A world full of opportunities

INNOVATIONS, PARTNERS AND NEW MARKETS

The demand for SNP solutions is increasing. Ulrich Parthier, publisher of the German magazine „it management", spoke with Dr. Jens Amail, CEO at SNP Schneider-Neureither & Partner, about the challenges companies face and why selective data migration is becoming increasingly important.

Ulrich Parthier: *Mr. Amail, you have been the new head of SNP since mid-January and have set your sights high.*

Jens Amail: Well, there is a lot to do. We are working hard towards developing innovative solutions, expanding our strategic partnerships and tapping into new markets. We still need to break into certain markets: Brazil, Mexico or the Netherlands, for example. That is set to change. We are reviewing the strategic options and are very optimistic about the future of SNP. But we are also aware of the challenges ahead. These are very exciting times.

Ulrich Parthier: *Also turbulent times, when the company's founder Andreas Schneider-Neureither passed away suddenly almost three years ago.*

Jens Amail: It's not unusual and it's very human. The sudden loss of a company's founder is a big change. Andreas not only built something great, but his visionary and innovative ideas continuously drove SNP forward, and he also represented the heart of the company for his employees. My predecessor, Michael Eberhardt, and the entire team managed the situation well, and I was able to build on a strong foundation.

Ulrich Parthier: *And on a strong product portfolio. What significance does CrystalBridge have for SNP?*

Jens Amail: Our core business is selective data migration and data management. The software platform CrystalBridge is the key element here, as it is the basis for every type of transformation. S/4HANA migrations certainly account for a large part of our revenue – incidentally, they made up over 50 percent of our order volume for the first time in the first half of 2023. But the current macro-economic situation is also forcing companies to implement comprehensive restructuring measures and digital transformations beyond S/4HANA. More than ten years ago, SNP already recognized that there are recurring patterns in SAP data migrations which occur in a range of different scenarios. This was the starting point for the idea of automating all migration-related processes in a single software product. SAP calls this selective data transition. As an SAP partner, we now have a global market share of 70 to 80 percent in this market.

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Ulrich Parthier: *How do you see the development of SNP in the coming years?*

Jens Amail: We no longer see ourselves simply as a service provider, but rather as a software company. Our goal is to increase the share of revenue from proprietary software solutions to more than 50 percent in the next few years. The data provisioning application Glue is a key component of our software portfolio. As part of CrystalBridge, it makes SAP data available in the cloud and connects data silos. We are launching a new version this fall that extends this capability to non-SAP data. With Glue, we are making SAP data available for artificial intelligence and other custom applications. The strategy is paying off: Our order entry grew again in the second quarter by over 30 percent.

Ulrich Parthier: *Besides CrystalBridge, the success also comes from the BLUEFIELD migration approach developed by SNP. While it established itself alongside the brownfield and greenfield approaches, it also continues to spark questions.*

Jens Amail: You're alluding to the question of whether we can only do BLUEFIELD. The approach taken during the migration is irrelevant for us, as the data question arises in all scenarios. The decisive factors are which data should be included and which degree of automation is best. Selective data migration is the key element: Which data do I need to migrate, which can I delete; which do I need for compliance reasons; which do I want to archive, which do I need available in HANA for daily operations? In the area of automated selective data migration, the BLUEFIELD approach represents SNP's unique value proposition, helping to determine exactly what to do with the data and when. BLUEFIELD and CrystalBridge ensure an auditable migration with test migrations and validation – as demonstrated by around 15,000 successful projects.

Ulrich Parthier: *You also rely on a strong partner ecosystem. What is your collaboration like?*

Jens Amail: Partners are a cornerstone of our business. We work with almost 500 partners, including 16 of the top 20 SAP system integrators worldwide. Our alliances often transcend pure technology partnerships. As part of the "BLUEFIELD inside" initiative, we want to enable partners and customers to carry out transformation projects with CrystalBridge independently. After all, one of the greatest challenges in migration projects is personnel availability. In addition, customers might not want to commit to one system integrator. They rely on SNP as a platform provider and train their own IT department for project implementation on CrystalBridge. Thanks to SNP's strong market share in the selective data transition segment, many consulting firms and system integrators are already trained on the platform. Our large partner ecosystem guarantees that customers can rely on CrystalBridge even if they don't have enough people of their own.

