



How to Create a Digital Twin of your Organization's Business Operations

Whitepaper

An approach to creating a digital twin that enables your organization to SUPERCHARGE the creation of adaptable and resilient business operations

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Digital twin has been used historically to describe 'a digital representation of a physical object'. In the world of software driven business operations it is a new(ish) and growing concept. Gartner define it as:

"A dynamic software model of any organization that relies on operational and/or other data to understand how an organization operationalizes its business model, connects with its current state, responds to changes, deploys resources and delivers expected customer value."¹

Combining the digital twin of an organization (DTO) concept with the BusinessOptix implementation framework, this whitepaper provides an approach for organizations to start small and rapidly iterate towards bigger picture goals. At the heart of this is helping organizations understand and continuously improve operations through discovering, modeling and testing multiple alternatives scenarios, before moving onto delivery and then repeating the cycle.

Concepts, frameworks and capabilities covered in this paper include: the digital twin of an organization, BusinessOptix implementation framework, process mining and mapping, scenario modeling, simulation, process documentation and monitoring.

¹ Gartner, Inc. "Market Guide for Technologies Supporting a DTO" by Marc Kerremans, 12th July, 2018

What is a Digital Twin of the Organization's Business Operations?

Digital twins of the organization's business operations are designed to create a digital representation of the current operations as a means to continuously deliver rounds of improvements.

Digital twins enable organizations to understand their current state and then use this dynamic model to test and implement improved future states. Once complete a new round begins as new opportunities for improvement are investigated and implemented.

Take an organization's purchase-to-pay function. By creating a digital representation of operations, such as the invoice and payment processes, it is possible to mine and analyze the flow of invoices in and payments out, identify any performance or quality issues, and model and test different scenarios for addressing them, before implementing the option that is most likely to deliver improved performance and/or quality. Once finished, the process can be repeated or new areas explored in a virtuous cycle of continuous improvement.

Across business operations in different organizations and industries, the creation of a digital twin can provide answers to specific questions such as:

- Is the organization meeting customer and partner expectations?
- Are there opportunities to deliver more value and better customer experiences?
- Are changes in the external environment (e.g. regulation or competition) having a negative or positive impact on operations?
- Are extra resources required to handle additional business process volumes in scenarios such as a successful sales campaign or an unexpected increase in customer service requests?
- When will a return on investment be achieved from using Robotic Processing Automation (RPA) or other system changes?

- How will a change impact customers, internal stakeholders and partners?
- Will a business process change result in increased revenue, reduced cost, or new opportunities?
- Does resource (employees, external suppliers, technology platforms, transport, etc.) availability cause process bottlenecks?
- Will a change in working patterns reduce process cycle time?
- Would the use of less experienced and lower cost resources that take longer to complete an activity and have a higher rework rate be more, or less, cost-effective?

To maximize the value and effectiveness of a digital twin, it's important to see the bigger picture, but start small. Whether at a goal or functional level, this starts by having a clear view of where you want to go and/or the business areas to address. From here the focus shifts to incrementally working through specific activities to reach your bigger picture goal. Taking this approach will help to reduce risks and speed up delivery of business outcomes.

What is the BusinessOptix Implementation framework?

The BusinessOptix Implementation framework provides a useful guide for organizations seeking to implement a digital twin of their organization's business operations.

Focusing on 6 key areas (see diagram 1 below), the framework enables organizations to follow a structured path to implement a DTO.



Diagram 1: BusinessOptix Implementation framework

Capturing 'business drivers' is about understanding and creating a clear view of the business or initiative context. Using sources such as current operational performance (e.g. KPIs), c-suite initiatives (e.g. customer centricity, cost savings or new business models), market changes (e.g. digital opportunities, changing competition and dynamics) or regulatory requirements (e.g. AML4, PSD2) the baseline drivers can be identified and used to determine the goals and strategy.

'Goals and strategy' focus on defining a clear destination (or vision) and high-level areas of focus (at an organizational, initiative or process level) that the team can get behind and support.

Tip: Consider using transformation maps (see diagram 2) and dashboards (see diagram 3) to help capture and track your goals and strategies.

