National Innovation Centre for Data
How a global company learned to harness its data – and create products for the future

AkzoNobel is a global expert in paint and coatings. Its products are used to decorate homes and businesses, protect pipelines and turbines, and to coat aircraft, automotive vehicles and even marine vessels.

Working with Newcastle University’s National Innovation Centre for Data (NICD), AkzoNobel’s representatives built predictive models that would provide customers with vital business insights, as well as a quality product. And – what’s more – they learned some of the skills that would allow them to turn more of their ideas into reality in the future.

“This is a real transformation for AkzoNobel; to develop from a company that sells paint, to a company that provides APIs and data, and is engaging with start-ups around predicting the performance of its coatings in the future. That’s really exciting.”

Richie Ramsden, section leader functional services – Data Insight Team, AkzoNobel

Meet NICD

The National Innovation Centre for Data (NICD) enables organisations to discover the true value of their data. Drawing on the expertise of researchers, students and academics at Newcastle University, it offers data analytics skills that allow companies to become more efficient and innovative, and increase revenues.

For more information, go to [www.ncl.ac.uk/nicd](http://www.ncl.ac.uk/nicd)
The company

AkzoNobel is the international firm behind recognised brands such as Dulux, Sikkens and Interpon powder coatings. As a leader in the field of paint and coatings, it is active in a variety of industries, including aerospace, oil and gas, mining, power and the marine shipping sector. It employs 35,000 people across the world and operates in more than 80 countries.

The goal

AkzoNobel has a history going back hundreds of years. But even the most established companies have to keep their eye on what’s coming around the corner. In setting up its Innovation Incubator, the company pledged to back promising ideas, particularly in areas where uncertainty and risk were high. The aim was to develop or support innovations that would make up a substantial proportion of its turnover by 2025.

The company approached the team at NICD with two goals in mind:

• To help it use its data to create models that could benefit customers
• To learn some of the skills that would enable it do more of this work in-house

The results

With the help of NICD staff, AkzoNobel representatives undertook a six-month project at Newcastle Helix, a North East-based international science and technology hub. In that time, they:

• Cleaned and analysed data from different locations, and in different formats
• Developed a Minimum Viable Product that could offer real value to customers
• Learned a variety of skills in predictive modelling and machine learning
• Encouraged other AkzoNobel staff to consider how they could develop their own ideas

“We want to be a leading digital company as well as a traditional paint company. NICD really helped us to understand the skills we didn’t have, some of which we didn’t know we needed.”

Richie Ramsden, section leader functional services – Data Insight Team, AkzoNobel
Corrosion in motion

When you’re operating a fleet of marine vessels travelling the world, you’ve got to take care of your hulls. AkzoNobel sells anti-corrosive coatings which help to protect hulls from everything from salt water damage to barnacles.

These coatings can last as long as 25 to 30 years, but ships still need to check back into dry dock every five years or so to assess how the vessel is performing in general. Vessel operators want to keep time in dry dock to a minimum, so they can save time, money and fuel. So AkzoNobel needed a solution that would allow customers to predict how their hulls were holding up, without having to wait for a docking or dive inspection.

“If you own a building and you want to know if the paint is still doing what it’s supposed to, you can go and have a look”, says Richie. “But if it’s on the underside of a ship moving around the world, it’s much harder and more expensive to do that.”

From “descriptive” to “predictive” data

AkzoNobel is no stranger to collecting data. As a leading international operation, it collects business intelligence from many different markets and sectors. These go into descriptive analytics dashboards which help teams monitor how much has been sold, and where.

In recent years, it had also worked with consultants on projects that pooled data into “predictive” models, which would help it make smarter decisions. But that arrangement meant that the company was reliant on external skills, or products that could be sold, changed or shutdown.

“We were having the ideas internally, but really outsourcing to other people to do that work for us”, says Richie Ramsden, from AkzoNobel’s Data Insights Team. “We decided that a project with NICD that could help us upskill – or at least understand some of the skills we needed – was really vital.”

They even had a project in mind…
The company had worked on a similar project in the past, and had extensive insight into the factors that caused corrosion. It even had a range of datasets it could draw on, including the positioning of 80,000 vessels, taken every 15 minutes for the last nine years.

What it needed was a collaborator that could enable it to understand and prepare the data it needed.

