

Glossary

A

ad hoc product knowledge – knowledge developed for a specific purpose, fashioned from whatever information is immediately available

add-on – as in add-on module, add-on interface; targets specific functionality that can be added atop a broader software application

ADP – assembly-driven part – engineered to meet particular assembly requirements

AEM – assembly engineering manager – enables the motion of assemblies and mechanisms to be simulated with a high degree of realism

AIM – asset information management – the means for organizations to efficiently collect, organize and manage the volumes of drawings, specs, lists, manuals and databases associated with a typical capital asset investment.

anthropometric – relating to the study of human body measurements, especially on a comparative basis

API – application programming interfaces – provides programmatic access to core application functionality enabling creation of programs that can take advantage of other applications in different languages and formats

archive – storage place, repository for historical data

associative structures – structures that share function as part of a larger assembly

associativity – the property by which things, information or ideas partly or completely derive their function and performance from association with other things, information or ideas

ATE – automatic test equipment – for printed circuit board and other electronics equipment producers

automation design – planning, engineering, configuration, simulation and documentation of plant infrastructure, equipment, controls and logics in the virtual world – in order to define and optimize processes in the real world.

auxiliary view – as in CAD drawings; supplemental view option such as orthographic, isometric and true view

B

backbone – as in Siemens PLM Software open technology backbone; the foundation upon which all software applications are built

balloons – outline enclosing details of a particular part of a larger CAD drawing

batch – a quantity or partial quantity of a certain material or product that has been produced according to the same recipe and represents one homogenous, non-reproducible unit with a unique spec

bandwidth – the capacity for data transfer of an electronic data transfer system

bend allowance – (also K factor); amount of bend radius allowed/ designed for a particular sheet metal part for a particular machine

bend relief – designed or automatic structural change to a sheet metal bend to relieve stress resulting from other forming operations

best practice – superior method or innovative practice that contributes to the improved performance of an organization, usually recognized as “best” by other peer organizations

bidirectional exchange – simultaneous flow of data between both end sources of a data stream

biomechanical – relating to the mechanics of biological and especially muscular activity

BIW – body-in-white – a car or truck’s raw steel body without the doors, hood or deck lid attached

BOM – bill of materials – compilation of materials and parts required for a product, usually compiled during the product’s design and development

Boolean operation – an operation that follows the rules of Boolean algebra in which each operand and the result take one of two values; for example, “0 or 1,” “on or off,” “open or closed,” or “present or absent”

bottleneck – a condition or situation that retards or halts free movement and progress

bottom line – last line in an audit; revenue and profit; also the decisive point

bottom-up – when building a solid model, begin by defining the lowest-order entities, key points, followed by defining lines, areas and volumes that connect these key points.

box build – refers to designing, optimizing and validating electronic components’ assembly processes and transferring them to volume manufacturing plants

BPP – business process procedures

B-spline – mathematical, parametric definition of a series of connected geometric curve segments, belonging to the spline curve family

BTAT – Business travel assessment tool. Before starting any international business trip it is mandatory to perform a travel risk assessment with the BTAT. BTAT will support you to evaluate possible risks of a business trip regarding immigration, tax and social security.

business intelligence – business operations and data (financials, administrative, etc.).

C

CAD – computer-aided design

CAE – computer-aided engineering

CAM – computer-aided manufacturing (also computer-aided motion)

CAM Express – offers the advanced programming capability needed by NC programmers in order to fully utilize advanced machine tools.

CALS – a United States Department of Defense (DoD) initiative for electronically capturing military documentation and linking related information.

