# SAP Product Lifecycle Costing
## Customer Presentation

Solution Owner Petra Koepfer-Behncke, SAP SE
**May 2017**

INTERNAL

Run Simple

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# Agenda

1 Challenges in early costing
Challenges, use cases, and industry relevance

2 Co-innovation – a joint approach
Design thinking and co-innovation with our customers

3 SAP Product Lifecycle Costing
Key capabilities and live demo

4 Summary and road map

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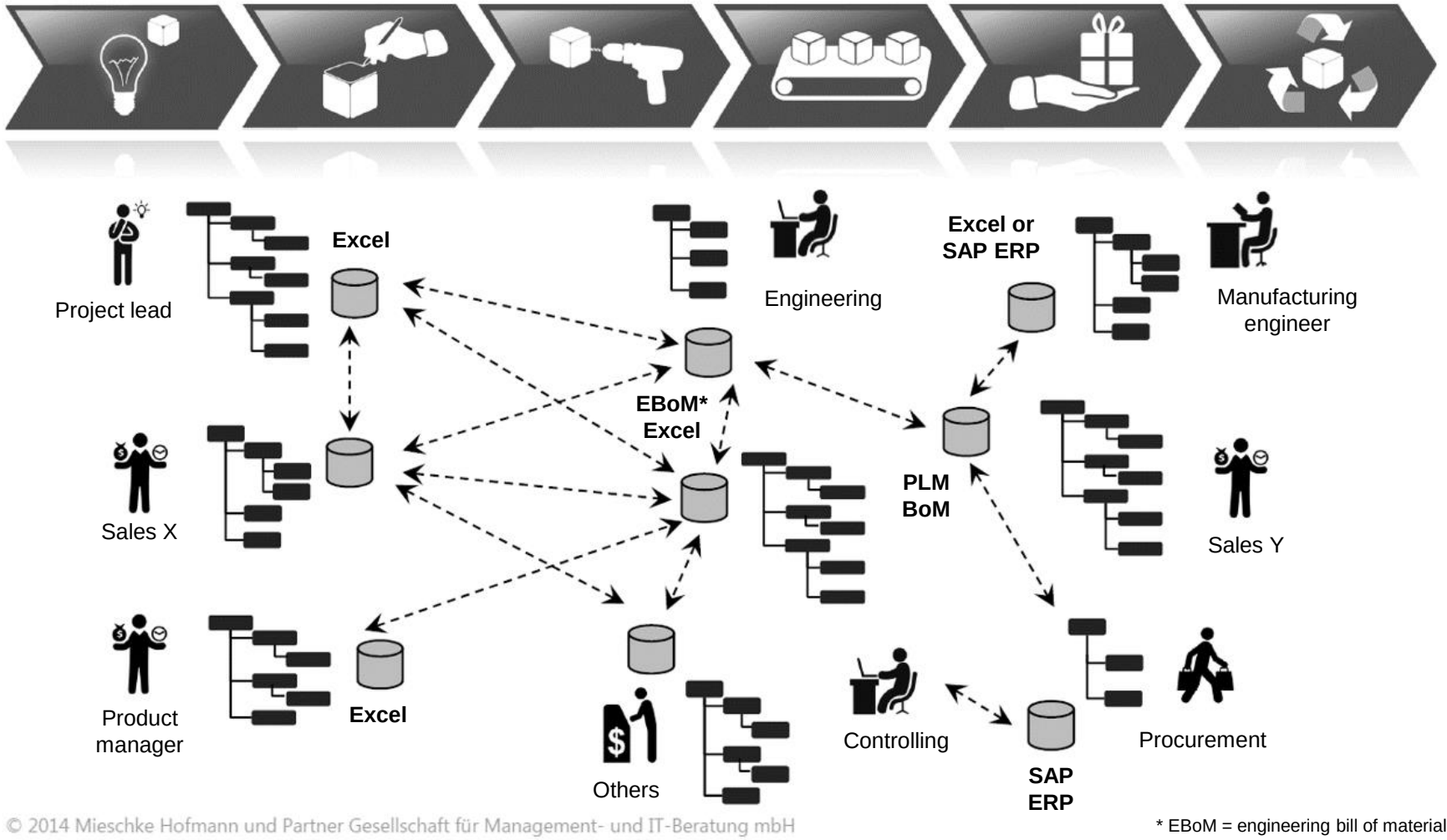
# Callenges in Early Product Costing

Challenges, Use Cases, and Industry Relevance

# The Challenge Today

**Microsoft Excel** and legacy tools used for early cost estimates and planning but **SAP ERP** for actual cost calculation




* EBoM = engineering bill of materials:

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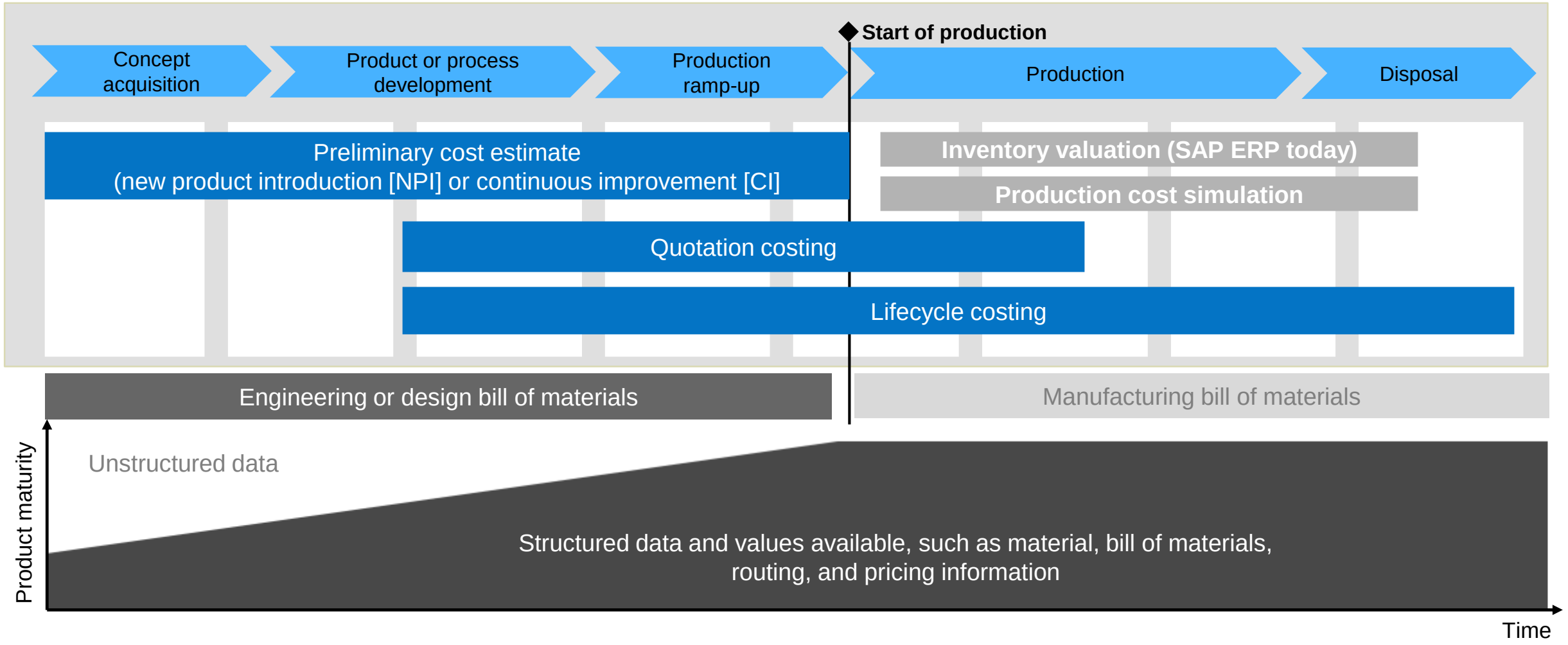
# Focus use cases for product costing

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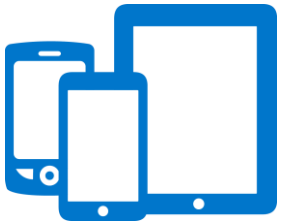
# Primary focus industries

## Automotive

- New product introduction
- Quotation costing (suppliers)
- Lifecycle costing

## Industrial machinery and components

- New product introduction
- Quotation costing (engineer to order)
- Lifecycle costing



## High tech

- New product introduction
- Quotation costing (suppliers)
- Lifecycle costing

## Aerospace and defense

- New product introduction
- Lifecycle costing

Integrate market requirements and cost information in an early stage of product development to identify cost reduction potentials and gain transparency along the lifecycle while maintaining product quality

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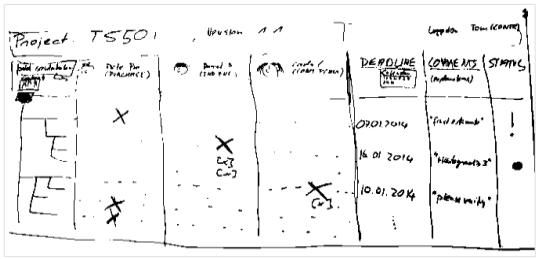
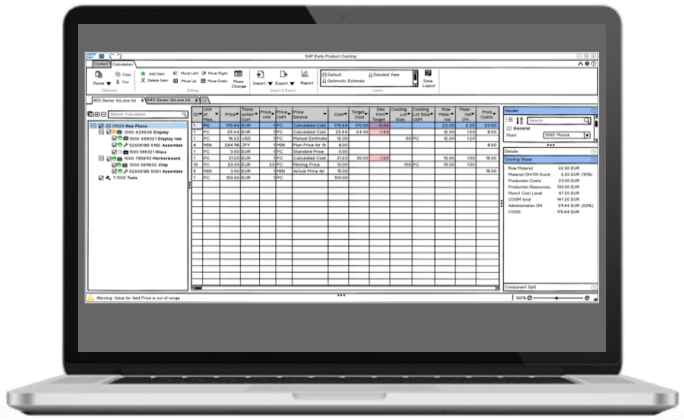
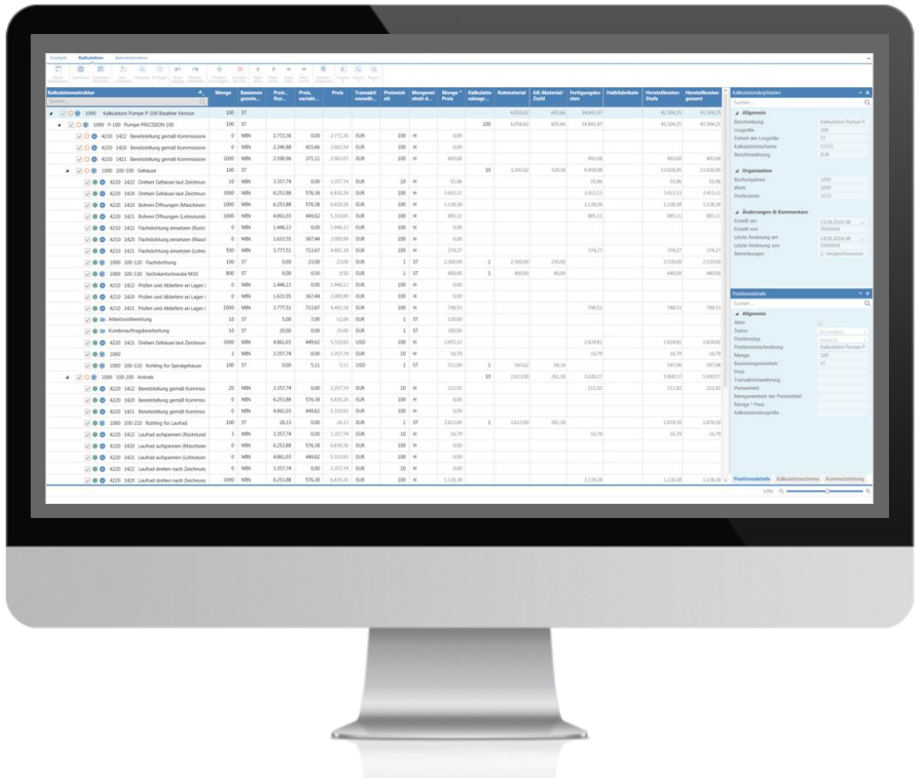
# Co-innovation with our customers

