SNP BUSINESS PROCESS ANALYSIS
CONSOLIDATION AND HARMONIZATION

SNP | The Transformation Company

SNP

Countless organizations operate in global and international sourcing and sales markets that demand repeated changes to corporate structures. Growing pressure to pursue product and process innovation and the accelerating digitalization of value chains in numerous industries are forcing organizations to make additional changes to their organizational structures, business processes and IT application environments.

Transformation: a long-term challenge

Some transformation projects require quick, efficient execution: acquisitions and divestitures, the creation of shared service centers or the relocation of production processes. To maintain their market advantage, organizations have to quickly (re-)build a stable organizational substructure with optimized processes and consolidated application systems. This agility must be their core competence. It is the only productive response to change.

Agility for enterprise IT

Business processes and IT applications are key factors in harmonization and consolidation projects. Unfortunately, organizations are frequently plagued with sluggish response times and inflexible IT systems, as countless CIOs will attest.

One good way to accelerate transformation processes is to run data and process analyses and map out the data migration and conversion process in advance. This white paper describes SNP Business Process Analysis (SNP BPA) from the SNP Transformation Backbone® analytical suite and how it can be used to analyze business processes in harmonization and transformation projects and identify opportunities for optimization.

With SNP BPA, business processes are reconstructed and documented based on actual application data. It also generates key process performance indicators, so that organizations can compare processes, their structures and performance across unit and system boundaries. The best processes can then be selected for rollout in the harmonized, consolidated environment.

Harmonized in SAP: Data, Development Objects, Processes

System Scan: SNP System Scan quickly provides transparency at any time, even before transformation projects

The first analysis step is SNP System Scan. It provides all the information needed for the first round of workshops: SAP® system sizes, organizational structures and modules in use. It also includes a high-level process analysis based on aggregate usage statistics of transaction codes and database tables.
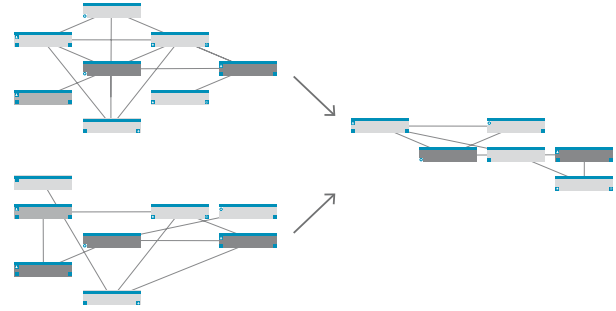
At this early stage, organizations can already see which process is being used on which system. SNP Repository Analysis harmonizes custom code and lays the groundwork for consolidating SAP systems by reducing the number of SAP instances.

The fastest, easiest way to do this is a minimal-downtime consolidation of clients in shared SAP instances (see figure). This amalgamation also requires a repository analysis that compares systems and identifies usage frequencies and custom code conflicts. The conflicts can be managed and resolved in a harmonization cockpit.

Reducing the number of systems does more than just lower the total cost of ownership (TCO). It also saves time and money when switching releases or platforms in the future.
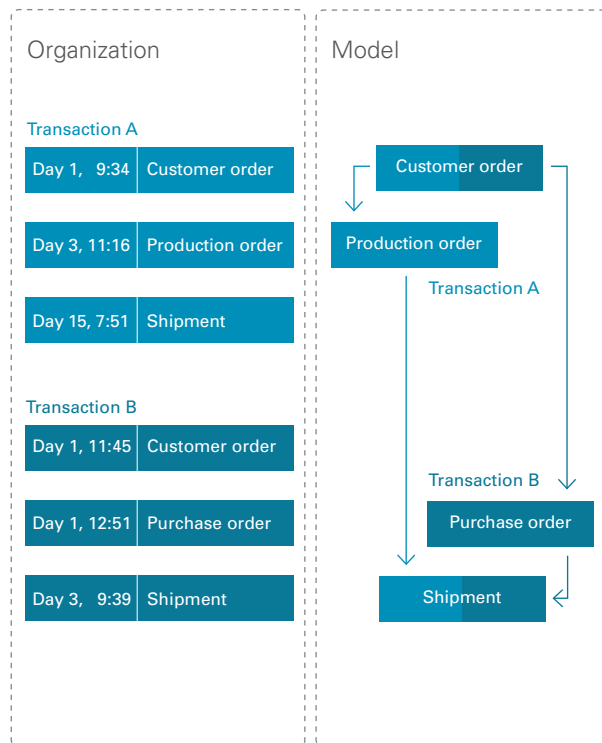

