

The Path to a Successful Analytics Project:

From need to idea to a viable solution

A Thought Leadership Whitepaper

clear
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Introduction

Get on the path to the right analytics solution

A global energy company generates and distributes electric power in 15 countries, and as part of their renewable energy generation portfolio, they manage windfarms in locations around the world. That means thousands of individual wind turbines... and thousands of man-hours to perform visual aerial inspections for maintenance.

Even with drones taking visual images, humans must still review every photo to identify gelcoat and lightning damage to turbine blades along with any mechanical issues and overall equipment readiness. Hundreds of thousands of images and tedious manual reviews, performed on a regular basis – you do the math.

In the name of efficiency and cost, the practice of reviewing so many images manually just wasn't sustainable. The energy company had a challenge to automate their visual aerial inspections, and company officials recognized it. Less obvious, though, was the path to a viable solution.

The moral of the solution story

Problem solved. The energy company ultimately implemented a computer vision solution and machine learning model to review aerial inspection images and detect gelcoat and lightning damage on wind turbine blades. The company now manages aerial image labeling efforts, model training and the maintenance prediction process far more efficiently.

Better? With further iteration, their solution's machine learning model can be trained to detect more damage types on wind turbine blades, increase confidence, and further reduce the number of aerial images requiring review. Going forward, the energy company can use this same technology to incorporate inspections for solar arrays, T&D lines, hydro power structures, boiler structures, safety checks and other case uses.

They've reduced the volume of images to be reviewed by humans by **more than 50%**. They have also made wind turbine inspections in the field **10 times more efficient** than their previous process.

As this all happens, cost savings and process improvement will continue.

The purpose of this whitepaper

We've written this whitepaper to help you plan and execute any analytics project successfully – from the point you identify a need, to the ideate stage, to a viable solution.

Your Role and What You're Up Against

We feel your pain

See if this sounds familiar. In making the business case for an analytics solution, leaders in strategic project management roles (i.e., you) face two hurdles:

1. You must establish clear links between an analytics solution, why it's needed, and the business benefits the solution is intended to deliver; and
2. Predictably, you have to overcome stakeholder objections to drive better business outcomes – meaning you have to continually sell stakeholders on your solution idea, often by involving them throughout the ideation and development process.

Now see if your title mirrors these. For analytics projects, ClearObject has worked alongside project leaders from companies in healthcare, energy, the automotive sector, manufacturing and other industries. These leaders include the likes of:

- Director, Innovation | Strategic Initiatives
- Director, Business Intelligence
- Director of Product Development
- Director, Continuous Improvement
- VP, Product Management
- Product Engineering Technical Leader
- Product Manager/Product Specialist
- Project Manager
- Technology Strategy Leader
- IT Manager
- Analytics Project Manager
- Data Analyst
- Data Engineering Director
- DevOps Leader
- Software Engineer
- Application Engineer
- Systems Engineer (or Analyst)
- Quality Engineer
- Quality Engineer
- Chief (Anything) Officer

Your role, as we understand it

Title aside, you're in a role tasked with identifying, eliciting and defining an analytics project, the scope of potential requirements, the cost, the perceived value to the business, and the anticipated outcome. The who, what, why, when, where, how – and how much?

Organizationally, you're further in charge of securing a project champion (typically C-level), aligning stakeholders and appointing a project team. The objective of your team is to first share ideas for the new solution and then to contribute as necessary to its ultimate development. This is where, many times, you work in abstract "gray areas" to see the big picture and make decisions accordingly. You focus on the solution process on a micro level, not macro.

In between, you have to constantly make your business case for the solution you envision. To succeed, you must be steadfast in clarifying your proposed solution's value and navigating expected objections.

ClearObject's role

This is all to say we work to support analytics project leaders in your role every day. That's our role. It's also to say we face the same challenges – the ones you partner with us to help solve.

Challenges

As analytics solutions and products become more intelligent, instrumented, and interconnected, their **complexity increases exponentially**.

You have to ideate and develop solutions to **integrate all required components** for data, analytics, systems, platforms, software, the cloud, and users. This ensures the proposed solution meets all user requirements, functional and nonfunctional.

