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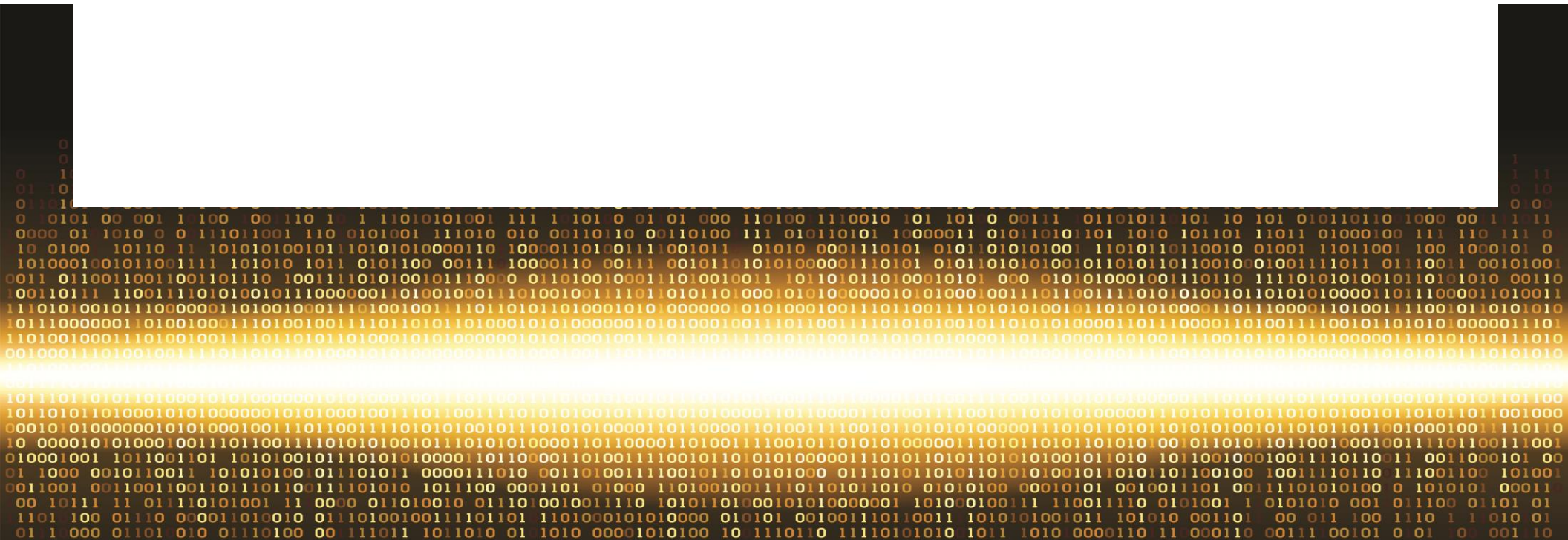

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In this e-guide find out how a group of Dutch banks are getting together to pool their data resources in the fight against money laundering.

Banks across the world are failing to stop money laundering, a massive proportion of which is associated with organised crime, and with regulators beginning to hand out large fines, banks now see investment in anti-money laundering a necessity. ING, one of the banks in the project, was fined €775m last year after the regulator said the bank failed to prevent the laundering of hundreds of millions of euros between 2010 and 2016.

The vast number of transactions being processed by the five Dutch banks can give great insights about the behavior of people initiating them. Together, the five banks involved handle 9.8 billion payment transactions every year, or 27 million transactions each day.

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Applying technology like machine learning to transaction data could significantly increase the proportion of money laundering activity that is detected and blocked, which as a percentage is currently in the low single digits.

It is projects like this that are driving demand for data science skills. To this end a Dutch initiative is trying to put the country on the AI map. Read more about it in this e-guide and find out how the UAE is going about establishing itself as an AI hub of expertise in preparation for future economic benefit.