Repository Analysis: Clients from separate SAP instances are combined into one shared system

Customizing Analysis, Data Analysis: Elements of different clients and SAP systems are merged into one shared client

SNP Customizing Analysis and Data Analysis support efforts to consolidate multiple databases in one shared client instead of just consolidating multiple systems. These tools convert and harmonize customizing settings and master data during the integration and look for traces of them in the transaction data.

Business Process Analysis: Processes from different organizational units are converted to one shared process (schematic figure)

Process Mining: Reconstructing Real Processes

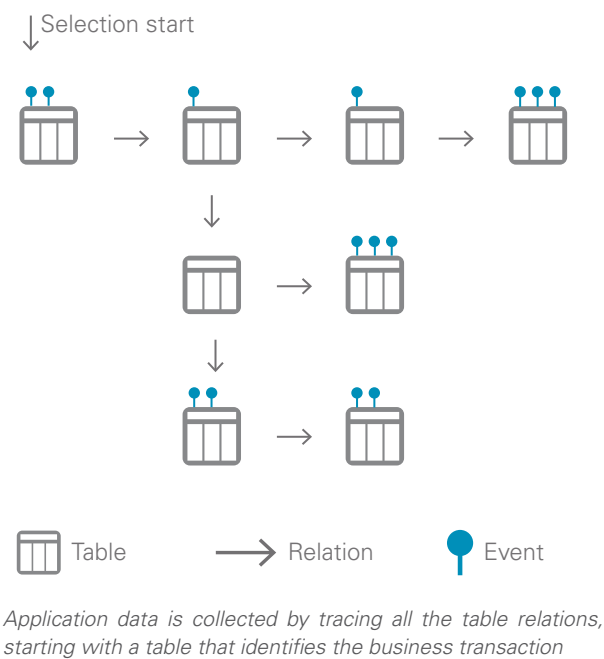| Organization	Model
Transaction A	
Day 1, 9:34 — Customer order	Customer order
Day 3, 11:16 — Production order	Production order
Day 15, 7:51 — Shipment	Transaction A
Transaction B	
Day 1, 11:45 — Customer order	Transaction B
Day 1, 12:51 — Purchase order	Purchase order
Day 3, 9:39 — Shipment	Shipment

Process mining is an innovative method for automated business process discovery (ABPD) that reconstructs and visualizes real processes in IT systems. It uses a bottom-up approach to build process models from IT application data, i.e. the traces left by business processes in IT systems. Evaluating this data uncovers the exact path taken by the processes in the application system. Processes are no longer treated as black boxes within IT systems, but are revealed with all their inner workings and interactions. The data extracted from the application system is transferred to an event log before being visualized in a process diagram. Events in a business transaction are clearly assigned to the corresponding process instance and given at least one time stamp. Chronologically ordering the process steps creates a sequence, while grouping similar process sets and combining multiple process instances produce a visual representation of the overall process.

Some relatively new service- and process-oriented systems already have event logs that can be used for reconstruction. In long-established ERP systems built on relational databases such as SAP ERP, however, the application data is often scattered among many database tables.

Left: Simple event log with two business transactions – A and B – and the three events in each transaction, placed in chronological order.
Right: These two business transactions are combined to form a process diagram

From Data Acquisition to Meaningful Analysis

Selection start

⊞ Table	⟶ Relation	● Event	

Application data is collected by tracing all the table relations, starting with a table that identifies the business transaction

1. SNP Business Process Analysis mines the event logs to generate process structures and diagrams. It contains other tools as well, including a graphical scenario designer for defining process extractions in a semi-automated procedure and extracting application data. Process extractions consist of database tables, table relations and the events defined on the basis of the tables and relations. The extraction generates the event lists needed for process mining from relational database systems.

