

The Silico logo is rendered in a bold, red, sans-serif font. The letters 'i' and 'l' are stylized with vertical bars. The background features a dark blue globe with a network of red hexagons and various business icons like charts, Wi-Fi, and a calendar.

SILICO

Business Process Simulation GUIDE

**BUILD A DIGITAL TWIN OF
YOUR ENTERPRISE WITH
SILICO**



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WHAT IS BUSINESS PROCESS SIMULATION?

Business Process Simulation (BPS) is a state-of-the-art simulation methodology that enables the Digital Twin of the Enterprise (DTE). BPS lets you create simulations of individual processes spanning the entire organisation, and over time connect them together.

Those simulations are incredibly flexible - the BPS methodology can be used to create and connect together models of almost anything. Whether that's an order-to-cash process represented by a BPM diagram enriched with data extracted from an ERP system, or a simulation of a commercial process's cashflow that the finance team currently model in Excel.

Transformation teams simulate selected processes to identify opportunities to improve operational efficiency and see around corners with the benefit of FutureSight to ensure they meet their

strategic objectives. These teams utilise BPS to optimise the ROI of their planned improvements by helping them to decide on the initiatives to implement, identify additional requirements, and track progress.

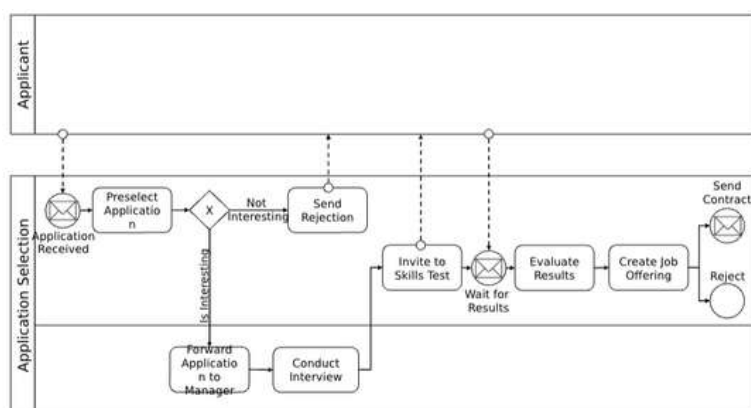
Process owners and operators can utilise the simulation to monitor processes, plan and allocate resources, forecast issues before they arise, and proactively intervene after simulating corrective actions.

Through the iterative use of BPS, companies can widen the scope of these insights by adding to or connecting existing process twins, ultimately arriving at the complete DTE. BPS enables this step-by-step development of your DTE, generating value at each iteration while minimising risk, time, and cost to the organisation.

HOW DOES BPS TAKE YOU BEYOND PROCESS MAPPING AND PROCESS MINING?

BPS generates insight and value beyond process mapping and mining by considering businesses systemically and quantitatively, facilitating the comparison of different process structures and their impact, and looking forwards into the future.

BPS mirrors the entire business system quantitatively



Process maps may represent processes graphically and connect them across different functions, but they lack the quantification of the process and its impact.

Process mining can analyse and quantify a process well if it processes the same case units, but struggles with inconsistent case identifiers across processes.

The Benefits of Using BPS



BPS enables decision makers to view the entire organisation, not just a single process, enabling global rather than local optimisation.



BPS goes beyond just linking processes together. It models the impact of processes on another and their influences on other elements of the organisation.



BPS links processes across case units and identifiers, for example, by connecting a quoting and an ordering journey. Beyond processes, delivered orders may trigger, for example, a payment schedule in a commercial model.

BPS allows comparison of structural alternatives of processes and parameter changes

New process structures and workflows can easily be mapped. However, process mapping cannot indicate the impact of any “redrawing” of the process map.

Process mining includes quantitative parameters but is limited to changes in numbers rather than process structures.

