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rxp

DRIVE YOUR ANALYTICS EVOLUTION

Building an In-House Predictive Modeling Centre of Excellence

PREDICTIVE MODELING COE WHITEPAPER

MANAGEMENT AND C-LEVEL

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"The Alteryx platform really is the foundation of standardising on data cataloging, data prep and blending, data curation and modeling, and model management and deployment all at scale."

—Neil Osipuk
National Alteryx Capability Lead, RXP

As data analytics spreads

throughout your organisation, you'll realise the benefit from having a much greater understanding of your business processes. The capability to predict outcomes improves and efficiency grows. But data science is evolving at a tremendous pace, outstripping the capabilities of traditional analytics departments. With AI, machine learning, prescriptive and predictive analytics taking centre stage in this new analytics era, a modern vision is needed to ensure the organisation can get the greatest possible benefit from these game-changing analyses. You also need to reduce errors and increase efficiency while providing data accuracy and security. Business analysts need to evolve into "citizen data scientists" to bring their knowledge immediately to bear upon analytics problems.

As users across the organisation become more involved with analytics, benefits are magnified, but management and oversight can become more complex. An approach is needed that centralises data and analytics asset management, oversight, training, and security. The approach must act across organisational boundaries, use cases and departments; integrate knowledge and expertise from both analysts and data scientists; and operate at a high enough level to ensure directives are carried out. A solution can be found in the development of a Predictive Modeling Centre of Excellence (CoE). A Predictive Modeling CoE adds higher-level modeling to the Analytics CoE, providing the additional support needed to serve the entire analytics spectrum and its technological and decision-making evolution.

LAYING THE GROUND-WORK

Foundations of a Predictive Modeling Centre of Excellence

A Predictive Modeling CoE is designed to:

- Develop a predictive analytics infrastructure and pipeline of model development
- Improve infrastructure and promote operational efficiency by building a community driven by excellence
- Promote collaboration and communication
- Provide training, consultation, guidance and support
- Promote best practices
- Implement an analytics and modelling methodology framework
- Maximise return on investment (ROI) on your CoE implementation

The Alteryx Platform is ideally suited to implementing a Predictive Modeling CoE. Not only does it provide all of the capabilities needed to manage and catalog analytics assets, but users can also prepare data for analysis, create models through to implementation, deployment and embedding of key analysis into business processes. It is, moreover, a code-free and code-friendly solution that makes it easy for data scientists to custom code in their language of choice, whether R or Python, and empowers citizen data scientists alike to actively create models via a drag-and-drop system. Most importantly, it permits rapid deployment of these models into production where they can be of real value.

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The Alteryx platform lets users access real-time responses and make changes to the models they're building. This automatically creates more trust and visibility between teams.

With a platform established, implementing a Predictive Modeling CoE can be accomplished through Alteryx partners such as RXP Services Ltd. in Australia. RXP's team of consultants design holistic solutions, including Centres of Excellence, within the Asia-Pacific region. Employing a proprietary Lean/Agile project management methodology, using its subject-matter experts and the Alteryx platform, RXP has a successful track record of delivering complex digital transformations in some of the region's largest corporations.

"The Alteryx platform really is the foundation of standardising on data cataloging, data prep, and blending, data curation and modeling, and model management and deployment all at scale," says Neil Osipuk, National Alteryx Capability Lead at RXP. "It is the technological foundation that all of the processes a Predictive Modeling CoE will undertake are built on."

Building Trust

You need to establish trust to make predictive analytics work, and this demands process transparency. People need to understand what data is being used, how it's being used and how well prediction matches reality. This is a key area for the Predictive Modeling CoE. Trust demands teamwork, and teams need to work together. Building a relationship between the analytics team and business leaders demands elimination of "black box analytic latency." Traditionally, stakeholders ask a question, the data scientist disappears for a while and returns, the stakeholder follows up with a secondary question and the cycle repeats. Because analytics is iterative, questions beget questions. Business leaders want answers that can be trusted and understood, but they also need a rapid exchange of results. The Alteryx platform lets users access real-time responses and make changes to the models they're building. This automatically creates more trust and more visibility between the two teams.

