a win for the planet.

Intelligent automation enables the creation and maintenance of the digital twin and then uses it to deliver business value. The accuracy of the supply chain model relies on access to a range of validated data sources, and the digital workforce can be used to compile this data, verify it and transform it into the correct format for the digital twin. This reduces the need for human input in both constructing and acting on the model.

Real-life Examples:

A **U.S.-based energy company** uses digital workers to automate the testing of water samples, reducing harm to the environment.

A **1,600-store national retailer** reduced waste by 4% company-wide through automating product orders via the Blue Prism-powered Retialyx solution developed by automation specialist Cogent.

Intelligent Automation Value Driver #3 - Speed



Commercial Benefit: Increase volume of transactions for more profit, raise customer satisfaction to heighten brand loyalty and deal with issues more speedily to reduce the business impact.

For many businesses, the first focus of this new approach to automation was on outbound logistics: the major online retailer using automation to assess the influx of customer orders and using the information on volume, weight and destination to create packing lists for vehicles that would reduce packaging and the number of miles driven; the large U.S. FMCG corporation who used automation to accurately track pallets on the warehouse floor to reduce the amount of stock that had to be destroyed after it was mislabeled or incorrectly racked and could not be sold. These use cases did not require a radically new way of thinking or an end-to-end process transformation. Rather, it only took a simple acknowledgment that intelligent automation can process data points with much higher volume and speed than a human being.

When intelligent automation is paired with other intelligent systems, rather than simply raw data, we can start to see more imaginative ways to reduce the impact of business on the planet. For example, a water company introducing IoT flow meters and other sensors across its network. The digital workforce can now monitor the outputs of those devices and share them with a simple algorithm that assesses flow patterns and identifies those consistent with leakage. Armed with this insight, the digital workers can then automatically adjust flow rates, if necessary, before dispatching a human maintenance team to investigate. Or the steel company that uses SS&C Blue Prism to assess bespoke customer orders before passing the production parameters to a machine learning (ML) engine. The ML engine determines the best order for production and the most efficient way to cut the raw steel beams. When the digital workforce creates the production schedule each day, the company can be certain that it will waste the minimum amount of steel, significantly reducing the carbon emissions associated with reprocessing.



Environmental Benefit: Identify adverse events and act before they cause environmental impact. Reduce idle time for energy-intensive equipment. React to changes in the market to avoid wastage.



Real-life Examples:

University of Washington researchers announced in late 2021 that they had created a machine learning algorithm to anticipate where lightning would strike two days sooner than a popular physics-based prediction method could do so.⁵

Arla and **Fonterra**, dairies in Denmark and New Zealand, respectively, no longer throw away thousands of tons of dairy products due to automation-based stock reallocation.

Intelligent Automation Value Driver #4 - Insight



Commercial Benefit: Pull data from multiple sources to support better decision making, increase output with intelligent scheduling and get a 360° view of customers to better satisfy demand.

Intelligent automation enables utilities to gather and aggregate vast datasets from IoT sensors and devices across the energy grid to support predictive maintenance and forecasting. This capability is significant because some of the hottest new sources of renewable energy, such as wind power, require a truly end-to-end maintenance approach to provide the highest availability, safety and reliability in a harsh environment. Unplanned downtimes, breakdowns or prolonged turnarounds for getting a turbine back on the grid are no longer viable.

Since the mid-2000s, Supervisory Control and Data Acquisition (SCADA) systems have been used to collect data on the condition of wind turbines from sensors and devices and environmental data, such as weather and wind data, to derive the appropriate proactive measures and actions to be taken. But this is only half of the story. To maximize the availability of wind turbines, it's no longer sufficient to just analyze the status and condition to identify imminent downtimes or possible breakdowns. It's equally important to accelerate the actions based on the predictive information and carry out the necessary, very complex and time-consuming work on a turbine in full at high speed and efficiency. Digital workers can make this a reality, acting on insights in near real-time.

A prescriptive maintenance approach is typically utilized with wind turbines in which asset condition data is collected and analyzed to recommend specific actions to prevent breakdowns and reduce downtimes. However, the processing and analysis of data are quite complex. Unstructured data (such as comments of service technicians in free text fields) is often left unused, as companies, mostly systems maintenance engineers, cannot carry out these analyses. The information from service reports, maintenance reports and records from SCADA systems are essential to the development of a prescriptive maintenance approach for wind turbines.



Environmental Benefit: Revise production schedules to make better use of resources, orchestrate logistics to reduce carbon, optimize maintenance to ensure efficient operation of equipment and reduce the materials used.



The recognition of the root cause of problems allows for a prescriptive maintenance approach that recommends targeted actions to reduce downtimes and optimize maintenance activities. Intelligent automation can fill the void and assimilate all this information in a way that's simply not possible with human labor.

In the end, wind farm operators must manage complex work under the constraint that the time to perform a maintenance case is limited, while wind turbines out of operation cause the loss of significant profits and competitiveness with alternative renewable energy technologies. It's critically important to put smart processes to work — connecting people, devices and systems as end-to-end events as needed to increase speed and overall efficiency, reduce total cost of ownership and improve uptime through intelligent and prescriptive automation. Maintenance staff must be supported by the information they need and guided to the “next best actions” through artificial intelligence to get things done across systems and silos. In addition, operators must run as many of the maintenance services as possible autonomously through digital workers to free up their skilled and expensive engineers in making better decisions and thinking critically. This avoids human labor becoming a decisive, critical bottleneck in providing a competitive and sustainable green energy business.