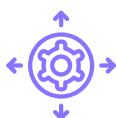
The Benefits of Using BPS



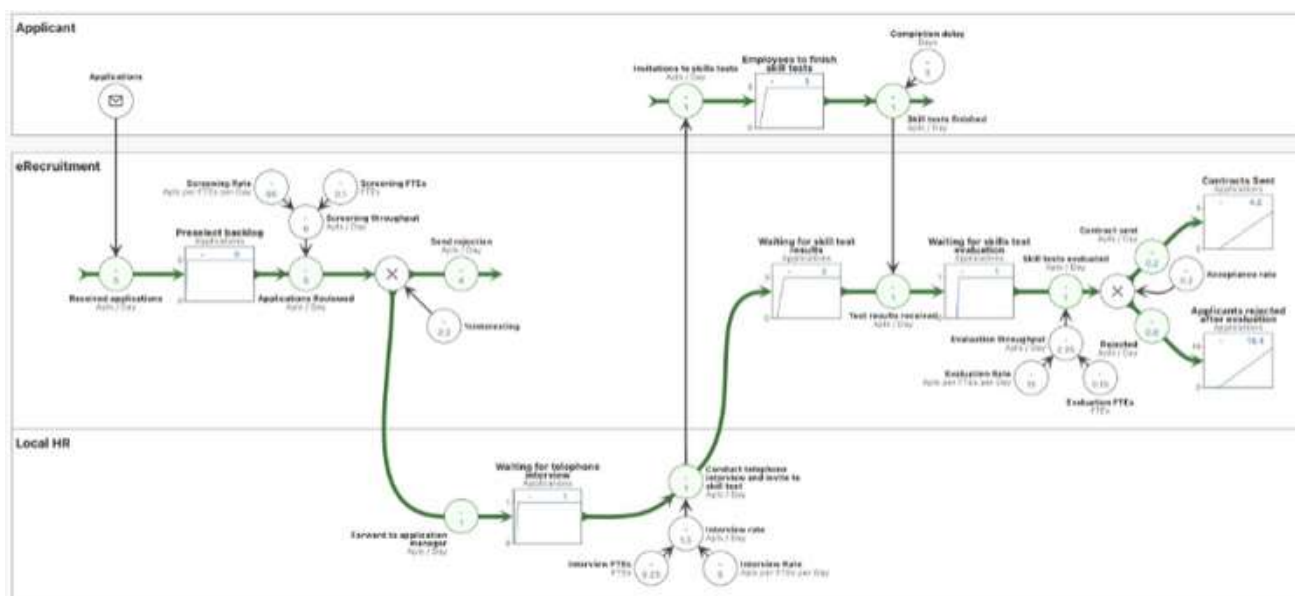
With its ability to model changes in structure and parameters and link processes to business outcomes, BPS combines and exceeds the strengths of process mapping and mining.



BPS allows quantifying the impact of changes to the process structure rather than just redrawing processes or changing parameter values.



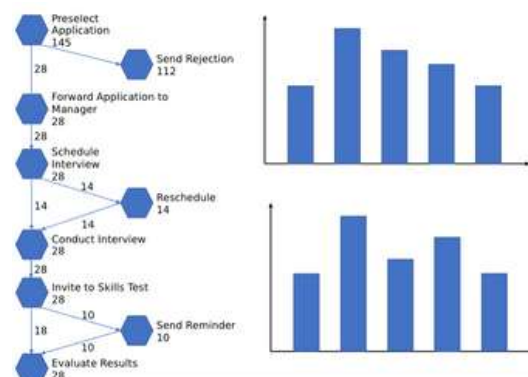
BPS focuses process designers on what matters: designing the best structure for the core process that accounts for most of the volume, rather than concentrating on reducing low volume exceptions further.



BPS looks forward and simulates future outcomes, rather than just relying on historical data

Process maps may have been drawn to reflect an ideal or initial process that has been altered to account for the real complexity of tasks, based on past views of the process.

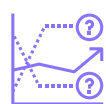
Process mining tries to capture and quantify how processes have materialised, with all their deviations and exceptions from the ideal, using past, historical data of the process.



The Benefits of Using BPS



BPS uses live feeds of data from ERP systems as a baseline and to update process twins, in addition to historical data.



