Why AI & Enterprise Software is hard, and strategies for simplification

EXPLORE NEW HORIZONS

SNP TRANSFORMATION WORLD

Why AI Why AI & Enterprise Software is hard, and strategies for simplification

Many organizations want to adopt AI to improve and optimize enterprise processes. However, they quickly realize that a huge data science effort is required to make the data suitable for AI models. Today we explore reasons for this difficulty and strategies for accelerating and simplifying this process.

Steele Arbeeny
Chief Technology Officer

steele.arbeeny@snpgroup.com

Agenda

- How could AI benefit the enterprise
- The data roadblocks
- The people roadblocks
- Overcoming roadblocks with SNP technology

How can enterprises benefit from AI ?

AI can deliver benefits across the enterprise

AI has a wide range of practical uses in the enterprise ranging from the mundane to the extraordinary - From automating repetitive tasks to inventing new drugs

Task Automation	Data Insights and Prediction	Synthesis
▪ Invoice Automation ▪ Autonomous Sourcing and Procurement ▪ Freight Optimization ▪ Contact and Document Processing ▪ Research	▪ Capital Asset Management ▪ Sales Forecasting ▪ ESG and Fair Trade ▪ Clustering and De-clustering, Trend Analysis	▪ Generative molecule and part design ▪ Synthetic Test and Training Data Creation ▪ Virtual Product Releases ▪ Reverse Engineering

So Where Is Everybody ?

There Are Serious Challenges Slowing Progress

- Today we will consider 2 main areas slowing progress: Data and People
- There are of course other areas but they are typically outside the scope of our influence such as government regulations, social acceptance and computer power.
- The goal of most AI algorithms is to build models of behavior – human or otherwise – and then predict future outcomes based on this previous behavior.
- To do this models must be trained on large data sets – typically 100s or 1000s or many more data points.
- And these models are ultimately equations – mathematical operations – performed on a set of numbers.

But What About the Data ?

There Are Serious Challenges Slowing Progress

- But most enterprise data is not numeric…think customers, vendors, document types, status codes, locations etc
- Its also not joined together…customers and vendors may be related through several different transactions – sales orders, manufacturing orders, PM orders etc
- And the orders themselves may contain 100s of tables at 10+ levels of nested hierarchy – also not numeric
- So how can the models consume this data ? – Now comes the people problem…

But What About the Data ?

There Are Serious Challenges Slowing Progress

- So now we need data experts – who can derive the meaningful corrections and prepare the data for AI
- This can take months or even years of effort. Most data scientists are not enterprise data experts
- They often face a steep learning curve and require many iterations to get the relationships correct
- And the non-numeric format compounds the problem…Somehow it all needs to get converted to numbers…
- And not in just any format…the optimal format is called “One Hot”

But What About the Data ?

About the One-Hot Format

- The mathematics of AI is based on linear algebra – NxM matrices, vectors or tensors – that need to be added, multiplied, inverted etc.

- So we need to get this multi-layer text data into a matrix of numbers – even better just 1 and 0s – to denote if a feature is present or not. Here is a simple example:

Enterprise Format

PO Num	PO Type	Vendor
100	GP	ABC Supply
101	SP	XYZ Services

PO Num	Line Num	Item
100	1	Pipe Fittings
100	2	End Caps
101	1	Cut Grass

Needs to Become

One-Hot Format

GP	SP	ABC Supply	XYZ Services	Pipe Fittings	End Caps	Cut Grass
1	0	1	0	1	1	0
0	1	0	1	0	0	1

Experts need to understand the data semantics and relationships, get it into this format, and then back out again

But What About the Data ?

There Are Serious Challenges Slowing Progress

- Heavy customization makes this even worse – both initially and as ongoing change management
- Garbage in, Garbage out – the old phrase applies even more now. Data quality and integration of other data sources can make or break success.
- Also current AIOps is heavily model-focused…humans work with data. We want a more data centric view
- Ideally we need to discover the systems and data in scope and their relationships automatically
- Build the semantic layer, optionally adding in additional non-SAP data sources
- Cleanse and prepare the data for training and execution

But What About the Data ?

There Are Serious Challenges Slowing Progress

- SNP can simplify and accelerate AI adoption by eliminating these problems
- We accelerate S/4HANA adoption, M&A, and SAP data integration with pre-built ERP aware transformation content developed over 25 years.
- SNP content provides the semantic layer on top of 1000s of tables and fields in SAP
- This eliminates years of data science effort and no need to “play” with the data.

How Does SNP Help ?

Leverage Lessons Learned from over 15,000 projects

- With SNP
  - Rapidly Scan Systems to Identify Data Relationships
  - Eliminate incorrect or unused data that can corrupt training and models
  - Cleanse and harmonize data beforehand to ensure better quality
  - Integrate many sources outside SAP
  - Transform into AI-friendly formats both for training and execution
  - Easily adapt to new customizations or re-raining

- Not every step is needed in every case

SNP AI Data Prep Roadmap

- Consume live-processed data for model execution
- Re-train as conditions change

Execution and Optimization

- Pump prepared training data to AIOps platforms

Train Models

- Join and pivot for modeling and execution

Prepare Data

Archive

- Eliminate old biases in training
- Reduce cost of training, storage, back-up, and copy
- Reduce training and testing time

- Both logical and physical merge are possible
- Get the benefit of training on the entire enterprise data set

Data Merge

- Discover used and unused data
- Discover relationships
- Plan for vectorization

Data Discovery

Conclusion

Democratize and Simplify AI

Reduce time and effort and improve quality by limiting dependence on human data scientists. Make complex enterprise data available to analytics teams, report writers and business users for use in common AIOps platforms.