“We have data scientists in house, but we realised it was a much larger project than just building predictive models”, says Richie. “It was about data engineering – bringing data from multiple places, understanding the cloud aspect of the project and scaling the computing.”

AkzoNobel is a longstanding supporter of Newcastle University’s EPSRC Centre for Doctoral Training in Cloud Computing for Big Data, which trains future leaders in data analytics. So they knew the benefits of working with people that had a strong balance of skills.

“70 to 80% of your time on projects like these is spent cleaning and quality controlling the data, and that’s why the skills at NICD are so crucial. It’s not just about having statisticians. You’ve also got to have the parallel processing part of your skill set. That’s one of the reasons why the CDT at Newcastle University is so good, because it teaches that range of skills.”

The company met with NICD in February, and started the project at Newcastle Helix in mid-April. NICD Deputy Director Barry Hodgson says NICD’s role in the project was as a “critical friend”, rather than a conventional research partner or consultant.

“We’re not the consultant for hire. It’s a co-creation relationship. We’re the friend that works with you and says: ‘That’s good, but have you thought about it this way?’ It’s a collaboration, but ultimately it’s led by the company, and what it needs.”

Early in the project, Richie held a team meeting at Newcastle Helix, bringing members of the Incubator in to brief them and invite them to ask questions of the NICD team.

“That was really crucial for getting buy-in. People come in and see the skills that are available. They see the buildings being built. They see that money is being invested here, and the quality of people here. There’s a whole ecosystem to draw on.”
DRYDOQ emerges

While the idea was to train a core team as part of the project, Richie was keen to bring as many people on-site as possible to experience what was happening.

“We had people based at Helix who we wanted to upskill, but we brought several people in to sit with the team and absorb some of the language and knowledge”, says Richie. “Some people we invited along were trying to change the way that data was being used and collected in their departments. So they’re exposed to this sort of work, and then go away and start thinking about what else might be possible.”

Meanwhile, the team learned more about the data that was available and how it might be used. They considered the formatting of data, and how it could be shared securely and seamlessly.

“When we started, we thought we might take what had already been created, and scale it up. What actually happened was that we almost completely re-built it from the ground up, and created something even better.”

By September, they had created two models.

• One would enable customers to gauge the corrosion status of a hull, presented in a red, amber or green status
• Another would present the level of corrosion as a percentage, which would enable customers to estimate the amount of paint that would be required in dry dock

These models form the basis of DryDoQ Insights, a predictive tool that helps AkzoNobel customers make better decisions about how to maintain and protect their fleets. The company began testing the MVP at the start of the year.

“We’re providing Vessel Operators with insight into their vessels”, says Richie. “We’re also talking to adjacent customers, from dry docks to ports and people who charter vessels. Instead of a transactional business model, we are offering the opportunity to make data-driven decisions.

“This is where a lot of businesses are going now. It’s not just about selling products. It’s also about selling what the product does, and helping customers understand it better.”
Future ideas are born

The collaboration with NICD didn't just lead to the creation of a new project. It also provided AkzoNobel with more understanding of the skills involved in creating products.

Richie says: "We've learned about machine learning and data analytics, so that we know what goes into running this kind of project again. And we also know what abilities are required, so that we can put together a specification to recruit for people with these kinds of skills."

In January 2019, AkzoNobel launched Paint the Future, a start-up challenge which encourages institutions, teams and experts to work with the company to develop ideas, improve processes and come up with inspiring solutions.

Through working with NICD, Richie says the Data Insights Team now has a more rounded understanding of how to secure and share data, and make the most of these link-ups.

The excitement of the NICD project has also filtered down to other AkzoNobel staff. Other departments are already considering how similar projects would enable them to deliver efficiencies and new products.

"Saying we’re working with the National Innovation Centre for Data is a big thing. And I think that’s borne out by the way that people are exploring other projects as well. This has been successful and we’ve got something out of it. Others in AkzoNobel are seeing those positives and talking about running other projects.

"If you talk to anybody in research, sales and marketing, everybody’s talking about how they can use the data they have better. They’re looking at us, and asking what skills they need to do something like this.

"With NICD’s expertise, we’ve used a wealth of data to build digital products for the future, and that feels really exciting to me."
To learn more about how working with the National Innovation Centre for Data at Newcastle University can help you learn more about the potential of your business, contact:

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