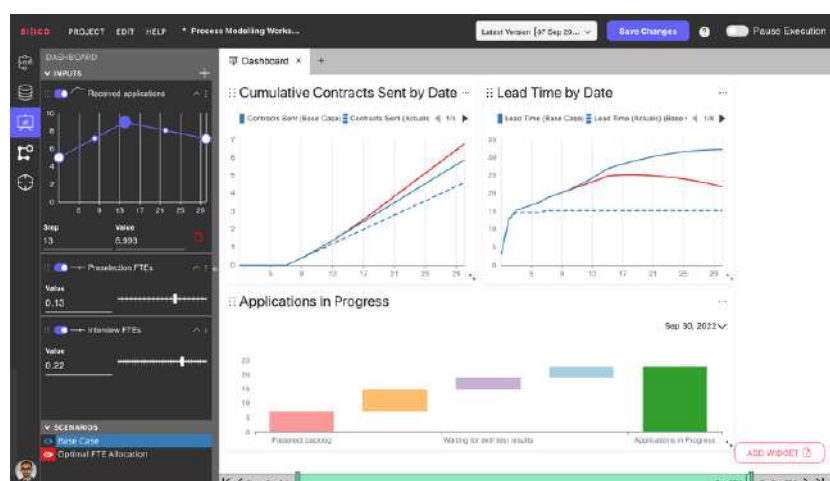
BPS provides the ability to forecast the state and outcomes of your processes in the future, given changing case quantities, resources, processing times, and process structures.



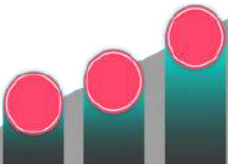
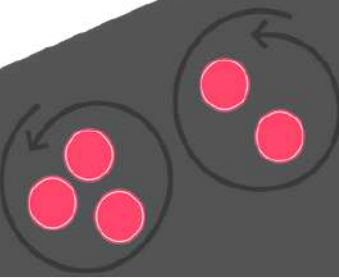

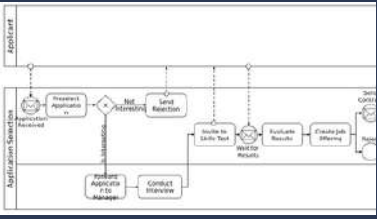
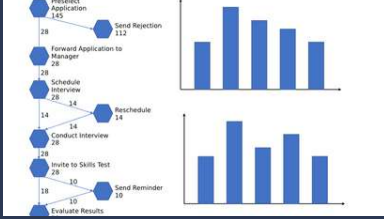
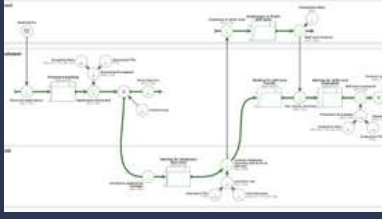
BPS can estimate capacity requirements, backlogs and queue sizes, lead times, revenue, and costs at any time in the future and show their trajectory over time, reflecting the true dynamics of your process.



BPS allows process owners and operators to monitor their processes and foresee upcoming problems to intervene proactively.