CAX – computer-aided technologies

CAPA – corrective action/preventive action

carbon fiber – an extremely lightweight textile material, when combined with a resin (most often epoxy), will produce an extremely rigid composite reinforcement. Due to the lightweight and strength features, carbon fiber is in high demand from aerospace, military and recreational applications

CFRP – carbon reinforced plastic – term can apply to a wide range of carbon reinforced materials, but generally pertains to carbon fiber reinforced with thermoset resins

CASE – computer-aided software engineering

change management – expediting or controlling simple or complex changes that affect a product throughout its lifecycle

check-in – process of placing or returning a new or modified product’s information under control within a PDM/PIM system

check-out – process of accessing managed product definition information under controlled procedures for viewing, reference, use in another application or task, or for making a change to the information

clay-sweeping – traditional term for ‘sculpting’ new-styled models of products in development

cliff-edge blend – ‘smoothing’ or blending abrupt changes of surface in new product design

clock speed – general term recognizing the importance of time – time-to-production, time-to-volume, time-to-market, time-to-value – in a product’s lifecycle

Closed/Won – total monetary value of all closed/won software opportunities. This is indicated by an opportunity stage of “closed won”

CMM – Coordinate measuring machine; mechanical system designed to move a measuring probe to determine coordinates of points on a workpiece surface

collaboration – to work jointly with others or together – throughout an enterprise – especially during a product lifecycle

collocation – to work in the same place or room to enable better collaboration

CDM – collision detection manager – rapidly detects collisions and clearances in interactive assembly and motion simulation environments

communication silos – ‘isolated’ units, disciplines or functions – such as quality validation, process improvement, plant design, resource management and manufacturing simulation – that in a non-PLM environment find it difficult to communicate data and other information to other functions

community collaboration – a platform for sharing information and working together throughout the product lifecycle

compliance management – documentation, enforcement and tracking of product regulatory compliance throughout the entire product lifecycle. Includes product records management, robust knowledge management framework for configuration management, recordkeeping and audit tracking

composite – a part consisting of two or more materials, most often a resin with fiber reinforcement

compression molding – method of forming composites by using a shaped mold which applies pressure and often heat

CNC – computer numerical control – machine tool software that improves automation and produces consistent, accurate work pieces

configuration management – the process of managing products, facilities and processes by managing the information about them, including changes, and ensuring they are what they are supposed to be

COTS – commercial off the shelf

CPDM – collaborative product development management

core – Any nonfiber component of a composite part. Examples of types of cores are honeycomb, foam sheeting, metal sheets, subcomponents or plastic inserts. Cores are similar to plies in that they are components of a laminate that represent the entire composite part. They are used to increase strength, stiffness and insulation. Common core materials include foam, balsa and honeycomb

CRM – customer relationship management – integrated information system used to plan, schedule and control the presales and post sales activities in an organization

cured – describes resin that has turned into a solid state

CVD – The customer value definition (CVD) process is the first deliverable from the “Customer” initiative, and it addresses the revenue generating, customer facing responsibilities of the global presales team. It is completely aligned

with and supports the Strategic Value Selling (SVS) process. CVD provides supporting detail to the SVS process, specifically for presales. CVD also has linkages to our services methodology, Value Delivery Methodology (VDM), providing for more effective alignment and hand-off from presales to services

D

darts – cuts or snips that are placed in a composite ply, allowing the ply to be laid up more easily onto a 3D tool

dashboard – a user interface that resembles an automobile’s dashboard, organizing and presenting information in a way that is easy to read

data mining – sorting through data to identify patterns and establish relationships

data warehouse/store – the main repository of an organization’s historical data: its corporate and manufacturing memory; it contains the raw material for management’s decision support systems

DB (HR) – discretionary bonus

DCM – dimensional constraint manager – provides dimension-driven, constraint-based design functionality to CAD/CAM/CAE/PLM applications

debossing – a design process of lowering a surface in relief

debug – the process of locating and fixing or bypassing errors (bugs) in computer program code or the engineering of a hardware device

deformation – 1. the distortion composite materials undergo while absorbing changes in surface contour during layup 2. distortion of products observed during simulation

delamination – separation of the bond between the skin and core material in a sandwich panel; it can also apply to the separation of plies or fibers in a laminate

degeneracy – state of being or the process of becoming degenerate; having declined in structure or function