2. When defining the process extraction, the scenario designer automatically suggests database tables and events generated from the application data. Table relations can be created with a simple drag and drop approach.

An analysis based on application data has distinct advantages over other methods. For example, sensors do not have to be installed in the systems to generate logs or report events. Instead, the tool analyzes existing data stores. This eliminates lead times for logging mechanisms and allows analyses of historical data.
SNP has predefined process extractions for organizations that want quick analytical results. Business transactions extracted from source systems are transferred, along with freely selectable attributes, to a central SNP

BPA server, where they are continuously updated in a process cube. The BPA server can thus evaluate millions of business transactions in real time. Organizations can even use in-memory databases such as SAP HANA in special application scenarios in order to scale up the process analysis to handle terabyte-level data volumes.
Attributes extracted from the system in relation to the process – order types, document types or organizational units – can be presented in histograms and used for filtering. These filter criteria narrow the process scope to specific organizational units or variants. For example, organizations can analyze the process for different factories, company codes or goods merchandise categories. Dependencies on configured filters will appear in the process diagram and in the histograms, charts and metrics for the extracted attributes.
Once the filter is applied, the processes can be compared to one another. This is an excellent method for comparing processes in different organizational units prior to consolidation and harmonization. A comparison table shows what process steps are performed, and where and how often they are performed. The visual comparison also covers different sequences of process steps and highlights the differences with color-coding.
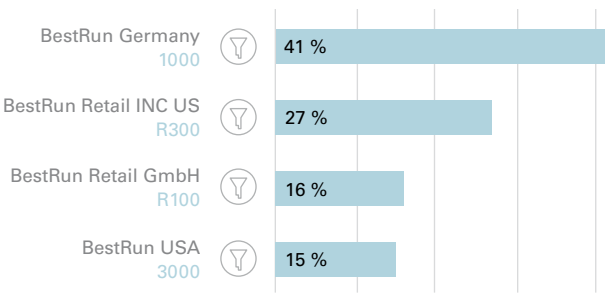

This histogram shows how different company codes use a particular process

These reports show how widely a particular process is used by different regions and organizational units.
Combining different business units into a single system without changing business processes is usually a form of pure system and data consolidation that indiscriminately implements all the process variants and requires supporting master and customizing data.
Process simplification, harmonization and optimization, by contrast, identifies the process variant and organizational unit with the best process performance and uses them as best practice references for the project. Process

|	NeoTech Glasal Systems GmbH - 0012	NeoTech GLAS SYSTEMS SRL - IT10	Duraglas, Inc. - US20
Accounting document: Faktura	✔ 78,6%	✔ 83,8%	✔ 99,5%
Controlling	✔ 78,6%	✖	✔ 99,5%
Ausgleich	✔ 74,9%	✔ 81,0%	✔ 99,1%

The comparison table shows that a particular process step in the US is only being performed by the local retailer
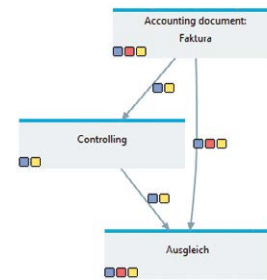
The same information can be presented in a visual process comparison

key performance indicators (KPIs) can be evaluated in each filter run, visualized in diagrams and compared.

The process diagram shows process throughput times and distinguishes between slow and fast process variants. It also locates capacity bottlenecks or other causes of long waiting times. Value flows can be illustrated by showing attributes such as goods values in the diagram. All the results contained in the diagram, charts and metrics can be traced back to the original data at any time and tracked in the system.

Analytical findings can be shared with the transformation team over multiple channels. SNP Business Process Analysis provides a desktop application for accessing interactive process models and charts. Analytical results can be imported into standard BPM tools over a BPMN interface and transferred to a Business Blueprint in SAP Solution Manager. From there, the data can be manipulated with additional SAP Solution Manager features such as test and change management.