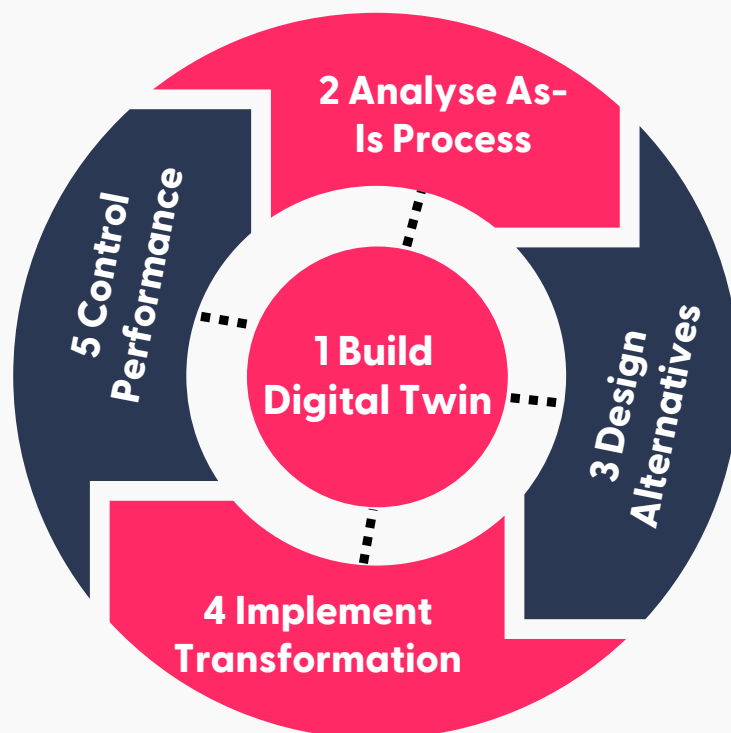


SUMMARY OF THE DIFFERENCES BETWEEN PROCESS MAPPING, MINING AND BPS

		
Process Mapping	Process Mining	BPS
<p>Considers flow across processes graphically</p>	<p>Considers flow using same case identifier quantitatively</p>	<p>Considers the entire business system across processes and beyond them quantitatively</p>
<p>Graphical comparison of different process structures</p>	<p>Quantitative comparison of parameter changes within the same process structure</p>	<p>Comparison of structural alternatives of processes and parameter changes</p>
<p>Mapped process potentially superseded by adaptation to the ideal process</p>	<p>Historical overview of recorded actual process manifestations</p>	<p>Simulation of the future state and outcomes of the process</p>
		

HOW DOES BPS WORK?

Facilitated by a digital twin of a process, Silico's BPS method allows the analysis of current processes, the identification of the most suitable alternative designs, monitoring of the transformation outcomes, and continuous performance control. Through iterations of the BPS cycle, process twins can be expanded and connected until a DTE is developed that covers the entire organisation.



1. Build a Digital Twin

The first step in the BPS journey is the creation of a digital twin of processes and their link to business outcomes, which facilitates all other steps of the BPS journey. This process twin reflects the structure of the current, as-is process. It may be based on existing process maps or is immediately created in the BPS software.

BPS then adds quantitative variables to the process maps and mathematically connects all elements based on their underlying causal relationships. Input variables then need to be set. Their values may be based on historical data extracted through process mining or other business intelligence software or based on estimates and forecasts. The process twin can then be backtested with historical data to develop confidence in its forward-looking recommendations.

2. Analyse As-Is Process

The process twin can now facilitate an analysis of the as-is process to identify where issues in the current process may occur in the future. Using what-if scenarios or more advanced simulation tools, BPS can determine, for example, if capacity is adequate to match demand and where backlogs will accumulate in different circumstances. It then indicates the impact of these issues on business outcomes and KPIs.

3. Design Alternatives

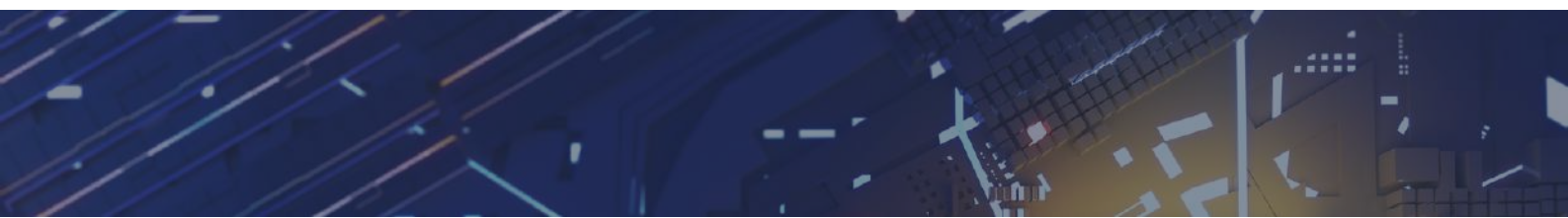
BPS then facilitates the experimentation with alternative process designs. The structure of the process can be redrawn, and parameters can be changed to represent process improvements. The alternative process variants can then be tested virtually before costly implementation. Thereby, BPS aids the identification of the most promising process improvements. It can identify the contribution to KPI improvements of individual and combined process improvements, uncover unforeseen consequences, and highlight additional requirements.