DFE – design for the environment

DFT – design for test

die – any of various tools or devices for imparting a desired shape, form or finish to a material or for impressing an object or material

digital engineering – engineering of facilities and equipment in terms of mechanics, electrics and automation in the context of the digital factory or digital plant

digital enterprise – unifies product knowledge with process innovation by managing all the value creation elements of enterprise processes from the entire lifecycle of product, process plant or discrete factory, from its conception through design and manufacture to service, renewal and disposal

digital factory – commonly used by automotive manufacturers as a project or direction toward digital methods, processes and 3D geometries of components, production equipment and buildings

digital manufacturing – 1. assembly: integrated, computer-based system comprising simulation, 3D visualization, analytics and various collaboration tools to create product and manufacturing process definitions simultaneously 2. CAM: enabling product, process, plant and resource information to be associated, viewed and taken through change processes, with a consistent and comprehensive approach to production design, using CAM software

DMU – digital mockup – sometimes called digital buck

digital plant – commonly used in the process industries, often referring to oil/gas concerns relative to the design, engineering, construction, maintenance and operations of any kind of process plant

digital product design – software tools that enable product designers to create, communicate, visualize and analyze product ideas in an electronic format that speeds development and reduces cost

digital simulation – integrated environment for simulation modeling and analysis in concert with simulation data and process management

dimensional planning and validation – captures real-world inspection results and links them to a fully associative lifecycle data model, product design and production

DNC – direct numerical control – also called distributed numerical control; transfers NC programs and related data from CAM systems to the CNC machines on the shop floor

discrete industries – industries in which the manufacturing of finished products represents distinct items capable of being easily counted, touched or seen; discrete industries include automotive, aerospace, consumer electronics, computers, appliances and machinery

DMAP – direct matrix abstract programming

distributed memory parallel – type of computer architecture in which individual processors do not share a memory, but the memory is distributed directly to the processors

domain – a sphere of knowledge identified by a name

DTM – downtime management – a period of time that an industrial production infrastructure fails to perform its primary function; measurement of downtime can be done based on a work shift, or based on 12- or 24-hour periods

E

EVM – earned value management – combines measurements of technical performance, (i.e., accomplishment of planned work), schedule performance (i.e., behind/ahead of schedule) and cost performance (i.e., under/over budget) within a single integrated methodology

ECAD – electrical computer-aided design – for designing electrical circuitry, printed circuit boards and other electrical panels

ECO – engineering change order – also known as engineering change notice (ECN) or engineering change request (ECR)

e-commerce – buying and selling products with digital cash via electronic data interchange (EDI)

edge blend – design process of blending two adjoining edges using a variety of parameters

EDA – electronic design automation

EDI – electronic data interchange

EDM – 1. engineering data management, the business function often within product lifecycle management (PLM) that is responsible for the management and publication of engineering data 2. electrical discharge machining – a manufacturing process by which an electrical spark is discharged near the surface of a (electrically conductive) work piece

EES – expanded export screening

EWI – electronic work instructions – a way to ensure that manufacturing processes are executed by the operator in the correct way

embossing – a design process of raising a surface in relief

EMEA – Europe Middle-East and Africa

Employee self-service – Applications that provide you with easy access to information and services for employees to manage their personal information such as home address, emergency contact information, payroll direct deposit banking information, family dependent information, SAP recorded objects on loan, education data and performance appraisal information

ELV – end-of-life vehicle directive – European legislation addressing waste and pollution impacts of abandoned or otherwise “end of life” vehicles

end-to-end PLM – the process of managing the entire life-cycle of a product from concept through end-of-life using digital software and processes

enterprise – unit of economic organization or activity; especially a business organization

ERM – enterprise relationship management – software that analyzes data about customers to develop a better understanding of the customer and how the customer is using products and services

ERP – enterprise resource planning – management system that integrates and automates all facets of business operations including planning, manufacturing, sales and more recently encompassing marketing, inventory control, order tracking, customer service, finance and human resources

eRealm – mandatory tool that guides the approval process for project statement of work (SoW) and scope changes; the tool also acts as a vault for all SoW and scope changes related to projects

EPR – extended producer responsibility – practice of holding the producer of a product responsible to some extent for management of the waste products associated with that product

ergonomic – applied science concerned with designing and arranging things people use so that the people and things interact most efficiently and safely