You must **work more closely than ever with IT** to create analytics apps that work in unison with connected products to generate and ingest data. This includes structuring cloud-based platforms and services to support analytics functionality. Insights from such data helps engineers improve product design and predict maintenance needs.

Most of all, you must **constantly evaluate a solution's purpose in driving revenue** for the business. This means allowing the solution to evolve based on other identified opportunities.

For instance, recall the energy company in our Intro. With the same computer vision solution and machine learning model they use to review aerial inspection images for wind turbines, they can conduct inspections for solar arrays, hydro power structures, equipment safety checks and other purposes.

ClearObject's Mission

Helping you build the right product, the right way

Fully stated, our mission is to make sure you know you're building the right product and doing it the right way. To fulfill this mission, ClearObject's digital product process encompasses IoT analytics product design, development, validation and evolution.

Strategy Workshop

When you set out on your digital journey, the critical first task is to weigh the costs and benefits of many different opportunities. Our Strategy Workshop is a quick and interactive design thinking activity focused on building understanding to improve the speed of decision.

A Strategy Workshop additionally provides the evidence and framework to continue developing your solution idea and justifying strategic decisions.

6 Steps to making your case for an analytics project

1. Take the lead in setting a strong vision for the desired end state and business outcomes
2. Be honest, resilient and courageous in calling out inhibitors
3. Trace business outcomes back to supporting analytics output and underlying data
4. Present the high-level analytics roadmap in business terms
5. Illustrate a cost-benefit analysis summary for analytics within the overall business Initiative
6. State and take three immediate next actions to kick-start the analytics initiative

From "How to Make the Business Case for Analytics"

Gartner, Report ID: G00278406

August 2015, Alan D. Duncan, Analyst

Gartner's 6 Steps

Step 1. Take the lead in setting a strong vision for the desired end state and business outcomes

With today's connected digital products in mind, the Strategy Workshop process involves a new way of thinking that encompasses all phases of the solution development journey (as shown here). ClearObject's belief is to ensure that, as we're working with you to build your analytics solution, we can tie success directly to why the solution is being built. This helps us provide more value and metrics for the solution we deliver. As importantly, you avoid building a solution that has no discernible positive outcome, or value.

Clear Product Development Process



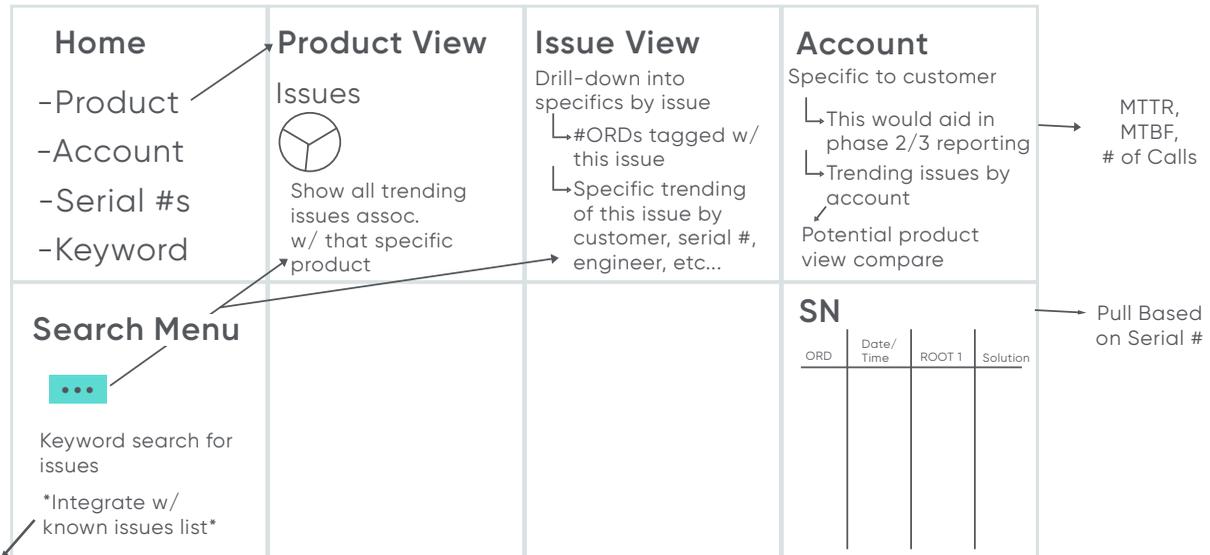
Ideate

What should we build?