"When business leaders say, 'I don't trust the information,' or, 'I don't trust this piece of analysis,' more often than not what they're actually saying is, 'I don't understand how you got to that conclusion,'" says Osipuk. "Being able to articulate how you reached a conclusion and the assumptions made along the way provokes a real discussion. You can then discuss the results and the data. This is a high-value conversation because you can change your analytic assumptions or fix the data. If you provide transparency through leveraging solutions like the Alteryx Platform, people start to trust the process more because they understand the process."

Alteryx Connect provides complete data lineage so you can see where the data comes from, what happened to the data and where it's going. It provides an abstract view that helps to ensure the right people have the right access to the right data and are doing the right thing with it. This aids in building trust in the process, at the same time providing process security. Automatic documentation also makes models easy to transfer to other users, or to understand them if someone leaves the group.

Predictive Modeling CoE Design

"In creating a Predictive Modeling CoE you need to focus first on the key questions driving interest in a CoE," says Osipuk. "You need to create a problem statement that can be transformed into a business case providing the potential ROI in implementing the centre, as well as for use of predictive analytics. It's important to review issues such as interoperability with both IT and business, and ease of deployment."

A Predictive Modeling CoE differs from an ordinary Analytics CoE because predictive analytics focuses on modeling outcomes with its multiple iterations and special data requirements, being fully informed of past events, near-current

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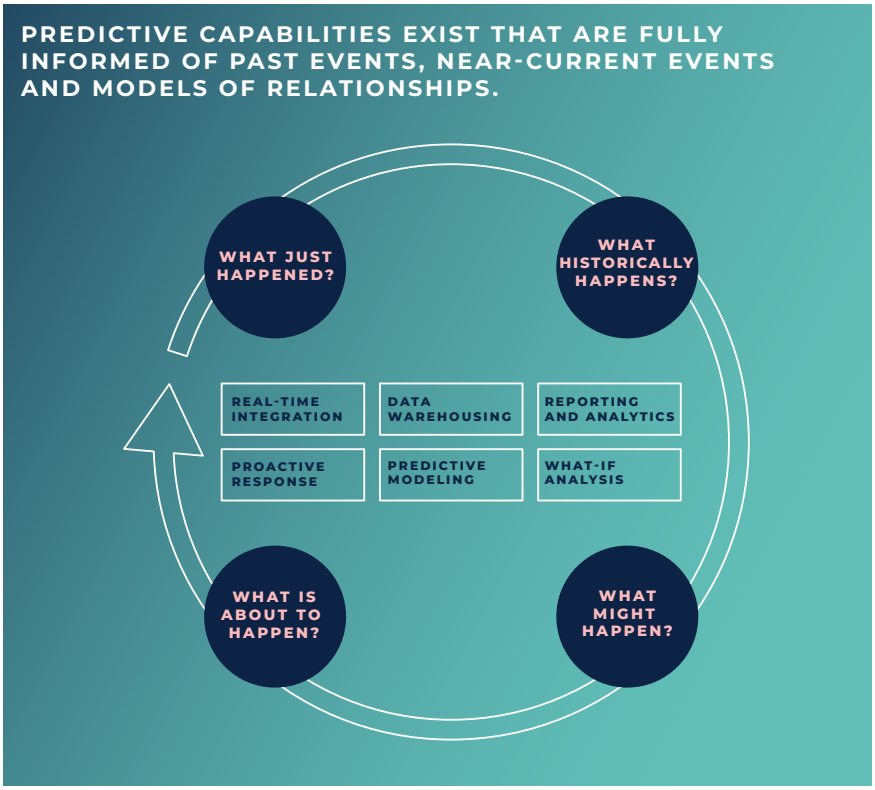
"Bridging the gap between traditional business analysts and the new world of data science is a key mission of a Predictive Modeling CoE"

—Neil Osipuk

National Alteryx Capability Lead, RXP



events, and models of relationship. The CoE generally embraces the whole analytics spectrum, but has special provisions for higher levels of analysis.