# Design thinking co-innovation with ASUG and DSAG customers







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# 30+ Customers work and have worked with us

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# SAP Product Lifecycle Costing

# Solution definition

## SAP Product Lifecycle Costing

is a solution to **calculate costs** and other dimensions for **new products or quotations** in an **early stage** of the product lifecycle, to quickly identify **cost drivers along the lifecycle,** and to easily **simulate** and compare alternatives.

| **Real time** | **User centric** | **Open** | **Flexible** |
|---|---|---|---|
| SAP HANA | Microsoft Excel–like UI | SAP ERP, Microsoft Excel, and SAP PLM | Cost structure |

First-class **user experience**

High **performance**

**Integration** with SAP ERP

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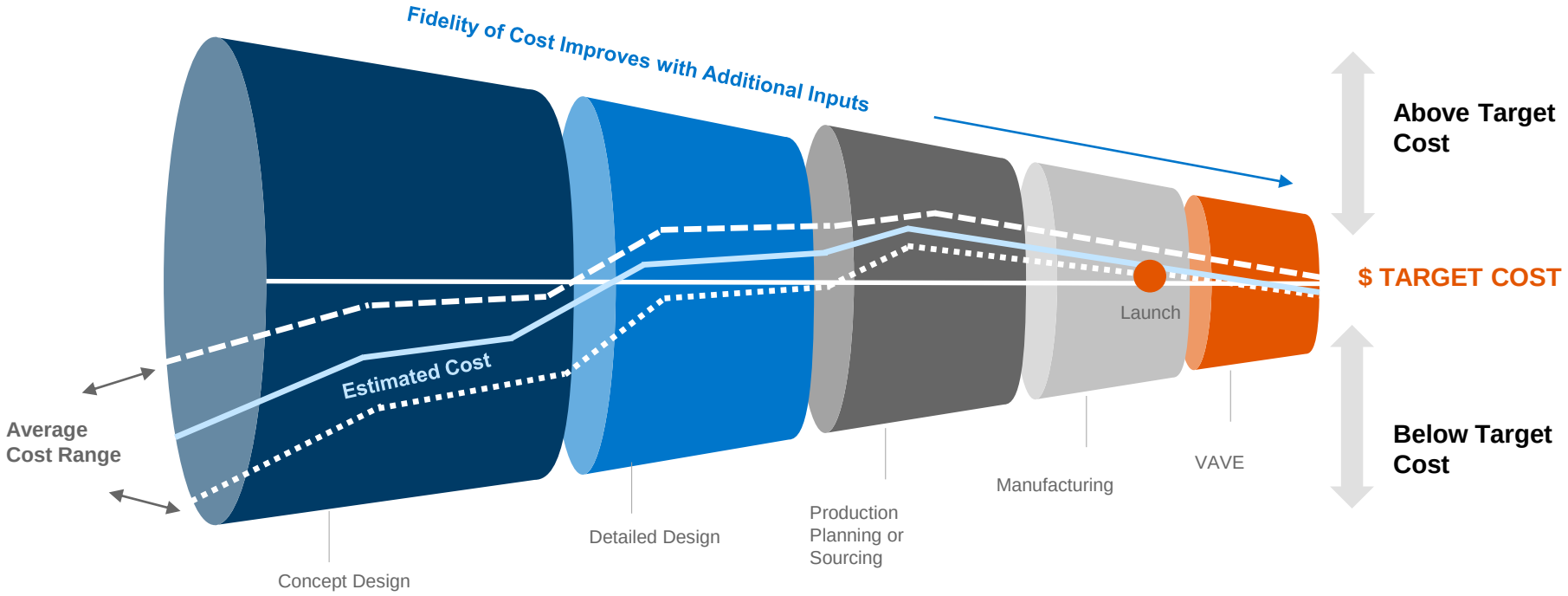
# The cost estimation process

**Early Estimates**
- Automated processes
- Use default settings
- Update as design changes

**Should-Cost Estimates**
- Refined estimate
- During collaboration, override inputs for actual routing, rates, etc.

**Manufacturing Estimates**
- Adjusted for actual production volume, routing, factory

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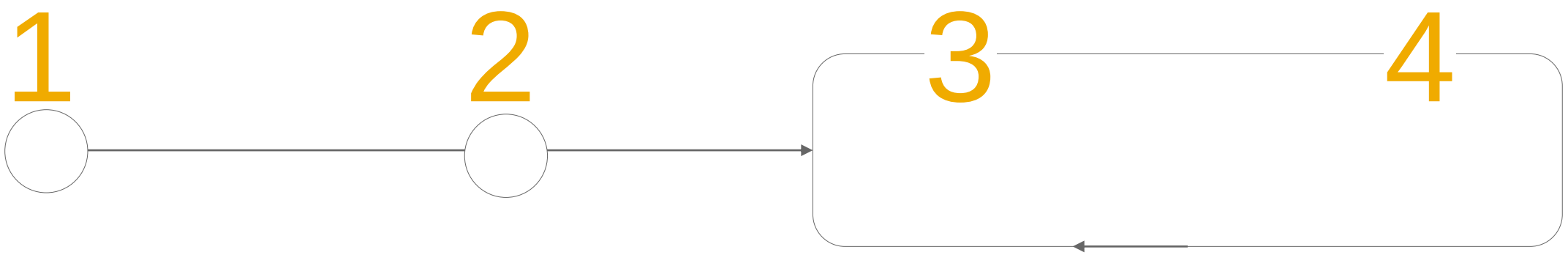
# Cost estimation in SAP Product Lifecycle Costing

## Costing structure – Prices – Calculation – Simulation




Import the costing structure from SAP ERP, Excel or any other data source such as PTC Windchill or others, or manually create the costing structure

Automatically determine material and activity prices according to a defined price determination strategy, with SAP ERP, other source or locally maintained prices, or manually set prices in a calculation

Calculate and save a first cost estimate as initial basis

Simulate cost estimates and create further versions with more detailed and up to date price information

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# Key capabilities

**Preliminary costing**

**Quotation costing**

**Lifecycle costing**

- Real-time calculation engine based on SAP HANA, incl. calculation of additional dimensions
- Integration with SAP ERP & S/4HANA, and open for any other data source
- Flexible costing structure design incl. referencing calculations, project assignment
- Microsoft Office–like user experience
- Versioning, baselining, lifecycle, simulation, and what-if analysis
- Flexible price sources, determination and confidence level
- Straightforward UI and calculation logic extensibility framework
- Flexible foundation for operational and management reporting & analysis

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# High-level features and functions

## Master data

- Replication from SAP ERP
- Create/edit local master data

## Manage calculations

- Manage projects, calculations and versions

## Maintain calculation structure

- Create or edit calculations
- Import calculations from SAP ERP or Microsoft Excel
- Enter reference calculations

## Price determination

- Automatic price determination
- Custom price sources

## Calculation engine

- Calculation and rollup
- Validation and consistency checks

## Analytics and reporting

- Analytics for calculation versions
- Analytics with external tools
- Analytics for projects

## Extensibility

- Back-end application programming interface (API)
- Custom fields and formulas
- Add-in framework

## Authorization and security

- Install or log on (incl. SSO)
- General access restrictions
- Security engineering

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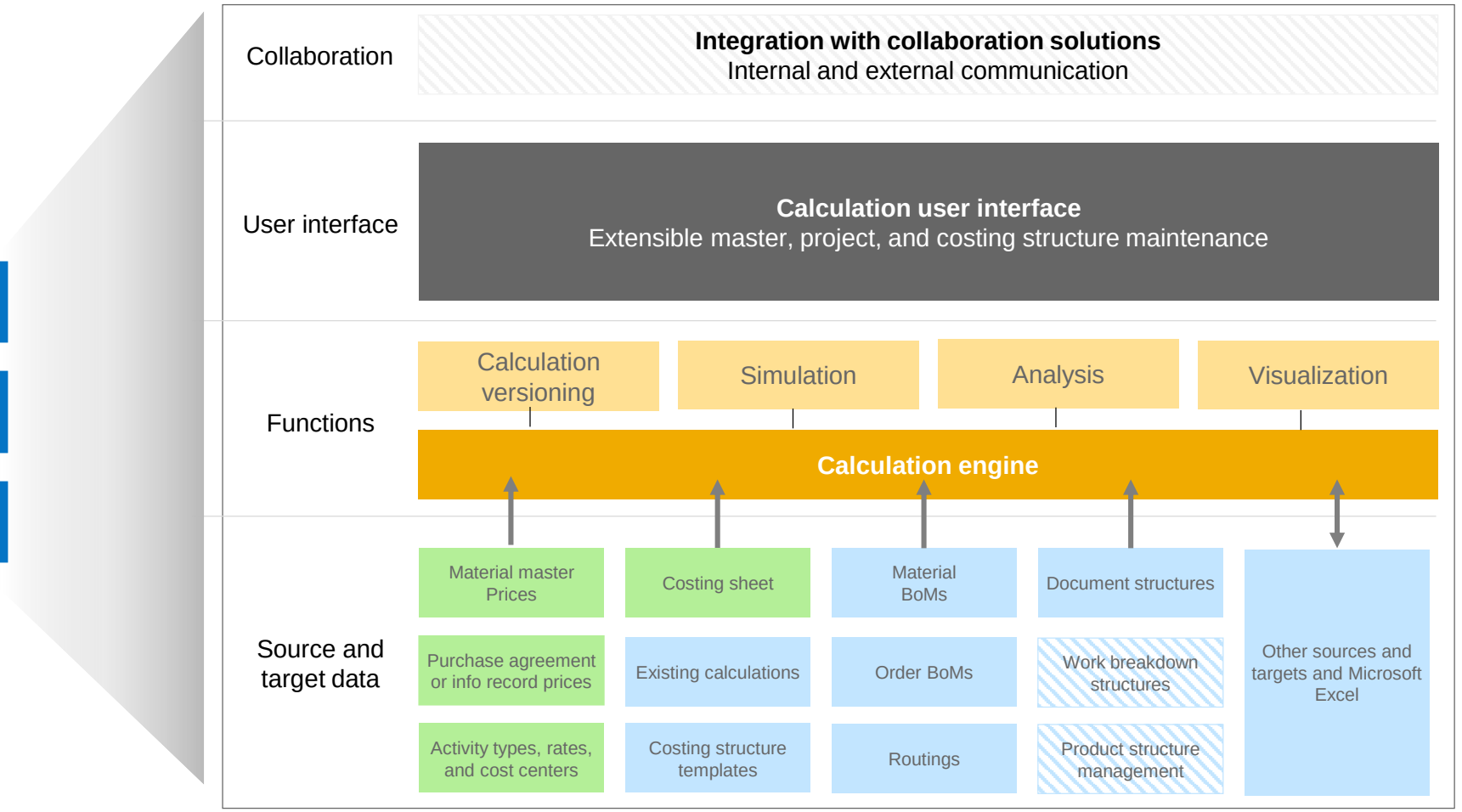
# High-level overview

