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Teamcenter Product Cost Management
产品成本管理系统功能介绍

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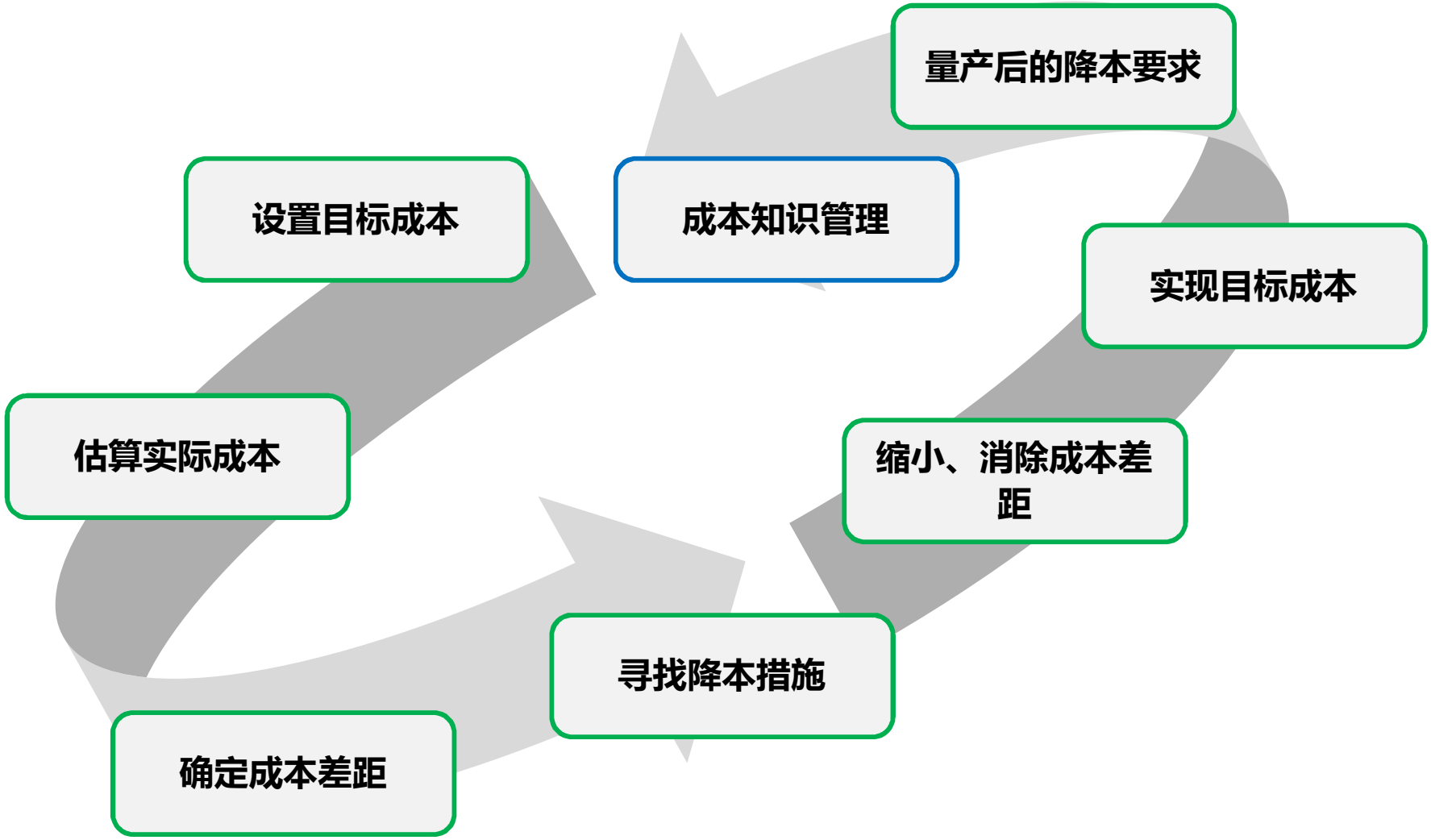
Smarter decisions, better products.

Teamcenter Product Cost Management
成本管理的业务模式



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Teamcenter Product Cost Management
传统成本管理存在的问题

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传统的成本管理

- ✓ 大量彼此孤立的电子表格包含大量不一致的成本信息
- ✓ 缺乏与其他包含重要产品成本信息的系统间的数据交互和整合
- ✓ 缺乏规范统一的成本信息构建和共享系统平台

普遍存在的问题

- 没有标准的成本核算方法和流程，成本数据和成本模型缺乏一致性
- 成本估算结果不准确，计算结果重复性和可比性差
- 成本核算工作效率低，产品成本透明度差
- 在新产品研发过程中缺乏对关键成本动因及其变化的有效掌控
- 无法实现系统化的产品成本监控与优化

预算超支、目标成本无法达成、项目投资回报率无法保证

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Teamcenter **Product Cost Management**
统一的成本管理平台

TcPCM

成本计算工具

成本分析工具

成本数据库

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Teamcenter Product Cost Management
我们的使命

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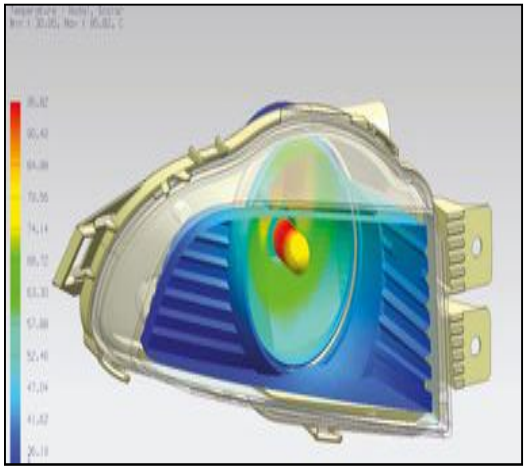
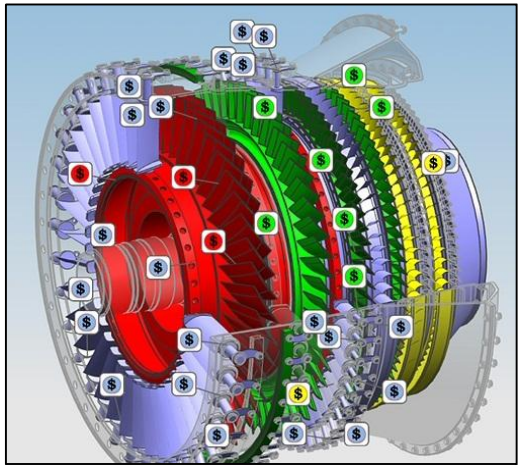
虚拟产品验证



虚拟制造验证

虚拟成本验证



需求 → 设计 → 分析 → 验证 → 变更 → 制造

成本分析模拟和可视化

成本知识管理

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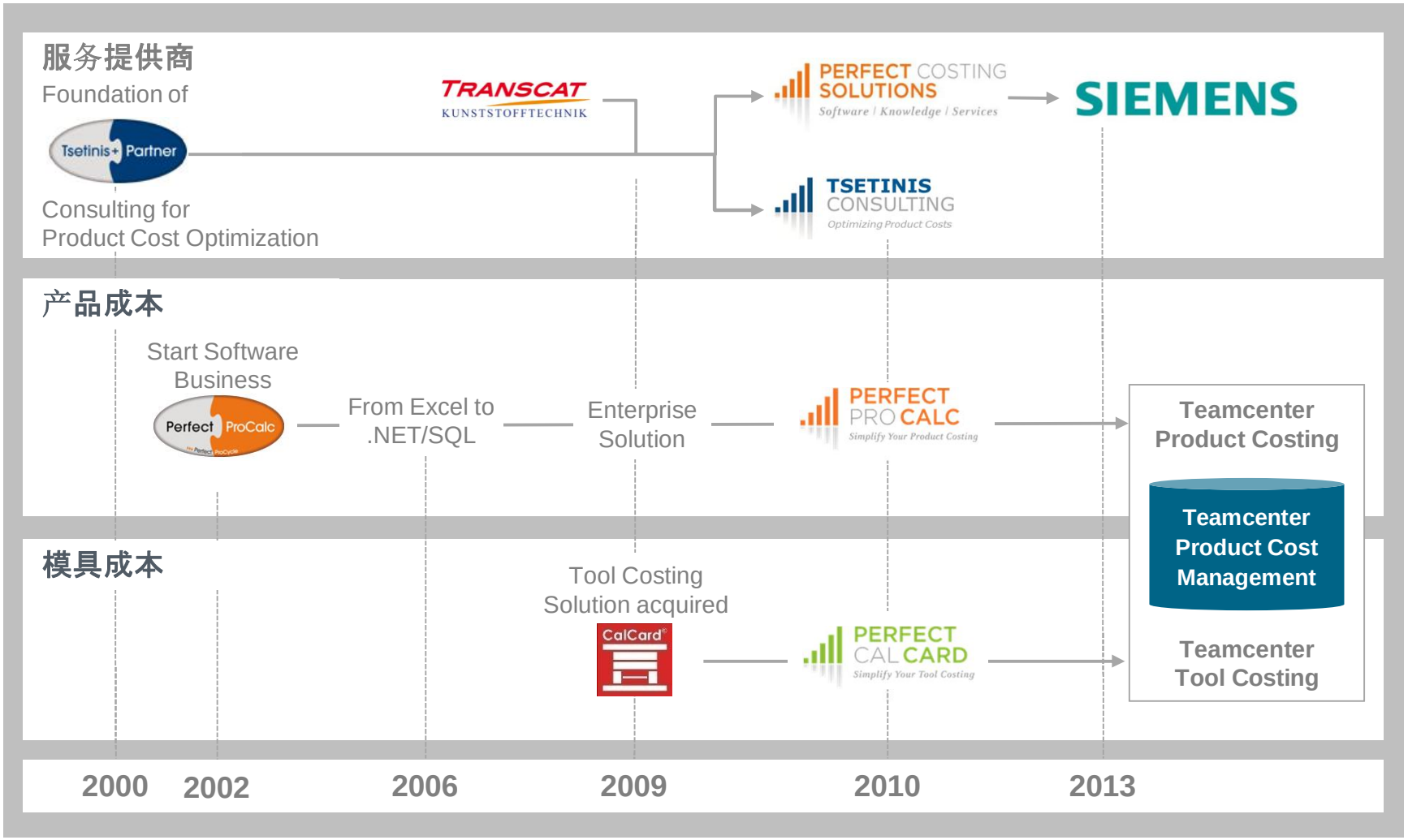
Teamcenter Product Cost Management
产品沿革



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Teamcenter **Product Cost Management**
我们的客户

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主机厂

DAIMLER
Mercedes-Benz
Audi
Vorsprung durch Technik
BMW
MINI
SKODA
VOLVO
FIAT
VW
OPEL
GM
DAEWOO INTERNATIONAL
QOROS 观致汽车
ROLLS ROYCE
MAN

零部件供应商

MAHLE
BOSCH Technik fürs Leben
ZF
ZF Lenksysteme
brose Technik für Automobile
SCHAEFFLER GRUPPE
LuK
INA
FAG
KNORR-BREMSE
Bosch Mahle TurboSystems
MANN+HUMMEL
HITACHI Inspire the Next
SCHEUERLE
Honeywell
BENTELER
kiekert
Continental
FILTRAN
BEHR
BONFIGLIOLI Power & Control Solutions
MAGNA
SUMITOMO
MARQUARDT
Visteon
Johnson Controls
TRW
AAM
MODINE
HELLA
Eberspächer
AUTOMOTIVE LIGHTING
Dräxlmaier
GRAMMER
iwis wir bewegen die welt
Webasto Feel the drive
Edscha
GETRAG
ixetic
KEIPER
NL
YAZAKI
Huf
Elastogran BASF Gruppe
TAKATA
Autoliv
BorgWarner BERU Systems
BPW
TI Automotive
WAHLER
GRUPO BOCAR Automotive Systems
VOIT
PMG
BOYSEN INNOVATIONEN ABGASTECHNOLOGIE
RCM
WIRTHWEIN AG
KROMBERG & SCHUBERT
lisi AUTOMOTIVE
Truck-Lite GLOBAL
BOS
LACKS ENTERPRISES, INC.
ArvinMeritor
KEY AUTOMOTIVE GROUP Key Plastics Portugal, SA
ebmpapst
HARMAN
gepa
BHTC COMFORT IN MOTION

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Teamcenter **Product Cost Management**
我们的客户

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医疗、能源、高科技及消费品领域

SIEMENS
CLAAS
FENDT
AGCO SISU POWER
CAT
IBM
B/S/H/
Miele
Whirlpool
Rexroth Bosch Group
ASML
FESTO
RATIONAL
océ
KraussMaffei PEOPLE FOR PLASTICS
SMA
BOSCH Thermotechnology
Buderus
TRELLEBORG
ThermoFisher SCIENTIFIC The world leader in serving science
WILO
BRP
spm
Schlemmer
Sortimo
RECARO
Wertheim
PÖPPELMANN
GEBERIT
VIMAR energia positiva
TROX® TECHNIK The art of handling air
truma
WIESAUPLAST
OSRAM
HellermannTyton
MINDA SCHENK PLASTIC SOLUTIONS
Söhnergroup
intercable
OTTO KLUMPP GmbH KUNSTSTOFFTECHNIK
BÖLLHOFF
HATEC Automotive Trading Engineering & Consulting
OECHSLER

模具制造及技术服务商

HOFMANN innovation group
WIRTHWEIN AG
Krallmann GRUPPE
LISMOLDE 2
AWS Systemtechnik GmbH
rathgeber tyrol
warema
cosmetics inspiration engineered
FWB Kunststofftechnik ...the innovation company
HUMMEL FORMEN PRÄZISIONSFORMENBAU
PRECISION GROUP
HATEC Automotive Trading Engineering & Consulting
Flambeau
metak
FRANK ...die ganze Welt der Kunststoffverarbeitung
AVL
MBtech Mercedes-Benz technology
PMT solutions
millarium
bertoli gianfranco
Arkal Plastic Products
Intensa

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Teamcenter Product Cost Management
将PLM与ERP紧密连接

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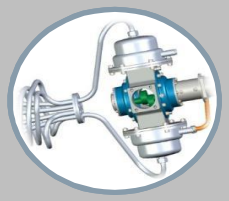
传统PLM

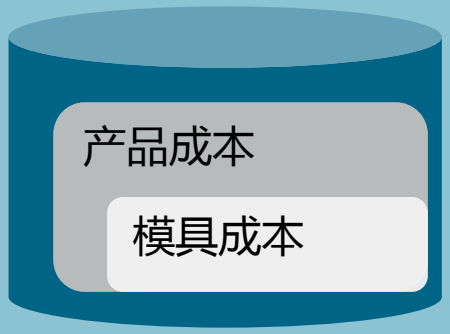


没有或有限的成本功能

产品数据

- BOM
- 几何特征
- 尺寸公差
- ...