This is where design thinking takes hold.

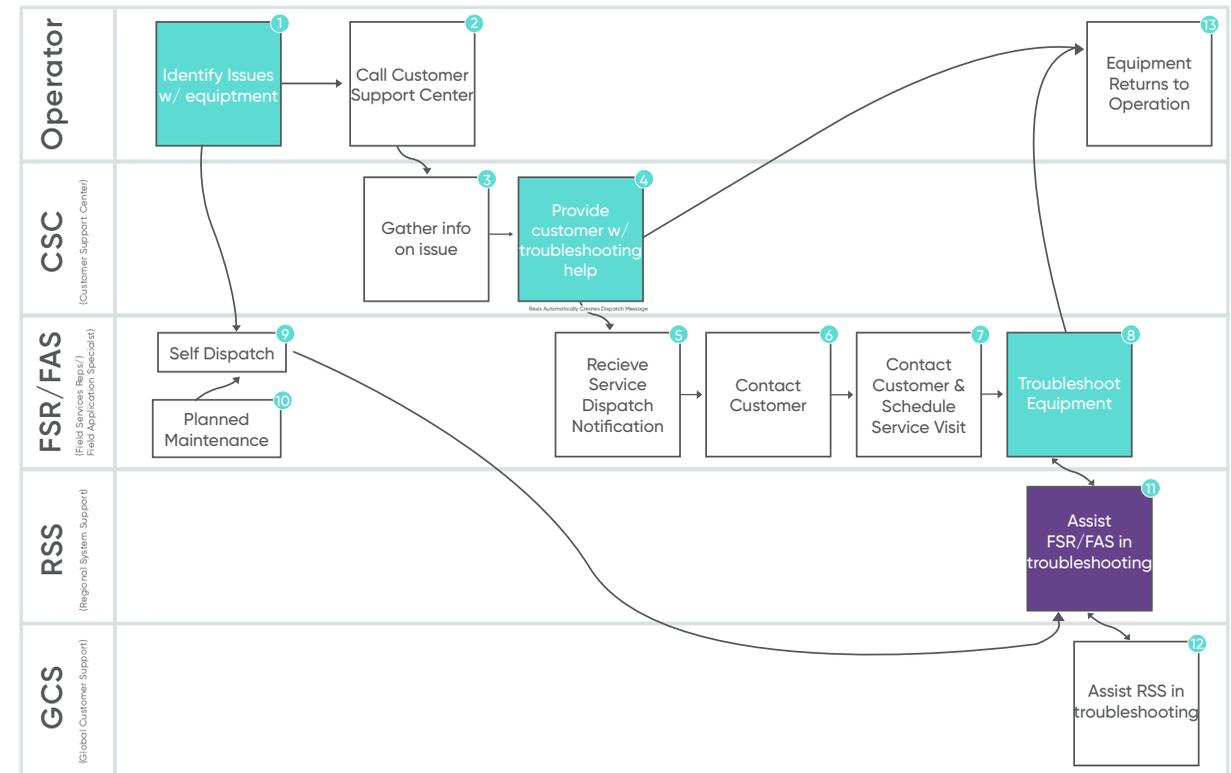
SKETCH

Start Jan. 2018
Use modified serial numbers



Updated about once a quarter

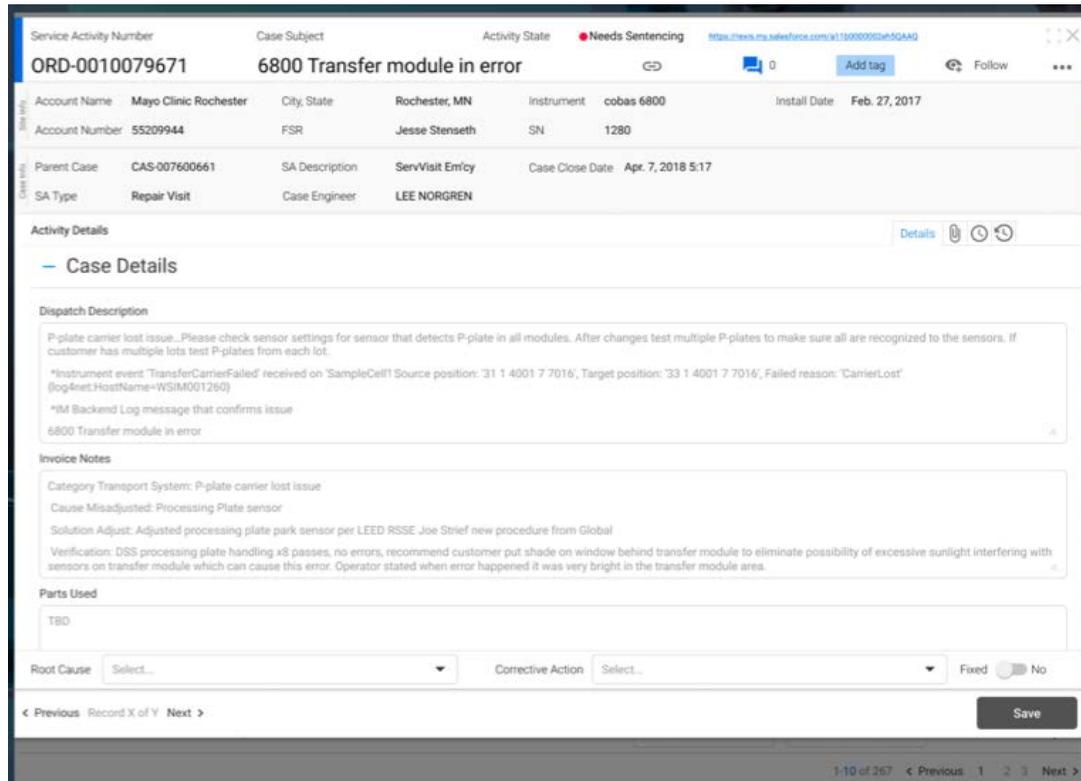