**Preliminary costing**

**Quotation costing**

**Lifecycle costing**




Planned

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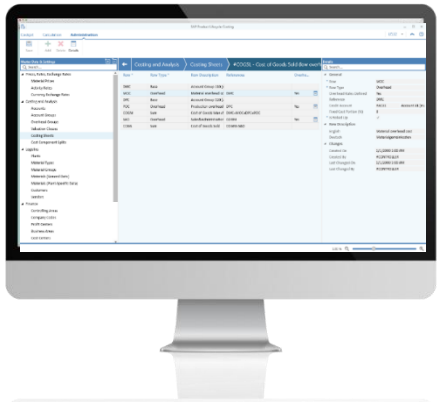
# Main views

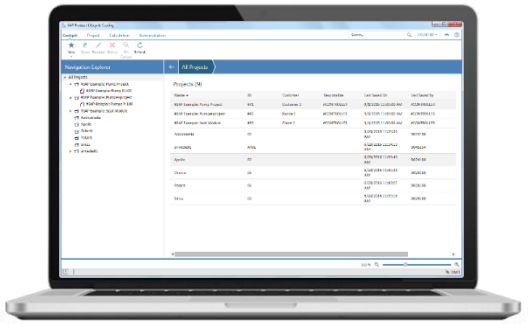


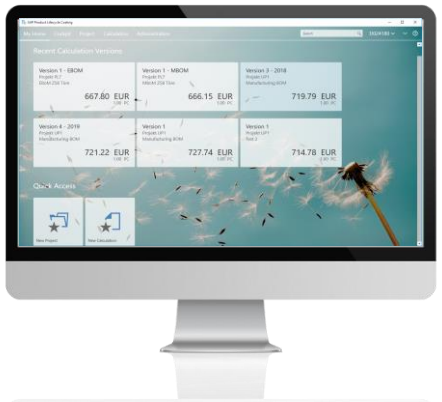
## Administration

Maintain and manage all master data and settings in one conveniently structured view

## Cockpit

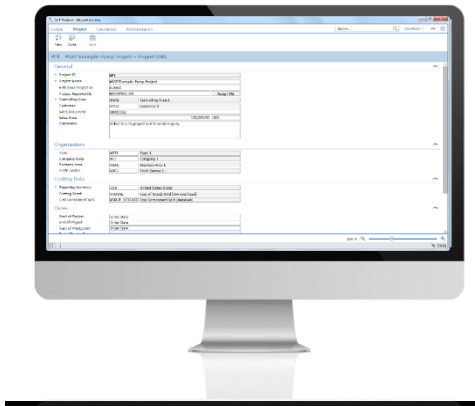
Manage your projects, calculations and calculation versions and history centrally





## My Home

Access your last used calculation versions with one click

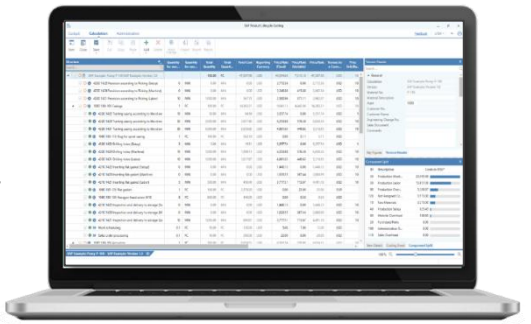


## Project

Manage your costing project details

## Calculation

Create your costing structure from SAP ERP, SAP PLM, Excel, or other data sources, or manually from scratch, and analyze the cost breakdown



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# Project object for grouping multiple calculations

Projects are used to **organize calculations and versions**

**Enables reporting** on defined sope of calculations

Projects can **refer** to an SAP ERP PS or SAP PPM project

Provides **project attribute inheritance** to new calculations and versions

Foundation for **lifetime reporting and simulation**




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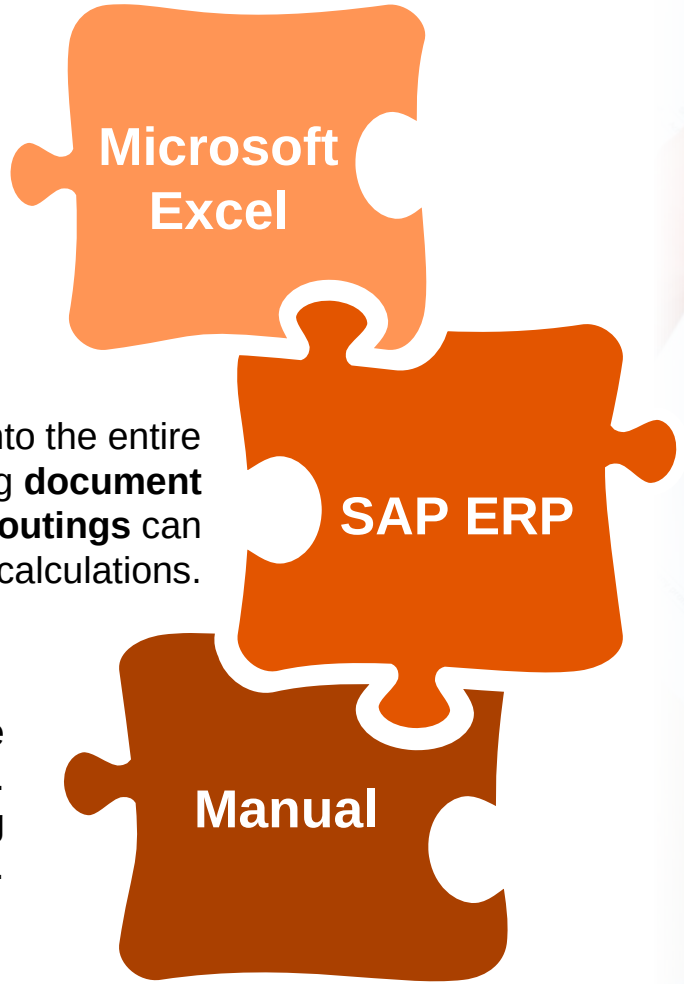
# Different ways of creating a costing structure

As many calculations are created in **Microsoft Excel**, SAP Product Lifecycle Costing is designed to import any quantity structure to create a calculation as a whole, or to update an existing calculation at every level.

SAP Product Lifecycle Costing is integrated into the entire SAP solution landscape. Therefore, existing **document structures, bills of materials, and related routings** can be **imported from SAP ERP** to create new calculations.

Of course, it is possible to create a **structure from scratch**. SAP Product Lifecycle Costing simplifies that approach as well.



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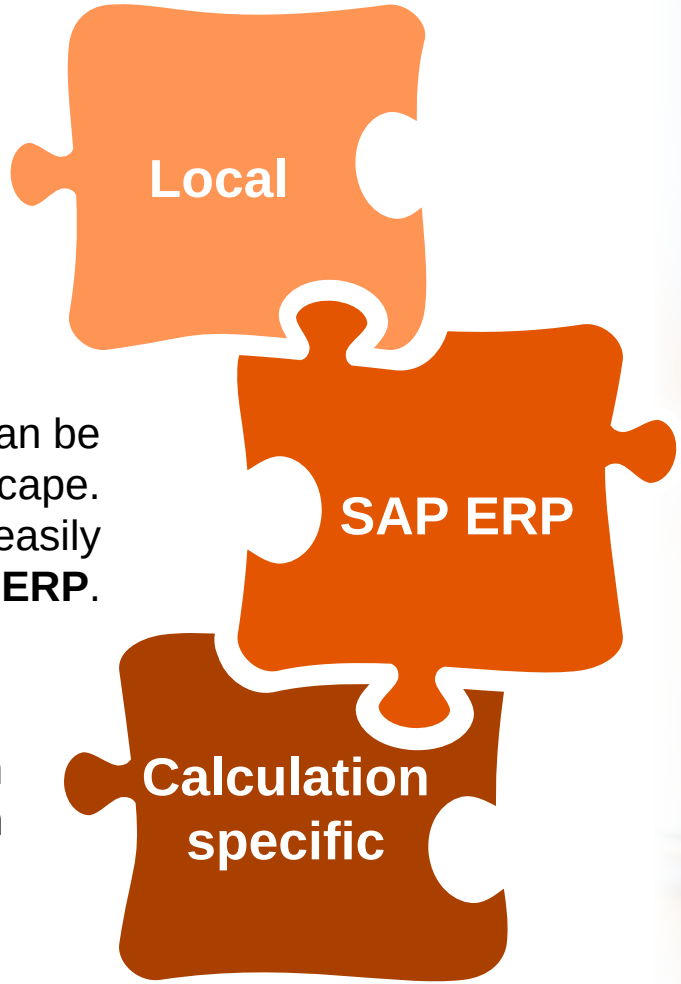
# Different ways of determining item prices

Prices for all items can be determined by using the **local master data.**

SAP Product Lifecycle Costing can be integrated into your SAP solution landscape. Material and activity prices can be easily determined by getting data from **SAP ERP**.

A user can also manually maintain **calculation-specific** prices for each item in the costing structure.



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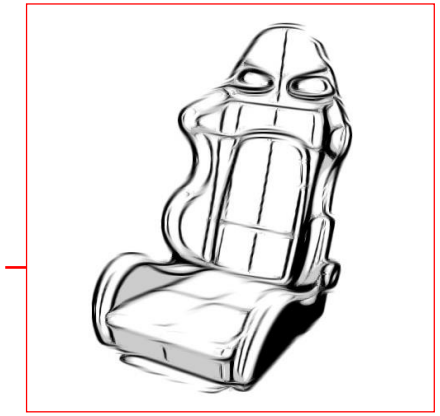
# Reference calculations for cost estimate modularization and re-use

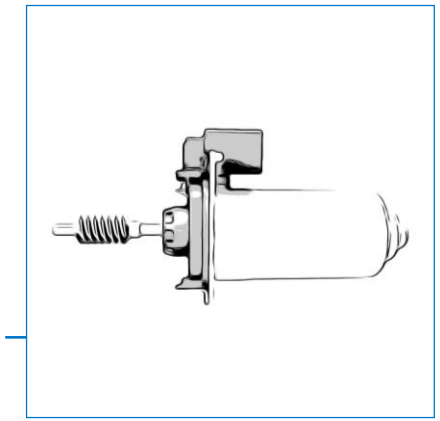
## Cost Estimate with 1 Referenced Version

references

| Costing Structure | uantity for ne Assembly | UoM (Qty f... | Total Quantity | UoM (Tot... | Total Cost |
|---|---|---|---|---|---|
| Seat Module - Version 2 - SM-10 | | | 10 | PC | 19,187.22 |
| #CC1 #AT1 pick according to pick list | 20 | min | 200 | min | 576.15 |
| #PT1 100-100 Seat basis | 1 | PC | 10 | PC | 4,966.27 |
| #PT1 100-200 Engine | 1 | PC | 10 | PC | 4,966.27 |
| #PT1 100-300 Seat back | 1 | PC | 10 | PC | 4,966.27 |
| Seat Core - Version 7 - SC-108 | 1 | PC | 10 | PC | 3,764.64 |

| Costing Structure | Quantity for One Assembly | UoM (Qty f... | Total Quantity | UoM (Tot... | Total Cost | Re-portin... |
|---|---|---|---|---|---|---|
| Seat Core - Version 7 - SC-108 | | | 100 | PC | 34,500.00 | EUR |
| 1000 100-110 Casing | 1 | PC | 100 | PC | 14,500.00 | EUR |
| 1000 100-120 Engine | 1 | PC | 100 | PC | 20,000.00 | EUR |





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# Different ways of calculating and analyzing costs

Within a calculation, you can choose which existing **cost component split** or **costing sheet** should be used to calculate or to break down the costs.