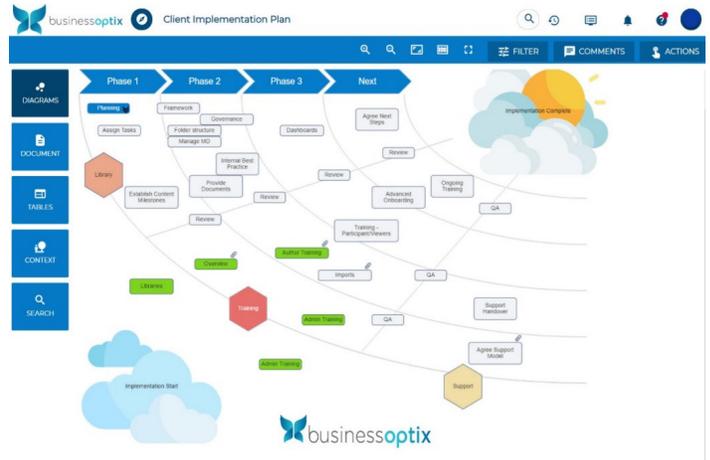
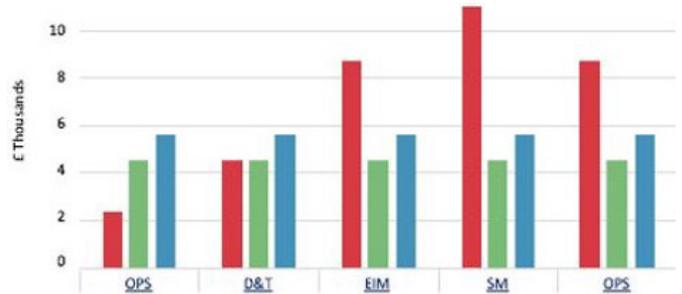


Diagram 2: Transformation Map



Tap on a strategic objective to drill down to its initiatives

		£ Cost	£ Benefit	£ NPV
OPS	Operations	21,000	43,000	56,000
D&T	Design & Transition	42,000	42,000	48,000
EIM	Enterprise Information Management	85,000	43,000	58,000
SM	Service Management	110,000	42,000	58,000
OPS	Operations	88,000	42,000	58,000

Diagram 3: Transformation Dashboard

'**Strategy execution**' starts by creating a view of where the organization is today. From this, gaps and opportunities to improve can be identified.

Once complete, decisions can be made about the specific areas and levels of improvement. For instance, should the focus be on a transformative (making fundamental changes to how business is conducted²) or incremental (moving from one state to a state considered to be better³) approach?

'**Performance management**' focuses on setting and tracking metrics that illustrate the performance of tests and in-life operations.

'**Continuous intelligence**' focuses on continuously monitoring and providing insights from live data that tells the story of how the process is functioning against the key metrics and any tolerances or SLAs that have been set and need to be adhered to.

Combining outputs from performance metrics and continuous intelligence, data-driven 'decision making' enables the organization to confidently ingest actionable insights, make decisions about its next steps, and implement these changes.

The framework helps to answer questions such as why do we need to transform or improve? Which parts of our operations and processes need to change? What does success look like? How will the needs of customers and the business be met? How will efficiencies and cost savings be made? Where should we start? What are the quick wins? What strategic and tactical approach should be taken? What will it cost and how will it be resourced? How will the initiative be governed and managed? How will sustainable capabilities be created and embedded in the organization? How do we identify and test alternative ways of working in a low-risk way?

As well as opportunities to improve operating models and processes, organizations that use the BusinessOptix Implementation framework have been able to identify and address issues such as absent or unclear business, operating and capability models and processes; a lack of team knowledge and or competence; non-standardized management methods and standards; duplication of efforts; a lack of integration, collaboration or knowledge sharing between teams, functions and business units; lack of clear metrics and performance indicators; and deficiencies in governance.

A more detailed look at all of these areas (including guidance and additional tools for setting yourself up for success) can be found in the paper '[Successfully Transforming and Improving Business Operations](#)'.

²https://en.wikipedia.org/wiki/Business_transformation

³<https://en.wikipedia.org/wiki/Improvement>

Using our mining, mapping, design, modeling, simulation, documentation and planning capabilities, you can collaboratively improve your customer interactions, the way your employees work and the results your business achieves – all on a single platform that's rich in capabilities and easy to use.