Karl Flinders, EMEA content editor

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ABN Amro investigation lends weight to anti-money laundering collaboration by Dutch banks

Karl Flinders, Emea Content Editor, Computer Weekly

Dutch bank ABN Amro is being investigated by regulators for allegedly failing to properly monitor and report potential money laundering activity.

Regulators are clamping down on banks that have inadequate technology and processes in place to spot money laundering activity, much of which is linked to terrorism and organised crime.

The criminal investigation by the Dutch public prosecution department was announced in a statement from the bank.

"The Dutch public prosecutor informed ABN Amro that the bank is the subject of an investigation relating to requirements under the act on the prevention of money laundering and financing of terrorism," the statement said. "ABN Amro will cooperate fully with the investigation."

Currently, only a small percentage of money laundering activity is spotted. With regulators clamping down on banks failing to prevent it, IT departments will play

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an important role in ensuring banks comply with strict regulation and avoid heavy fines. Tech startups are also building businesses around this problem.

ING was fined €775m in 2018 after the regulator said the bank had failed to prevent the laundering of hundreds of millions of euros between 2010 and 2016.

Bambos Tsiattalou, founding partner at specialist criminal and civil litigation firm Stokoe Partnership Solicitors, said: "ABN Amro's failings to prevent money laundering over a long period of time highlights a systemic problem within the banking sector. Such organisations must adopt a more risk-based approach towards anti-money laundering, in particular how they conduct due diligence."

According to the Dutch banking association, NVB, about €16bn of criminal money is circulating in the Netherlands, most of which is connected to the drugs trade.

Banks in the Netherlands – ABN Amro among them – recently announced a collaboration that will see them work together to improve their ability to spot suspicious transaction activity that could be linked to money laundering.

ING, Rabobank, Triodos Bank, ABN Amro and Volksbank are to set up an organisation that will monitor their combined transactions, with the aim of improving their chances of identifying and stopping money laundering.

The banks, which between them handle 9.8 billion payment transactions every year, plan to jointly set up a standalone operation that will combine huge

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volumes of transaction data with their vast IT expertise to focus on anti-money laundering (AML).

The group of banks involved could expand beyond five if the project is successful.

There are options for banks as startups focus on an area where regulations are getting tighter and the risk of heavy fines is forcing banks to invest in anti-money laundering products and services. Tech startup Comply Advantage provides on-demand cloud services to banks, via Amazon Web Services (AWS), including transaction monitoring.

Luke Mawbey, vice-president of engineering at the company, said financial services companies need to understand who they are doing business with. He said the company works with large banks across the world.

"The reason we exist is because the problem with money laundering and terrorism financing is so badly addressed. About $2tn is currently laundered every year – less than 3% is detected and a small part of this prevented," said Mawbey. "This cannot be considered a success – it needs to be approached in a different way."

The traditional way of collecting data to spot money laundering is intensely manual, including analysts reading articles and updating profiles, and doesn't use modern computing techniques, said Mawbey.

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A large proportion of the checks being made by human operators are based on false positives. This is very expensive with a very small success rate. Today, machine learning and natural language processing not only replaces the manual work, but far exceeds it in terms of capacity. Machines can read many more articles than humans and can automate anti-money laundering processes.

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Dutch AI Coalition wants to put the Netherlands on artificial intelligence map

Kim Loohuis

Organisations working in the Netherlands' artificial intelligence (AI) space need to collaborate to ensure the country keeps pace with developments across the world, or the country could be left behind.

Superpowers are building up their lead in the field of AI and, according to Kees van der Klauw, coalition strategist at the programme office of the Dutch AI Coalition, it is crucial for the Netherlands to claim its place in the field of AI.

Van der Klauw said the AI industry in the Netherlands is divided. "In order to make an impact, we need to work together," he said.

"The point with AI is that the winner takes it all. The one who is first able to make a good application gets customers. These customers feed the application with data, which makes it even better. If you get in later, it is difficult to catch up with that lead."