Teamcenter **产品成本管理系统**



- 先期成本控制
- 采购成本分析
- 项目盈利性分析
- Design for Cost
- 基于数据的销售议价
- 模具成本分析

ERP

基于实际数据的量产后的产品成本核算

成本数据

- 物料成本
- 基础费率
- 固定分摊

产品生命周期

SOP = Start-of-Production
量产开始

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Teamcenter Product Cost Management
业务应用框架

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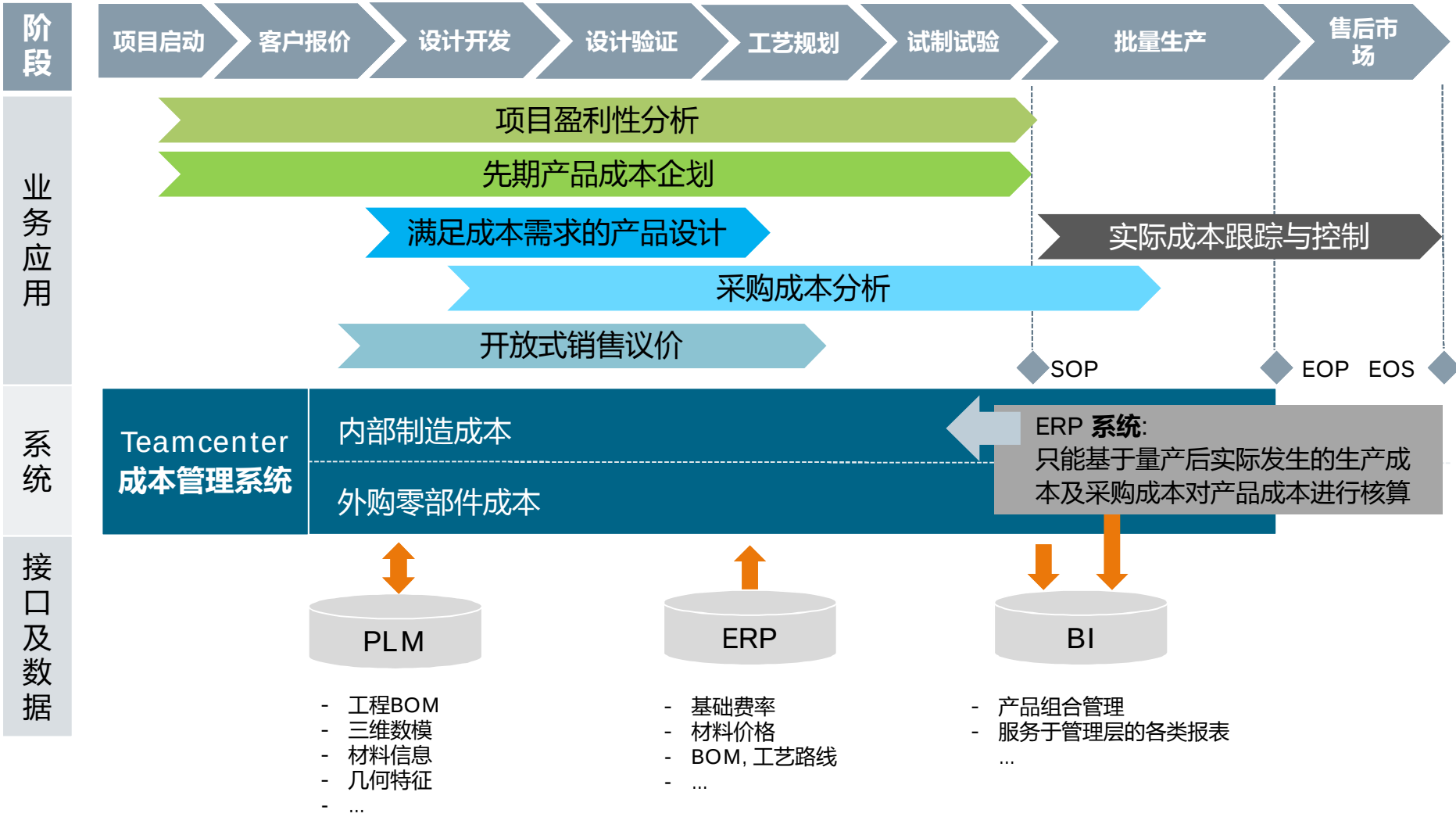

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Teamcenter Product Cost Management 应用体系

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Teamcenter Product Cost Management 的应用领域

先期成本控制	投资决策分析	采购成本分析	设计成本工程	开放式销售议价
先期目标成本管理	盈利能力分析	采购价格分析	面向成本的产品设计	基于数据的价格谈判

标准化的核算方法 - 持续一致的数据管理 - 成本信息的透明化 - 高效的流程和信息交互

制定合理的目标成本

- 项目先期报价成本评估
- 确定研发部门目标成本
- 敏感性分析/ 成本模拟
- 不同变量及版本之间的成本比较
- 优化的项目成本控制

适当的投资回报率

- 投资回报率分析和资金预算
- 全生命周期成本/新产品项目盈利亏损分析
- 现金流计算
- 多种财务指标: 如净现值, 内部收益率等
- 评估多种投资假设

基于最佳成本的采购价格

- 采购价格成本明细分解
- 自底向上的采购成本验证
- 项目先期目标成本的制定
- 采购件 “ Should Cost 应该成本 ” 分析
- 最优成本国家/地区采购定点决策

符合成本要求的合理产品设计

- 不同设计方案的成本对比
- 不同材料及生产工艺的成本对比
- 工程变更的成本验证及成本管理
- 产品成本对标

利润合理且透明的销售价格

- 及时可靠的客户报价
- 符合客户要求的成本明细
- 一致的成本数据管理
- 基于系统的详细成本讨论
- 系统化的成本数据管理和变更控制

Teamcenter 模具成本管理系统 作为有效补充

Teamcenter Product Cost Management
完整的成本解决方案

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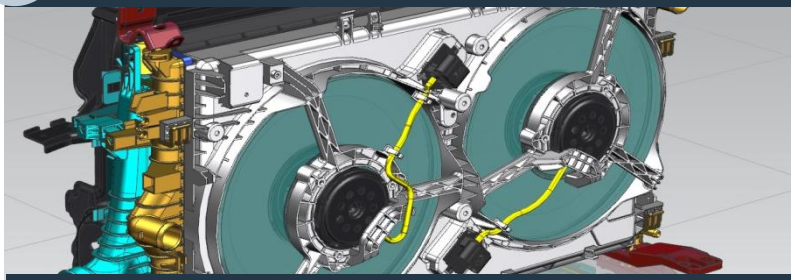
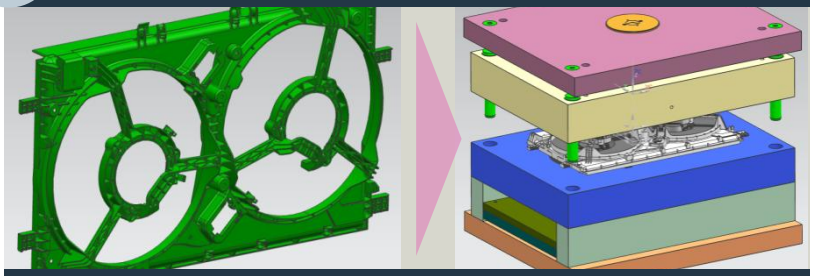
1 产品成本



详尽灵活自底向上的产品成本分析

- 先期产品成本控制
- 项目盈利性分析
- 采购成本分析
- 面向成本的产品设计
- 开放式价格谈判

2 模具成本



基于三维数模的参数化模具成本分析

- 模具采购价格分析 （模具采购方）
- 模具成本预估及报价（模具制造方）

3 一体化的解决方案

- 将产品及模具成本分析有机结合的成本管理解决方案充分反映全局的项目成本情况

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Teamcenter Product Cost Management
完整的成本解决方案

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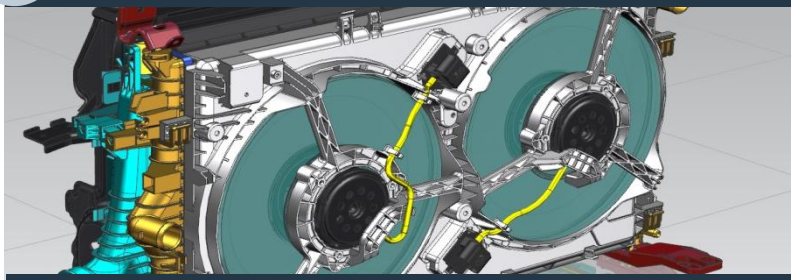
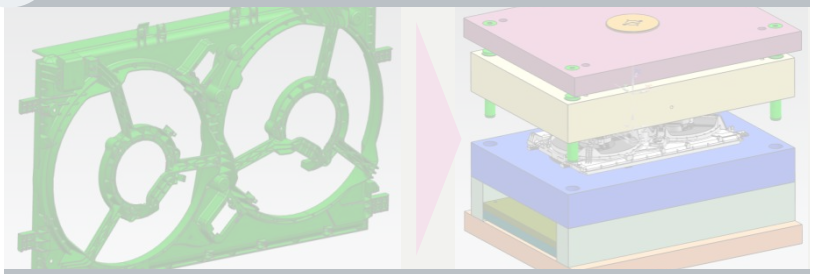
1 产品成本



详尽灵活自底向上的产品成本分析

- 先期产品成本控制 Pre/Target Costing
- 项目盈利性分析
- 采购成本分析
- 面向成本的产品设计 Design for Cost
- 基于数据的开放式销售议价

2 模具成本



基于三维数模的参数化模具成本分析

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Teamcenter Product Cost Management
不同的成本计算方法

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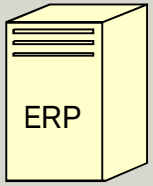
	基于ERP数据导入的成本分析 ACTIVITY BASED COSTING	基于参考数据与经验模型的成本分析 OVERHEAD COSTING
计算方法		
前提条件	*需要由ERP系统导入人工、设备基础费率、固定摊销等的成本信息* 	*需要由西门子提供的（或客户已有的）可靠的材料、人工、设备、工艺等成本数据库的有效支撑*
特点	▪ **对已有的自制件和内部加工工艺成本可以实现快速导入及便捷的分析** ▪ 对于外购件、外部工艺流程以及未投产的内部新工艺无法采用	▪ 对于各种可能的情况与假定（what-if scenarios）可以无限制地模拟试算 (e.g. make or buy, relocation, savings) ▪ **可以用来分析内部制造成本以及采购件目标成本**

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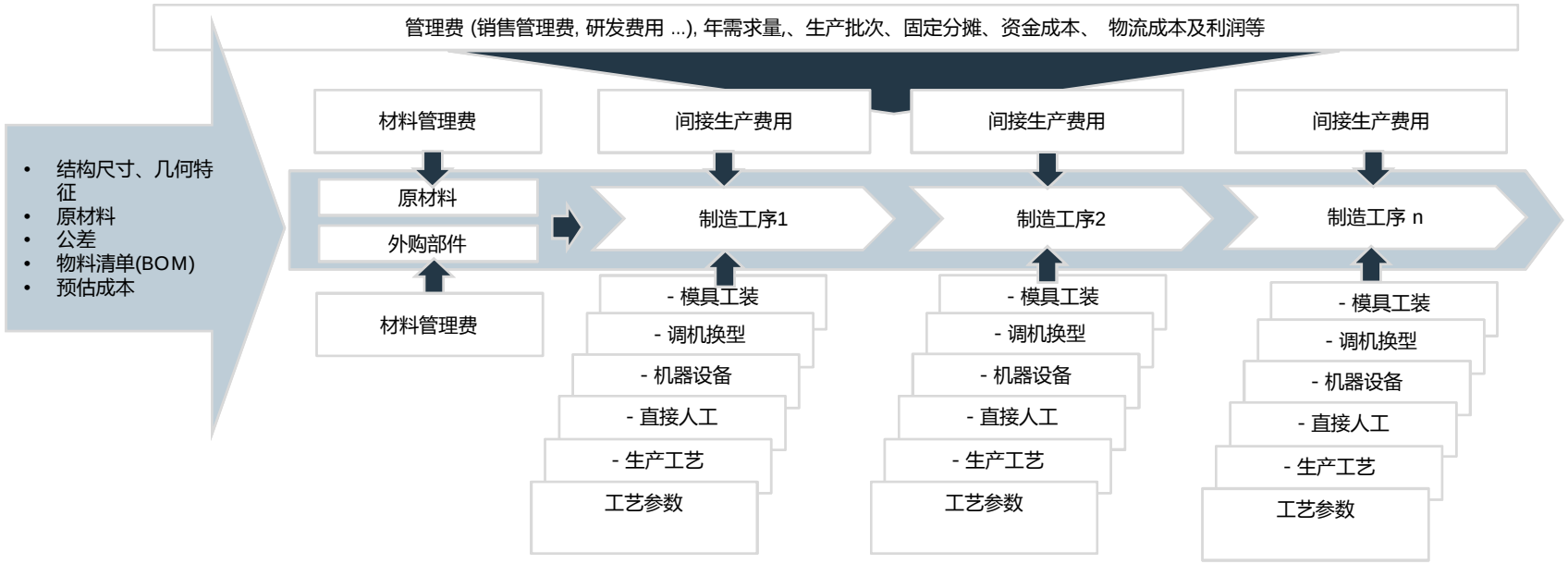
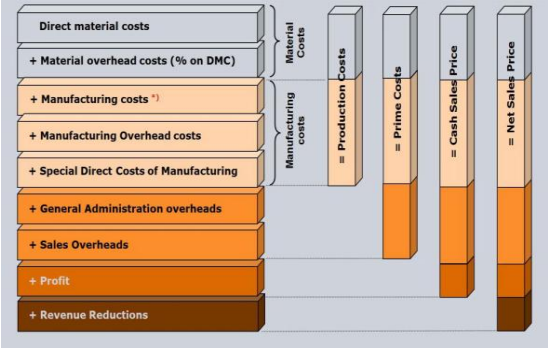
Teamcenter Product Cost Management
价值成本工程 - 自底向上的计算模型



基于生产工艺的详细全面的成本模型充分考虑到产品生产设计的全部成本要素，确保成本分析结果真实可靠，实现工程人员设计正向成本的分析能力。



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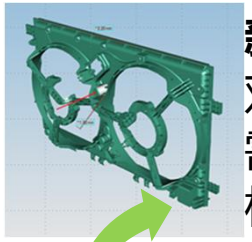
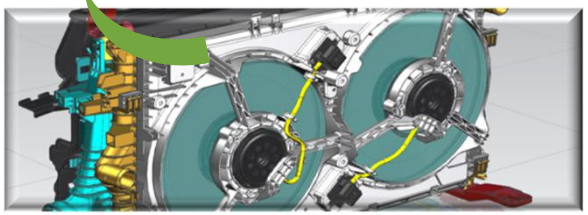
零部件正向成本估算流程



新开发件
双风扇边框
需要正向分
析采购成本



- 3D数模
- 原材料信息
- 工艺要求

零部件信息

- 工艺成本库
- 原材料成本库
- 供应商数据

成本知识库

- 确定制造成本

加工时间计算器

- 应有成本

零件成本分析
“应有成本 ”

- 综合考虑各种商务与技术假定

模拟和比较分析

合理的零部件目标价格

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Teamcenter Product Cost Management V6.0 - Administrator

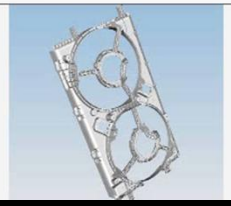
File Calculation View Master Data Currency Reports Options Configuration Administration Window Help

Search part | Save | Save all | Calculate | Cost breakdown | Result report | Use base currency | Direct quotation | Plausibility check | Recursive plausibility check | General

Explorer

Off

- Teamcenter Product Cost Management
  - Knowledge domain
  - Private folder
  - Public folder
    - 0012 - GPDE
    - 0022 - DTUS
    - Calculations
    - CI Calculations
      - Others
      - Radiator calculation
        - RADIATOR_ASM__W__A_C_ENG_COOL_F (123-987-001)
          - Parts
            - 13220117_004_RADIATOR_ASM__W__A_C_ENG_COOL_F___view_ (DT
            - e_13220117_004_RADIATOR_ASM__W__A_C_ENG_COOL_F___view_ (
              - 2013 - 13220117_004_RADIATOR_ASM__W__A_C_ENG_COOL_F___
                - CTA_13246784_Single_Fan (DTUS)
                - 13241737_002_CONDENSER_ASM_A_C__view_ (DTUS)
                - 13241751_003_COOLER_ASM_CHRG_AIR__view_ (DTUS)
                - 13241723_003_RADIATOR_ASM__view_ (DTUS)
                - 13241734_002_FAN_ASM_ENG_COOL (13241734 - DTUS)
                - 13241733_002_FAN_ASM_ENG_COOL (DTUS)
                - 13241739_002_SHROUD_ENG_COOL_FAN (DTUS)
          - Profitability calculations
          - Tools
          - Geometries
          - Development cost calculation
    - Demo
    - Demo Backup
    - Knowledge domain
  - Recycle bin



13241739_002_SHR...