In predictive analytics, data cleansing and preparation are also different from those of descriptive and lower-level analyses. This can take a lot of time and special expertise. Managing and preparing data correctly leads to fewer errors and greater trust in results.

Engaging the Citizen Data Scientist

Engaging citizen data scientists is critical to a responsive analytics program. These business analysts need real-time validation via visual indicators while they're working on the data to validate their analysis direction and results. Building confidence that analytics models are accurate is critical to Predictive Modeling CoE success. The Alteryx Platform provides in-line visualytics within the actual workflow to allow business users to see what's happening with their data as they work with it, and change course of the analysis or make adjustments as they see what's happening with their data. This helps them to build confidence in their ability to create sound insights.

Prediction is at the high end of the analysis hierarchy of descriptive, diagnostic, predictive and then prescriptive approaches. Although very powerful for business results, it's difficult to bring this capability within range of citizen data scientists. Empowering citizen data scientists for predictive analytics is just one-half of the equation. On the other hand, to enable experienced data scientists to pursue high-value analysis and models such as prescriptive or machine learning you need to free them from performing basic repetitive tasks. The Alteryx Platform makes it possible to take those basic analytic tasks and put them on autopilot so they run seamlessly in the background.

"Bridging the gap between traditional business analysts and the new world of data science is a key mission of a Predictive Modeling CoE," says Osipuk. "It can energise

and empower analytic users at all levels to take advantage of emerging capabilities. It takes them on a journey from data prep and blending into the advanced analytics capabilities, and on to production with predictive models with Alteryx."

Finding Value

The main point of predictive analytics is to answer a very specific value-finding or value-saving question. This is very different from descriptive analytics. The way this output information is used within an organisation is also more varied. Visualisations can be output to applications such as Tableau and Power BI, but there are other ways to consume analytics such as reporting, email, or quietly embedding it into business processes. These processes might be internal or external, such as websites or consumer-facing processes like the Netflix recommendation engine. In building a Predictive Modeling CoE, you need to recognise that the range of use cases for these models is extremely wide. Your technology platform needs to be able to support this breadth of operation.

"It's also important to remember the value of predictive analytics, or of any analytics, is only achieved if people actually make decisions to change something or consciously continue with something at the end of these processes," says Osipuk. "Unless end users are empowered and enabled to do things differently, all we're doing is producing numbers for the sake of producing numbers."

Analytics needs to actually empower change in an organisation rather than just be isolated outputs of a process. This is an important aspect of the Predictive Modeling CoE that goes beyond the technology alone; it must be an agent for cultural change, and help to engage predictive outputs with the business.

GUIDING PRINCIPLES

Setting up a Predictive Modeling CoE requires a deep understanding of how your business is organised, its decision-making process and the environment in which it needs to operate. RXP has a trusted program for discovering and encouraging these critical factors. It covers:

- Understanding the current decision-making process
- Asking the right questions
- Starting small and identifying project champions
- Complying with established data governance
- Quantifying ROI

Understanding the Current Decision-Making Process

Part of RXP's initial engagement with clients is gaining an understanding of their current maturity level with advanced analytics, and their overall data and analytics environment. How decisions are made is critical in identifying your analytics needs. How your Predictive Modelling CoE is staffed, and its areas of concentration, need to match the data and analytics environment.

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"Starting small with a focused project, you can demonstrate ROI as a way of building trust and confidence with the key stakeholders and sponsors of the program."

—Stephen Wayne
National Director, RXP

Asking the Right Questions

For each query, you need to determine if this is a one-time question or needs ongoing tracking. This is part of developing decision-making processes that ensure optimal CoE operation. RXP provides a simple collaborative strategic planning exercise beginning with a single workshop. If you ask the right questions, your outcomes will be more successful and you'll achieve a better ROI. As an added bonus, these efficiencies help to free up valuable time for data scientists and business experts to focus on higher-value issues.