Roche Incident Management Story Map



Conceptualize

What will it look like?

Now you're ready to Wireframe.



Develop

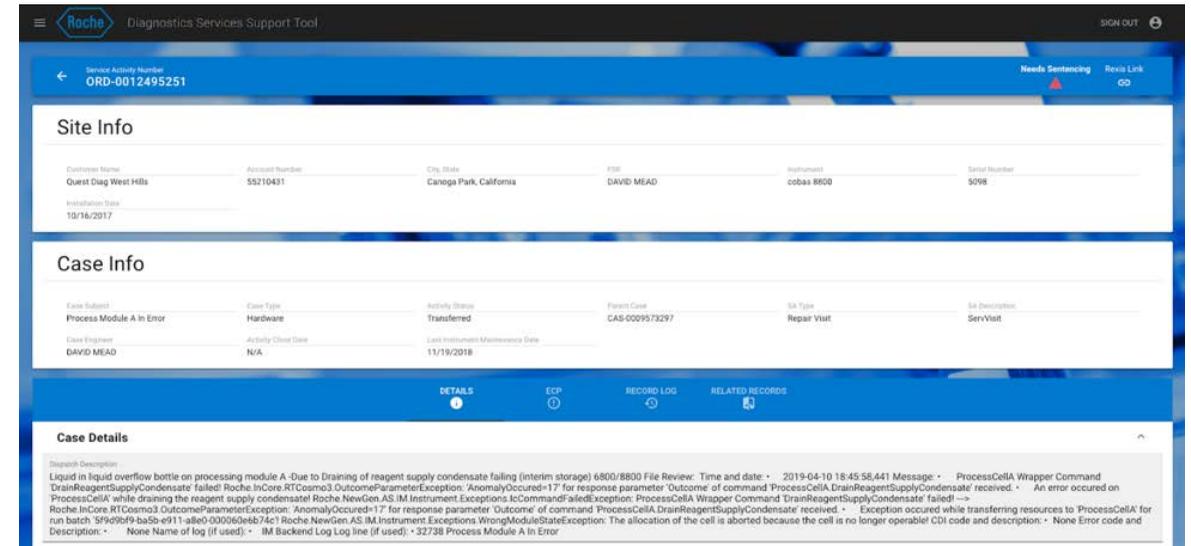
Can we make it work?