Business Drivers	To support understanding your business drivers and context, BusinessOptix can be used to: <ul style="list-style-type: none">• Capture data and insights from stakeholders• Outline your starting position using T-Maps
Goals and Strategy	To support defining your goals, strategy and a plan of action, BusinessOptix can be used to: <ul style="list-style-type: none">• Draft and share your goals, business model and initiatives/workstreams using T-Maps and business modelling capabilities
Strategy Execution	To support executing your strategy, BusinessOptix can be used to: <ul style="list-style-type: none">• Capture as-is and to-be process models (directly linked to capability and operating models) using process mining, forms and diagramming tools to gather current process models and metrics and then to create requirements and user stories, manage master data, create comparative scenarios, and apply risk assessments and forward-looking metrics• Score and prioritize process models• Apply regulatory compliance requirements and controls• Create operating and capability models, and customer journey maps• Document methodologies, frameworks and best practice guidance• Output process documentation and intranets to support end users (or XML for automation by BPM engines and RPA platforms)• Track progress at initiative and process levels
Performance Management	To support performance management, BusinessOptix can be used to: <ul style="list-style-type: none">• Track initiative and process metrics• Provide a real-time dashboard of initiative and process performance• Generate ad-hoc and recurring reports on the whole initiative or specific processes
Continuous Intelligence	To support operational management, BusinessOptix can be used to: <ul style="list-style-type: none">• Provide alerts and notifications when performance meets, exceeds or misses pre-set tolerances
Decision Making	To support decision making BusinessOptix can be used to: <ul style="list-style-type: none">• Provide a management dashboard of key data points and insights

Using the BusinessOptix framework to create a Digital Twin of your Organization's Operations

Through the BusinessOptix Implementation framework, it is possible to create and use a digital twin. The following example focuses on creating a digital twin of key processes within the operating model.

As with any initiative, it must start with a clear definition of the outcome (objective) you want to achieve. Typical outcomes may be to reduce operating costs by \$5m in 12 months, reduce process times by 15 seconds, increase the % of responses under 10 seconds from 65% to 75%, achieve service levels of 95%, implement new regulations before they become law, or any other operational metric that relates to the organization's work.

Next, select the first area of focus (remembering that the aim is to start small and build) that will enable you to achieve the desired outcome - for instance, a particular area of the business or area of the operating model. From here a 5-step approach can be used to create and deliver your digital twin (see diagram 4 below).

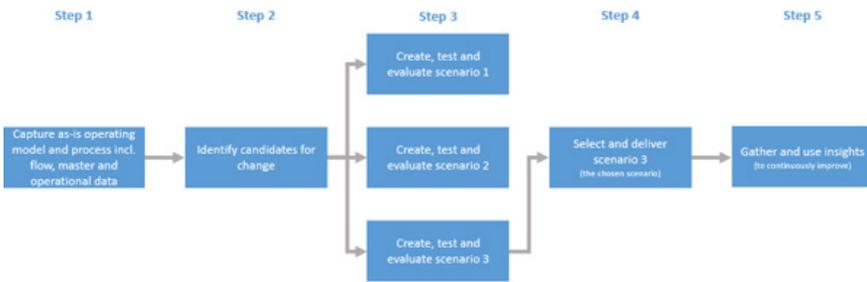


Diagram 4: 5-steps to optimized processes

1. CAPTURE AS-IS OPERATING MODEL AND PROCESSES

Start by capturing your current operating model and processes.

Your operating model may start as a set of functions or business areas that fit together to create the backbone

of your operations (see diagram 5 below) or follow the traditional view (see diagram 6 below).