Van der Klauw was referring to the US superpowers such as Google, Amazon and Facebook. But the fact that these organisations have been collecting all kinds of data from users for years in order to use that information and

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knowledge does not mean there are no more opportunities for the Netherlands, he said. "There are indeed. Think in particular of the link with application areas. The combination of domain knowledge with knowledge of AI can lead to an enormous acceleration."

The Dutch AI Coalition wants to bring parties together to share knowledge and create a critical mass. These collaborating parties come mainly from the government, the business community, research and education, but citizens and end-users are also taking part. In the two weeks leading up to the official launch of the coalition, more than 60 institutions and companies have registered to participate.

"This is a good reflection of the parties we want to involve," said Van der Klauw. "We are not a closed organisation – we are happy to welcome new participants even after the official start."

The coalition has defined five areas where it wants to achieve significant results.

The first is talent and human capital. "There is a shocking shortage of professionals in the labour market," said Van der Klauw. "How do we get more talent and how do we ensure that more people are trained quickly, who can then train others? It is also a challenge to keep talented people in the Netherlands. So we want to make the Netherlands attractive for scientists and users to stay here. Critical mass is an important method for this."

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The coalition wants to have 400 extra AI researchers in the Netherlands within three years.

The second area is research and innovation – seeking ways to share the knowledge present at universities and applied research centres. "Smaller companies, in particular, often do not know where to obtain knowledge," said Van der Klauw. "Not only do we want to make knowledge available, but we also want to ensure more investment in knowledge development."

The third area is the most critical – data sharing. "People sell their heart and soul for a game on their phone, but for professional applications, it is still difficult to share data between institutions," said Van der Klauw. "We want to develop and offer a method that makes clear how data can be shared quickly, easily and, above all, securely, while ensuring that privacy is well protected."

The fourth area concerns social acceptance and inclusion, said Van der Klauw. "This is about the potentially dangerous aspects of AI and people's concerns," he said. "How do you deal with privacy, what are the ethical frameworks of this development? This is a subject that should not be discussed in retrospect, but should be taken into account from the outset." Inclusion means that no population groups are left out, he added.

The fifth area is startups and scale-ups, said Van der Klauw, pointing out that more than 20% of the startups in Europe are data-driven. "Almost all of these companies face the same problem – obtaining venture capital," he said. "When

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they receive it from abroad, these startups disappear from the Netherlands. We want to support them in obtaining risk capital, but we also want to link them to partners. Often, startups can help large companies, because they are fast and competent in the field of data and AI."

Coalition funding

The Dutch AI Coalition is financed through public/private funds. Van der Klauw hopes that about €2bn will be available over seven years to secure the Netherlands' knowledge position in the field of AI, and part of the investment must come from the government. "We have indications that the government is inclined to make this investment," he said.

But what happens if the government does not come up with the money? "Then we really have a problem," said Van der Klauw. "Because the rest of the world is not standing still. France and Germany have already announced major investments and the reality of the US with its AI superpowers is simply there."

But Van der Klauw sees positive things happening in The Hague. Although AI is a relatively new area of expertise, the coalition has good contacts with members of parliament who understand the subject. "But it's only a fact when the minister announces that the fund will actually be set up," he said. "This does not mean that we sit back and wait for the government to put the money on the table. No, we are going to work, because this is such an important subject. And so it automatically becomes a self-fulfilling prophecy."

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The coalition will consist of three layers. The strategic team monitors the direction of the organisation, approves budgets and involves the supporters. This includes the coalition desk, the support apparatus that aims to relieve the working groups of their worries.

"And the working groups – that's where it happens," said Van der Klauw. "The working groups are composed for the five horizontal topics, but also in application areas such as industry, health and care, safety and energy. They consist of various participants who will be in regular contact with each other – not only digitally, but also physically in order to exploit the cross-links. These working groups are the coalition's first priority."