ECU – electronic control unit – sometimes stands for engine control unit, an automotive component

EPM – engineering process management

Euler operations – 18th-century mathematician Leonard Euler developed much of the base for modern geometry and ultimately contributed to foundations for today's product design function

EES – expanded export screening

extensible – capable of being extended or stretched in distance, scope or time

XML – extensible markup language – a framework for structuring data; while it evolved from standard generalized markup language (SGML) – a markup language primarily focused on structuring documents – XML has evolved to be a widely-used mechanism for representing structured data

extrusion – to shape (as metal or plastic) by forcing through a die

EZ-X – Siemens travel management system; tool used to enter expenses, reimburse expenses and for pre-trip approval via TAF (Travel Authorization Form)

F

4Success – application used to manage PMP (performance management process) data

FEA – finite element analysis – a type of computer program that uses the finite element method to analyze a material or object and find how applied stresses will affect the material or design.

FEM – finite element modeling

3-face blend – process of blending three specified tangent surfaces

face-face blend – process of blending two specified tangent surfaces

facet data – data that defines a face or surface

Femap – Finite element modeling and postprocessing software; a mid-range engineering analysis program that builds finite element models, it runs on Microsoft Windows and provides CAD import, modeling and meshing tools to create a finite element model, as well as postprocessing functionality that allows mechanical engineers to interpret analysis results

Fibersim – a suite of software that supports all of the unique and complex design and manufacturing methodologies necessary to engineer innovative, durable and lightweight products and parts made of advanced composite materials

FDM – fused deposition modeling – solid-based rapid prototyping method that extrudes material layer-by-layer to build a model; the system consists of a build platform, extrusion nozzle and control system

federate – act of forming an organization; defining an enterprise

federated network – organized and interconnected group or system

fiber path – The graphic representation of the producibility simulation for a given material displayed on the 3D tool surface

fiber placement – method of strategically placing and orienting reinforcing fiber in a composite application to maximize structural properties

FRP – fiber reinforced plastic – a term used to describe composite products

fillet – concave junction formed where two surfaces meet

fine-grain visibility – an attribute of certain product lifecycle management software that enables CIOs to quickly access and view detailed information anywhere throughout a product's lifecycle

firewall – computer or computer software that prevents unauthorized access to private data (as on a company's local area network or intranet) by outside computer users

flash fit – combines several relationships into one easy-to-use command to speed up how quickly engineers can build assemblies

flat pattern – a 2D representation of 3D ply in which the 2D representation has been adjusted for material deformation due to the 3D surface topology

floating license – a license to execute a program on any workstation attached to the local network; enables a group of users to share use of the program

freeform – seamlessly integrates curve- and surface-based modeling

functionality – the sum or any aspect of what a product, such as a software application or computing device, can do for a user

G

GAMP – good automated manufacturing practices

G0-continuity – two curves or surfaces that are connected and have the same direction in the connection point (tangential continuity)

G2-continuity – surfaces that have G1-continuity, but also have the same curvature in the connecting point

G3-continuity – surfaces that have G2 continuity, but include fillets

GDC – Global Delivery Center – the offshore services department of Siemens PLM Software based in India

GFRP – glass fiber reinforced plastic global engineering – the concurrent processing of a project across multiple countries and time zones by multiple stakeholders involved in project development

global probe offset tool – increases flying probe test access on dense printed circuit boards

GUI – graphical user interface – a style of user interface composed of graphical components such as windows and buttons

GSM&S – global sales, marketing and services

GTAC – Global Technical Access Center –the focal point for post-sale software support; the center provides both application and operating systems software support through telephone and electronic access

H

hand layup – method of manufacturing composites by means of cutting fiber reinforced fabric, placing it in the correct position and laminating resin without the assistance of machinery

HLM – hidden line manager – computes hidden line views, engineering drawings and technical illustrations of parts and assemblies

HD-PLM – high definition product lifecycle management – the vision for Siemens PLM Software family of enterprise PLM products that result in a common set of integrated software tools to enable global collaborative product development teams to identify, capture and collate the massive amount of information available both inside and outside manufacturing enterprises

high tech – high technology; technology that is at the cutting-edge and the most advanced currently available