**Cost Component Split**

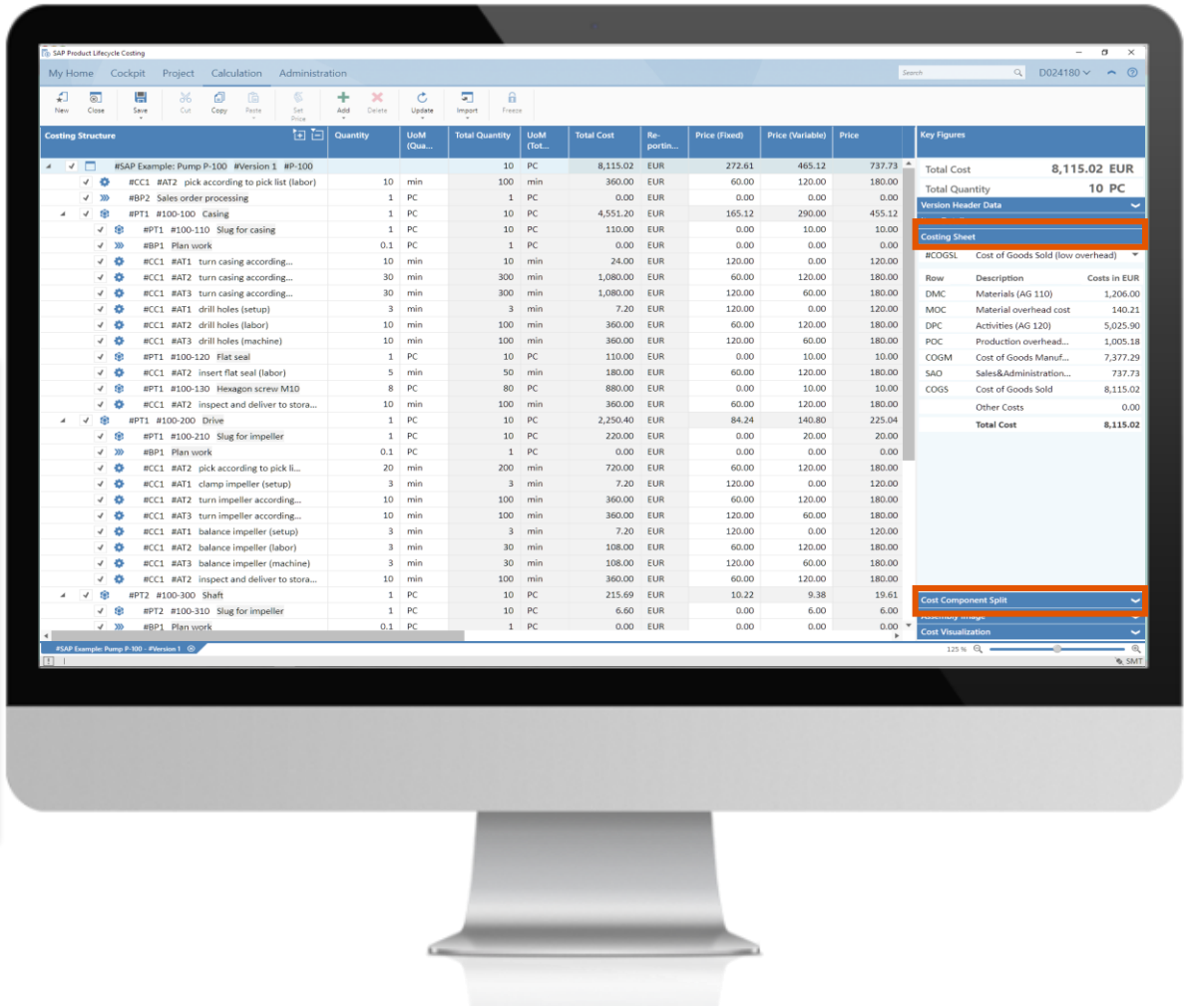
#SPLIT_DETAILED — Cost Component Split (detailed)

| ID | Description | Costs in EUR |
|---|---|---|
| 111 | Raw materials (A... | 1,206.00 |
| 112 | Semi-finished pro... | 0.00 |
| 113 | Finished product... | 0.00 |
| 121 | Activities - setup... | 42.90 |
| 122 | Activities - labor (... | 3,303.00 |
| 123 | Activities - machi... | 1,680.00 |
| 131 | Material overhea... | 140.21 |
| 132 | Production overh... | 1,005.18 |
| 133 | Other overheads... | 737.73 |
| 141 | Plan work (AG 141) | 0.00 |
| 142 | Sales order proce... | 0.00 |
| | Unassigned Costs | 0.00 |
| | **Total Cost** | **8,115.02** |

**Costing Sheet**

#COGSL — Cost of Goods Sold (low overhead)

| Row | Description | Costs in EUR |
|---|---|---|
| DMC | Materials (AG 110) | 1,206.00 |
| MOC | Material overhead cost | 140.21 |
| DPC | Activities (AG 120) | 5,025.90 |
| POC | Production overhead cost | 1,005.18 |
| COGM | Cost of Goods Manufactured | 7,377.29 |
| SAO | Sales&Administration Overhead | 737.73 |
| COGS | Cost of Goods Sold | 8,115.02 |
| | Other Costs | 0.00 |
| | **Total Cost** | **8,115.02** |

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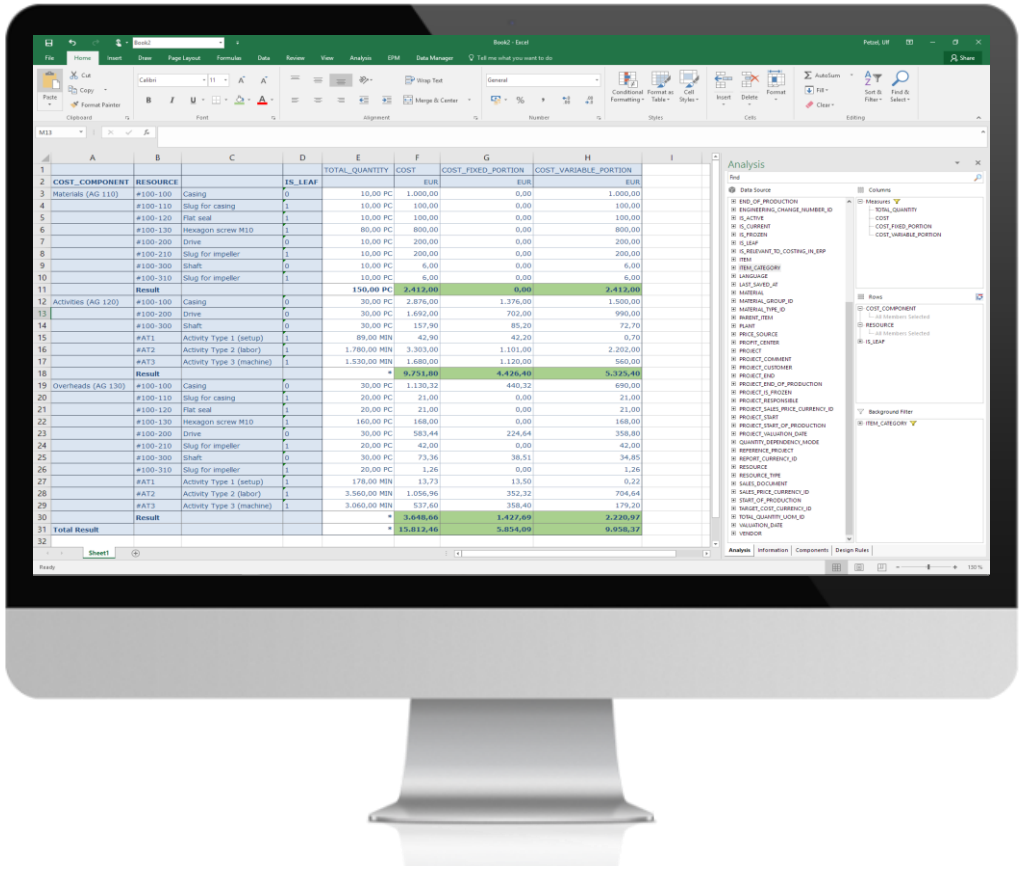
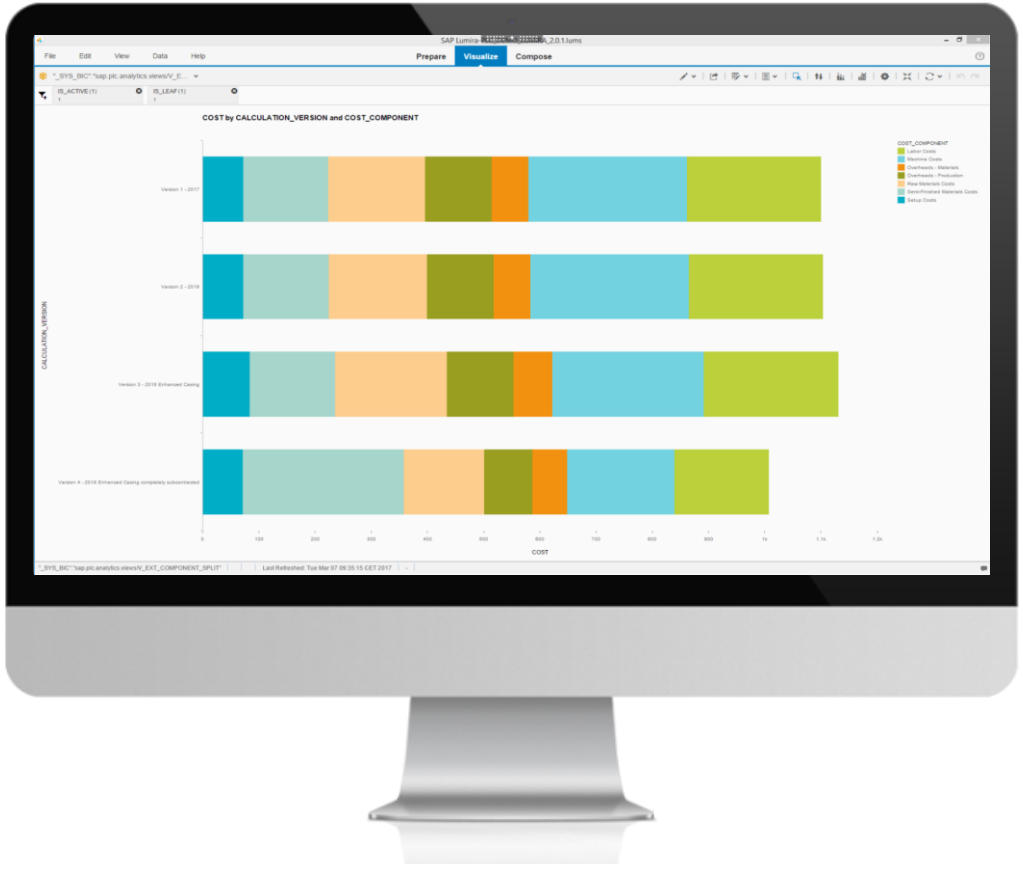
# Additional analysis options – examples