Basic data | Material | Manufacturing | Calculation | One-time payments

13241739_002_SHROUD_ENG_COOL_FAN (DTUS)

AUD 13241739_002_SHROUD_ENG_COOL_FAN

	Fixed	Current	Difference
€/Pcs		0.00	%

Part number	
Base currency	€
Quantity unit	Pcs

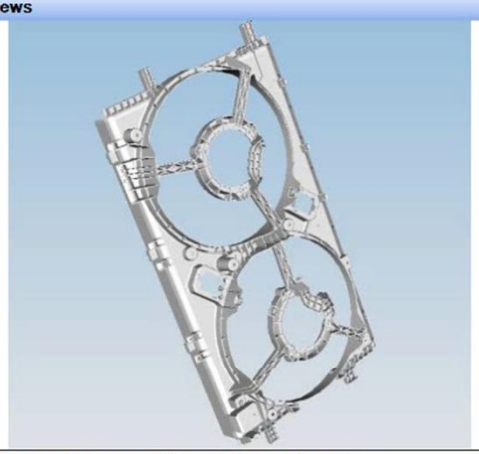
Calculation variant

Designation	AUD 13241739_002_SHROUD_ENG_COOL_FAN		
Assigned to			
Left / right calculation	☐		
Supplier			
Production site	Australia		
Overhead rates			
Shift model	3.0 Shift(s)	5,760	h/year
Material group			
Calculation quality	Benchmark calculation		
Status	Identified		
Calculation methodology	PCM 6.0 r32		
Target price			€/Pcs
Cost source	Calculation		
One-time payments		0.00	€
Net sales price		0.00	€/Pcs

Quantity

Annual requirement usable parts in this ass...	420,000	Pcs
Average annual requirement usable part	420,000	Pcs
Peak annual requirement usable parts, dire...	420,000	Pcs
Manufacturing quantity per year	420,000	Pcs
Number of manufacturing lots	1.0	1/year
Manufacturing lot size usable parts	420,000	Pcs
Lifetime	6.0	Year(s)
Lifetime requirement	2,520,000	Pcs

Views



1 of 3 | Paste image | Import | Export | Delete image

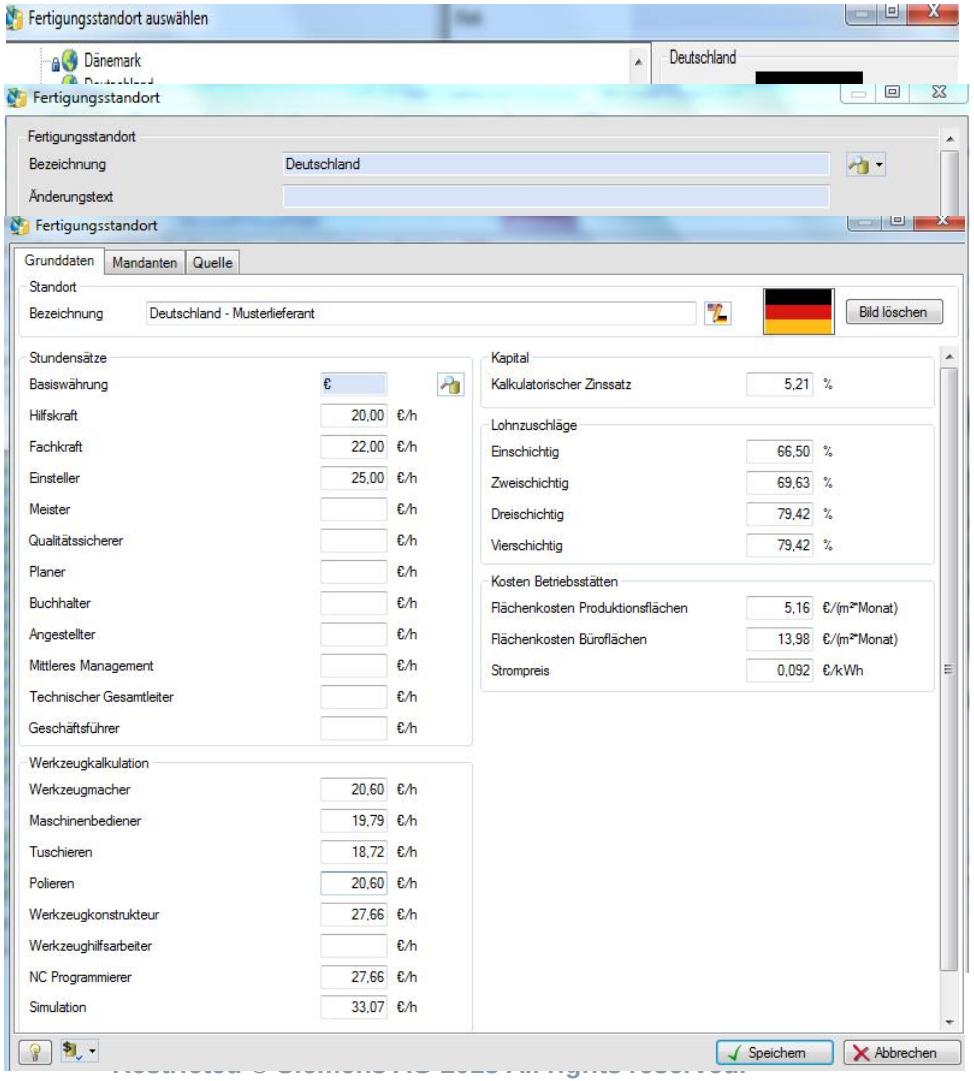
File attachments

Name	Extension	Size in bytes	Date

Import file | Export | Delete | Open | Edit link

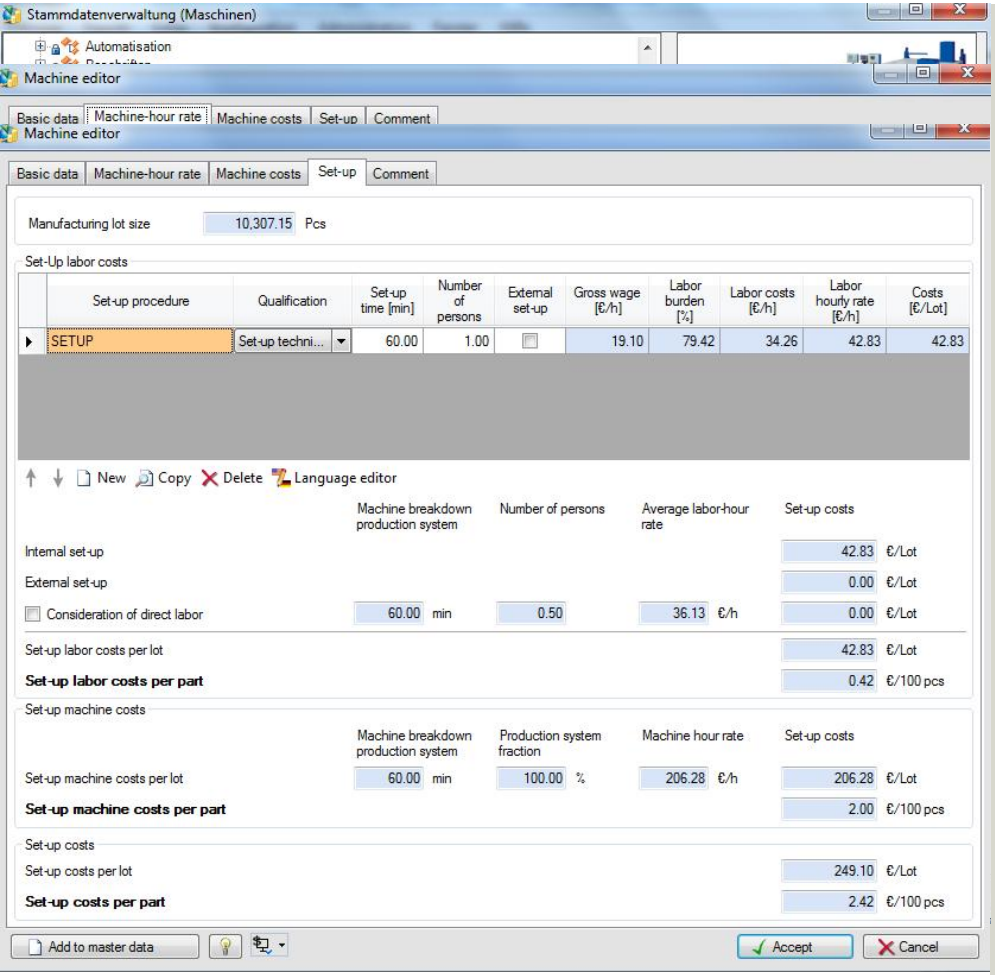
Product costing

Teamcenter Product Cost Management
价值成本工程 - 重要的行业参考信息支撑



- ✓ 软件系统自带的全球主要制造地区国家的成本指标
  - ➢ **多达190多个国家和地区**
- ✓ 详细的基于工种的劳动力成本（含小时工资、社保福利、加班工资等）以及水电、场地费用等等。
- ✓ 更多的其它地区信息，客户可以根据自身具体需求随意扩充及更新

Teamcenter Product Cost Management
价值成本工程 - 重要的行业参考信息支撑



软件系统自带的知识库中超过2500台主流**机器设备**的详细信息

包括:

- 机器设备信息（规格、功率等)
- 详尽的机器小时费率计算信息
- 换型调机费用的具体体现
- …

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Teamcenter Product Cost Management
价值成本工程 - 重要的行业参考信息支撑

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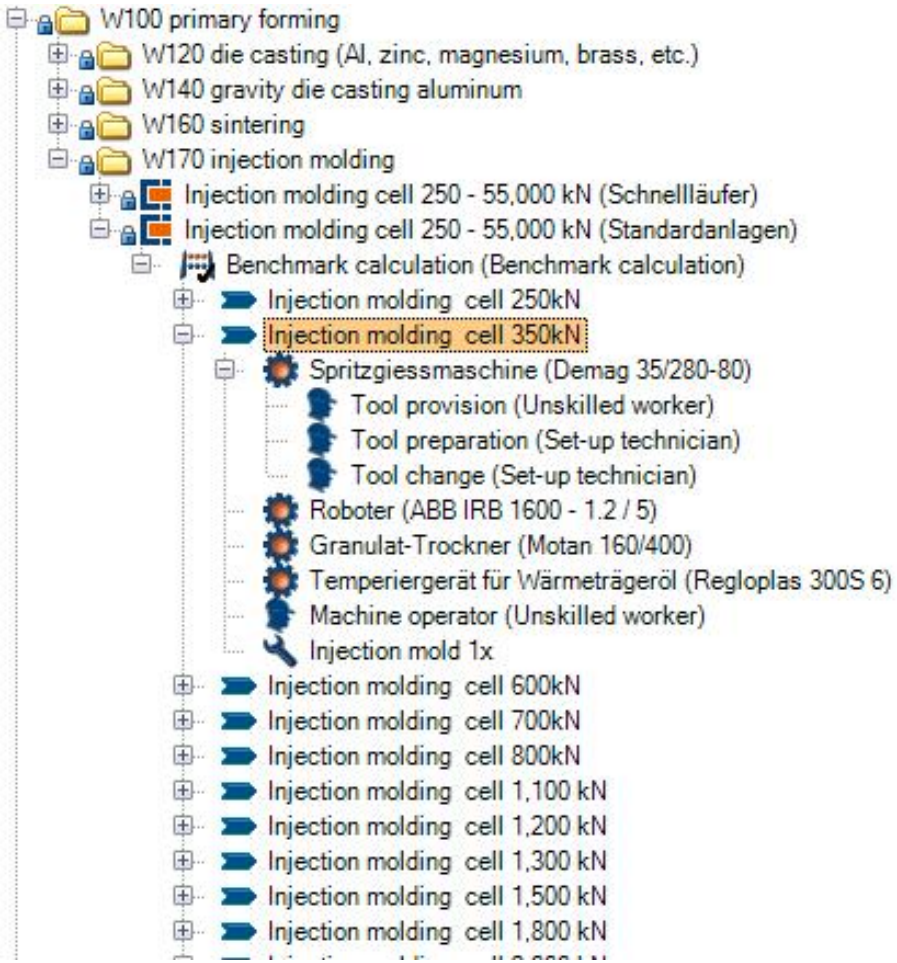

软件系统自带的超过700种主流**加工技术工艺**，包含预先设置的生产零部件所需的成本要素

1. 注塑、压铸、烧结、铸造
2. 锻造、钣金、冲压、深拉伸
3. 机加工（车削、铣削、刨削、磨削、钻、珩磨、插齿、铣齿等）
4. 装配、
5. 热处理、清洗
6. 表面处理
7. 检验、包装
8. 电子产品（贴片机、波峰焊等）

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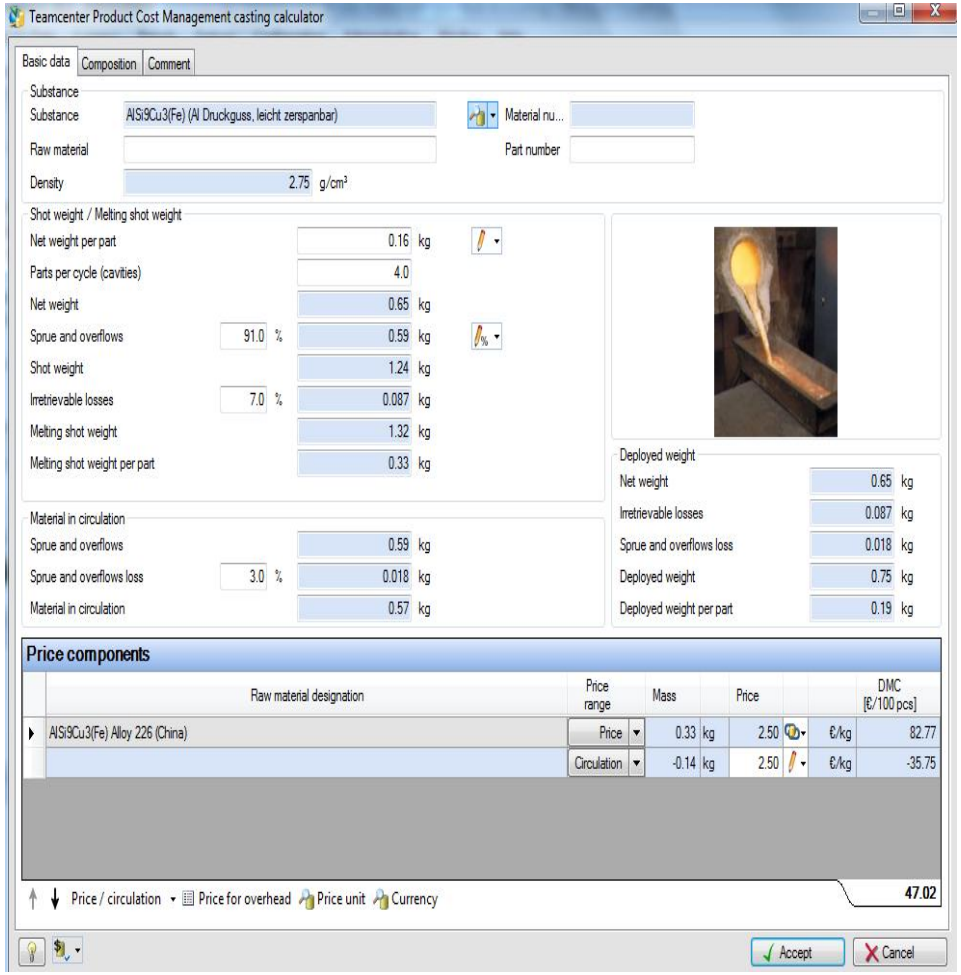
Teamcenter Product Cost Management
价值成本工程 - 更精细的原材料成本分析