This automated process (re)documentation method delivers tremendous value for many organizations. It provides a solid foundation for workshops and subsequent design work on the target environment in the run-up to consolidation and harmonization projects. It requires much less time than conventional process discovery methods. It also supplies early-stage support for necessary process steps such as: data transformation, custom code harmonization, legacy system replacement, new standard module activation and process changes. That provides greater certainty for planning and reduces the risk of budget overruns and missed deadlines.
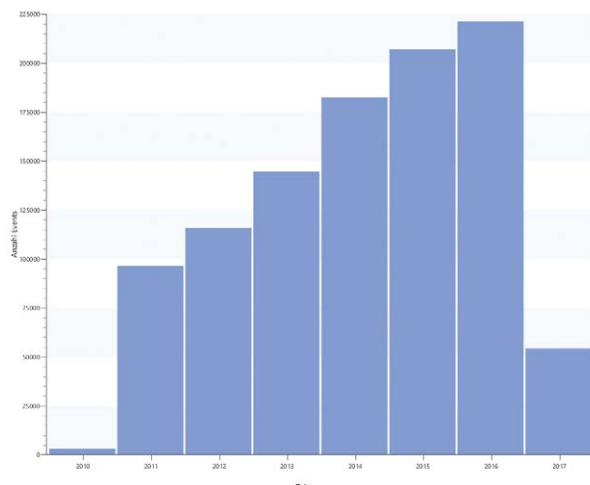
Histogram of an attribute over time

Components

SNP Business Process Analysis (hereinafter called SNP BPA) consists of the following components:

SNP BPA Rich Client

This client is based on the Eclipse platform and runs on Windows PCs. It can be used to model target processes, analyze current processes and administer the SNP BPA server.

SNP BPA Server

This central component stores process diagrams and their components for processes generated through modeling or analysis. Event logs from the extraction are stored on the server in "process cubes". The server provides the main BPA functions.

SNP Business Process Extraction (BPE)

This component is installed on an ABAP-based SAP system. It is the software that extracts business processes. The extraction results – i.e. event logs – are stored on the SNP BPA server, where they can be accessed for analyses.
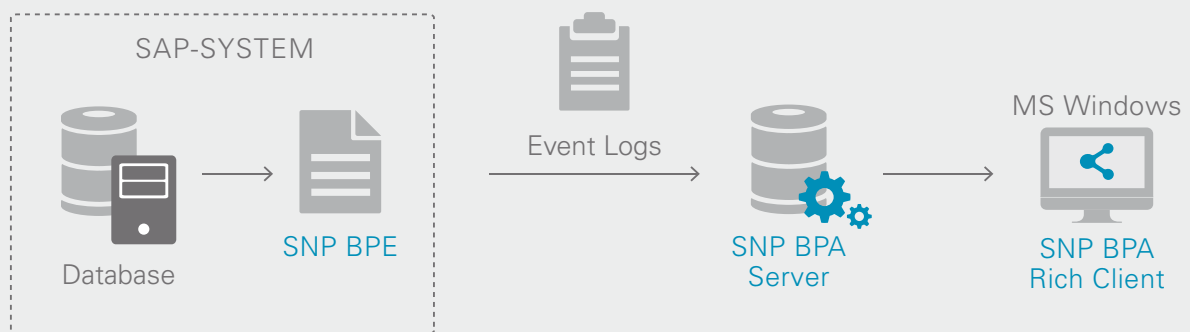
From Data Acquisition to Meaningful Analysis

Many organizations – whether through organic growth or mergers and acquisitions – have heterogeneous IT landscapes with incompatible systems and structures. Processes vary from unit to unit. Integration costs are often high, and integration programs run for long periods. This complex, hard-to-maintain application environment seriously limits the organization's agility and ability to respond to changes.