## Fixed and variable costs per cost component and resource



SAP BusinessObjects Analysis for Microsoft Office

## Version comparison




SAP BusinessObjects Lumira

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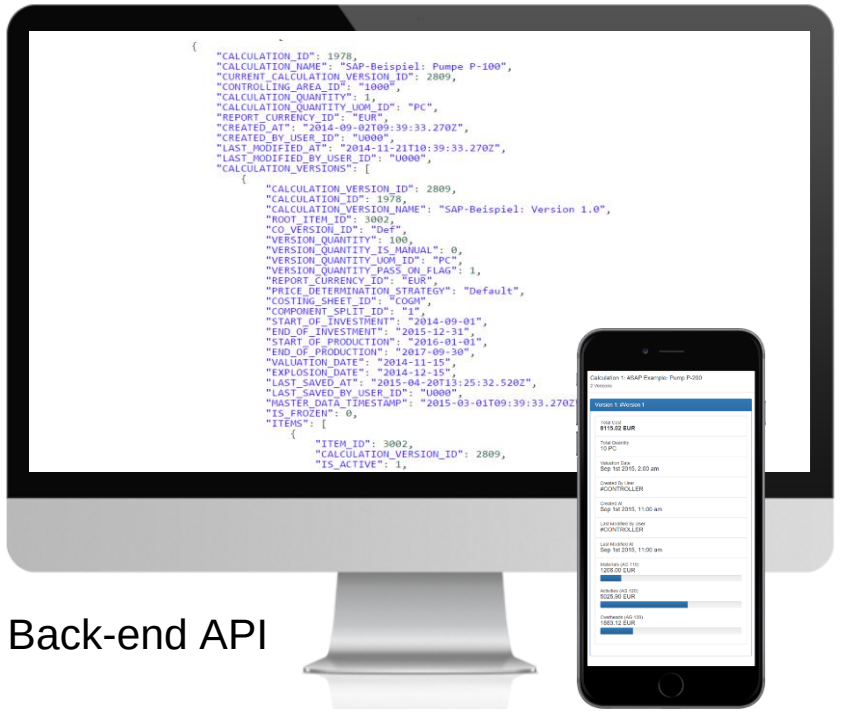
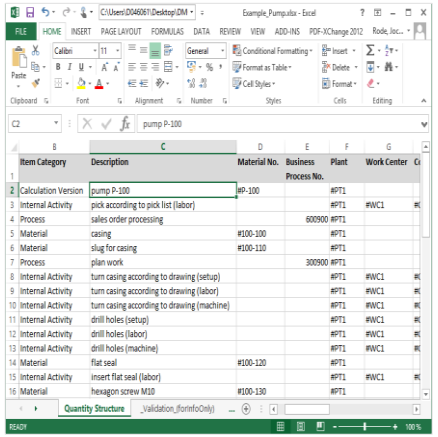
# Extensibility options

Open **SAP Product Lifecycle Costing** for extensions by customers and partners to **address custom use cases** and enable **integration with third-party systems** while helping to ensure data integrity and security.

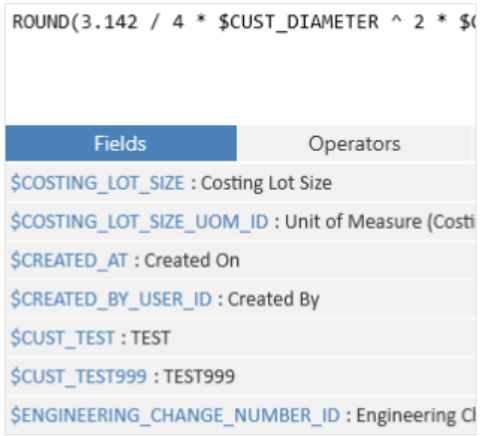
There are **four technical options** to extend SAP PLC and integrate with external applications. **Each option has different capabilities and enables different use cases.**



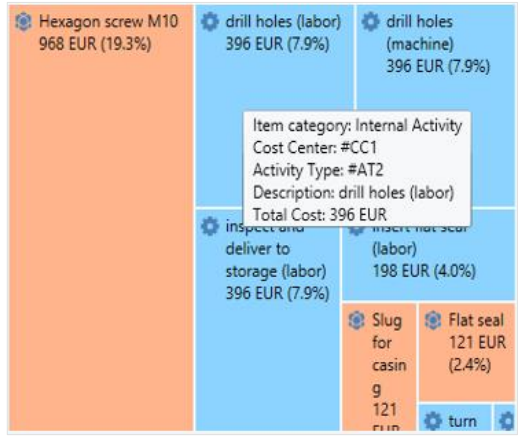

Back-end API



Standard or custom SAP HANA views




Custom fields and formulas




Front-end add-in framework

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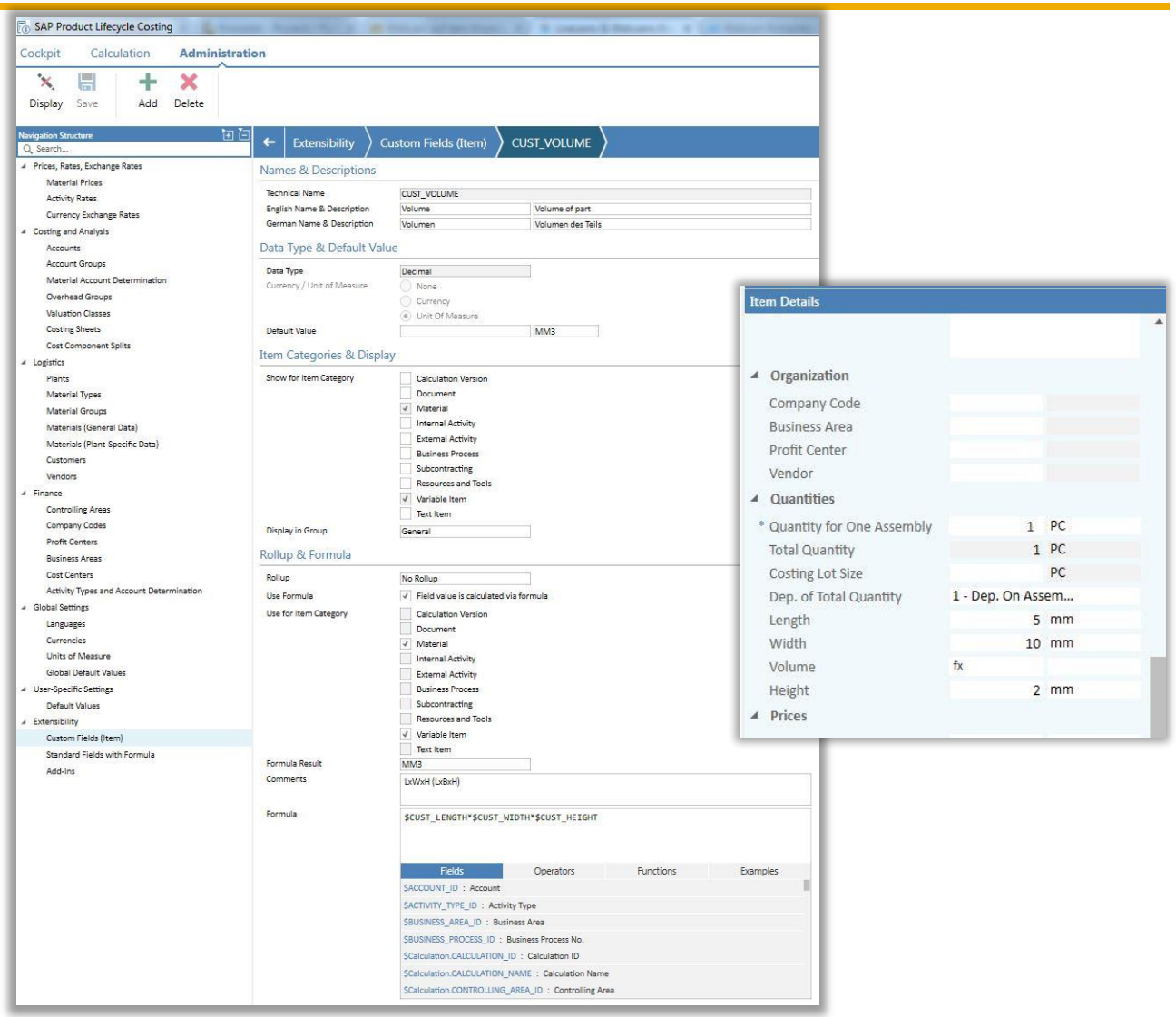
# Flexibly adaptable to your needs – custom fields & formulas example

**Custom fields** allow you to tailor the data that is used in a calculation version to fit your organization's needs. You can:

- create custom fields for calculation versions on item level for
  - Entering a manual value
  - Getting a value calculated by a formula
- define if a value should be rolled up
- define for which item categories the custom field (and its formula) is to be available, and in which group in the item details it should be displayed
- create a maximum of 150 custom fields

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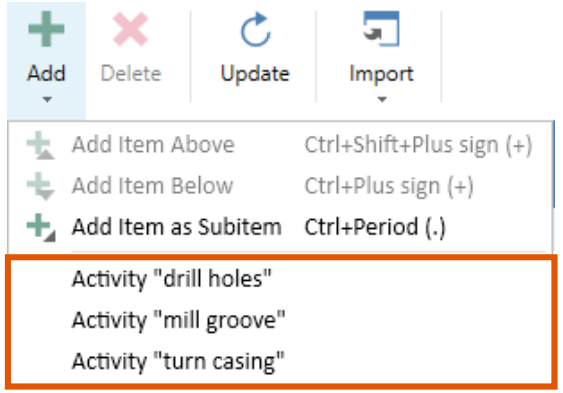
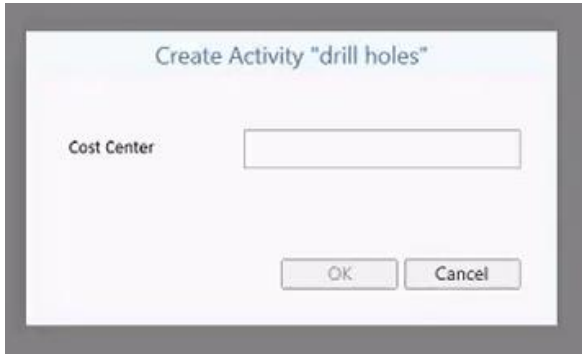
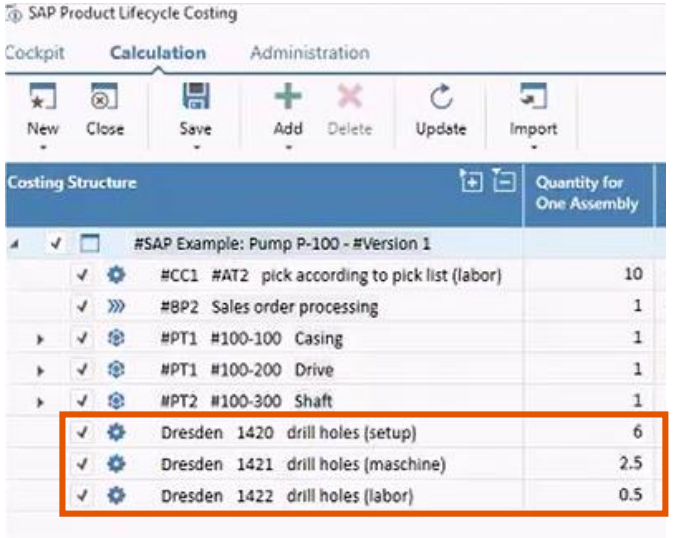
# Flexibly adaptable to your needs – ribbon bar add-in example

**Templates:**
Create multiple cost items based on a few custom data entries, e.g. auto-create 3 items for setup/machine/labor from a template.