Follow an Agile product development path.

Validate

Does it do what we need?

Perform an ROI analysis.



Evolve

Can we make it better?

Leverage our managed service for improvement.

Roche Data Product Roadmap

Current (Q1' 2019)	Near Term	Future
Sentencing Features • Events Table • Sentence Single Event • Website Navigation Stage: Development Objective: Sentence Events	Opportunity Analysis Stage: Validate Objective: ↓ MTTR, ↑ MTBF Persona: RSS	Diagnostics Premium Custom Feature* Objective: ↓ MTTR, ↑ MTBF Sentencing Premium Custom Feature* Objective: ↓ MTTR, ↑ MTBF
	Predictive Sentencing Stage: Conceptualize Objective: Sentence Events Persona: RSS	
	FAS/FSR Troubleshooting Support Stage: Conceptualize Objective: ↓ MTTR, ↑ MTBF Persona: FSR	
Data Management Features • Rexis ETL for Cobas 68/8800 Stage: Development Objective: Sentence Events	CSC Troubleshooting Support Stage: Conceptualize Objective: ↑ MTTR, ↑% Phone Fixes Persona: CSC	Customer Disruption Indexing Objective: ↓ Disruption
	Opportunity Management Stage: Conceptualize Objective: ↓ MTTR, ↑ MTBF Persona: RSS	

Gartner's 6 Steps

Step 2. Be honest, resilient and courageous in calling out inhibitors

Ask "Why?"

It's the million-dollar question. Throughout a Strategy Workshop, asking why allows you to:

- Identify your biggest challenges and align team understanding
- Uncover potential opportunities and solutions for the challenges you'll face

As Gartner says, be honest during this process, and be resilient when challenges come to the surface. After all, this is part of formulating your strategy, which our workshop is structured to help you do.

Our Strategy Workshop approach in more detail

To explain the purpose of our Strategy Workshop a little more, we've borrowed from Moira Alexander's approach to making a business case for analytics projects. She discussed her methodology in a TechRepublic blog post in May 2018, and we've adapted it here.

Alexander's methodology also parallels Gartner's 6 Steps to making your case for an analytics project. We've injected the four remaining steps from Gartner accordingly.

A statement of the problem or opportunity

The whole crux of our Strategy Workshop's activities is to zero in on the problem and opportunity driving your analytics project. For you and your team, you come to understand exactly what the opportunity is. More importantly for decision makers and stakeholders, clearly stating this understanding tells them why they should be interested in pursuing the project you're proposing. This is why we phrase the process as "building understanding to improve the speed of decision".

Gartner's 6 Steps

Step 3. Trace business outcomes back to supporting analytics output and underlying data

An analysis of the problem or opportunity

Remember, a Strategy Workshop provides the evidence and framework to continue developing your solution idea and justifying strategic decisions. Evidence comes by way of, as Gartner puts it, "analytics output and underlying data" that support your business case. But along with why a problem and opportunity should prompt your solution idea to proceed, your analysis should also identify any risks to the business if the project doesn't move forward. As Gartner also emphasizes, the more data, analysis and findings you provide to support positive business outcomes for your analytics project, the stronger your case.