4. Implement Transformation

Once an ideal process structure has been identified with the help of BPS, the real process will be transformed, and improvements will be implemented. During this process, BPS can aid as a monitoring tool for the progress of that transformation. Having forecasted the impact of expected improvements, BPS provides baseline targets. Where outcomes fall behind their expectations, BPS can help identify unrealistic assumptions. These can be updated in the process twin to simulate the performance of the process and determine if the process design must be reconsidered to achieve strategic business objectives.

5. Control Performance

Process owners and operators can use the process twin to monitor the process, use it as a managing and planning tool, and foresee any changes that will affect the process to intervene proactively. For example, process owners could use a BPS twin to make quarterly decisions about FTE capacity and allocation across different teams to improve process outcomes given expected case quantities. If issues cannot be solved adequately through managing the existing process, process owners may initiate a new BPS cycle that already provides internal process specialists and external consultants with a head start.



WHAT ARE THE BENEFITS OF BPS?

Transformation teams and process owners benefit from BPS throughout the analysis, design, transformation, and control stages. It connects multiple processes and outcomes, compares alternatives structures and scenarios, and looks forward.

	Gain a systemic, quantitative view of processes	Compare process variants under varying conditions	Gain the benefit of FutureSight
Analyse	Understand the impact of other teams/functions on the principal process	Identify where and under what conditions backlogs accumulate	Investigate what will happen in the future rather than what has happened in the past
Design	Communicate process changes and impact across silos, foster buy-in	Identify the impact of process changes, both structural and parameter-wise	Set expectations for the impact of process improvements and transformations
Transform	Determine secondary impact of differences between planned and actual achievements	Identify if improvements are on track to delivery target outcomes	Assess if further changes are required to achieve strategic business objectives
Control	Feed data from other departments in to get a view of what is coming up next	Experiment with different managerial decisions before implementation	Determine optimal decisions and initiate a new cycle of improvements

THE BENEFITS EXPLAINED...

During the analysis stage, BPS is uniquely able to highlight future issues that the process will experience, ensuring resources are focused on process changes that address upcoming issues. By joining up different processes across teams and functions and linking them to business outcomes, BPS can identify how changes across your business may affect your processes and, in turn, business objectives. Users can create such scenarios easily and are not limited to historical values, statistical distributions, and events. Instead, they can reflect future policies and expectations to understand how upcoming changes will affect which part of the process.

During the design stage, BPS can aid and de-risk design decisions and help communicate those decisions to foster buy-in. Simulating process improvements digitally and quantifying their impact ensures that the most promising improvements are selected for implementation, that unforeseen consequences are addressed, and that improvements are likely to achieve strategic business objectives. Thereby, costs of later rework are reduced. BPS can then generate buy-in by helping to communicate design decisions and set expectations of their impact, as well as those of rejected alternatives and delayed action, to ensure that your organisation pursues the most promising path.

During the implementation stage, BPS can reduce costs and risks by highlighting additional requirements early. By identifying differences between planned and achieved outcomes over time, BPS can determine if further process changes are required to achieve objectives. Thereby, process specialists can act proactively during the implementation to improve outcomes and satisfaction for operators and (internal) clients and customers.

During the control stage, the process twins can help to optimise the outcomes of operating processes. With real-time data from across their organisation, process owners are always aware of their process state and what is coming up next. They can simulate and test decisions virtually, such as capacity requirements and allocation, and implement the most successful strategies and tactics. BPS provides them with an early warning system that can indicate if more extensive changes are likely required, so that process owners can proactively initiate a new BPS improvement cycle.

BPS USE CASES

Among others, these types of simulations can be applied to a variety of business processes, each yielding different benefits to your organisation:



LEAD-TO-ORDER, ORDER-TO-CASH, AND LEAD-TO-CASH PROCESSES

Help your organisation win more opportunities faster. Reduce the payback time of marketing and sales budgets, generate revenue earlier and longer, and reduce accounts receivables to free up working capital.



PROCURE-TO-PAY PROCESSES

Improve supplier relationships while reducing costs. Manage accounts payables smarter to minimise working capital and ensure on-time payment to maximise discounts.