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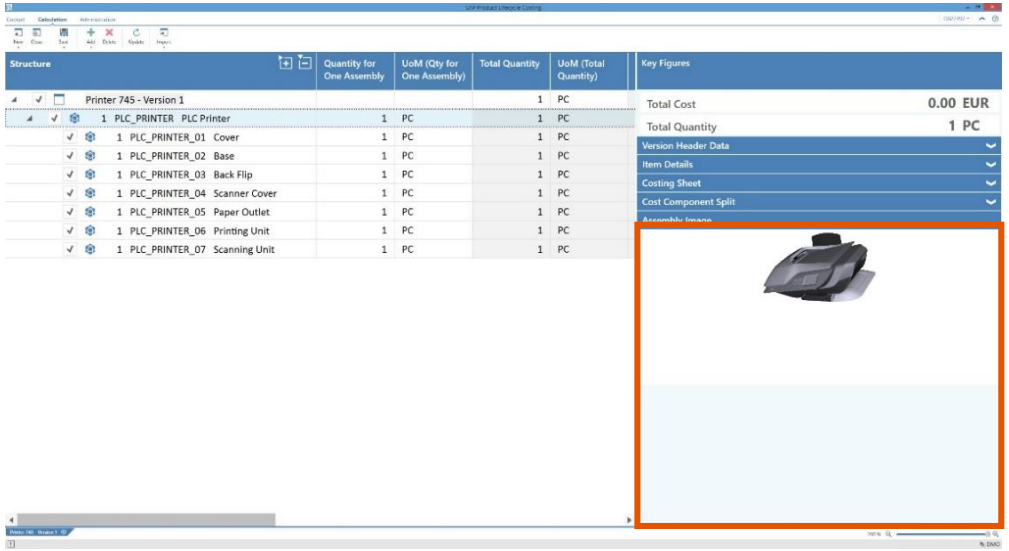
# Flexibly adaptable to your needs – side panel add-in examples

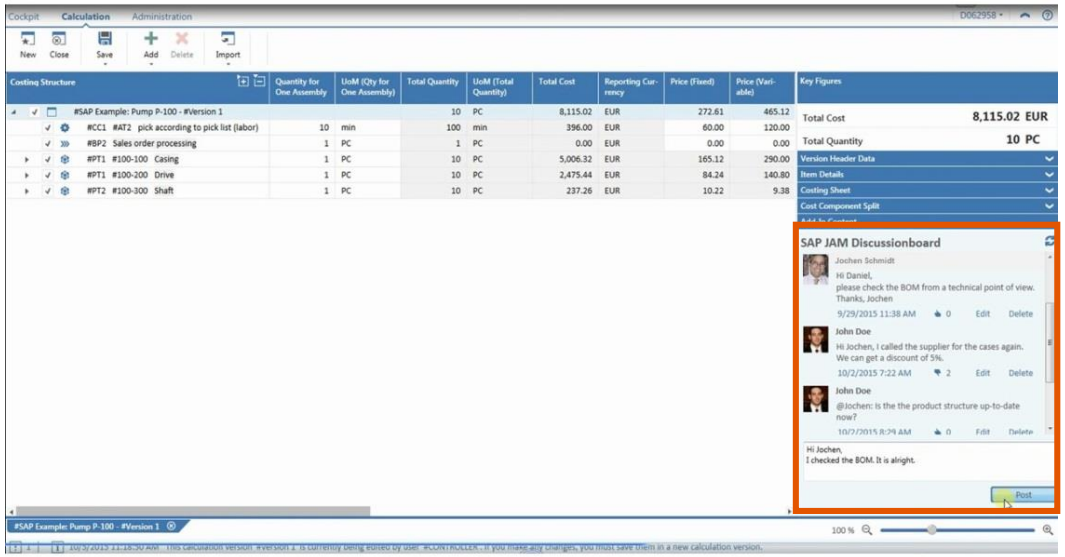
## Visualization

Display of thumbnails of the product or component selected in the costing structure in the side panel (for example, from the document management system component in SAP Product Lifecycle Management or the SAP 3D Visual Enterprise application)




## Cross departmental boundaries

Leverage social media platforms embedded into the solution for collaboration, like SAP Jam

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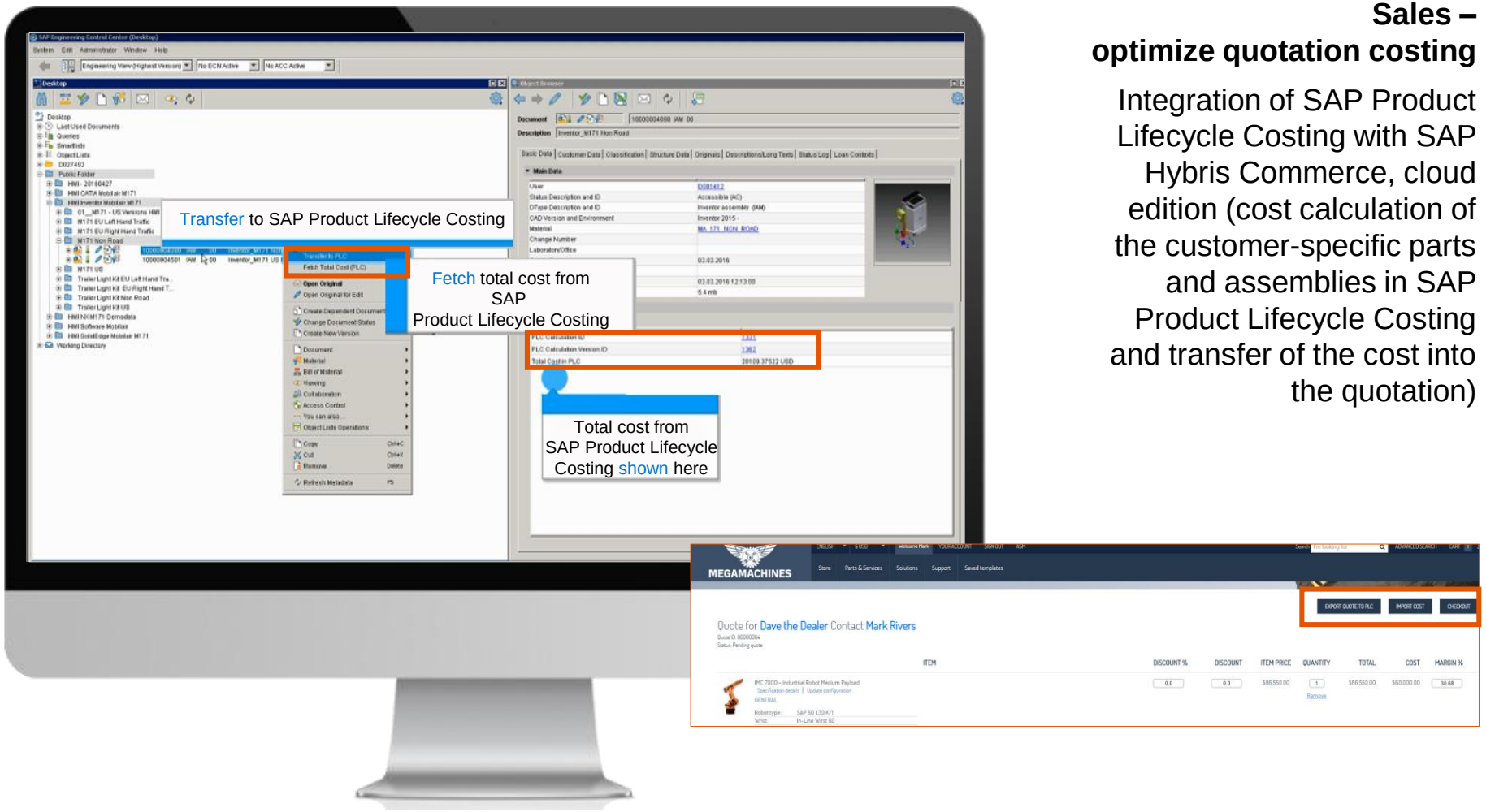
# Flexibly adaptable to your needs – integration across applications

**R&D –**
**optimize product design cost**

Integration of SAP Product Lifecycle Costing with SAP Engineering Control Center
(single repository for product data generated out of different engineering authoring tools)

Hannover Fair 2016 video




**Sales –**
**optimize quotation costing**

Integration of SAP Product Lifecycle Costing with SAP Hybris Commerce, cloud edition (cost calculation of the customer-specific parts and assemblies in SAP Product Lifecycle Costing and transfer of the cost into the quotation)

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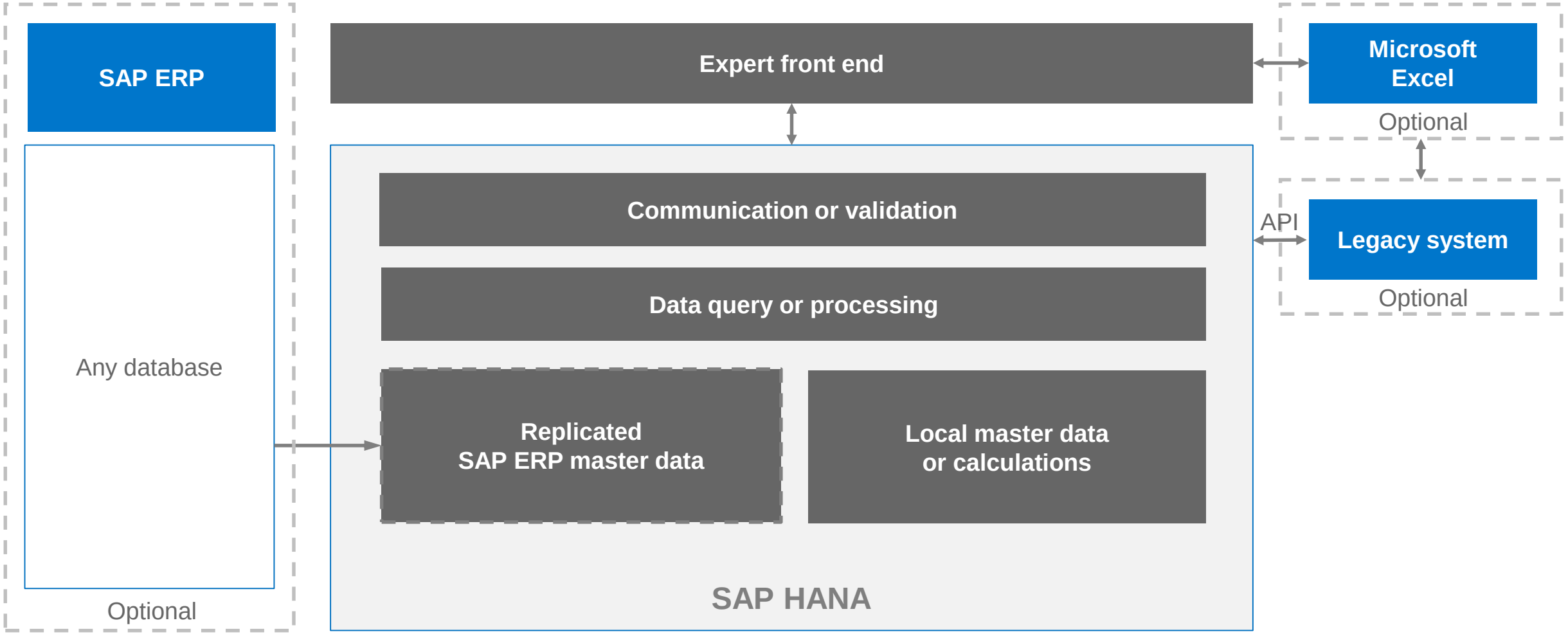
# High-level architecture