Ulrich Parthier: *The integration of artificial intelligence is now almost the norm. How do you incorporate this development into your products?*

Jens Amail: Internally, we use the technology to make our processes more efficient and improve our products, especially in the area of analysis and testing. And as an expert in both SAP data in particular and data quality in general, we can help companies to leverage AI. Ultimately, the success of AI heavily depends on the amount of underlying data and its quality. If we assume that most data in the business is still stored in SAP, there is great potential for SNP. The Glue application makes cleansed SAP data available in cloud data warehouses and allows our customers to develop their own AI applications to meet their requirements. We recently partnered with data cloud provider Snowflake to develop the native app "Data Streaming for SAP" using the Snowflake Native App Framework. It is designed to reduce data latency when integrating streaming data. We have also founded the unit "Innovation Lab AI & Cloud", in which we combine valuable knowledge from within our own organization in the areas of AI and the cloud and enhance our implementation expertise.

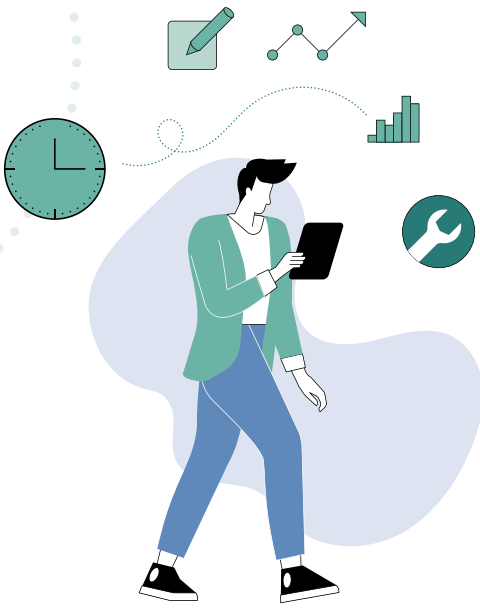
Ulrich Parthier: *Mr. Amail, thank you for the interesting interview.*

Artificial intelligence in modern software projects

HOW AI MINIMIZES THE TIME AND RISK OF CHALLENGING TEST CASES

The importance of testing during the installation, customization, migration and modernization of enterprise software cannot be underestimated. Ultimately, IT systems handle all mission-critical business processes, from financial management to sales and quality assurance. By harnessing artificial intelligence (AI), companies can respond to the challenges posed by complex data migration projects and increase the level of test coverage.

The major challenge limiting the efficacy of software testing is most certainly time. As system complexity grows, the number of required test cases increases exponentially. Current models estimate that a small system consisting of, say, 50 database tables, some input/output forms, and few reports requires over 4,000 test cases. If we assume each case takes only 10 minutes to execute, nearly 6 months of testing effort is required. As we approach the size of modern enterprise systems, we realize that complete testing coverage could take centuries! Given the compressed schedules and chronic escalation in modern enterprise software projects, sadly only a few days or weeks are allotted. Exacerbating that problem is the reality that when projects run over, the first thing to get cut is testing. In addition, test case design, defect management and final documentation also require significant effort.



Innovative answers to modern problems

Artificial intelligence holds promise for accelerating test case creation, preparation, execution, analysis, defect management and reporting, thereby reducing time and increasing coverage. There is test automation software specifically aimed at the SAP ERP testing required during complex data migrations such as S/4HANA implementation and cloudification projects. We are leveraging the current explosion in AI methods and models with the goal of enabling even greater coverage across the entire testing process – significantly accelerating projects while minimizing risks.