Real-life Examples:

Norsk Stål, Norway's leading manufacturer of steel and metals, uses intelligent automation to optimize how the plants can most effectively manufacture steel products to meet customer deadlines and minimize the amount of wasted material.

One of the largest truckload carriers in North America has digital workers develop maintenance schedules for each of their vehicles based on information gathered from sensors to ensure the vehicles avoid breakdowns and achieve their deliveries in the most efficient manner.

Intelligent Automation Solutions with a Keen Eye on the Environment

The combination of digital workers with advanced AI skills is driving more and more innovative ways to help the environment. Here are a few examples:

GLYNT.AI, an SS&C Blue Prism Technology Alliance Program (TAP) partner, provides a unique machine learning capability to create finance-grade carbon emission data extracted from energy, water and waste bills. GLYNT transforms, calculates and summarizes the emission data. Blue Prism digital workers connect to GLYNT to obtain this information and then provide it to the appropriate people within the Office of Finance to meet financial compliance and ESG regulatory reporting deadlines.

DataRobot, an SS&C Blue Prism TAP partner, provides an AI-fueled predictive maintenance capability to maintain the performance and reduce the cost of renewable energy sources. For example, with solar farms the performance of the photovoltaic cells over time can be modeled with AI to recognize when cell maintenance and replacement are needed for maximum solar absorption. AI forecasting can also optimize the capture of fossil fuels as humanity transitions to carbon-zero energy solutions and help with predictive resiliency in grid management. Blue Prism digital workers connect to DataRobot to act on these predictive insights in a timely/efficient manner.

The Industrial Pipeline Maintenance solution concept developed over four years ago for upstream oil and gas companies demonstrated how Blue Prism digital workers could combine with machine learning capabilities (e.g., **IBM Watson** and **Azure Machine Learning**, SS&C Blue Prism TAP partners) to analyze pictures of a pipeline frame-by-frame and identify areas with possible corrosion that must be immediately/proactively evaluated by humans. This solution avoids loss of life, as well as loss of revenue, and damage to property and the environment.

See more on this solution at this [link](#).

The Importance of Governance

As with any key corporate initiative, the criticality of governance in achieving sustainability objectives cannot be overlooked. It's also another area in which digital workers can lend a hand. In early 2018, the European Commission adopted a new circular economy package, including a new set of measures, which include strategies to increase the re-use and recycling of (critical) materials, minimize waste impacts and implement an EU-wide monitoring framework.⁶ In the endeavor to craft a meaningful monitoring framework to inform circular economy policies and provide links to resource and climate policies, resource inflow and outflow data, as well as waste and emissions data, must be integrated and conceptualized together.⁷

The underlying challenge of managing a digital trace of any component over its entire lifecycle is generating the sometimes incomplete, untraceable and unstructured data from a huge ecosystem of manufacturers and service

providers, whose levels of maturity in digitalization skills could not be more different. Establishing the idea of continuous data exchange in such a globally operating network requires a “digital first” approach. Before companies start thinking about how to design and operationalize such a network, the first thing to consider is what can be digitalized and intelligently automated as much as possible. For example, utilizing the digital twin concept mentioned earlier as a technology model of any component data set over the lifecycle. The digital challenge here is to get unstructured data out of the extremely diversified ecosystem, which is a role intelligent automation has played quite well since its inception.

Digital workers put smart processes to work — connecting people, devices and systems end-to-end to increase speed, data accuracy and the overall transparency of a component on its journey throughout its circular economy and environmental footprint.



Revitalizing Your ESG Agenda

Intelligent automation can play a significant role in helping companies across industries achieve their sustainability goals and deliver financial benefits. The unified workforce, human and digital resources working side-by-side, should become a key part of the conversation any time sustainability, ESG or circular economy topics arise on the corporate agenda. What are some specific steps your company can take to join the global community in addressing the greatest challenge of humankind?

Elevate environmental sustainability to a corporate priority with the entire C-suite's sponsorship (by what date is your company committing to achieve Net Zero?).

Evaluate your company's specific sustainability goals and identify the key places where intelligent automation could make them more achievable and/or accelerate the benefits.

Engage your employees to brainstorm ways that digital workers could treat the planet better through making your company more efficient, digitizing paper trails, reducing waste, conserving energy, leveraging renewable energy and many other ways.

Explore the best/fastest ways to execute these ideas with the help of advisory and technology firms (third-party expert advice makes a huge difference in this space).

Equip your organization with the appropriate capabilities to measure and govern your progress, which is critically important for internal and external communications.

Encourage your suppliers and customers to follow your lead.

Get everyone on board, and we'll do this together!



Sources:

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Based west of London, Mr. Sonden has spent the last 15 years focused on enabling technology change in the public and private sectors. He currently splits his time between working with customers to increase the benefits they get from their intelligent automation implementations and engaging with new audiences to help them understand the power of automation, with a focus on the manufacturing and retail verticals.



SS&C Blue Prism provides leading enterprise intelligent automation technology worldwide. We empower customers to reimagine how work gets done with a secure and scalable intelligent digital workforce. A digital workforce increases efficiency, reduces operating costs and returns millions of hours to staff to focus on the things that matter most.

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