Diagram 5: Top Level Operating Model Diagram

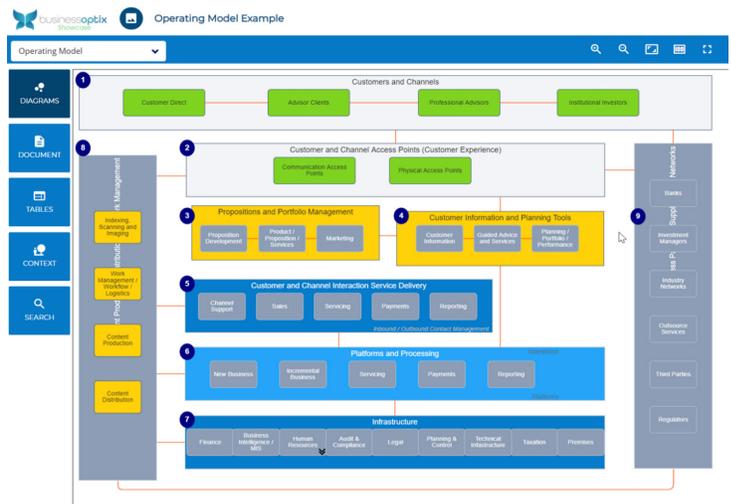


Diagram 6: Example Traditional Operating Model

Starting with an operating model and using this to guide your capture of the processes is the ideal way to get a strategic view that helps navigate through your operations. However, this may not always be the best starting point and it may be better to start with a process view that can be used to create the operating model (e.g. as you work through your processes, the combined view creates your operating model). A 3rd approach could be to start with a customer journey map. This customer focused view will help to pick-off the most important areas to your customers and link them back to your operating model (see diagrams 7 & 8 below).

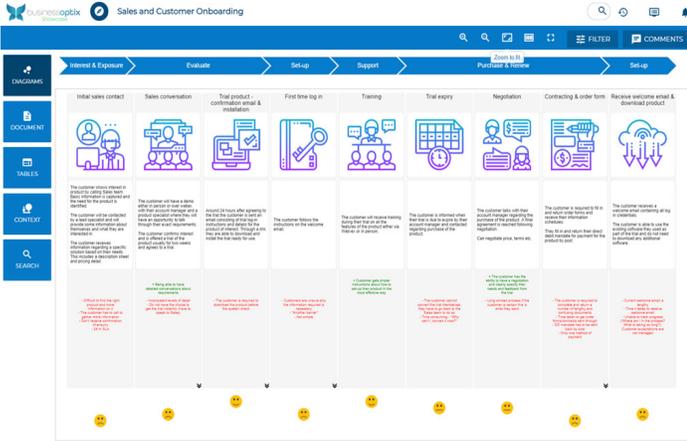


Diagram 7: Sales and Customer onboarding

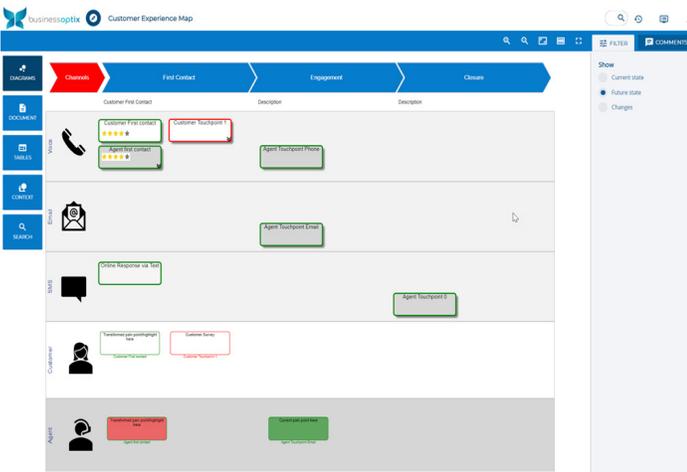


Diagram 8: Customer Experience Map

Either approach works, you need to make a judgment call on which will work best for you. What's more important at this stage is creating the foundation to build on.

Using process mining, Q&A forms or process diagramming tools (see diagrams 9, 10 and 11 below) flows, attributes, manual and system-based activities, organization structure, resources used, timings, KPIs, financials, current performance metrics and resources (such as such as systems and people) can be captured and augmented to create a view of the current mode of operating (Digital Twin A).