- ✓ 软件系统自带的原材料成本分析功能涵盖:
  - 铸件Casting
  - 塑胶件Plastic
  - 板材Plate
  - 管材Pipe
  - 型材Profile
  - ...
- ✓ 自带的预设材料分析功能使分析效率更高，大大缩短分析时间

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Teamcenter Product Cost Management
采购成本分析 - 加工时间计算功能

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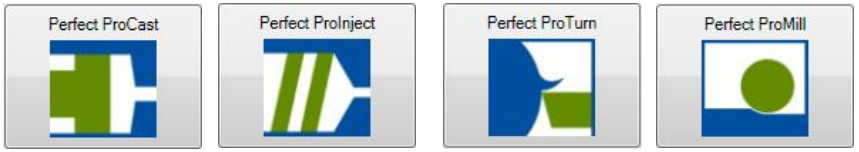
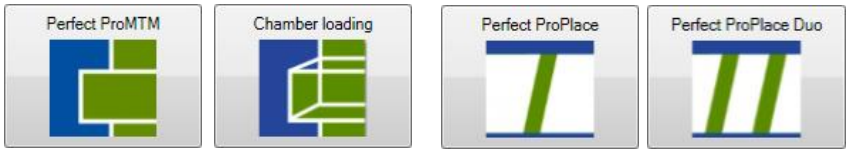
通过自带的节拍计算功能确定生产节拍

- 来自设备厂商和材料研究机构的可靠数据
- 合理可靠的计算方法和公式
- 与主流设备厂商反复校验
- 节拍时间透明化、可追溯



压铸　注塑　机加工工艺　车削　铣削



装配　热处理、清洗　PCB 贴片　PCB 双层贴片

线束

客户还可以将自己独有的基于电子表格形式的计算器导入到系统中

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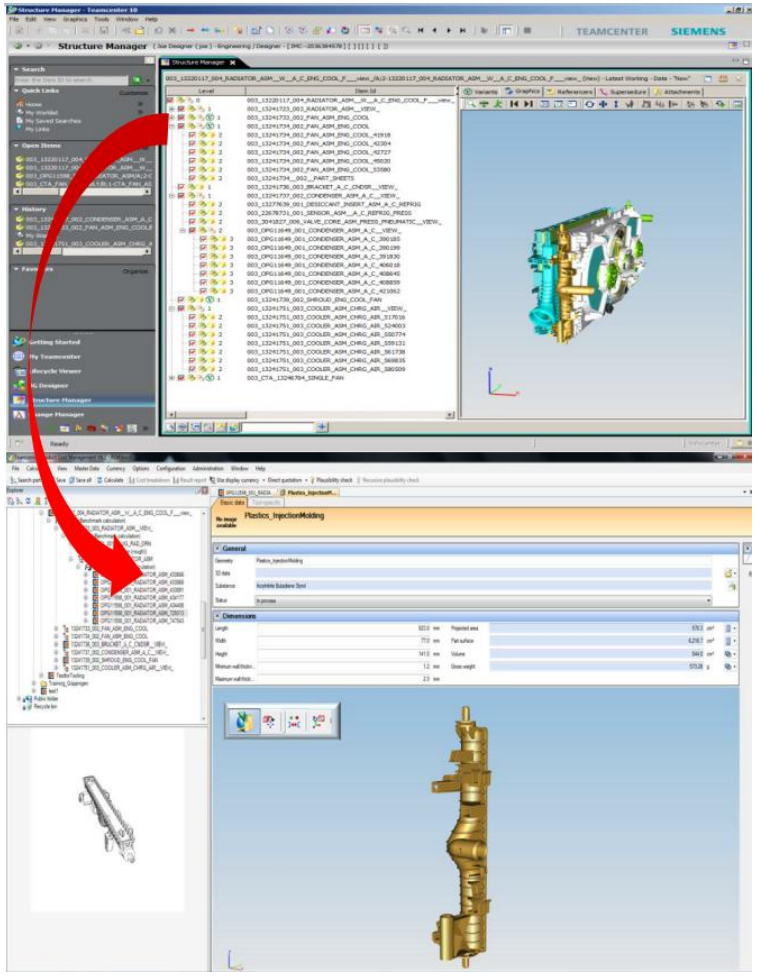
Teamcenter Product Cost Management
Tc PCM V7.0- 与Teamcenter UA集成



- PCM 7.0 实现Teamcenter UA 内BOM结构的直接读取，极大的提高对物料清单机构成本建模的效率
- 集成Visviewer对PDM内的三维塑模（JT）直接进行查看与尺寸解算，用以计算零件及模具成本
- 通过在PCM内更新BOM(Update Function)，生产新的成本分析版本，而非直接覆盖。随时PCM中产品结构与PDM 中设计状态的一致性，更适应估算研发工程中的新产品与零部件

Teamcenter Product Cost Management
对ERP数据的支持与利用

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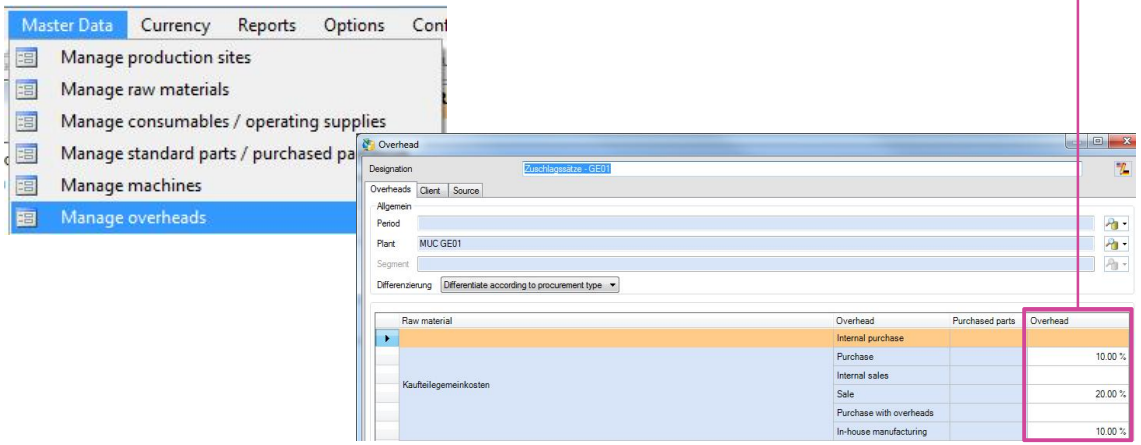
Bill of materials

Assembly hierarchy level	Positionsnr. St	Part number (Part)	Designation (Part)	Quantity (Blan	Quantity unit (	Quantity unit (	Direct material	Material overh
0	1	FG 251.215.425.000	ANTRIEB SITZ	1.00	Pcs	Pcs	72.18	7.22
1	10	ZSB 251.215.425.29	ANTRIEB SITZ GRUNDUMFANG	1.00	Pcs	Pcs	72.18	7.22
2	100	635.154.752.549	STIRNRAD_1	1.00	Pcs	Pcs	15.54	1.55
3		NT 485.004.701.000	ZYLINDERSCHRAUBE_DIN 912-M6X10-8.8-A3L	1.00	Pcs	Pcs	1.00	0.00
3		NT 002.690.296.353	BL.3X1250X2500 DC01-A-M DIN EN10130	1.00	m²	m²	15.53	0.00
2	200	854.425.154.268	STIRNRAD_2	1.00	Pcs	Pcs	56.35	5.64
3	200/10	SR 854.425.154.269	SCHMIEDEROHLING_15CRNI16	1.00	Pcs	Pcs	51.23	5.12
2	300	847.863.214.758	IMPULSRAD	1.00	Pcs	Pcs	0.26	0.03
3	300/10	NT 002.690.296.353	BL.3X1250X2500 DC01-A-M DIN EN10130	0.02	m²	m²	15.53	1.55
2	400	NT 485.004.701.000	ZYLINDERSCHRAUBE_DIN 912-M6X10-8.8-A3L	3.00	Pcs	Pcs	0.01	0.00

Procurement type (	Period (Mater	Part number (Material)	Designation (Material)	Standard pric
Purchase	GJ2013	NT 002.690.296.353	BL.3X1250X2500 DC01-A-M DIN EN10130	15.53
Purchase	GJ2013	NT 485.004.701.000	ZYLINDERSCHRAUBE_DIN 912-M6X10-8.8-A3L	0.01
Purchase	GJ2013	SR 635.154.752.550	SCHMIEDEROHLING_15CRNI16	42.36
Purchase	GJ2013	SR 854.425.154.269	SCHMIEDEROHLING_15CRNI16	51.23



与ERP数据的自动链接

- 物料主数据自动查询
- 工艺路线自动查询
- 分摊及管理费自动查询

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Teamcenter Product Cost Management
分析差距、比较变化 - 可视化的成本跟踪能力

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Comparison

Reference calculation: 3. variant - complete WS; opt. machine size; calculated ct (Benchmark calculation)

Designation	Quantity	MtC	MfC	PC	NSP	C	PU
Casing	1,00	292,28	31,03	323,30	374,38	€	100 pcs
ENAC-AlSi9Cu3(Fe) (Al Druckguss, leicht zerspanbar)	191,43	48,43				€	kg
Price	335,71	84,94				€	kg
Circulation	-144,29	-36,50				€	kg
BD 081210410-4X599-H 380	1,00	0,00	0,00	0,00	0,93	€	kg
CD 81210410	1,00	0,00	0,00	0,00	1,24	€	kg
Die casting cell 4,200 kN	47,45		18,53			€	kg
Evolution 42D	47,45		7,12			€	
SR Mate 200iA	47,45		0,66			€	
SEP10/30	47,45		1,35			€	
2B6/3V1200H1200	47,45		0,87			€	
300DG/12/FM30/1K/RT45	47,45		1,22			€	
Westomat 900S	47,45		1,69			€	
Peripherie 4200 kN	47,45		0,11			€	
Maschinenbediener an der Druckgussmaschine			1,67			€	100 pcs
Druckgusswerkzeug 4-fach	47,45		0,00				
Drum shot blasting volume 340 liter	10,00		0,99			€	kg
Visual inspection workstation with illuminated magnifier	8,00		6,81			€	kg
Schmelzen	0,00		4,70			€	kg
Oberflächen passivieren	0,00		0,00			€	kg

Comparison calculation: 4. variant - allocated tool costs (Benchmark calculation)

Designation	Quantity	MtC	MfC	PC	NSP	C	PU	MfC	NSP	Quantity
Casing	1,00	293,57	37,92	331,49	383,07	€	100 pcs	22,21 %	2,32 %	0,00 %
ENAC-AlSi9Cu3(Fe) (Al Druckguss, leicht zerspanbar)	191,43	48,43				€	kg			0,00 %
Price	335,71	84,94				€	kg			0,00 %
Circulation	-144,29	-36,50				€	kg			0,00 %
BD 081210410-4X599-H 380	1,00	0,00	0,00	0,00	0,98	€	kg	0,00 %	5,60 %	0,00 %
AB 81210410-4X599	1,00	0,00	0,00	0,00	1,20	€	kg			
Die casting cell 4,200 kN	47,45		24,26			€	kg	30,88 %		0,00 %
Evolution 42D	47,45		7,12			€		0,00 %		0,00 %
SR Mate 200iA	47,45		0,66			€		0,00 %		0,00 %
SEP10/30	47,45		1,35			€		0,00 %		0,00 %
2B6/3V1200H1200	47,45		0,87			€		0,00 %		0,00 %
300DG/12/FM30/1K/RT45	47,45		1,22			€		0,00 %		0,00 %
Westomat 900S	47,45		1,69			€		0,00 %		0,00 %
Peripherie 4200 kN	47,45		0,11			€		0,00 %		0,00 %
Maschinenbediener an der Druckgussmaschine			1,67			€	100 pcs	0,00 %		
Druckgusswerkzeug 4-fach - Rahmen	47,45		1,05							
Druckgusswerkzeug 4-fach - Einsatz	47,45		4,56							
Druckgusswerkzeug 4-fach - Konstruktion; MFA;...	47,45		0,00							
Drum shot blasting volume 340 liter	10,00		0,99			€	kg	0,00 %		0,00 %
Visual inspection workstation with illuminated magnifier	8,00		6,98			€	kg	2,60 %		0,00 %
Drum shot blasting volume 340 liter										
Schmelzen										
Oberflächen passivieren										

Radiator Plant 5 (Be... | Benchmark price (Valida...

No image available

(Radiator Plant 5)

Benchmark price

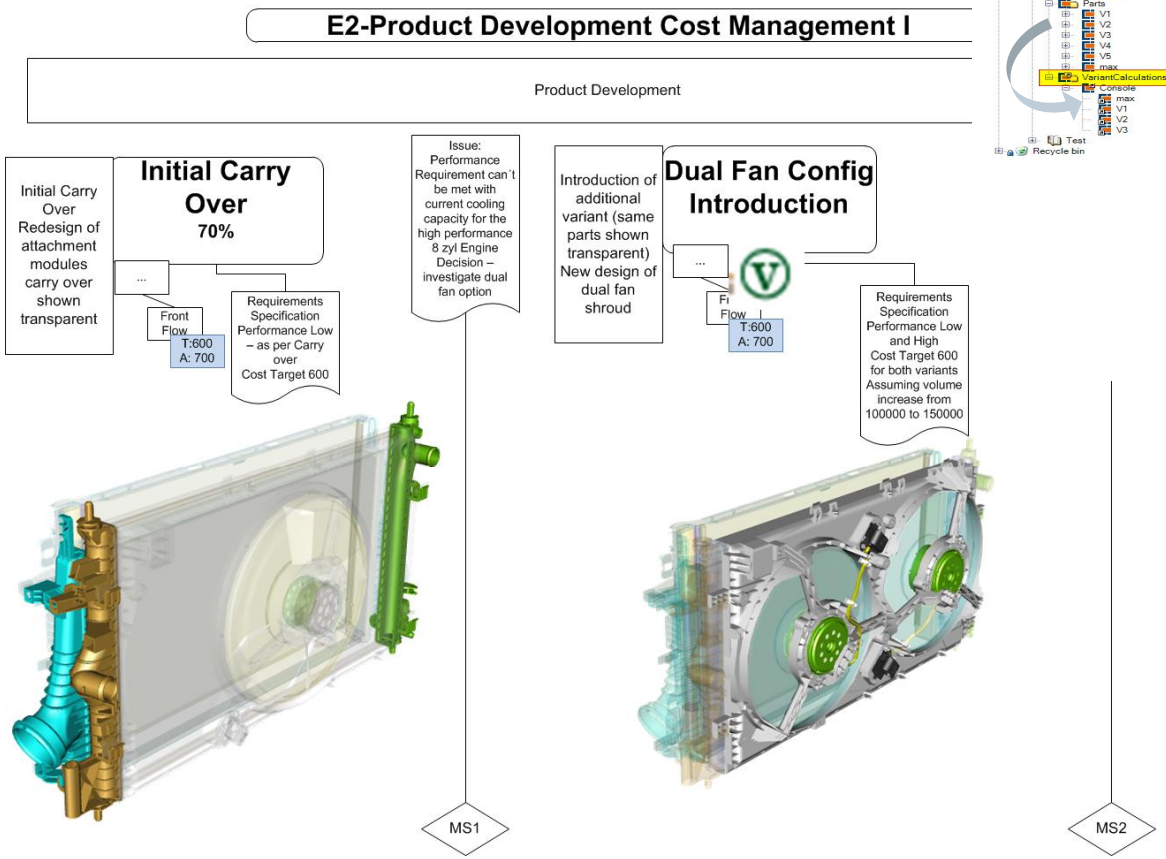
	Fixed	Current	Difference
€/100 pcs		38,832.15	