Starting Small and Identifying Project Champions

Establishing stakeholder trust and confidence throughout CoE implementation processes through to its analytics results is critical. You need to view this in the same way you would view any other complex business process. RXP understands the issues, and helps you with a gradual implementation. Starting small and moving forward as confidence builds helps to ensure continued executive buy-in. Support from the top of your organisation is also important. You need to find executive project champions who can ensure the Predictive Modeling CoE has sufficient visibility to retain interest and funding.

Complying with Established Data Governance

The Predictive Modeling CoE initiative must comply with established data governance. Otherwise, chaos can ensue and there will be crossed signals over expectations. You must establish a governance roadmap to engage and empower the data stewards. Governance should also be linked to change management in moving to the new processes. RXP is experienced in guiding governance transitions, particularly in its impact upon jobs as "people" are a key focus of the Predictive Modeling CoE.

Quantifying ROI

RXP helps you to compare results and outcomes of the predictive model with previous decision making. This is part of the company's "secret sauce," and makes it possible to quantify ROI for the CoE. A key factor in establishing ROI is to start small.

"It's like drilling for oil," says Stephen Wayne, National Director at RXP. "You drill a lot of pilot holes until oil is struck. Then you set up your refinery and processes around the discovery. In this case, oil is the business value. Starting small with a focused project, you can demonstrate ROI as a way of building trust and confidence with the key stakeholders and sponsors of the program."

As with drilling for oil, it's important for stakeholders to know that failure is also a part of the process. These are the pilot wells. Starting with small projects lets you fail quickly and then move onto the next important question or to refine the question.

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The Predictive Modeling CoE must take responsibility for training analytics users and monitoring analytics operations to ensure they provide correct, consistent, and accurate results.

OPERATIONAL CONSIDER-ATIONS

Your Predictive Modeling CoE needs to unify practices and provide guidelines for analysis across boundaries of organisation and expertise. You need to set up processes that can be applied repeatedly to business cases throughout the organisation, whether queries are initiated by data scientists or by citizen data scientists. The Predictive Modeling CoE must take responsibility for training analytics users and monitoring analytics operations to ensure they provide correct, consistent, and accurate results. RXP helps you with:

- Transforming the problem statement
- Defining and curating the right dataset and model
- Helping users use the solution appropriately
- Engineering the data

Transforming the Problem Statement

Analysts at any level of expertise need to transform the problem statement, business case, or high-level requirements into a series of questions or tests to be solved. Without knowing how to do this, you cannot understand what you're looking for. This transformation simplifies the analytics process, provides clarity and permits the solution to one question to help in solving another.

Defining and Curating the Right Dataset and Model

Perhaps the most critical area for predictive analytics is defining and curating the right dataset and type of model to optimally solve questions. Decisions must also fall within business expectations around time taken, data availability, solution accuracy, error rates and applicable regulations. Citizen data scientists often require guidance here, because these considerations differ from the ordinary expectations of business.

Helping Users Use the Solution

Helping users maximise use of the solution is an important aspect of RXP's consulting process. You need to have adequate training available for the software, as well as for procedures within your organisation. RXP has conducted customised training programs for major clients, which have included predictive analytics. Promoting knowledge sharing within the broader organisation and within external user communities is important. To meet that need, RXP has implemented internal user groups to continue on with internal knowledge sharing and cross-training, as well as encouraging users to tap into the deep knowledge base of the Alteryx Community site.

"Getting users up to speed with Alteryx is made easier by its user-friendly GUI, drag-and-drop operation, and focus on enabling the citizen data scientist while still supporting the more sophisticated user," says Osipuk. "Alteryx also offers open core training modules from descriptive to predictive on a regular basis, so that people can self-educate and continue to upskill themselves easily and quickly."

Engineering the Data

You need to consider data engineering as a key infrastructure element in any Predictive Modeling CoE. Every implementation takes place in a different data

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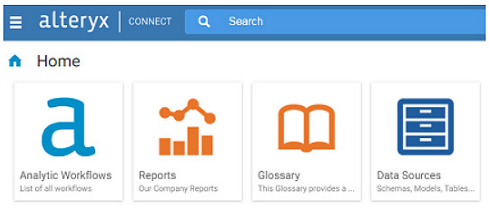
environment, and focuses on different types of questions. Location, storage and types of data available can all be of importance. You need to look at important questions of governance for the Predictive Modeling CoE. On the operational side, automating and monitoring solution steps is part of the advisory role the Predictive Modeling CoE needs to play in ensuring that analytics results are accurate and repeatable.