CUSTOMER SERVICE PROCESSES

Manage peak and low-volume capacity to boost customer experience and fulfil SLAs. Reduce handling times while increasing retention and revenue.



ADMINISTRATIVE PROCESSES

Optimise compliance and HR processes for the long-term to speed up processes and free up resources for value-creating activities.



CLINICAL PATHWAYS

Improve healthcare delivery by optimising clinical pathways and managing capacity and resources in light of changing policies and demographics.

DTE USE CASES



DEMAND VS CAPACITY SIMULATION

Determine the adequacy of your processes in light of changing case volumes. Will the process be able to fulfil growing order volumes? How should resources be dynamically allocated? Where and when is additional capacity required? What process changes are required?



PROCESS CHANGE PRIORITISATION AND ROI MANAGEMENT

Decide on the process improvements to implement and quantify their impact. What process steps should be targeted with improvements? Which combined improvements should be implemented? What will the effect of improvements be at the process and business level? Will improvements achieve strategic objectives?



ERP SYSTEM TRANSFORMATION

Simulate the impact of a system-wide change. What are the costs and benefits of altering the fundamental infrastructure of processes? Will processes be streamlined with a company-wide system in the long term? Which short-term disruptions need addressing?

WHY SILICO BPS?

Silico is the only technology that lets you build end-to-end digital twins of processes that span teams or functions, connect them to real-time data from across the organisation, and simulate business outcomes into the future. It is the go-to solution for businesses that require a method that spans across and beyond processes and require a single source of truth for comparing the ROI of transformation initiatives to ensure that processes can support strategic business objectives.



**Digital Twin
Spans Teams &
Functions**



**Connect to
Real-Time Data**



**Compare ROI of
Transformation**

Silico's unique BPS modelling language allows you to represent processes accurately and generate more reliable insights and recommendations. Silico provides a framework for BPS that allows our customers to explicitly model the resources and processes that drive outcomes - giving you a coherent foundation for assessment.



One of our customers identified that without transforming their current delivery process in time to support their commercial growth objective, they would miss out on £70mn of revenue over five years.

With its graphical user interface, the Silico modelling language is intuitive to learn, accelerates the modelling process, and ensures that you minimise the time and effort required to generate insights and recommendations from your digital twin.



Silico executes pilot projects in 4 weeks, enabling you to unlock and test the benefit of FutureSight rapidly for your projects.

Silico connects to live data from all your systems and lets you build process simulations across silos, ensuring that forecasts and recommendations are always based on the most current information. For example, in a lead-to-cash process, you may pull leads and conversion rates from Salesforce, orders and associated cycle times from SAP and then recreate the cashflow modelling currently done in Excel.



One customer of Silico has connected process maps, BI data collected from an order management system, and an Excel financial model to prioritise process improvements that maximise ROI globally, rather than considering each part of the process in isolation.

Silico lets you reconfigure processes by creating ‘process variants’ and simulating how those processes will perform under a range of scenarios to identify the relative ROI of each variant, a task that is beyond the reach of current process mapping and mining tools.



One customer uses Silico to prioritise transformation initiatives across the entire delivery cycle to ensure they are carried out in the optimal order.

Silico’s Executive Consoles let decision-makers engage with simulations by exploring the impact of their decisions on the KPIs that matter. Leadership can understand and use the insights from powerful simulations with no training required.



One of our customers uses Silico’s interactive dashboards to communicate how high order volumes drive backlogs, increase lead times, and delay revenues.

HOW DOES BPS ENABLE THE DIGITAL TWIN OF THE ENTERPRISE?