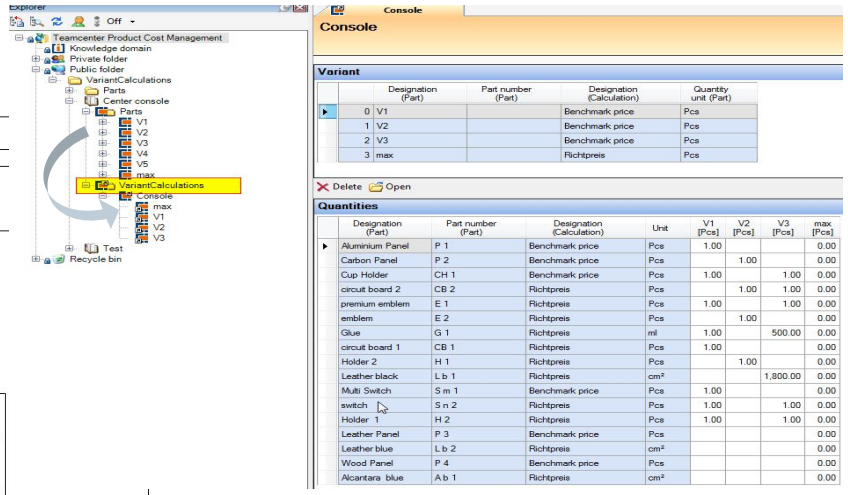
Bill of materials

Part number	Part	Calculation qu	Status, aggreg	Uncertainty (C	Uncertainty (tr	Uncertainty, a	Uncertainty, a	Quantity	Quantity unit	Price	Price unit	Currency
	Radiator Plant	Validated calc		10.00		13.02		1.00	Pcs	38,832.15	100 pcs	€
13220117	13220117_00	Benchmark cal		15.00		13.02		1.00	Pcs	388.32	Pcs	€
13246784	CTA_1324678	Validated calc		10.00		2.05		1.00	Pcs	32.20	Pcs	€
133	ROUD_ENG_	Target price (2		2.00		2.00		1.00	Pcs	2.00	Pcs	€
134	CTA_FAN_AS	Target price (2		2.00		2.00		1.00	Pcs	10.00	Pcs	€
132467546	CTA_1324675	Target price (2		2.00		2.00		1.00	Pcs	20.00	Pcs	€
13241737	13241737_00	Benchmark cal		15.00		15.16		1.00	Pcs	228.59	Pcs	€
13277639	13277639_00	Estimation (ro		25.00		25.00		1.00	Pcs	4.50	Pcs	€
11649	OPG11649_0	Benchmark cal		15.00		14.73		1.00	Pcs	219.09	Pcs	€
3041827	3041827_006	Estimation (ro		25.00		25.00		1.00	Pcs	5.00	Pcs	€
22678731	22678731_00	Estimation (ro		25.00		25.00		1.00	Pcs	0.00	Pcs	€
13241751	13241751_00	Benchmark cal		15.00		2.00		1.00	Pcs	6.35	Pcs	€
569835	13241751_00	Standard price		2.00		2.00		1.00	Pcs	0.79	Pcs	€
561738	13241751_00	Standard price		2.00		2.00		1.00	Pcs	0.83	Pcs	€
524003	13241751_00	Standard price		2.00		2.00		1.00	Pcs	0.87	Pcs	€
517016	13241751_00	Standard price		2.00		2.00		1.00	Pcs	0.91	Pcs	€
550774	13241751_00	Standard price		2.00		2.00		1.00	Pcs	0.94	Pcs	€
580509	13241751_00	Standard price		2.00		2.00		1.00	Pcs	0.98	Pcs	€

- 支持产品成本的变更分析/版本分析
- 追踪成本结构的变化（添加、删减零部件历史）
- 及时反映对总成本的影响，带有有红绿灯标示功能
- 便于项目成本管理工程师有效控制各专业目标成本实现

Variant Matrix 依据成本需求的配置功能





	Designation (Part)	Part number (Part)	Designation (Calculation)	Quantity unit (Part)
0	V1		Benchmark price	Pcs
1	V2		Benchmark price	Pcs
2	V3		Benchmark price	Pcs
3	max		Richtpreis	Pcs

	Designation (Part)	Part number (Part)	Designation (Calculation)	Unit	V1 [Pcs]	V2 [Pcs]	V3 [Pcs]	max [Pcs]
	Aluminium Panel	P 1	Benchmark price	Pcs	1.00			0.00
	Carbon Panel	P 2	Benchmark price	Pcs		1.00		0.00
	Cup Holder	CH 1	Benchmark price	Pcs	1.00		1.00	0.00
	circuit board 2	CB 2	Richtpreis	Pcs		1.00	1.00	0.00
	premium emblem	E 1	Richtpreis	Pcs	1.00		1.00	0.00
	emblem	E 2	Richtpreis	Pcs		1.00		0.00
	Glue	G 1	Richtpreis	ml	1.00		500.00	0.00
	circuit board 1	CB 1	Richtpreis	Pcs	1.00			0.00
	Holder 2	H 1	Richtpreis	Pcs		1.00		0.00
	Leather black	L b 1	Richtpreis	cm²			1,800.00	0.00
	Multi Switch	S m 1	Benchmark price	Pcs	1.00			0.00
	switch	S n 2	Richtpreis	Pcs	1.00		1.00	0.00
	Holder 1	H 2	Richtpreis	Pcs	1.00		1.00	0.00
	Leather Panel	P 3	Benchmark price	Pcs				0.00
	Leather blue	L b 2	Richtpreis	cm²				0.00
	Wood Panel	P 4	Benchmark price	Pcs				0.00
	Alcantara blue	A b 1	Richtpreis	cm²				0.00

Teamcenter Product Cost Management
多维度成本分析模拟- 对成本动因的敏感度分析

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全面的技术及商务可能性模拟分析

在哪制造?
- 自制与外制
- 选择哪家下属工厂
- 最优成本区域定点 采购

如果经济因素发生变化?
- 产量变化
- 原材料及外购件价格变化
- 劳动力成本及管理费上涨
- 汇率波动
- 投资折旧年限变化
- ...

如果工程设计变更?
- 产品/设计变型
- 改变加工工艺
- 更换材料
- 工艺参数调整
- ...

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Teamcenter Product Cost Management
项目经济性分析能力

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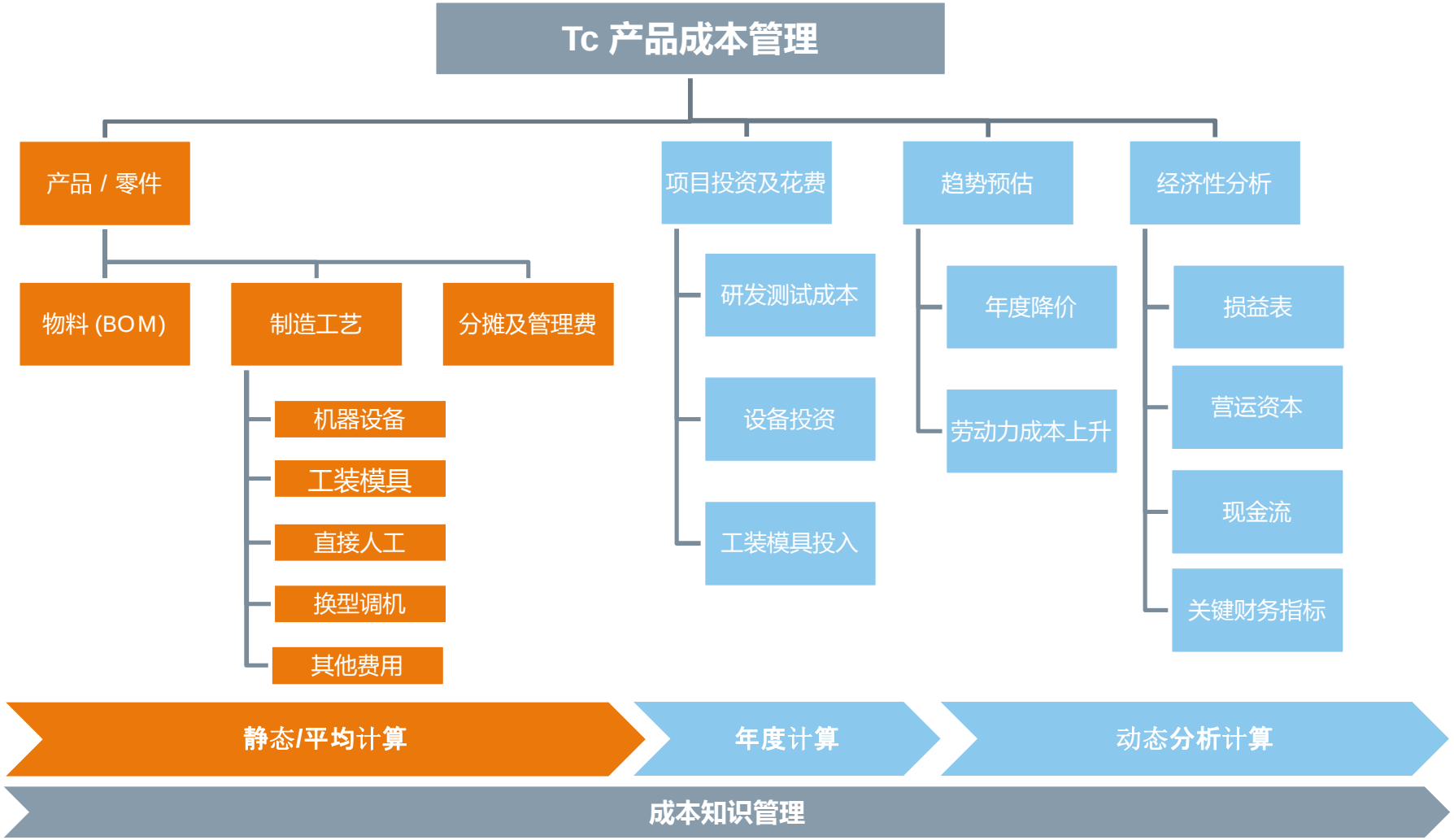

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Teamcenter Product Cost Management
项目经济性分析 – 项目信息

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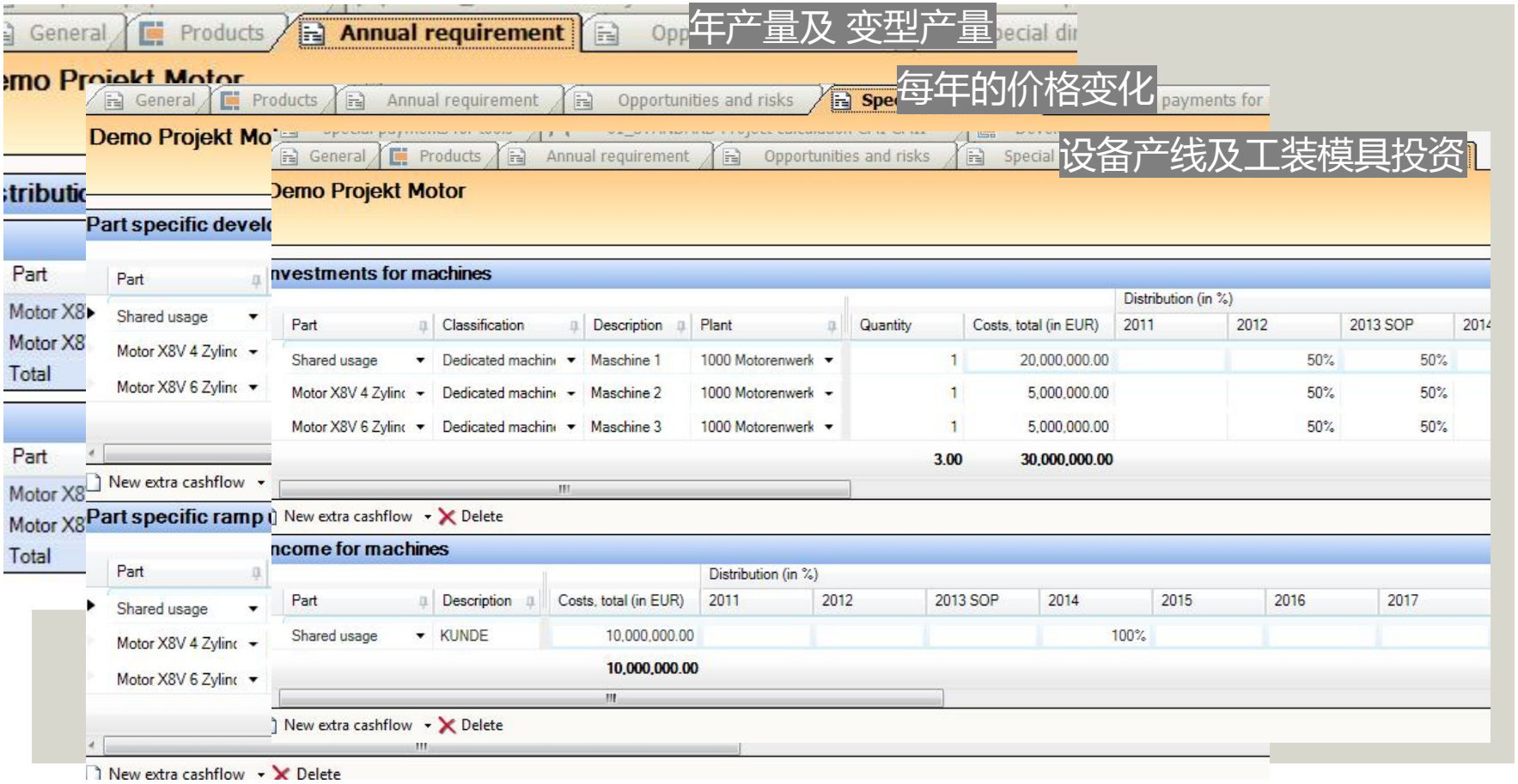
全面考虑项目信息



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Teamcenter Product Cost Management
项目经济性分析 – 动态成品机运营资金计算

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模拟动态成本及运营资金

General | Dynamization | STANDARD Working capital | STANDARD Profitability ca

对全部成本要素进行动态模拟

Demo Projekt Motor

Demo Project Engine_Profitability STANDARD

Dynamization

Cost type	2013 (SOP)	2014
Net sales price		
Material costs (Motorenwerk 1)		
Direct labor (Motorenwerk 1)		

Update increase rates from master data

Overhead rates

Cost type	Plant	2011
Material overhead costs	Motorenwerk 1	
Manufacturing overhead costs	Motorenwerk 1	
Residual manufacturing overhead costs	Motorenwerk 1	
Sales and general administration costs	Motorenwerk 1	
Research and development costs	Motorenwerk 1	

Update overhead rates from master data

有效控制运营资本

General | Dynamization | STANDARD Working capital | STANDARD Profitability calculation | STANDARD Pro