THIS IS ANALYTICS TURNED UP TO ELEVEN

DISCOVER + COLLABORATE

ALTERYX CONNECT

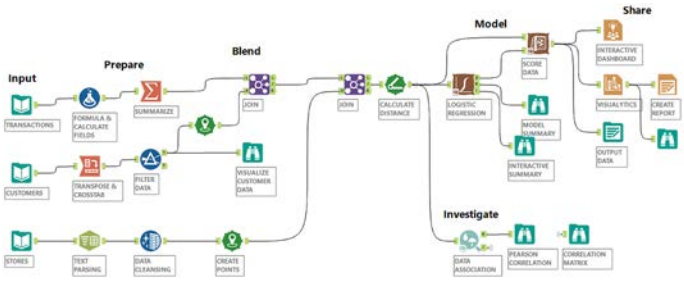
Find Analytic Assets and Amplify Insights



PREP + ANALYZE/MODEL

ALTERYX DESIGNER

Build Repeatable Analytic Workflows



SHARE + SCALE/GOVERN

ALTERYX SERVER

Schedule, Share, and Scale Analytics

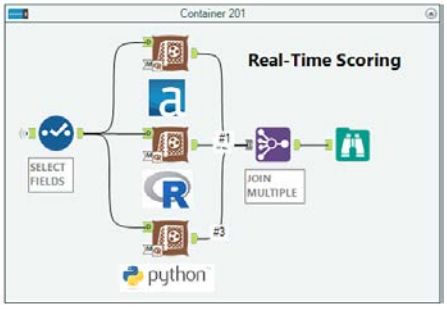
- Automated scheduling & data refresh
- APIs, SDK, web services
- Administration & monitoring

- Web interface for sharing apps
- Built in security, data access and version control
- Scalable architecture

DEPLOY + MANAGE

ALTERYX PROMOTE

Data Science Model Production System



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WISDOM FOR THE JOURNEY

RXP, Alteryx and Predictive Modeling CoE Implementation

"For RXP one of the key reasons we choose partners such as Alteryx is the ease of adoption of the technology," says Paul Stewart, group manager of Sales at RXP. "These days, few businesses can afford the luxury of employing the huge coding team needed to build and maintain a number of competitive products. We find the ease-of-use, flexibility, and robust analytics features that the Alteryx platform provides make it an extremely accessible tool for citizen data scientists and a productivity multiplier for trained data scientists."

RXP has a variety of services offerings, ranging from providing a single systems integrator and managing an implementation, to an "RXP-as-operator" model where the company runs the entire Predictive Modeling CoE on the client's behalf.

At each decision-making level there are associated cultural changes, processes, governance, modeling and technical requirements needed to support Predictive Modeling CoEs. RXP has created a set of tested procedures for client engagement in a Predictive Modeling CoE implementation. These include:

- Promoting best practices
- Implementing a governance framework
- Maximising ROI
- Building a community driven by excellence

Promoting Best Practices

Best practices for predictive analytics depend on the client's analytics maturity level, and the

surrounding technological and social environment. These can be vastly different between implementations. Developing best practices includes:

- Best-in-class documentation and training content tailored to the specific environment of the client
- Delivering virtual and classroom best practices training
- Building a certification process to reward the learning and use of best practices

Alteryx supports these objectives by providing in-program documentation, program documentation, training modules and access to a large user community.