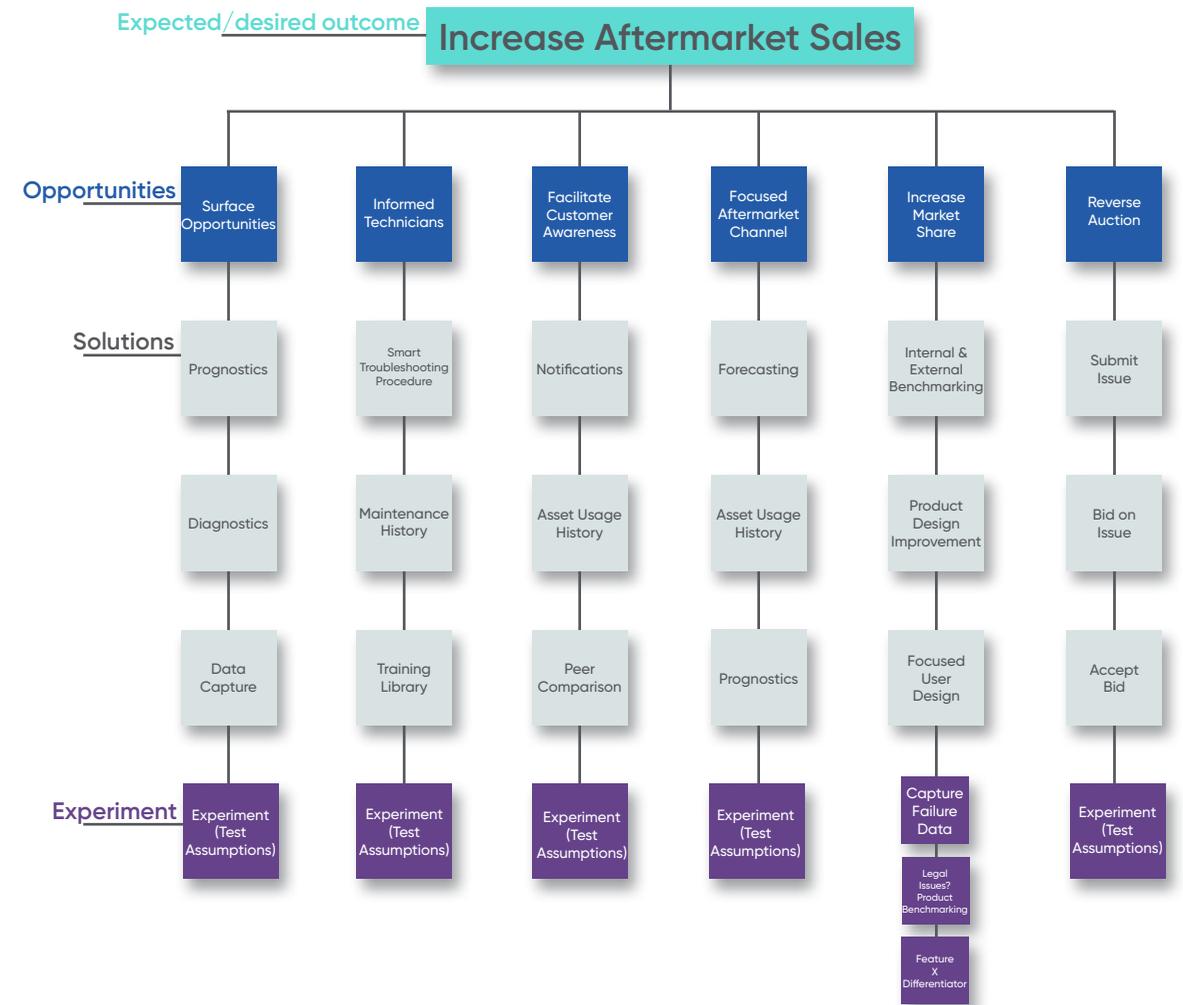
Gartner's 6 Steps

Step 4. Present the high-level analytics roadmap in business terms

A list of possible solutions... an Opportunity Solution Tree

Naturally, your business case should identify every opportunity and every potential solution. Solutions should be clear and realistic, with supporting information describing how and why they're considered to be solutions. Gartner calls this presenting the high-level analytics roadmap in business terms. We call it an Opportunity Solution Tree.