Demo Projekt Motor

Demo Project Engine_Profitability STANDARD

Overhead rates

Cost type	Plant	2013 (SOP) Zinsrate	2013 (SOP) Interest days	2014 Zinsrate	2014 Interest days	2015 Zinsrate	2015 Interest days	2016 Zinsrate	2016 Interest days
Terms of payment for suppliers	Motorenwerk 1		45.00		45.00		45.00		45.00
Working capital (material stock)	Motorenwerk 1		5.00		5.00		5.00		5.00
Working capital (work in progress)	Motorenwerk 1		3.00		3.00		3.00		3.00
Terms of payment for customers	Motorenwerk 1		30.00		30.00		30.00		30.00
Working capital (finished product stock)	Motorenwerk 1		2.00		2.00		2.00		2.00
Provision for warranty	Motorenwerk 1	5.0000%		5.0000%		5.0000%		5.0000%	

Update overhead rates from master data

STANDARD Working capital

Designation	2011	2012	2013 (SOP)	2014	2015	2016
Material costs (total)	0	0	233,137,356	777,013,016	1,010,150,372	1,087,751,320
Terms of payment for suppliers	0	0	28,742,962	97,126,627	126,268,797	135,968,915
Working capital (material stock)	0	0	3,193,662	10,791,847	14,029,866	15,107,657
Working capital (work in progress)	0	0	1,916,197	6,475,108	8,417,920	9,064,594
Sales	0	0	320,000,000	1,102,000,000	1,335,700,000	1,440,390,000
Terms of payment for customers	0	0	26,301,370	91,833,333	111,308,333	120,032,500
Working capital (finished product stock)	0	0	1,753,425	6,122,222	7,420,556	8,002,167
Provision for warranty	0	0	16,000,000	55,100,000	66,785,000	72,019,500

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Teamcenter Product Cost Management
项目经济性分析 – 多元化分析报告

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丰富的财务数据分析

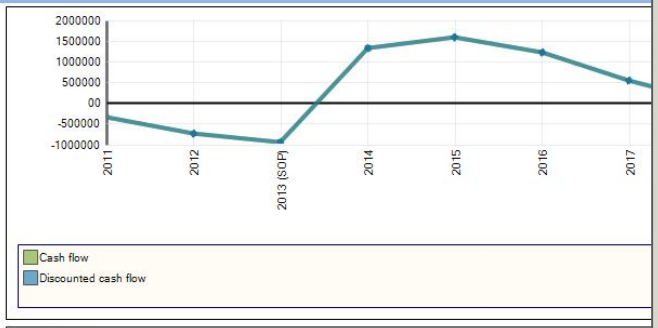
05_DEMO NEW Profitability calculation EBITDA, working capital, cash flow

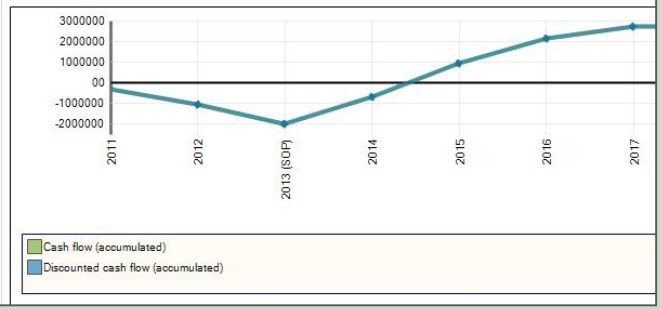
Designation	2011	2012	2013 (SOP)	2014	2015	2016	2017	2018	2019	Total	Unit
CAPEX	-333,333	-707,333	-719,333	0	0	0	0	0	0	-1,760,000	EUR / Years
Net Revenue	0	0	54,293,333	54,293,333	54,293,333	54,293,333	54,293,333	54,293,333	0	325,760,000	EUR / Years
Income	0	0	0	600,000	0	0	0	0	0	600,000	EUR / Years
Cost excl. Amortization	0	0	36,263,973	36,263,973	36,263,973	36,263,973	36,263,973	36,263,973	0	217,583,840	EUR / Years
Amortization	0	0	173,444	317,311	317,311	317,311	317,311	317,311	0	1,760,000	EUR / Years
Total Cost	0	0									
EBIT	**0**	**0**									
EBIT %	0	0									
Depreciation	0	0									
EBITDA	**0**	**0**									
Working capital	0	0									
Working capital (differential calculation)	**0**	**0**									
Cash flow	**-333,333**	**-707,333**									
Cash flow (accumulated)	-333,333	-1,040,667									
Discounted cash flow	**-303,030**	**-584,573**									
Discounted cash flow (accumulated)	-303,030	-887,603									
Contribution margin IV - Project	**0**	**0**									
Contribution margin IV (in %)	0	0									
EVA Calculation											
N.O.A	0	0									
Cost of capital	0	0									
NOPAT (Project)	0	0									
E.V.A.	0	0									
D.E.V.A.	0	0									

Results

Metrics

Net present value	2,692,639.95	€
Internal rate of return	34.81	%
Amortization period	4.42	Years
Amortization period after SOP	2.42	Years





- EBIT 息税前收益
- NPV 净现值
- IRR 内部收益率
- 现金流
- 客制化财务指标

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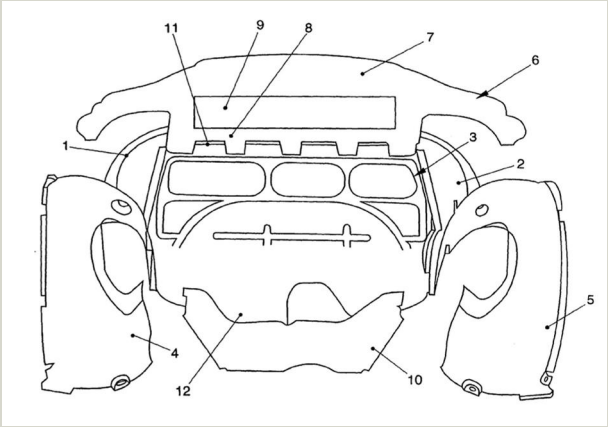
散热器支架 – 仅有图纸而工艺未确定

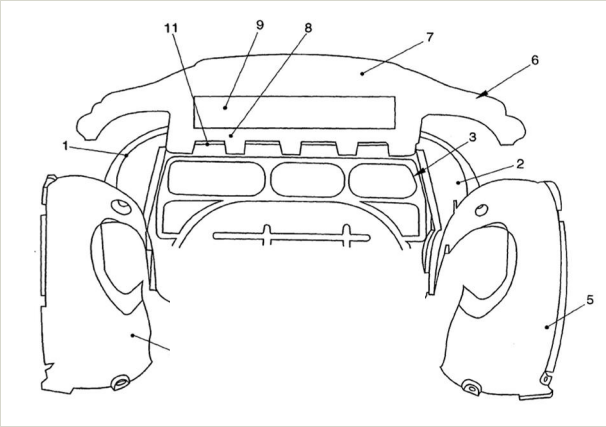
焊接

用量: 20000 件、年
目标成本: 37.50 €

冲压



应该采用哪种加工工艺？



散热器支架A

散热器支架B

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Teamcenter Product Cost Management
面向成本的产品设计- 工艺流程比较

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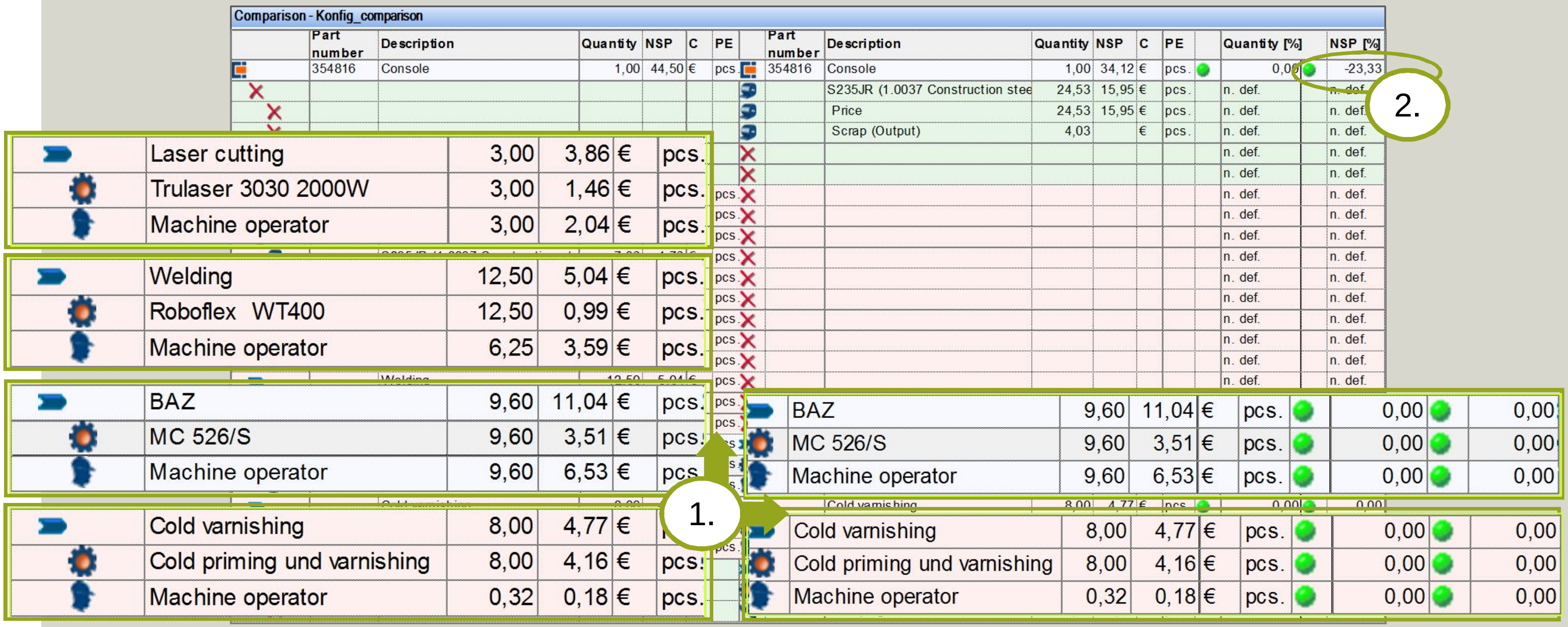
比较生产工艺流程以及对成本的影响



1. 焊接 与 冲压 = 4 vs. 2 工序
2. 成本 影响 ： 通过选择合理的工艺，单件工艺费实现降本 23%

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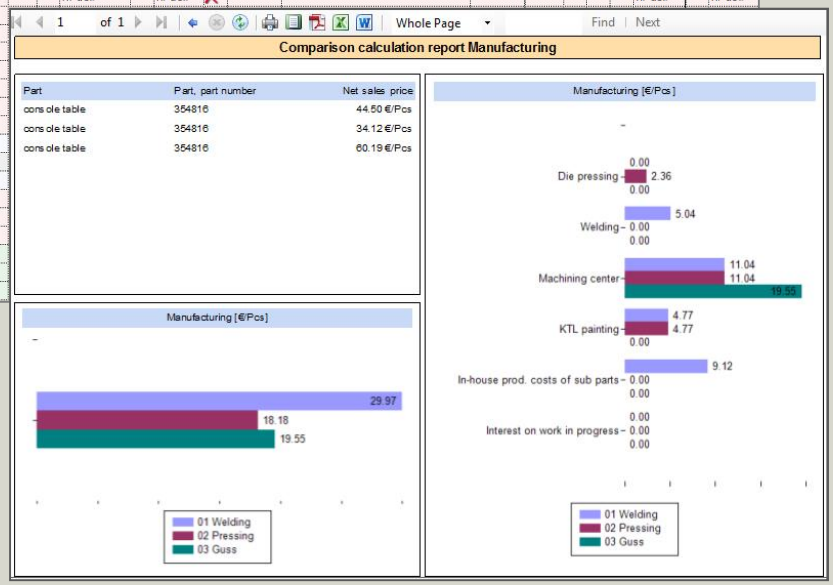
Teamcenter Product Cost Management
面向成本的产品设计 - 分析报告

SIEMENS

GANTT 和 Excel 报告

Comparison - Konfig_comparison

	Part number	Description	Quantity	NSP	C	PE		Part number	Description	Quantity	NSP	C	PE	Quantity [%]	NSP [%]	Part number	Description	Quantity	NSP	C	PE	Quantity [%]	NSP [%]
	354816	Console	1,00	44,50	€	pcs		354816	Console	1,00	34,12	€	pcs.	0,00	-23,33	354816	Console	1,00	60,19	€	pcs.	0,00	35,25
									S235JR (1.0037 Construction stee	24,53	15,95	€	pcs.	n. def.	n. def.						n. def.	n. def.
									Price	24,53	15,95	€	pcs.	n. def.	n. def.						n. def.	n. def.
									Scrap (Output)	4,03		€	pcs.	n. def.	n. def.						n. def.	n. def.
														n. def.	n. def.		EN-JL1050 (0.6030 Alloyed cast irc	19,26	40,64	€	pcs.	n. def.	n. def.
														n. def.	n. def.		Price	19,26	40,64	€	pcs.	n. def.	n. def.
	215489	Sheet metal	1,00	10,04	€	pcs								n. def.	n. def.							n. def.	n. def.
	213654	Sheet metal left	1,00	4,72	€	pcs								n. def.	n. def.							n. def.	n. def.
	213587	Sheet metal right	1,00	8,89	€	pcs								n. def.	n. def.							n. def.	n. def.
		S235JR (1.0037 Construction ste	7,36	4,76	€	pcs								n. def.	n. def.							n. def.	n. def.
		Price	7,36	4,78	€	pcs								n. def.	n. def.							n. def.	n. def.
		Scrap (Output)	0,46	-0,02	€	pcs																	
		Laser cutting	3,00	3,86	€	pcs																	
		Trulaser 3030 2000W	3,00	1,46	€	pcs																	
		Machine operator	3,00	2,04	€	pcs																	
		Welding	12,50	5,04	€	pcs																	
		Robotlex WT400	12,50	0,99	€	pcs																	
		Machine operator	6,25	3,59	€	pcs																	
		BAZ	9,60	11,04	€	pcs			BAZ	9,60	11,04	€											
		MC 526/S	9,60	3,51	€	pcs			MC 526/S	9,60	3,51	€											
		Machine operator	9,60	6,53	€	pcs			Machine operator	9,60	6,53	€											
		Cold varnishing	8,00	4,77	€	pcs			Cold varnishing	8,00	4,77	€											
		Cold priming und varnishing	8,00	4,16	€	pcs			Cold priming und varnishing	8,00	4,16	€											
		Machine operator	0,32	0,18	€	pcs			Machine operator	0,32	0,18	€											
									Stamping machine	2,50	2,36	€											
									FXP25S Kurzschaftversion	2,50	1,19	€											
									Stamping machine tool	2,50	1,06	€											