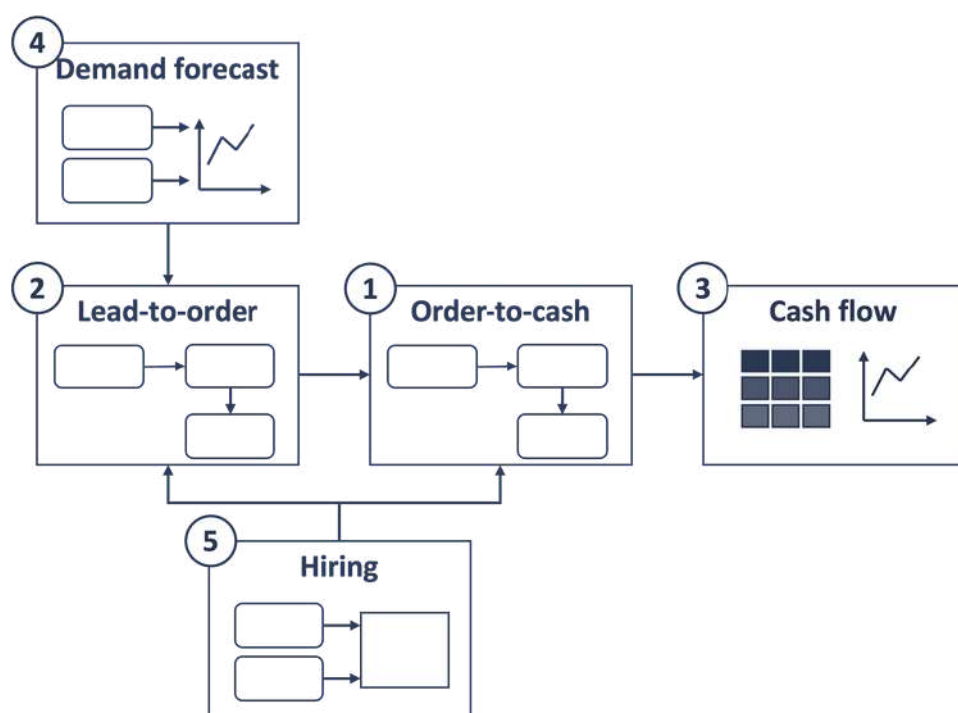
A digital twin is a digital representation of a real-world entity or system. The implementation of a digital twin is an encapsulated software object or model that mirrors a unique process, organisation or other abstraction.

- Gartner

From an initial BPS model, a full DTE can be developed step-by-step and iteratively. By creating an initial model for selected parts of your business that scales up and expands over time, BPS ensures the success of your DTE initiative. Building an initial BPS model for selected processes reduces complexity and risks. It speeds up the time to create a digital twin that is valuable for a specific set of stakeholders, and that can demonstrate the power of DTEs to get buy-in for its next iteration.

Silico's powerful simulation platform is built from the ground up to facilitate this expansion which enables you to gain FutureSight of your entire organisation at minimum risk, time, and cost.

For example, Silico can expand the BPS model of an order-to-cash process by adding a lead-to-order model, a cash flow model, a demand forecasting module, and a hiring process to develop a DTE step-by-step.



Want to learn more?

If you are interested in learning more about BPS or how Silico could transform your business processes in as little as 4 weeks, please get in touch.

Contact Us



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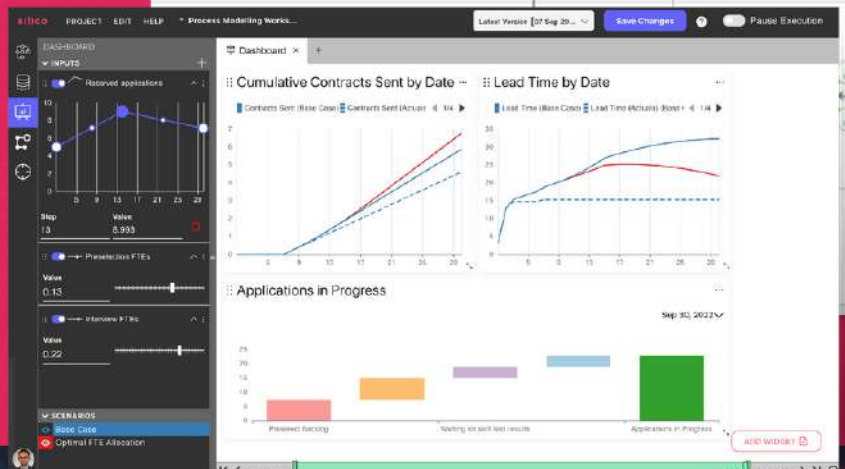
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