Implementing a Governance Framework

Governance is a critical factor, not only in the success of Predictive Modeling CoE deployment, but in the success of analytics in general. Governance ensures the right data is available in the right form at the right time to the right people. With the involvement of citizen data scientists, you need to establish and promote good data practices, and ensure that users are aware of how data issues can affect the organisation. Implementing governance includes:

- Identifying, coaching and engaging the right individuals and subject matter experts (SMEs) to form a balanced governance structure
- Driving the governance structure to focus on results and decision making
- Defining efficient and automated processes to carry out appropriate maintenance
- Promoting the influence and authority of the SMEs in the user community

RXP leverages the Alteryx Platform to support analytic governance, which provides a suite of data management and cataloging functions capable of ensuring the right users have the right access to the data they need and are allowed to use, and that there's clear lineage and documentation when building models for analytics use.

Maximising ROI

A positive ROI is critical for gaining stakeholder buy-in for the Predictive Modeling CoE project. While ROI is often tricky due to intangibles such as efficiency and cultural benefits, there are many ways to develop and prove a business case. To create a positive ROI, you need to investigate the operations of the Predictive Modeling CoE. This requires:

- Defining and producing KPIs to optimise platform health, process relevance, process efficiency and customer experience

The Alteryx platform provides clearly stated benefits in this area through efficiencies, making better use of expensive data scientist time, and empowering citizen data scientists to swiftly solve critical business problems. These capabilities, aligned with implementation best practices, can ensure a significant ROI for the Predictive Modeling CoE.

Building a Community Driven by Excellence

Ultimately, success of the Predictive Modeling CoE depends on your organisational community. This includes all stakeholders, including data scientists and other analysts, citizen data scientists, executives, and other analytics users. It's important to build and support this community and cater to its needs, promoting a standard of excellence in all analytics. RXP supports this by establishing procedures for:

- Helping SMEs build their own community of practice and engage with their users

- Engaging users through community events, presentations by expert speakers and other methods
- Listening to the community, understanding their issues and driving continuous improvement
- Defining pathways and rewards for technical learning and development
- Providing day-to-day technical support to users
- Rewarding excellence through peer recognition and recognition programs

Alteryx supports community development through its inbuilt collaboration and community-building features. It provides pathways for self-training, as well as access to the wider global community of Alteryx users.

KEYS TO THE DATA KINGDOM

A code-free and code-friendly unifier.

Right now, predictive functionality in the workplace tends to be quite restricted. Users need to be either coding experts in R or in Python, or employ cumbersome specialty tools that were never designed with the citizen data scientist in mind.

The code-free Alteryx Platform environment is built for the citizen data scientist and provides a drag-and-drop interface that gives citizen analysts the ability to move progressively and easily between analytic components, tying processes together like a circuit to tackle more sophisticated analytics tasks. The GUI forms the core of what an analyst needs to use in prepping, profiling, manipulating, and preparing the data and then moving into analysis—whether the analysis is descriptive, spatial, or one of the easier predictive capabilities. The code-free GUI presents a unified platform to support an end-to-end data science lifecycle for business analysts.

In addition to code-free capabilities, the Alteryx Platform provides a code-friendly environment. This is a key component of a modern analytics platform designed to support a truly modern Predictive Modeling CoE as it empowers data scientist and citizen data scientist a common analytic platform that they can both use with ease. The code-friendly aspects of the Alteryx Platform allow those who are well-versed in R, Scala and Python—and want to use Alteryx as an execution engine—to do so. They can package their code into an Alteryx workflow to get the same automation and scheduling freedom given to citizen data

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"In just two weeks, RXP can help clients understand areas in their business that will benefit from predictive analytics or help them get started with establishing a Predictive Modeling CoE."

—Neil Osipuk

National Alteryx Capability Lead, RXP

scientists. More importantly, this bridges the analytical language gap between the citizen data scientists and data scientists, ensuring the two teams can communicate. The Alteryx code-free and code-friendly components become a unifier. The citizen data scientist can create a workflow and pass it to a data scientist, who can provide feedback. The data scientist can also choose more sophisticated models, package them, and send them back to the citizen data scientist to leverage. This can be repeated over and over again.

Another key benefit is in the speed and ease of use when you want to deploy the model into your operational processes. Modeling environments are often different from target operational environments in coding style and language. The Alteryx Platform provides value by taking your model and embedding it within processing systems without month-long DevOps and IT projects. Simple rest APIs make it easy for data scientists to rapidly deploy models and maintain control over them.