GANTT 向下钻取式报告

- 物料成本
- 生产成本
- 固定分摊
- 利润及管理费

Excel 报告

- 生产工艺
- 费用类型
- 生产节拍时间

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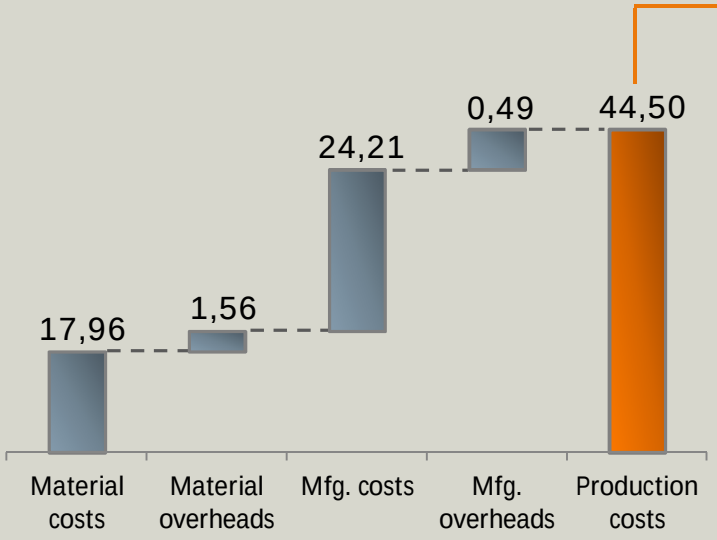
Teamcenter Product Cost Management
面向成本的产品设计- 选择合适的工艺

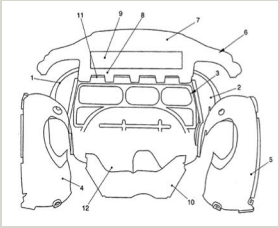
不同加工方式的成本结构比较

用量: 20000 件、年
目标成本: 37.50 €

焊接

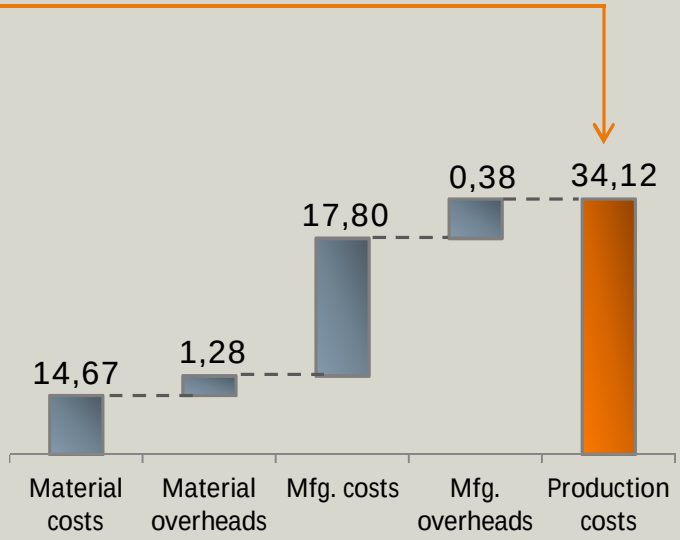


散热器支架



通过选择合适的生产工艺成本节约超过15%

冲压



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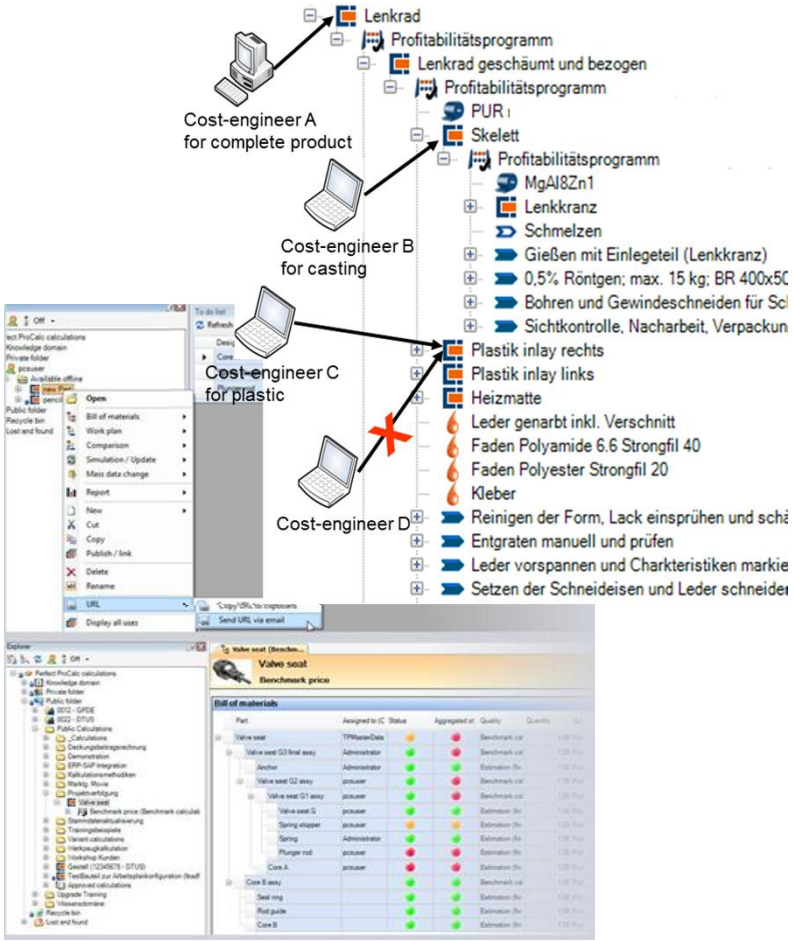
Teamcenter Product Cost Management
协同的成本管理能力

支持大型复杂产品的成本计算项目管理，
主要功能有：

- 可通过email通知成本计算的结果给相关人员
- 成本分析人员可以看到自己所有的工作任务（To do list）
- 建立工作包分发给其它部门(财务、采购、制造、项目等）
- 带有红，黄，绿的标记功能，对成本进度状态进行判断



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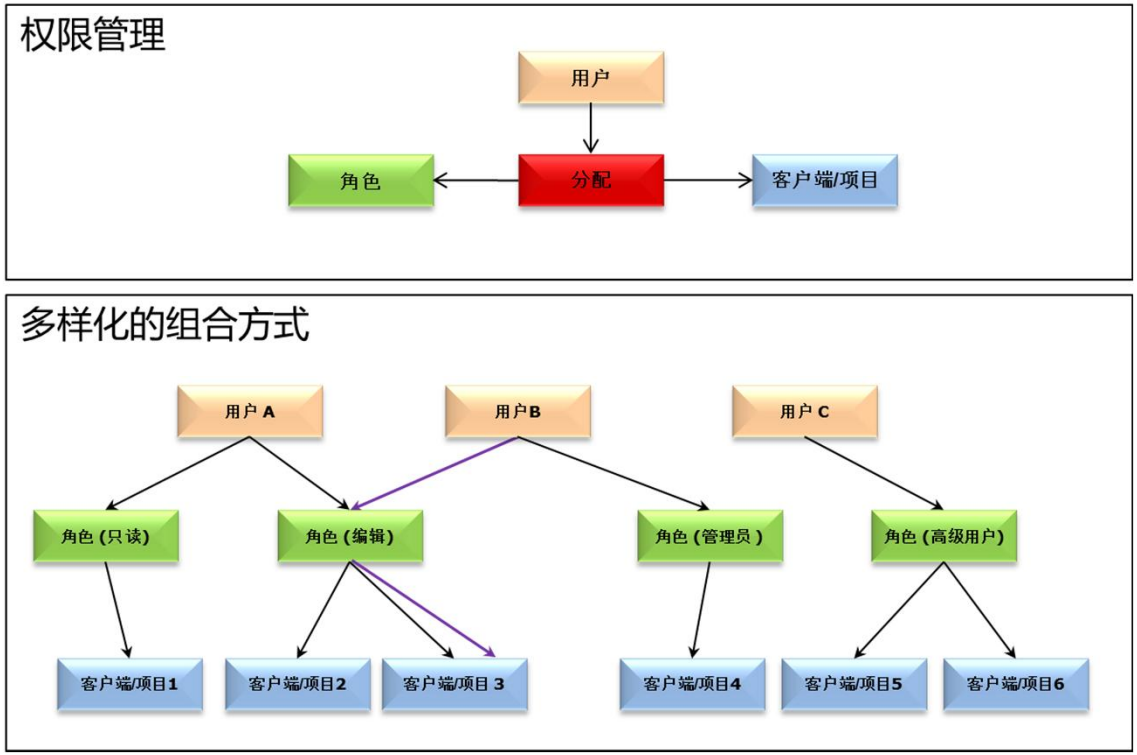
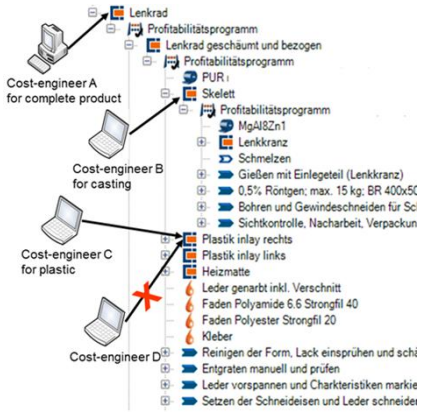
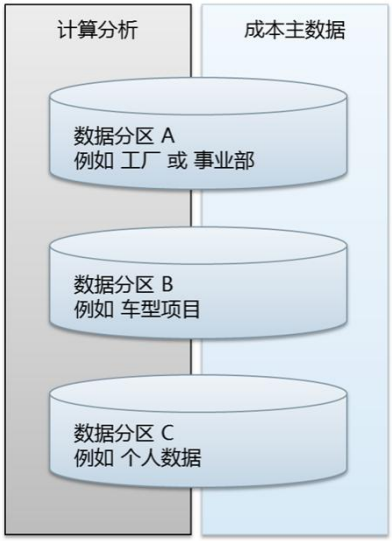
权限设置与协同管理







灵活的权限配置功能支持成本、工程、采购、财务等部门人员充分协同，共同参与、按时完成项目成本管理的任务，同时保证敏感的成本信息数据安全，避免无关人员对其他项目信息、成本信息的访问。

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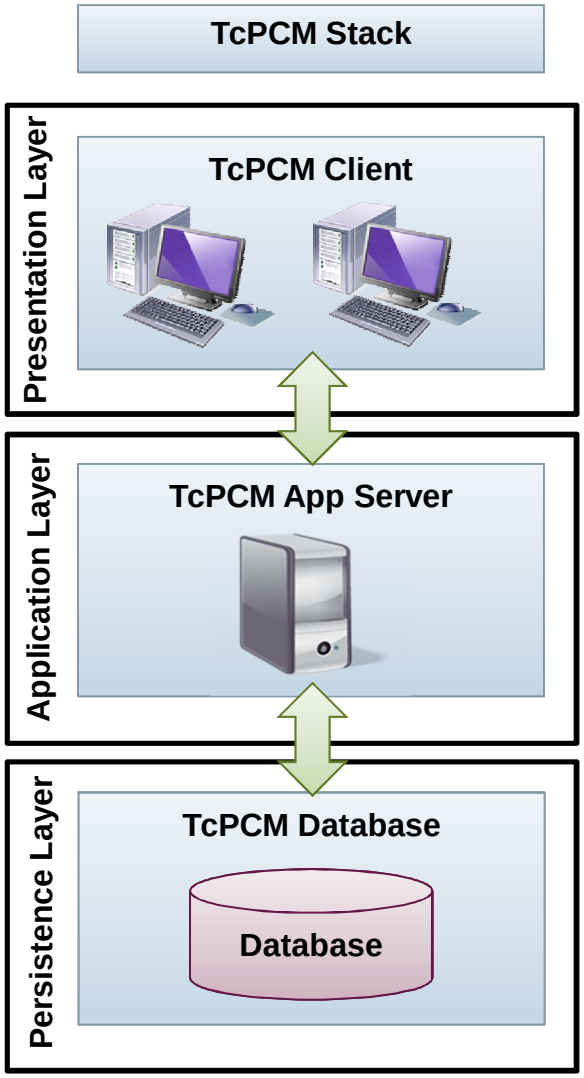
系统架构

Client
- Microsoft Windows Vista or higher (64 Bit)
- Microsoft .NET Framework 4.0
- Deployment e.g. via Click-Once with user privileges
- Offline capability

Application Server
- Microsoft Windows Server 2008 R2 or higher (64 Bit)
- Microsoft .NET Framework 4.0 and higher
- IIS 7.0

Database Server
- Microsoft SQL Server 2008 R2 SP1 or higher
- Microsoft SQL Server 2012 SP1 or higher



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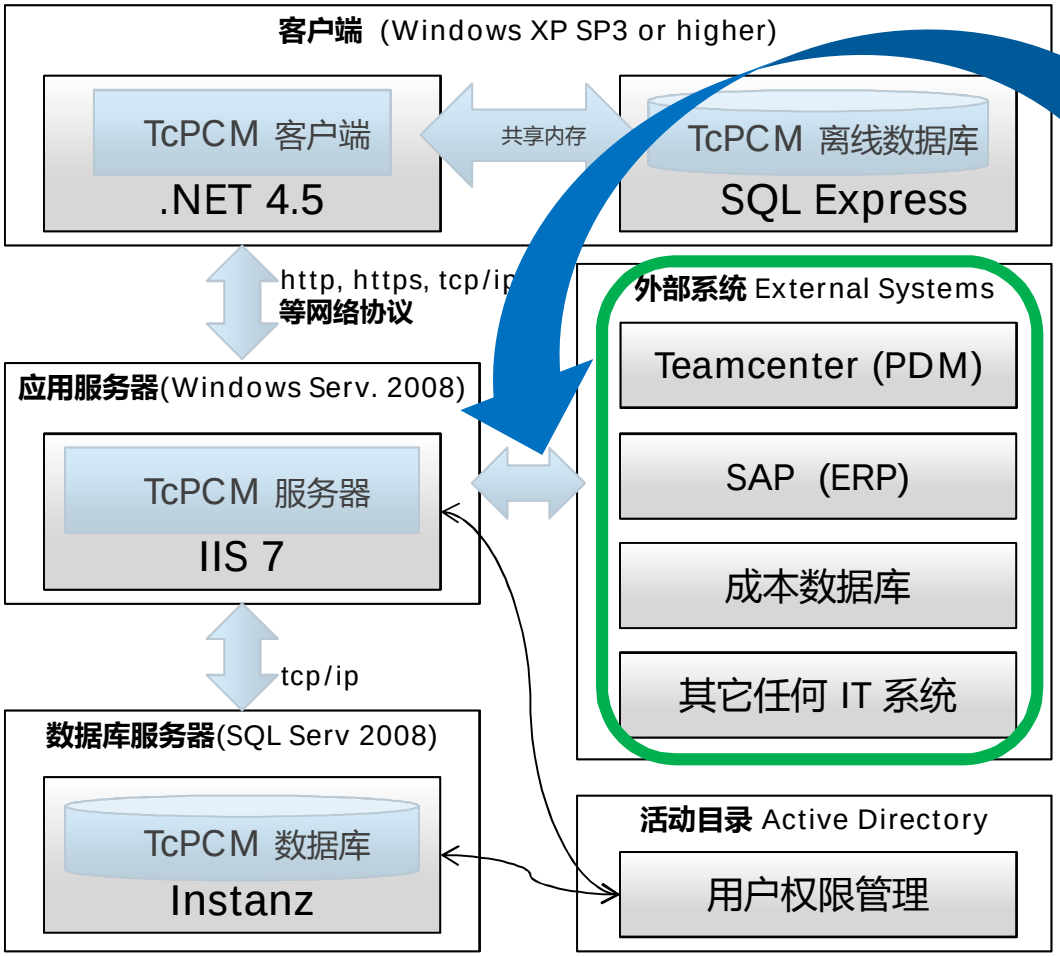
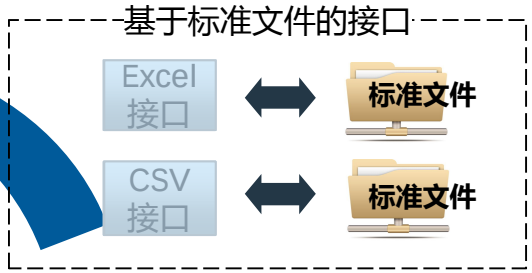
系统架构与兼容性