A subtle distinction

Only a complete set of test cases guarantees good test coverage. There might be many thousands of test cases but still poor coverage because they don't test the application in the proper areas. By developing SAP ERP-aware migration content, it is possible to generate test cases across the entire SAP database. We are extending our test case generation from purely static techniques and incorporating the analysis and clustering of historical data to extract additional test cases. The well-known technique of K-means clustering discovers data groupings and relationships across many dimensions. These clusters allow us to not only determine which business functions must be executed, but which relevant groupings of input data are required to properly cover the data validation scenarios encountered in the real world.

The business logic of any application is reflected in the data it saves and maintains. Certain combinations not allowed by the business logic should not appear in the data. When migrating and transforming this data into a similar or different enterprise software or a cloud-based reporting repository, these relationships must be maintained and verified. Discovering them is no easy task. Companies are innovating in this area by using machine learning algorithms to identify these relationships and build test cases to ensure they are enforced. This

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confirms the data was migrated with full integrity and any business transactions that happened before the migration will work as expected post-migration.

A test case for specialists

In most cases, there is a lack of time, so specialists also focus on risk-based testing. This identifies which areas of the application changed the most and need more testing time. The highly interdependent nature of ERP data further complicates this. Take inventory information, for example. There are many processes that could impact inventory – some obvious and some not. The impact of sales orders is obvious, but that of capital asset management is less clear. Service providers that incorporate AI are working on principal component analysis (PCA) and blind source separation (BSS) algorithms to determine which distant functions impact a given data set. Using PCA and detecting which unknown application processes are also impacting inventory greatly improves testing coverage – especially because some of these distant relationships may flow through several other processes before the impact is felt.

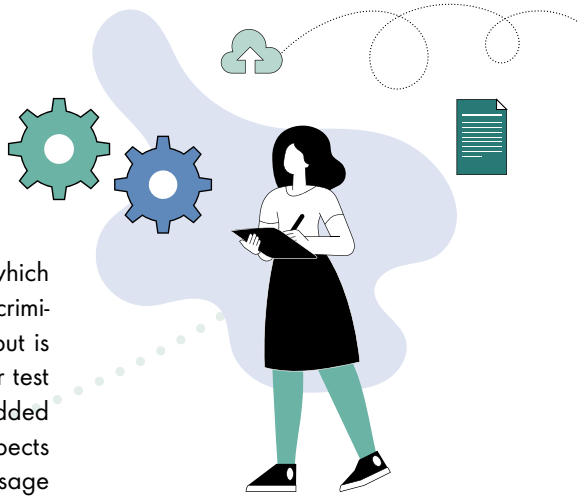
Since the time required to triage, classify and assign these defects is becoming a problem, companies are developing machine learning models that learn from human-based defect classification. As humans process defects, algorithms detect similarities and group equivalent defects that share a common fix. This reduces one of the most time-consuming and repetitive tasks to a minimum.

Betting big on AI?

Many organizations have invested years of effort in developing test plans and test case documents. Need they all be discarded when moving to AI? I think not. Using natural language processing (NLP) and named entity recognition (NER), it is possible to process these documents and incorporate test cases into a test automation platform.

Often, tested systems do not have enough data with enough variety to ensure proper coverage. Here, generative adversarial networks (GAN) – the technology used for deep fakes – help to synthesize test data. The goal is to create output which is so accurate that it can fool a discriminator network into thinking the output is real. This approach can be used for test data generation, and it has the added benefit of generating data that respects business rules and matches the usage patterns in the customer's real data. This high-fidelity test data can also train new AI models and test existing ones. Finally, no mission-critical testing process would be accepted by management or auditors without detailed documentation. Using custom-trained large language models (LLMs), final testing reports are generated. Summary reports are available as soon as testing is complete, and their accuracy is guaranteed because they are based on the testing output and do not require a human to gather and summarize all the results, which is an error-prone process.

Many other areas can be accelerated using AI, such as performance and security testing and automatically updating cases with each application logic or data change. Since testing is currently such a labor-intensive and often overlooked process, there are certainly many other areas of potential improvement that are sure to be innovation paths in the future. I look forward to this journey along with the true testing innovators: our customers, partners and readers.



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