Opportunity Solution Tree -



Gartner's 6 Steps

Step 5. Illustrate a cost-benefit analysis summary for analytics within the overall business initiative

An analysis of costs vs. benefits

To make an informed decision on your proposed analytics project, executives and other stakeholders need to know what the project will cost and its benefits to the business. They'll also want to know the tangible and intangible expenses to the organization if the project doesn't proceed. Within our Strategy Workshop, the design thinking phases to Develop and Validate your analytics solution work together to help you determine both scenarios:

Develop – Can we make your idea and potential solution work? An Agile approach both to design thinking and solution (product) development helps define the answer.

Validate – Does it do what you need? Validating your solution idea lets you make an informed decision whether to move forward to development or not. It's at this point in the Strategy Workshop process that project costs, benefits and an ROI analysis begin to emerge.

Your Mission

Take action

Gartner's 6 Steps

Step 6. State and take three immediate next actions to kick-start the analytics initiative

What commitment does it take? Three immediate next actions

- 1. Pre-workshop planning** – As the project sponsor, we'll need a few hours to meet with you prior to a Strategy Workshop to define the sprint goals, identify workshop participants, agree on a location and schedule, and finalize other details.
- 2. Assemble your team** – We recommend selecting persons from various disciplines of your organization: engineering, product development, data and analytics SMEs, IT, business intelligence, sales, marketing, and so on. (No more than eight persons is preferred.) The workshop requires just 4 hours with you and your team members.
- 3. Post-workshop review** – After the workshop, we'll need just an hour to review the outputs and outcomes of the Strategy Workshop session with you, and to review any proposal for subsequent project steps.

What happens after the workshop?

Once you have an understanding of your key persona challenges and how you might go about solving them, making decisions on what to do next becomes much easier. Many of our clients use their Strategy Workshop outputs to drive internal discussions and select the opportunities they want to take forward.

What is the outcome of a strategy workshop?

- **Documentation** of key personas, the problem, and goals defined in the sprint planning.
- A clear **product/solution vision** that can be used for internal alignment.
- **A break down** of challenges, opportunities and potential solutions in a simple visual for easy understanding.
- An **objective** measure of prioritization for all opportunities.
- A high-level **executive summary** PDF with the opportunities and solutions identified and ClearObject SME recommendations on how to proceed.

Consider these deliverables the evidence you need to make your case for an analytics project, including getting the necessary buy-in from stakeholders and the executive level.

We understand what you're up against. Our Strategy Workshop puts you on the path to a successful analytics project and building the right product – the right way.

What you get...



About ClearObject

ClearObject is a digital transformation leader in Internet of Things (IoT) Engineering and Analytics. As IBM Watson IoT and Google Cloud Business Partners, we deliver global embedded software development environments for our customers, and design and deliver unique data analytics digital products that help them recognize the value of their data. Our objective is clear: help the world's best companies build intelligence into their products and gain intelligence from them. *The future is clear. Do you see it?*

www.clearobject.com

About the Authors

Derek Bleyle is Product Manager, IoT and Data Analytics at ClearObject, where he was also previously a Product Owner. Including his stints as a project manager and service engineer for Belcan Engineering and as a service delivery program manager and service engineer for Rolls-Royce, he has worked in digital product development for going on 12 years. Derek holds a BS in Economics & Mechanical Engineering from Butler University and an MS in Engineering Technology from Purdue University. He is a Certified Scrum Product Owner (CSPO) and is additionally certified in the Fundamentals of Engineering by the NCEES.

Matt Markiewicz is a Systems Engineer for ClearObject's Managed Services Operations and has worked in the IT field for more than 20 years. For the past 17 years, he has specialized in the IBM Rational tool suite as a Rational administrator and consultant. Prior to those roles, he provided support for 400+ users of the Rational software as a technical analyst. Jason is both Scrum Fundamentals Certified and Scrum Master Certified. His industry experience spans federal and state governments, defense, banking, insurance, the automotive sector, and NASA.

Contact us

The path to an analytics project is rarely straightforward, if ever. We can help you define your path, from need to idea to a viable solution, in partnership the whole way. Contact us. www.clearobject.com/contact

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