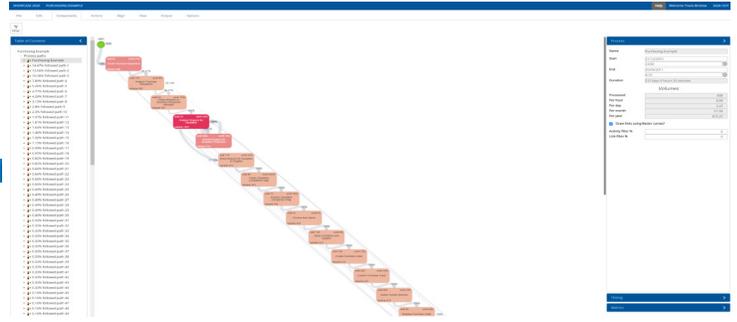


Diagram 9: Process Mining

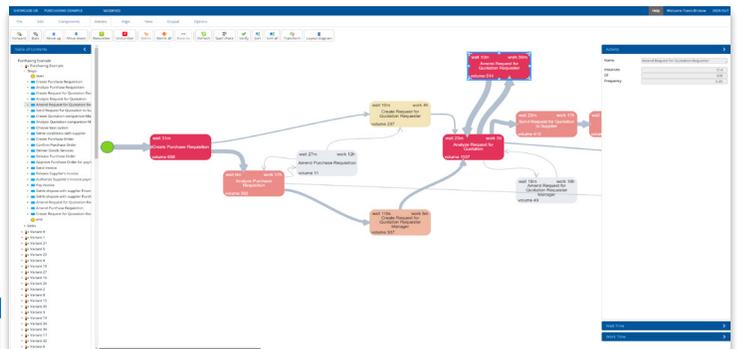


Diagram 10: Process Capture form

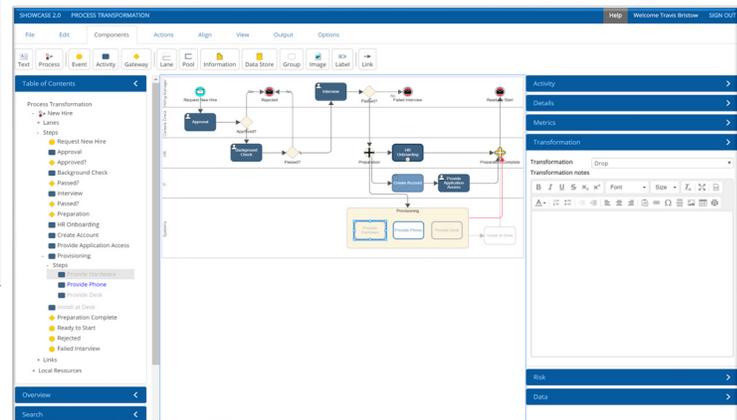


Diagram 11: Process diagramming tool

As a newer capability in the business process world, it is worth spending a moment delving into some details on process mining.

Process mining provides a data-driven, fact-based approach that leverages empirical evidence to uncover how processes work in the real world. It uses data and insights generated from your event logs to identify constraints, prioritize improvement opportunities and pre-empt compliance and regulatory issues.

With a detailed visualization of your actual processes (generated using process mining, manual investigation and wizards) you can see the paths and flows along with frequency, wait time, bottlenecks, exceptions/ deviations, statistics, variances, costs, compliance issues, inconsistencies, etc.

From here you can investigate and identify problem areas such as staff training issues, system capacity, resource constraints, quality issues, poor process design, under staffing, staff rule breaking, missed compliance, inconsistencies, and so on.

Using this data, you are ready to start identifying the primary candidates for creating the new digital twin (Twin B) of your operations.

2. IDENTIFY CANDIDATES FOR CHANGE

To create the future state twin, you need to identify a starting point. To do this use the captured processes and accompanying data to create a report that illustrates process types and performance (see diagram 12 below).

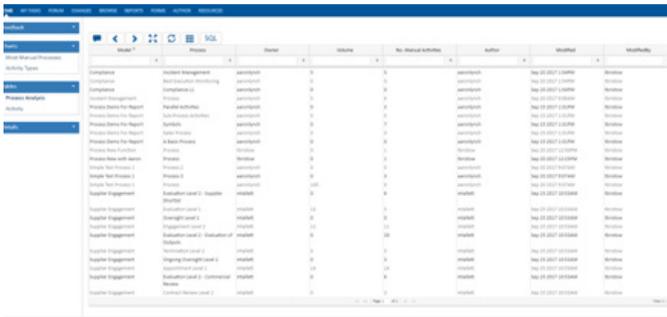


Diagram 12: Detailed view of process performance

Through analysis of the report, identify and prioritize the candidate process or areas in processes that will best help achieve your goal. For instance, to drive up efficiency you may seek to identify manual steps that can be automated (see diagram 13), high lag time that can be reduced, or older non-performant systems that can be replaced.

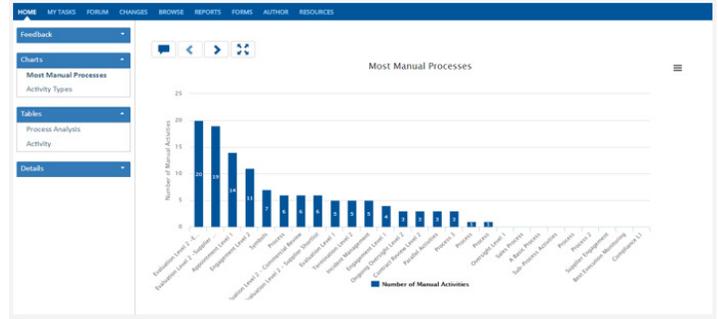


Diagram 13: Report of 'most manual processes'

Against the prioritized candidates set measures of success and KPIs that are tied to the goals listed earlier. This may mean that a single candidate is able to address all the goals or makes a contribution that will be supported by work on other candidates as you progress.