The groups will focus on the goals the coalition has set itself. As well as bringing in 400 extra researchers in three years, the coalition also wants the Netherlands to score high on acceptance. "With this, we want to end up in the European top three," said Van der Klauw.

Achieving critical mass

That learning effect is crucial, said Van der Klauw. "That is why the AI living labs are very important, because you can't find out from behind your desk."

The Netherlands Organisation for Applied Scientific Research (TNO) has a field lab and the University of Amsterdam is working with companies in the ICAI Labs. "We not only need to test the technology in practice, but also, for

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example, legal frameworks," said Van der Klauw. "In the coming years, more living labs will have to be set up where companies can experiment with AI in an easily accessible way. The overwhelming interest in the Dutch AI Coalition in the weeks prior to its official presentation shows how much the subject is alive.

"In AI, everything comes together, which is why we call this a basic transformation. It has such a great influence on society and the competitive strength of the Netherlands that we try to organise this strongly from the application and fit in well with science and technology. Critical mass and integration are important, because innovative breakthroughs emerge from this, and that is exactly what we intend to do with the coalition."

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CIO must focus on easing data access to help data scientists build models more quickly

Cliff Saran, Managing Editor

More than half of global data and analytics decision-makers say they have implemented, are in the process of implementing, or are expanding or upgrading their implementation of artificial intelligence (AI), according to Forrester.

The analyst firm predicted that intelligent process automation (IPA), which combines robotic process automation's (RPA's) task automation capabilities with pragmatic AI building blocks, such as text analytics and machine learning, will be deployed by a quarter of the Fortune 5000 companies.

However, in its *Predictions 2020: Artificial intelligence* report, Forrester said data scientists spend over 70% of their time prepping data before they can even begin to build machine learning models or gain any AI value.

The authors of the report wrote: "Data scientists often struggle to acquire, transform and prepare the data they need to start a machine learning project. Data lakes, data engineers and data prep tools have helped, but the real

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problem is sourcing data from a complex portfolio of applications and convincing various data gatekeepers to say yes."

Forrester said that in 2020, senior executives such as chief data and analytics officers and CIOs who are serious about AI, will come to the rescue with a top-down mandate to get round the data problem. Its research has found that organisations with chief data officers (CDOs) are about 1.5 times more likely to use AI, machine learning and/or deep learning for their insights initiatives than those without CDOs.

According to Forrester, in 2020, senior IT executives will ensure their data science teams have the data they need in order to spend the majority of their work developing machine learning and AI models, rather than accessing and formatting data.

While many companies are experimenting with conversational AI, Forrester predicted that success will be limited. The report said: "Despite the maturation of the toolsets, including the expansion of pre-built and vertical-specific intent libraries and higher-power natural language understanding (NLU) engines, by the end of 2020, conversational AI will still power fewer than one in five successful customer service interactions."

Although non-tech firms will continue to deploy such AI technologies, Forrester expects a shift in emphasis among technology leaders towards linking AI with design. "Today, companies like Adobe and Google pair human-centred design

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and AI development capabilities," the report's authors said. "Next year, these tech elites will ramp up their efforts to find people with knowledge in both fields." As an example, Forrester described how Google's Gmail product teams have focused their skills on techniques to respond to user feedback more quickly and incorporate user data into usability testing, with approaches such as "Wizard of Oz" prototyping. According to Forrester, these techniques allow them to learn quickly and to surface issues earlier.

It predicted that companies that are not in the tech sector will focus on the "look and feel" of new products rather than basing their product design around AI. It expected that in 2020, just 5% of design or AI job postings will mention the connection between the two fields and many AI-led design efforts will struggle to gain user adoption.

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Abu Dhabi AI university is key to UAE's future as the oil dries up

Karl Flinders, Emea Content Editor, Computer Weekly

Abu Dhabi's fledgling artificial intelligence (AI)-focused university is a core pillar of the United Arab Emirates' 30-year plan to remove its economy's heavy reliance on oil.