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# Live Demo

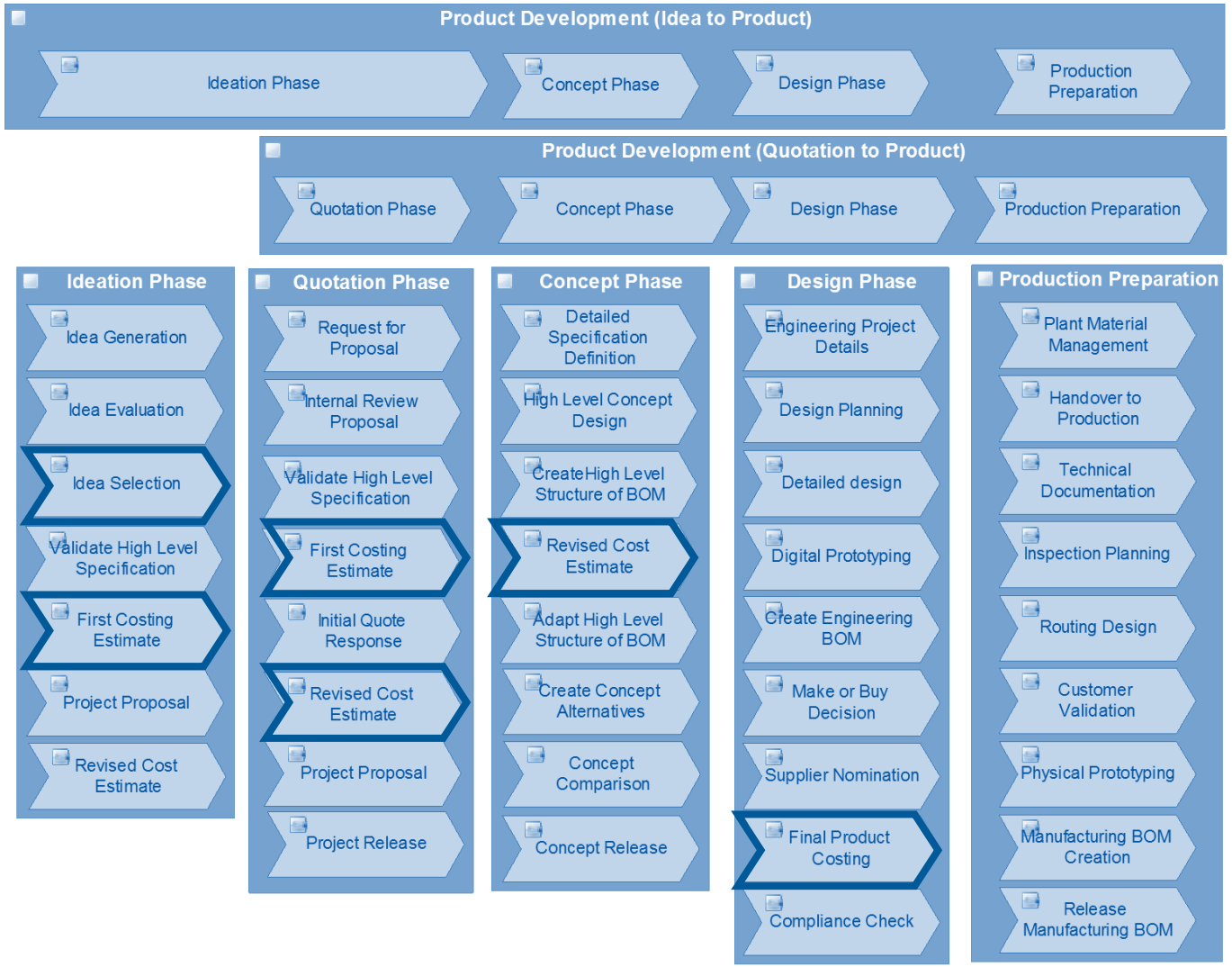
# Roadmap

# SAP Product Lifecycle Costing

## In the SAP Leonardo – Digital Engineering product portfolio

**SAP Product Lifecycle Costing is a solution which is needed for early costing when developing a new product or quote an engineered machine.**

- SAP Product Lifecycle Costing belongs to the SAP Leonardo product portfolio in the area of Digital Engineering
- It is required in the ideation, concept and design phase when design and sourcing decisions are driving the majority of the product cost.
- Early costing is an iterative process which spans multiple process steps and engineering phases.
- Typically a product cost controller or a product manager is the owner of this task.
- The process ends when the production of the product starts.

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# SAP Product Lifecycle Costing
# Product road map overview - key themes and capabilities

Subject to Change

## Recent innovations

### Referencing Calculations
- Reference a calculation version
- Update all/selected references

### Advanced Pricing
- Custom price sources, price determination strategy
- Vendor-/Project-specific prices
- Select price from list of valid prices

### Manage Calculations
- Show recently used calculations
- Copy/Move calculations
- Freeze calculations

### Extensibility
- Extensions to Add-in Framework
- New custom formula functions (Release 2.0)

## 2017 – Planned innovations

**Project lifecycle**

**Layout management**

**Custom fields in master data**

**Instance-based privileges**

**Mass Change & Filter**

**Surcharges**

**Resources**

**Status Management**

**Variant Matrix**

**Usability improvements**

**Performance improvements**

**Add-in Framework extensions**

**Backend API extensions**

## 2018 – Product direction

**Cloud-Enablement**

**Integration w/ other SAP solutions (e.g. Ariba, Hybris…)**

**Collaboration**

**Further features in planning**

## 2019 – Product vision

**Manage product's impact to dimensions other than cost – economic, societal, environmental**

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# SAP Product Lifecycle Costing V2.0

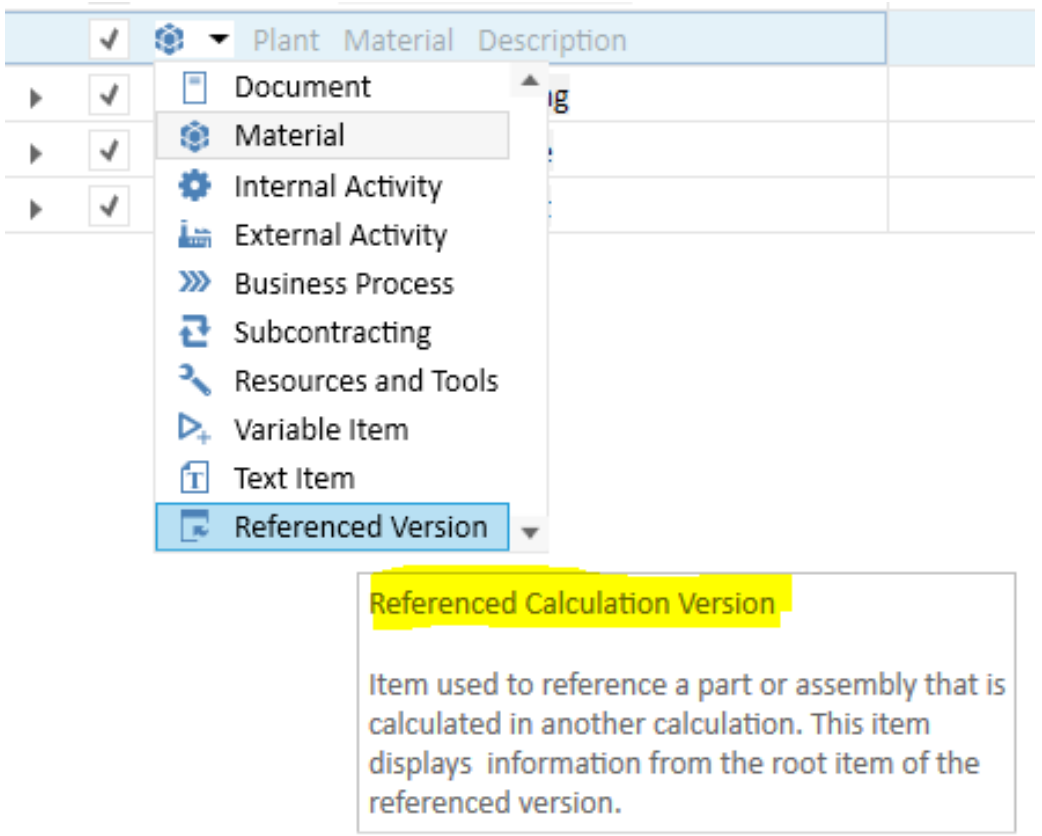
## Referencing Calculations

### Reference a calculation version

Allows to include an assembly which has been calculated in another calculation into the current calculation version. A reference to the "assembly" calculation is maintained and if changes occur in the "assembly" calculation, the user is notified when re-opening the current calculation version. The user can choose to update the current calculation with the changes or ignore the changes.

### Update all/selected references

Allows to update all or selected referenced versions by choosing menu option "Update referenced version" from the "Update" menu. You can select the version(s) you want to update. The selected references will be replaced with the "current version" of the referenced calculation.

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# SAP Product Lifecycle Costing V2.0

## Advanced Pricing

**Custom price sources, price determination strategy**

Allows to define a list of custom price sources that can be used within SAP PLC.

Allows to configure a price determination strategy which defines the order that different price sources will be used. The strategy is used company-wide.

**Vendor-/Project-specific prices**

Allows to maintain vendor-specific or project-specific prices in the Administration view. Any price source maintained before can be used.

**Select price from list of valid prices**

Allows the user to select any of the valid prices for the item.

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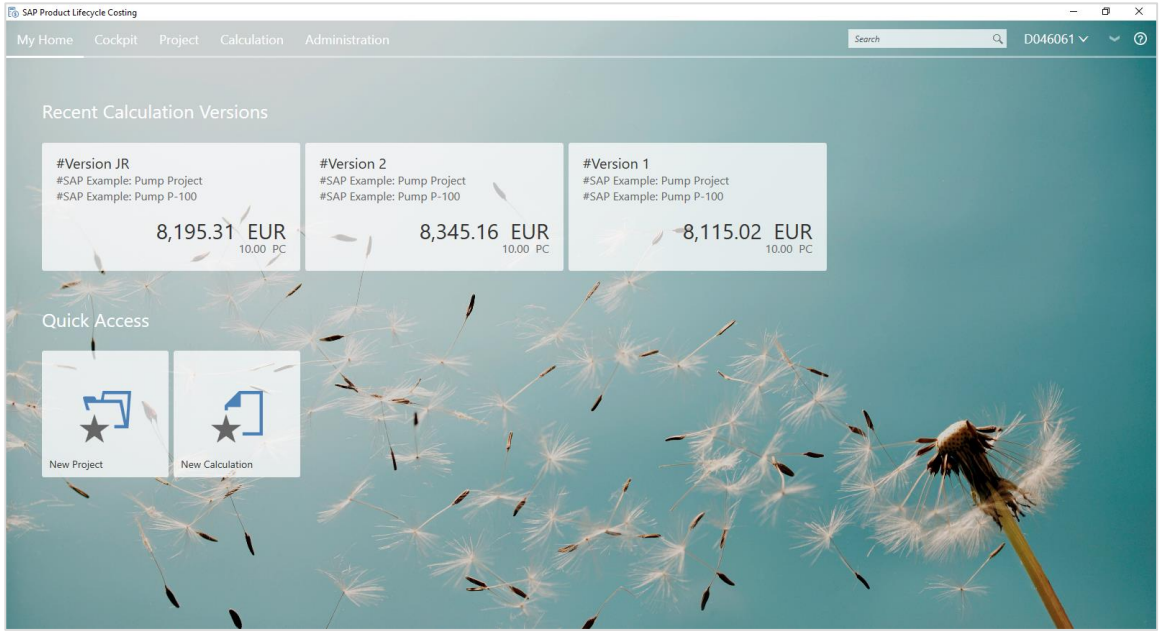
# SAP Product Lifecycle Costing V2.0

## Manage Calculations

### Show recently used calculations

Adds a new tab called "My Home" that is the landing screen after logon (instead of the Cockpit today). This screen shows a list of tiles representing those calculation versions that you opened most recently. The feature allows you to quickly continue work that you have started in a previous session without having to browse and search the list of all calculations. The screen shows a nice background image which rotates on every new login through all the pictures contained in a particular folder. A customer may replace the SAP images with one or more image(s) reflecting corporate identity or personal preferences.