3. CREATE, TEST AND EVALUATE TO-BE SCENARIOS

Once candidate processes or activities have been prioritized, start creating future state scenarios that can be tested against the current mode of operation. Sample changes that you can introduce include rerouting flows, taking out or adding steps in, adding resources or automation etc (see diagram 14 for sample scenarios below).

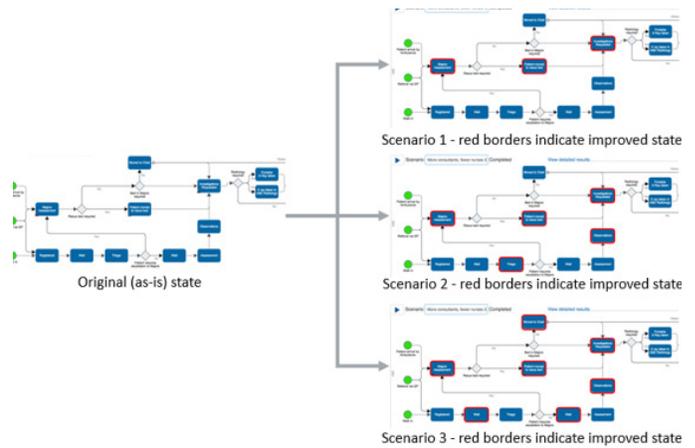


Diagram 14: From as-is process state to 3 potential scenarios

This process and the insights it generates will help to bring the scenarios to life through identifying the key levers that can be moved; the potential positive and negative impact of ideas and proposed changes (including unintended consequences); when a return on investment is likely to be achieved; additional (or fewer) investment or resource requirements; and whether the approach is likely to deliver against the goals and strategy.

4. SELECT AND DELIVER THE CHOSEN SCENARIO

With a view of the potential changes, measures of improvement, ROI and metrics should be reviewed to identify the potential impact of each (see diagram 15 below) before a final choice is made and implemented.

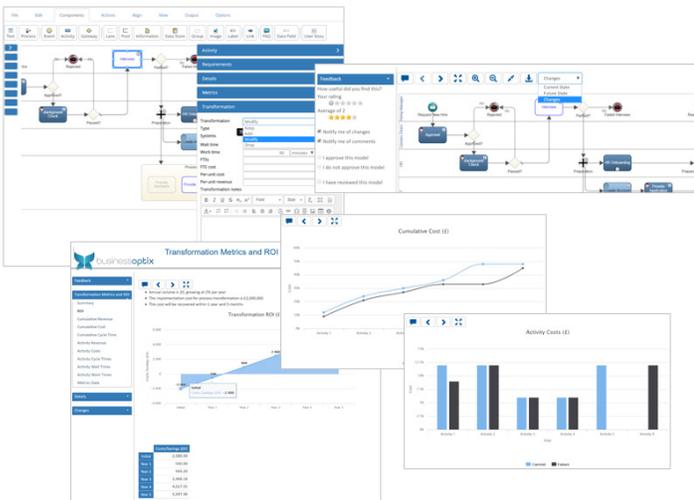


Diagram 15: Process metrics and ROI

To ensure speed and adaptability, implementation of changes should be run as controlled experiments before they are fully implemented. In this mode, while the tried and tested processes are fully operational you will be able to see the potential impact of each change. So if you think removing a step will improve efficiency or that automation will increase bandwidth, this can be tested and reviewed before making a final decision.

Through rounds of adjustment, trial and error you should arrive at a scenario that improves on the current situation and is ready for wider roll out. Detailed work can then begin on activities such as writing requirements or user stories (see diagram 16) for developers; creating manual and automated processes using BPM, RPA or case management; and generating work instructions (see diagram 17), training materials and any regulatory guidance to support end users.