- 基于微软.NET成熟平台的 Client-Server 系统架构
- 与外部IT系统通过标准格式文件(Excel，CSV）对相关成本数据进行输入输出，并依靠专用接口实现在TcPCM与外部系统内的数据自动匹配
- 与Teamcenter UA有现成的接口*，可以直接导入、同步已发布的产品BOM结构
- 通过基于标准文件的数据传输可轻松实现与其他现有系统数据灵活集成
- TcPCM可在封闭的内部局域网环境内运行，定期通过数据包升级维护，不存在数据泄露风险

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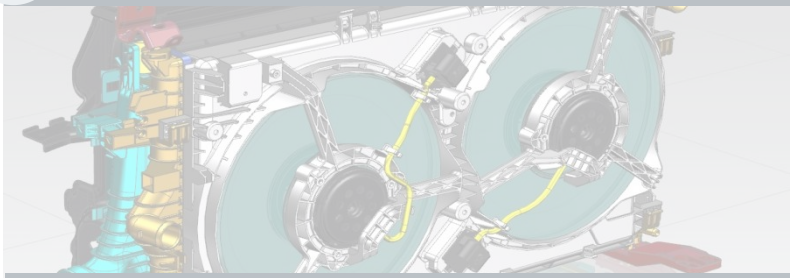
* 与 Teamcenter 的接口也需单独购买

Teamcenter Product Cost Management
完整的成本解决方案

SIEMENS

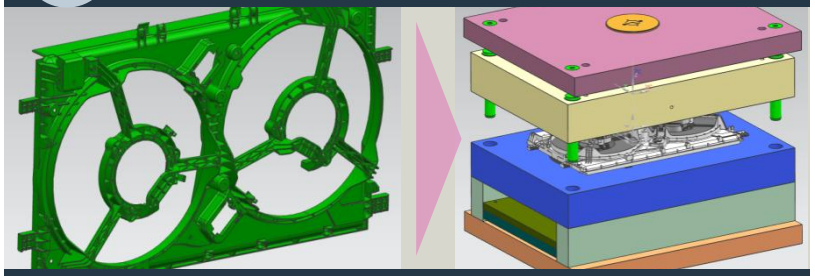
1 产品成本



详尽灵活自底向上的产品成本分析

- 先期产品成本控制
- 项目盈利性分析
- 采购成本分析
- 面向成本的产品设计
- 开卷式价格谈判

2 模具成本



基于三维数模的参数化模具成本分析

- 模具采购价格分析 （模具采购方）
- 模具成本预估及报价（模具制造方）

3 一体化的解决方案

- 将产品及模具成本分析有机结合的成本管理解决方案充分反映全局的项目成本情况

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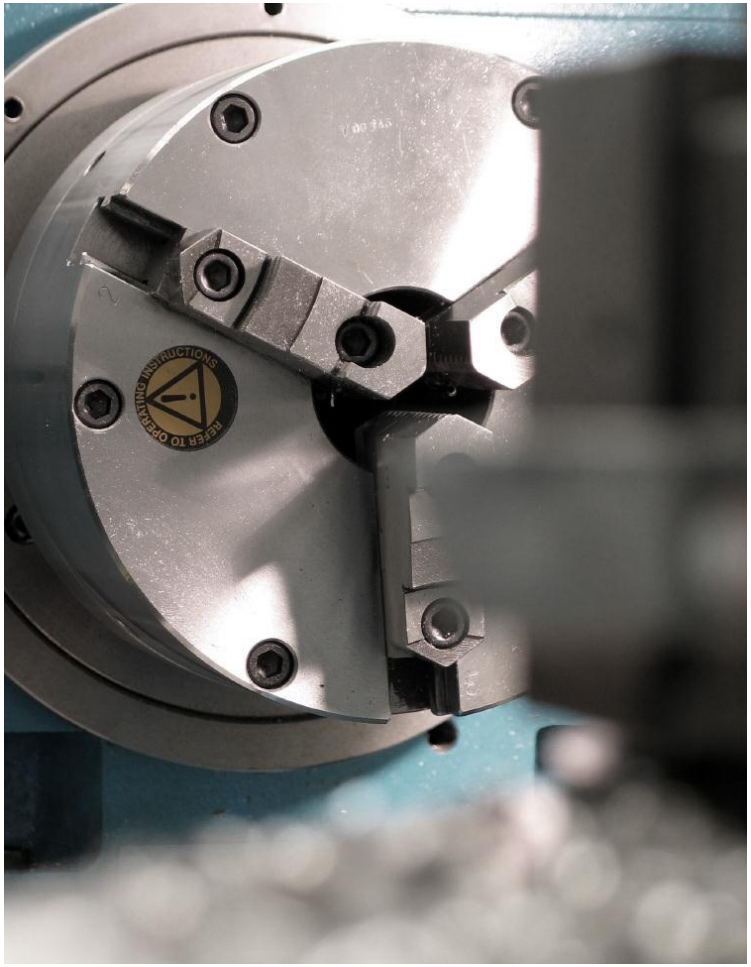
Teamcenter Product Cost Management
采购方面临的挑战

- 通常与产品成本管理系统相独立
- 缺乏持续一致的计算方法，重要为电子表格文件
- 经常在产品成本管理中被忽略
- 成本控制重要依靠少数模具专家的经验和历史数据比较
- 模具成本知识信息经常因人员流动而从企业流失
- 模具成本通常是整个成本链条上的“黑盒子”



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Teamcenter Product Cost Management
基于三维数模的参数化成本分析

SIEMENS

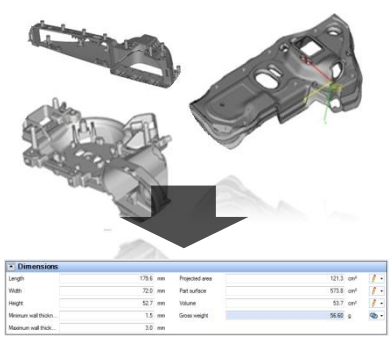
模具技术

塑胶模具
- 注塑成型
- 嵌件及多色注塑
- 发泡成型…

铸造模具
- 压铸
- 重力铸造
- 芯盒…

冲压模具
- 级进模
- 传递模 …

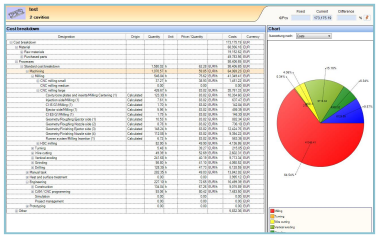
产品尺寸



详细设定

模具厂参考数据　　详细设定

模具成本



- 详细的成本分析报表
- 客制化的成本分析报告

模具制造技术

- 超过20种主流模具种类及制造技术
- 可依客户需求添加及设置特殊种类的模具、工装夹具及检具

产品尺寸特征

- 通过三维模型导入或手工输入关键尺寸及特征
- 先进的特征结构分析识别（如倒钩等）
- 支持各种主流CAD格式(NX, JT, ProE, CATIA V5, iges, step)

模具工厂设定

- 超过20个国家地区的模具工厂设定
- 模具原材料及工艺成本的数据库
- 参数设定可依客户定制

模具成本模型　模具成本测算

- 模具BOM自动生成
- 模具制造工艺列表自动生成
- 模具制造费用自动分析
- 模具原料及标准件成本分析
- 其他费用（如管理费）

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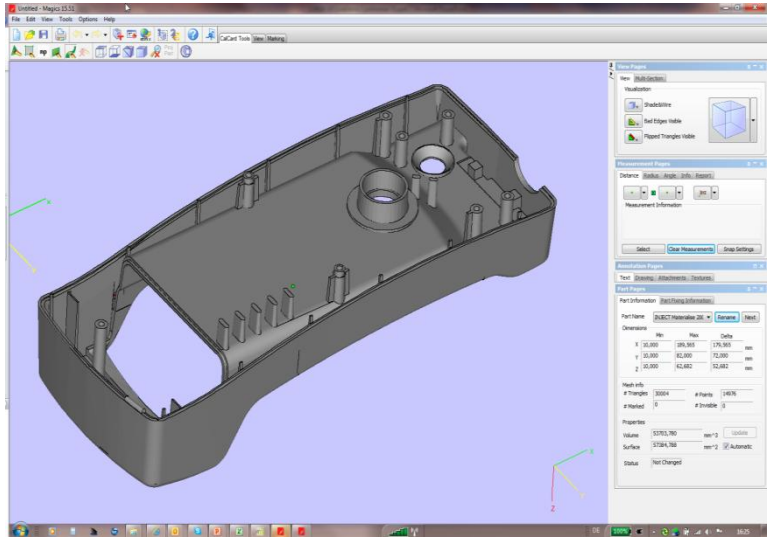
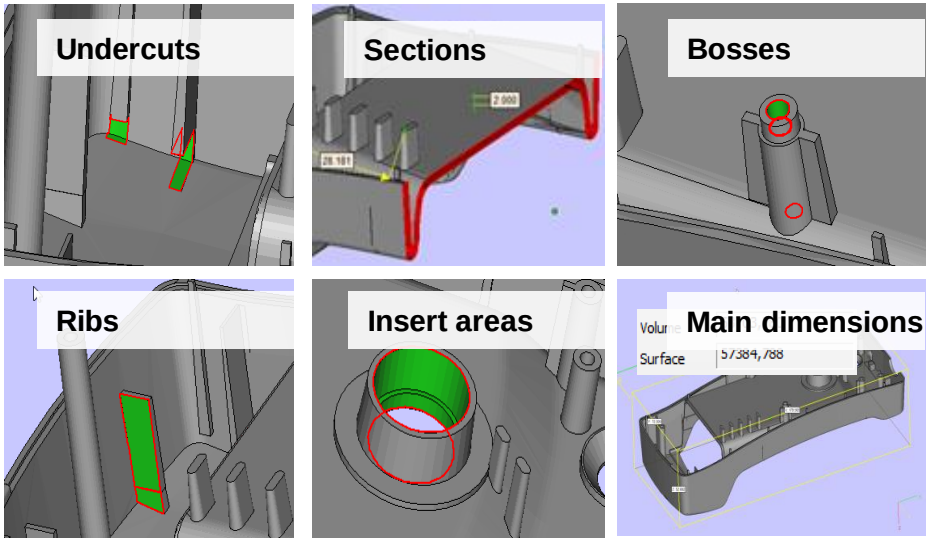
Teamcenter Product Cost Management
参数化测算 - 三维数模特征分析

SIEMENS

3D数模分析 (注塑)





交互接口

模具成本测算

模具制造技术 → **产品几何特征** → 模厂设置+区域价格指标 → 模具成本模型 → 模具成本测算

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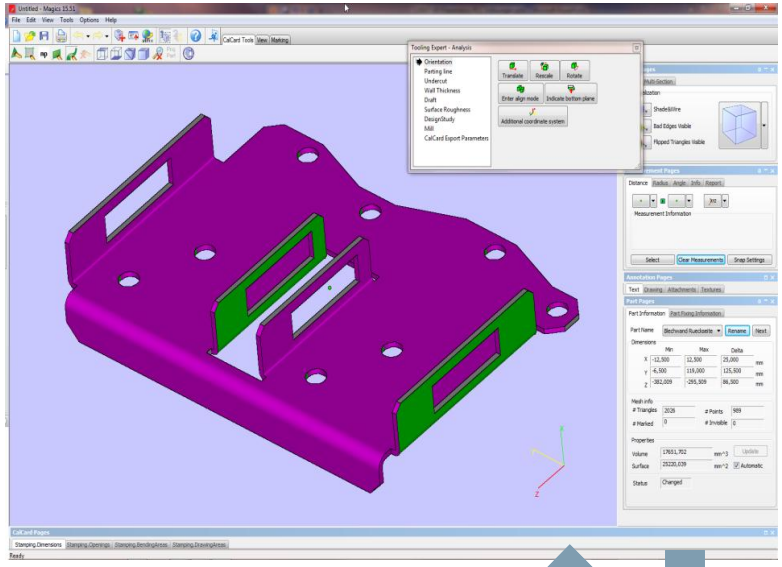
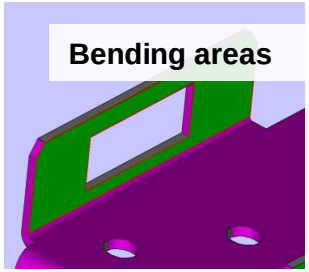
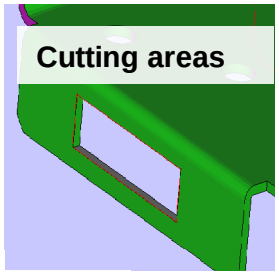
Teamcenter Product Cost Management
参数化测算 - 三维数模特征分析

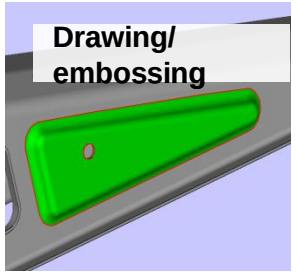
SIEMENS

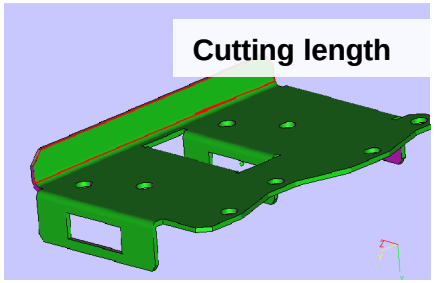
3D 数模分析（冲压）

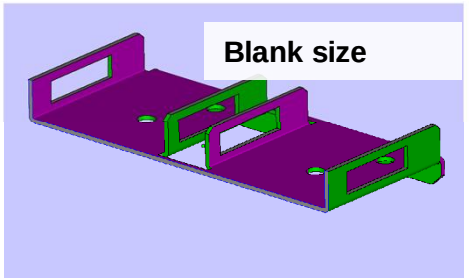












交互接口

模具成本测算

模具制造技术 → **产品几何特征** → 模厂设置+区域价格指标 → 模具成本模型 → 模具成本测算

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Teamcenter Product Cost Management V6.0 - Administrator

File Calculation View Master Data Currency Options Configuration Administration Window Help

Search part | Save | Save all | Calculate | Cost breakdown | Result report | Use base currency | Direct quotation | Plausibility check | Recursive plausibility check | Standard view

Explorer

Off

- Teamcenter Product Cost Management
  - Knowledge domain
  - Private folder
  - Public folder
    - Sample Calculations
    - Sample Calculations by company
    - Sample Calculations Siemens
      - Sample Project (13579)
  - Recycle bin

No image available

Sample Project | Sourcing in Germany [C...

General | Tools | Geometry | Project employee

Sample Project (13579)

Project

Designation	Sample Project
Project number	13579
Project template	Project 6.0
Base currency	€
Quantity unit	Pcs
SOP	Januar 2013
Lifetime	6 Year(s)
Period	
Plant	
Project status	New / identified
Project manager	

File attachments

Name	Extension	Size in bytes	Date

Import file | Export | Delete | Open | Edit link

Tool Calculation
Create a project

Teamcenter Product Cost Management 总结

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Tc PCM为客户带来的价值

- 更准确可靠的产品成本估算能力使客户更好了解产品成本结构，为客户创造更多改善产品成本的机会以确保利润最大化与更高的投资回报率（ROI）
- 使客户在产品开发阶段获得可靠的成本估算与准确的盈利性分析，以确保目标成本达成、实现最佳的采购价格与高收益的项目投资
- 标准化的核算方法、持续一致的成本数据管理 使复杂的跨部门**协同成本管理**任务变得更加顺畅、高效，实现可预测的项目表现与盈利能力

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谢谢！

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Smarter decisions, better products.