### Copy/Move calculations

Allows to copy a calculation version into another project (as long as both projects belong to the same controlling area).

Allows to move a calculation with all versions into another project (as long as both projects belong to the same controlling area).

### Freeze calculations

Adds a new context menu option and/or ribbon button, that if pressed makes the calculation version read-only forever. This action cannot be undone.

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# SAP Product Lifecycle Costing V2.0

## Extensibility

**Extensions to Add-in Framework**

Support custom fields in add-ins

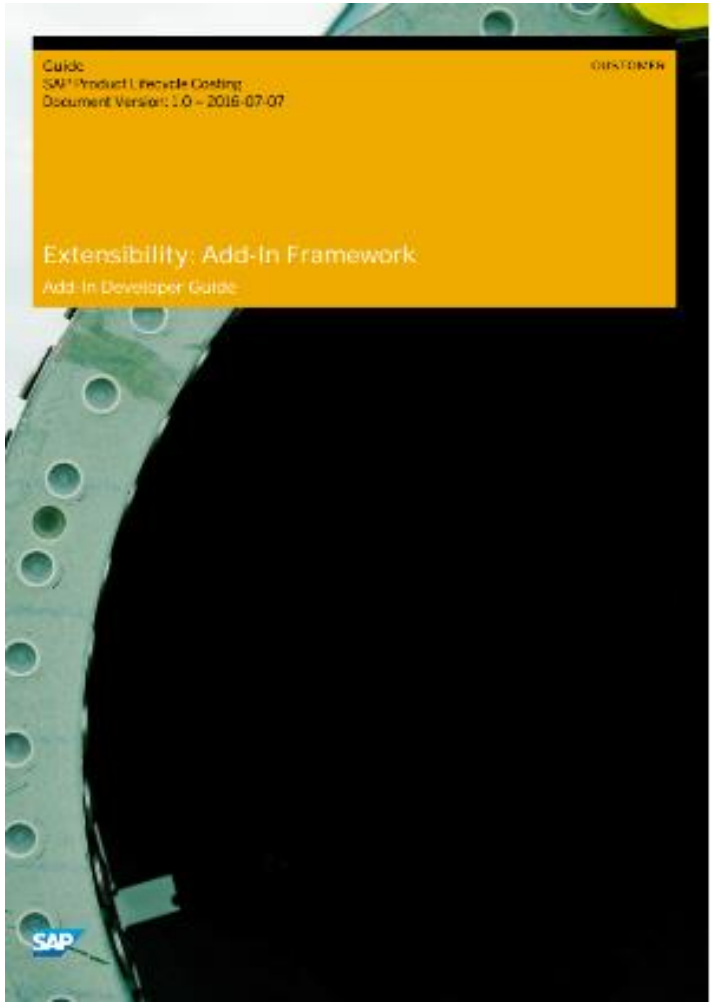
Add-in functions to create new material and new price

Add-in function to access custom-developed backend-services/database-views

Add-in function to support mass creation of cost items

Add-in function to trigger update of master data in calculation version

Notify add-ins if master data are updated in a calculation version




**New custom formula functions**

VALUE_LOOKUP function which allows to look up a value from a small table of values based on a number of selection criteria.

Function which can be used in custom formulas and will return the manual value (if any) that has been entered by the user.

Function which returns 1 or 0 depending on whether the given parameter is NULL (undefined) or not NULL (some value).

Function PARENT(FIELD) returns the parent item of the given field.

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*Further features in planning*

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# 2017 Planned innovations

## Planned for V2.0 SP1

**Project lifecycle**

Define total quantities per Calculation for each period in Project view

Price determination and calculation of entire project over the lifecycle

HANA views to expose calculation versions of a particular lifecycle period

**Layout management**

Allows to select the fields to be shown in the calculation table and their order. Allows move/resize/remove of columns. Also allows to save the current layout. Also, allows to "hide" those fields that you do not need, thereby making the side panel easier to read. Unused fields would be "moved" to a group called "Unused Fields" and can be shown again if needed.

**Custom fields in master data**

Custom fields in Material Price master data

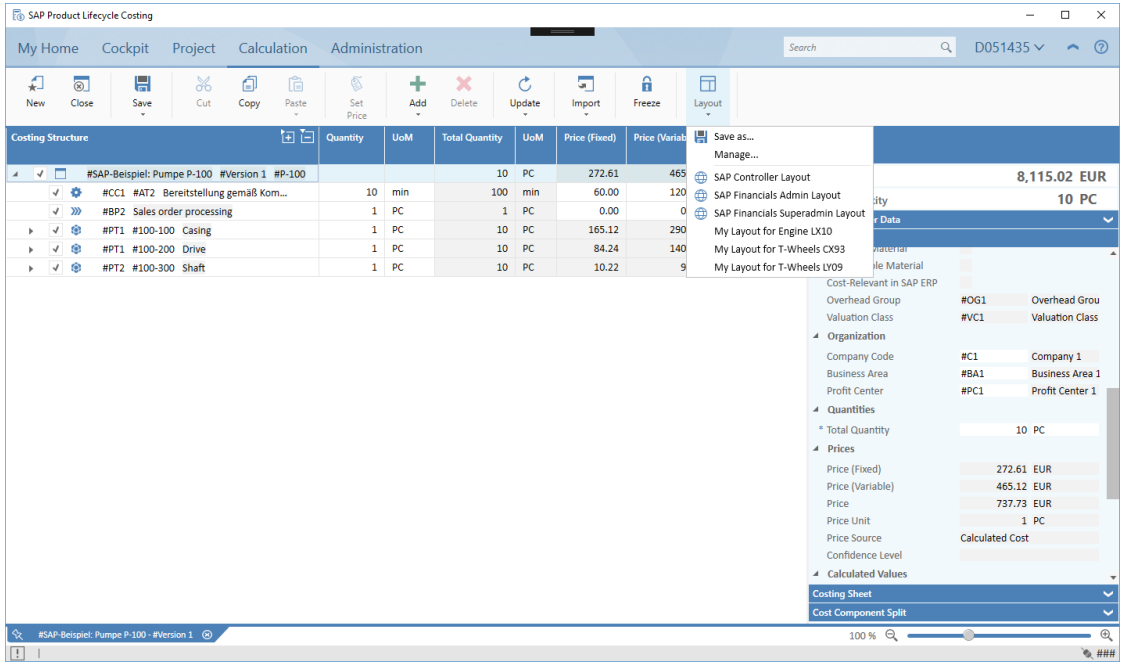
Custom fields in Material master data (Plant-Specific Data)

Custom fields in Material master data (General Data)

Custom fields in Cost Center master data

**Instance-based privileges**

Instance-based access restrictions give particular users read/write access to particular projects.

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# 2017 Planned innovations

## Planned later in 2017

**Mass Change & Filter**

Mass change and highlighting for any field in calculation version based on custom rules

Filter table in Calculation view by any field

**Surcharges**

Define and use project-specific surcharges in the project calculation for each lifecycle period

Flag an item as customer-directed part (German: “Setzteil”)

Lifecycle calculation with the option to always use surcharges instead of existing prices

**Processes & Resources**

Allows to maintain processes and resources using these processes in master data. In the calculation a cost item can be defined for a particular process and resource. The activities associated to the process are then auto-generated based on the resource information in the master data.

**Status Management**

Maintain/Use custom status for calculation versions and for projects

**Variant Matrix**

Allows to define which items of a Maximum BOM are represented in which variant. This definition is done at the project level.

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# Summary

# SAP Product Lifecycle Costing offers

First-class **user experience**

High **performance**

**Integration** with SAP ERP

**Extensibility** made for customers

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# SAP PLC will deliver a major step forward in the way AGCO manages product costs on a global scale

1. SAP PLC will ensure a **consistent** way of **calculating** product **costs globally**
2. SAP PLC will deliver global **access** and **transparency** of product **costs** information
3. SAP PLC will be **integrated** with **Engineering** and **Business** systems where feasible
4. SAP PLC will **increase** the **efficiency** of Cost engineers giving them more time to evaluate design concepts

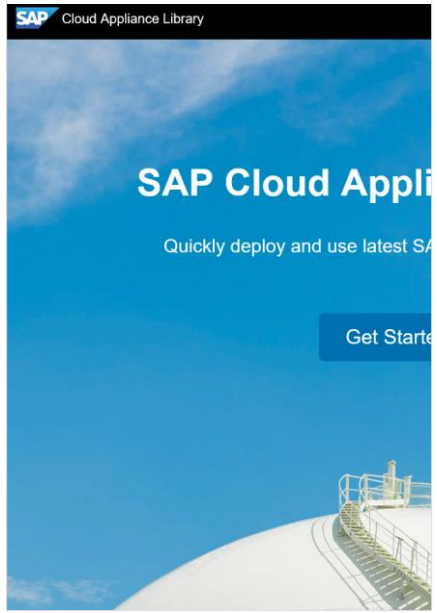
Improved **information** availability…

…leading to better **decision…**

**…**leading to improved **target cost achievement…**

AGCO
Your Agriculture Company

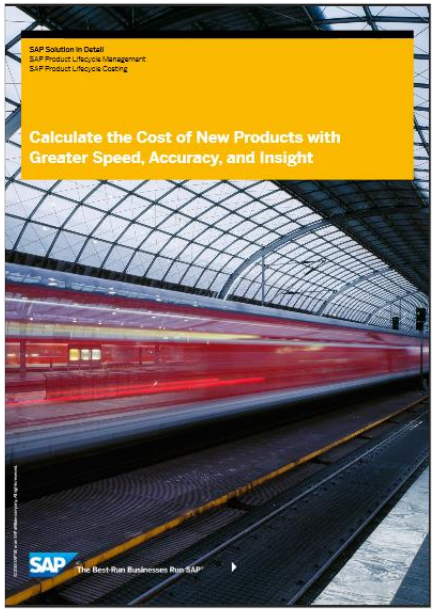
# Further Information



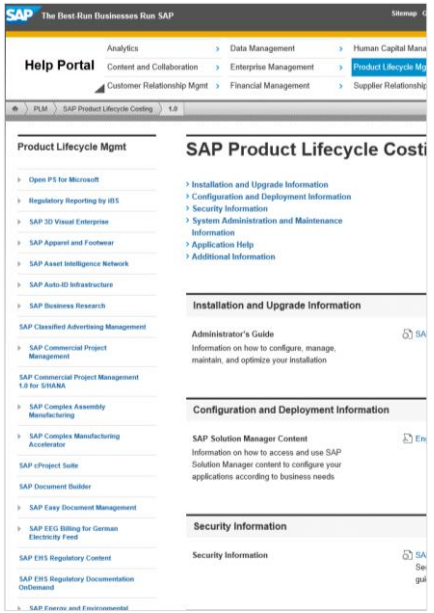

[SAP Cloud Appliance Library (CAL)]

[Overview Video]

[SAP Web Site]




[Solution in Detail Brochure]




[Help Portal]

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# Thank you


**SAP Solution Management**

Petra Köpfer-Behncke
petra.koepfer-behncke@sap.com

Marion Heidenreich (IM&C)
marion.heidenreich@sap.com

Ulf Petzel (high tech)
ulf.petzel@sap.com

Manivel Kulanthaivel (automotive)
manivel.kulanthaivel@sap.com

Carsten Hilker (finance)
Carsten.hilker@sap.com

**SAP Development**

Jochen Rode
jochen.rode@sap.com

Daniela Wünsch
daniela.wuensch@sap.com

**SAP Custom Development**

Manthan Peshne (Palo Alto)
manthan.peshne@sap.com

Rüdiger Müller (Walldorf)
ruediger.mueller@sap.com