Diagram 16: User story capture and report

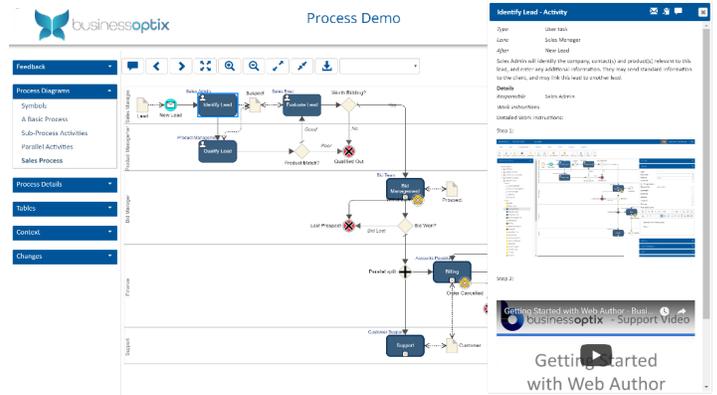


Diagram 17: Work instruction

5. GATHER AND USE INSIGHTS

Focusing on target goals, these need to be tracked via performance dashboards that provide a view of performance against key measures (such as cost, quality, service levels and resource utilization).

While the performance dashboard will tell you how the process is doing against the metrics, continuous intelligence will be live and generate alerts or notifications off the back of specific performance SLAs that you set. For instance, if you set a 10 second target SLA for a process and this is running at 14 seconds an alert will be generated - on the grounds that this is an important part of your assessment when implementing your new scenarios and will be used to drive immediate or future corrective actions where required.

In guiding initiative outputs, use transformation maps (detailed above) to keep abreast of your plans, priorities and alignment to goals.

Moving to a new business operations as usual

Returning to the digital twin of your organization, once live you will have a mode of working which means you can continuously repeat the cycle of capturing process performance, modeling scenarios, running experiments and using the learning to set the next course of action. For instance, in round 2 you will start with B (the outcome from round 1) and then move onto creating C, and so on and so forth round after round (see diagram 18 below).

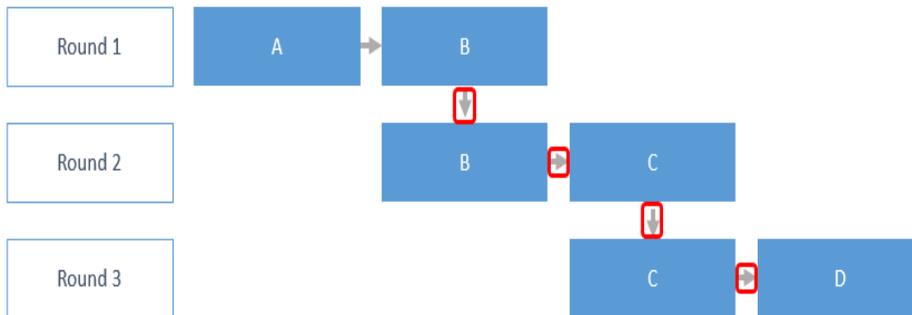


Diagram 18: Continuous rounds of improvement using Digital Twins
A, B, C, D, etc.

New candidates can also be added to future rounds as you work through and connect the various parts that make your areas of focus. Not forgetting that this can be the start to creating a view of your existing and future operating model.

Further reading

BUSINESSOPTIX

- [Successfully Transforming & Improving Business Operations whitepaper](#)
- [Business Change and Transformation: Strategy to Execution whitepaper](#)
- [Enabling your business to run, grow and transform whitepaper](#)
- [How to use a T-map as part of your strategic planning process whitepaper](#)

FORRESTER

- Now Tech Report on Process Mining and Documentation 2020
- Advance Process Automation by Keeping Automation Technologies in Their Own Lanes 2019

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- Market Guide for Process Mining 2020
- Discover the Differences and Use Cases of Process Mining vs Task Mining 2020
- Market Guide for Technologies Supporting a DTO 2018 and 2019
- 12 Powerful Use Cases for Creating a Digital Twin of Your Organization 2017
- Market Guide for Enterprise Business Process Analysis 2016, 2017, 2018 & 2020
- Strategy-to-Execution Leader 2018

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At BusinessOptix, we help organizations Control Today, Navigate Tomorrow™ to achieve the next level of customer and operational excellence. Our cloud-based Business Process Transformation suite is used by hundreds of global firms to capture and redefine business operating and process models, accelerate transformations across the enterprise, improve operational efficiencies and streamline go-to-market processes.

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