The Gulf state is developing healthcare, financial services, renewable energy and materials technology sectors, which will make up the UAE economy when the oil runs out. But first, it needs to ensure its citizens have the skills to drive them.

The long-term nature of the UAE government's initiative is what stands out for Oxford University professor Michael Brady, who is interim president of Abu Dhabi's Mohamed bin Zayed University of Artificial Intelligence (MBZUAI), which was set up to ensure the UAE has the right skills to drive these industries. The Masdar City-based university has just opened to applications for its first intake of 50 students.

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Brady, currently professor of oncological imaging at Oxford University's Department of Oncology, was invited by one of his former PhD students to advise on the project to establish a university specialising in AI in Abu Dhabi.

He has had a long career in academia, including roles as professor of information engineering at Oxford, and senior research scientist in the Artificial Intelligence Laboratory at the Massachusetts Institute of Technology (MIT). He also has 26 patents in computer vision, robotics, AI and medical image analysis and has established 10 tech companies focused on the latter.

Brady's expertise in the application of AI in the healthcare sector – more specifically, applying machine learning methods to medical imaging data – drew him to what was happening in the UAE, where development of the healthcare industry is well under way.

But it was the ambition that he saw when he visited Abu Dhabi, which puts UK government planning to shame, that cemented his interest "There is a stark difference between the short-termism that characterises so much of government policy in the UK, where politicians worry about the headlines tomorrow morning," he said. "It is so refreshing to be part of a government-led initiative that has a 30-year vision to transform the economy and the culture."

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Also stark is the reality that will face the UAE in a few decades' time. "Almost all the UAE economy is based around oil today, but the government knows that in 30 or 40 years, this is not going to be the case," said Brady.

Plans had been cooking in the country for quite some time before Brady arrived, with the UAE developing a strategy to build healthcare, financial services, renewable energy and materials technology industries. But these plans for new industries bring challenges around skills. The UAE has about 10 million residents and 90% of them are immigrants.

"The greatest threat to achieving the strategy is a lack of skills and people who are going to populate and lead the new industries," said Brady.

AI and big data are the key technologies needed to realise key parts of the UAE's future economy, said Brady. Currently, AI skills in Abu Dhabi are almost exclusively contained in the Inception Institute of Artificial Intelligence (IIAI), where about 70 people work. The IIAI has already produced some 100 papers and attracted European researchers, but MBZUAI will accelerate this and create a virtual cycle of skills development, research and investment, he said.

Researchers and other experts are currently attracted to the UAE from Europe, China and the US, but they don't often stay long term, and the government wants to change this. "They want to attract people to come and study and live," said Brady, pointing out that achieving this will require the country to look

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beyond its economy and zero-tax environment to attract people, and transform its culture, particularly with regard to the role of women.

Brady said the university plans to take up to 100 students a year and accepts that it will not be able to retain 100% of the students who have done a PhD, with fierce global competition for these skills.

"There is no way in the world that is going to happen," he said. "It is an ambitious venture and is by no means a slam dunk. You can throw money at it, but that is by itself not going to solve it. They can get nice buildings and all that, but you need to build a brand like Cambridge, MIT or Imperial College, where people want to go.

"The questions are: how many do they need given that they are going to take up to 100 a year, and how many do you need to populate the new industries that are planned to be established over the next 30 years?"

Brady said MBZUAI's current recruitment targets mean that even if half the students leave the UAE, it will still gain 50 highly qualified kids living in the country.

A virtual cycle of skills development needs to be set off by raising awareness from the start, he said. "This means they have to get top students coming in, which also means they need to attract a really good faculty. They also need to provide something that will excite students."

There were 3,000 applications in the first week after MBZUAI's announcement, with 50 places available in the first intake.

Also built into the plans is the creation of an ecosystem around the university, said Brady. To this end, Abu Dhabi-based big data company Group 42 has been charged with attracting startups and effectively acting as an incubator or agent.

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