HOW TO GET STARTED

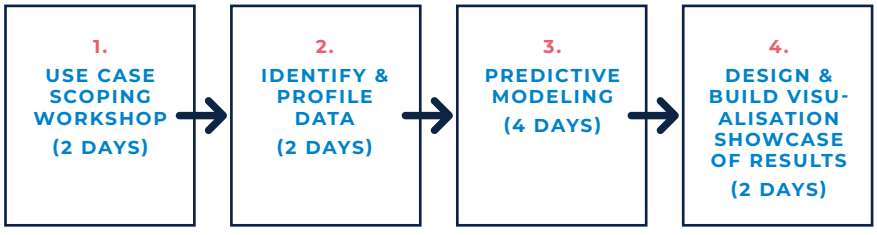
With the right partners in place, getting started with a Predictive Modeling CoE need not be a daunting task. "RXP helps its clients start along the road to a Predictive Modeling CoE by helping to identify use cases aligned with ROI in the business," says Osipuk. "This is then linked to the implementation plan. In just two weeks, RXP can help clients understand areas in their business that will benefit from predictive analytics or help them get started with establishing a Predictive Modeling CoE."

RXP's two programs in this area are predictive analytics Use Case Scoping and Predictive Analytics CoE Alignment.

Predictive Analytics Use Case Scoping

Use Case Scoping is a training program that provides a set of hands-on modules identifying basic ways to understand predictive analytics applications. This includes:

- Use case scoping workshop
- Identify and profile data
- Predictive modeling
- Design and build visualisations



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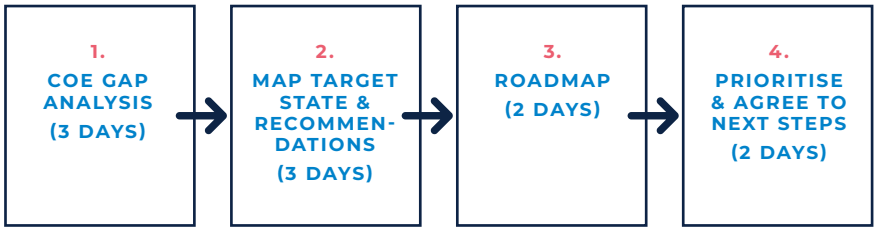
Predictive Analytics CoE Alignment

The Predictive Analytics CoE Alignment program includes hands-on modules focusing on understanding requirements and developing an implementation plan for deployment of a Predictive Modeling CoE. The emphasis is on meeting the real needs of the business and reviewing the benefits available in a Predictive Modeling CoE, and the changes needed to get there.



NEXT LEVEL OF EXCELLENCE

Establishing a Predictive Modeling CoE is an important step in moving your company to the next level of excellence in analytics. By providing the management structure and tools to work with the entire range of the analytics spectrum, the Predictive Modeling CoE helps to spread data literacy and data-driven performance across organisational boundaries, and improves cooperation between data scientists and business leaders. It also encourages, trains and supports citizen data scientists as they develop new competencies and frees the data scientist to focus on the complex challenges they were hired to address.

Working as a team, RXP and Alteryx help build your Predictive Modeling CoE, taking your organisation to a new level in capability, efficiency and performance.

For more information about RXP Services visit rxpservices.com or contact info@rxpservices.com.

For more information about the Alteryx Platform, visit alteryx.com or contact us at www.alteryx.com/contact-us.

RXP Services Limited is a publicly listed, practice led Digital Services Partner with specialist consultants across 5 offices and 7 practices in the Asia Pacific region. We bring together creativity, design, insights and technology to help create Happier Humans.

Alteryx Inc. offers an end-to-end analytics platform, which empowers people to break data barriers, deliver insights and experience the thrill of getting to the answer faster. Business analysts and data scientists alike can discover, share and prep data, perform analysis, and deploy and manage analytics models. Enterprises all over the world rely on Alteryx to deliver actionable insights daily.

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