Leverage Experience

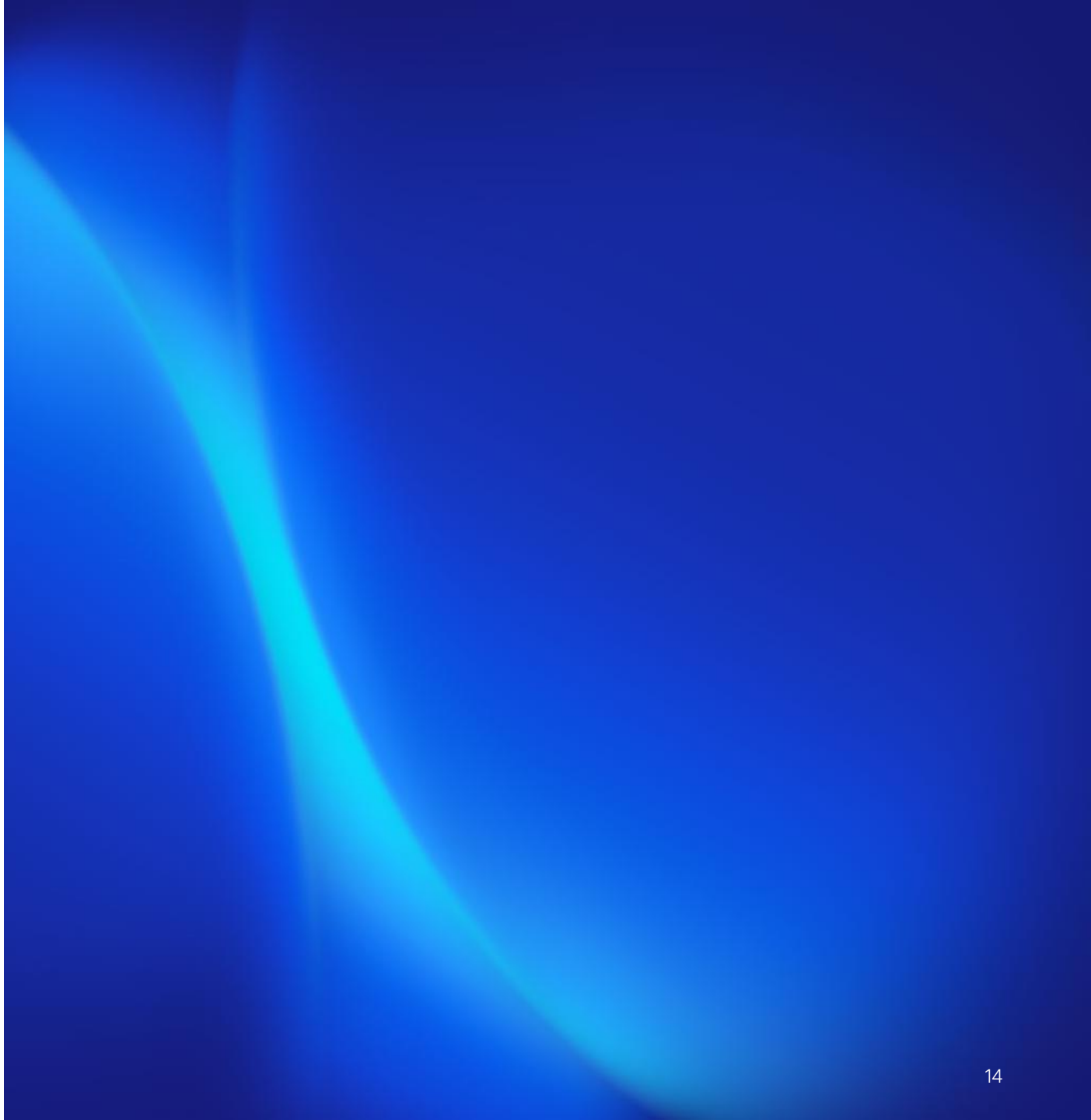
Eliminate the need to learn complex relationships and integrate numerous data sources in AI training and execution data by leveraging pre-defined content specifically for SAP and enterprise data.

Data Centric AI

Move the focus away from the analysis and modeling phase by enabling rapid training of many different models and comparing results to find the best solution. Focus on the outcomes and not the mathematics.

SNP Schneider-Neureither & Partner SE
Speyerer Strasse 4
69115 Heidelberg
Germany

+49 6221 64 25 – 0
info@snpgroup.com
www.snpgroup.com
linkedin.com/company/snp-schneider-neureither-&-partner-se



Heidelberg, Germany 2023