In today's business landscape, mission-critical systems and processes have to be readily adaptable. An in-depth analysis, possibly performed on the fly, makes it easier to plan for and tackle challenges such as process, data and system harmonization and consolidation. SNP Analysis Suite can help meet this goal by lowering total cost of ownership and reducing process complexity.
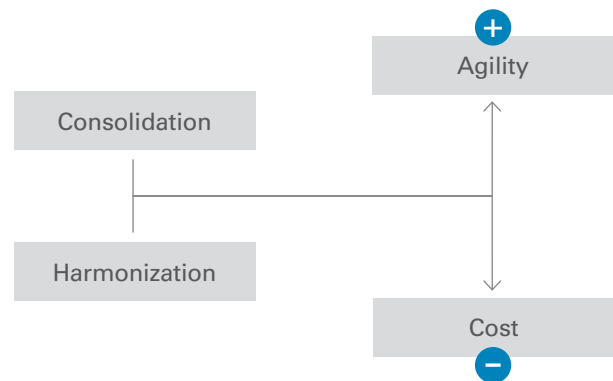
Automatic Process Discovery:
Rapid Project Start, Planning Certainty and Simple Analysis

With SNP Business Process Analysis, it is possible to quickly discover business processes across your system landscape and fill the blank spaces on your process map. Internal and external resource allocation can be optimized since automated process discovery only has to be configured once. So instead of diverting resources to analysis in regular operations, you simply update the process models as needed. The cost and effort is minimal.

Since the SNP approach relies on fact-based process diagnoses, the resulting process models can guide objective discussions with functional departments at any time. That way, organizations can identify, evaluate and address uncertainties before the project even begins. And, as is widely known, the sooner potential obstacles are identified, the easier and cheaper it is to address them.

One of the most common barriers to ERP harmonization and consolidation projects is a lack of cooperation by functional departments (source: CIO Study on SAP Consolidation, 2011). Another widely cited obstacle to ERP consolidation are protracted, unpredictable project durations. Luckily, planning effectiveness can be greatly improved through process and system transparency.
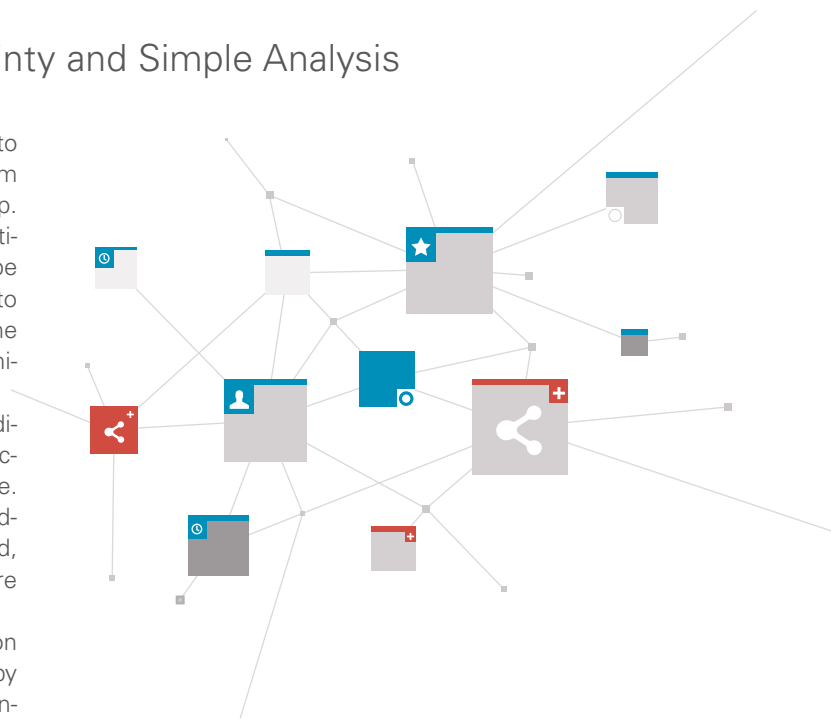
Thorough analyses can help improve the reliability of internal and external HR allocation and focus human resources on the most critical aspects of the project.

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