HR1 Source – global PL human resources website information

HR BC – Human Resources Business Consultant; global HR support

HR BP – Human Resources Business Partner; in-country HR support

HMI – human machine interface– where people and technology meet; the people-technology intercept can be as simple as the grip on a hand tool or as complex as the flight deck of a jumbo jet

hollowing – technique used to create thin-walled parts

HTTPS protocol – the secure version of HTTP, the communication protocol of the World Wide Web

HVAC – heating ventilation air conditioning

I

ideation management – activities and processes that lead to creating broad sets of solutions to consumer problems; includes the early stages of product development to generate initial product concepts, the intermediate stages for overcoming implementation issues, the later stages for planning launch and the post-mortem stage to better understand success and failure in the marketplace

IGES –initial graphics exchange specification – neutral data format describes product design and manufacturing information created and stored in CAD/CAM systems

IIA – Industry Automation – the Industry Automation division within the Industry sector

IIA/DT – Drive Technologies – the Industrial Automation/ Drive Technologies division within the Industry sector

IIA PL – Siemens PLM Software, a business unit within the Industry Automation division of the Industry sector

IIA PLM LMS – The LMS business segment within the Siemens PLM Software business unit

IFRS – International Financial Reporting Standards – a common global language for business affairs so that company accounts are understandable and comparable across international boundaries

IMO – integration management office

industrial security – the solution to the ever-increasing demand for functional safety in machines and plants

industrial software – the applications utilized by plant floor physical devices that drive logical and mechanical processes

information silos – [see communication silos]

IT – information technology – incorporates both the technical and social aspects of computing; a broader integrative vision of the role played by computers in society

initiative – a project or plan intended to realize a specific set of measurable business outcomes or benefits

instancing – identifying and arranging keywords and keyword instances in a data tree with branches that expand and collapse, making content management and editing simple and efficient

integrated product/production – digitally integrated product and production, enhancing productivity and time-to-market

intellectual capital – knowledge that can be exploited for some money-making or other useful purpose

ISO – International Organization for Standardization – certification by ISO is the highest quality performance and compliance recognition a laboratory or factory can achieve

ITAR – International Traffic in Arms Regulations – authorizes the President of the United States to control the export and import of defense articles and defense services

interoperability – the ability of software and hardware on multiple machines from multiple vendors to communicate

isometric – exhibiting equality in dimensions or measurements

isotropic – a description of composite material having equal structural properties in the three coordinate directions (X, Y, Z)

J

Jack – a male-version human factors product that helps enterprises in various industries improve the ergonomics of product designs and workplace tasks

Jill – a female-version human factors product that helps enterprises in various industries improve the ergonomics of product designs and workplace tasks

JT (also JT Open, JT data format or JT technology) – an open and widely adopted 3D data format used for visualization, collaboration and data sharing

K

KBE – knowledge-based engineering – the technique used in product design to capture rules, knowledge and expertise so they can be re-used

KDA – knowledge-driven automation – by-product of knowledge-based engineering: capturing knowledge, adopting

best practices and providing automation of design and manufacturing processes to enable manufacturers to achieve efficiency and profitability

kernel – the core of a computer’s operating system that resides in the memory and performs essential functions, such as controlling memory and files and allocating system resources

key points – vertices where lines meet in a drawing

kinematics – branch of dynamics dealing with aspects of motion apart from considerations of mass and force

KPI – key performance indicators – with which the progress of objectives and/or critical success factors within a company can be detected to support important and fast decision-making

L

laminate – 1. a fiber reinforced composite structure, or composite sandwich panel skin sheet 2. application of resin to fiber reinforced fabric 3. the process of adhering skin to a core material 4. top-level composite element; a laminate contains plies, steps and sequences but is rigorously defined as a collection of sequences

lean manufacturing initiative – a business initiative to reduce waste in manufactured products

legacy system – an antiquated computer system or application program that continues to be used because the user (typically an organization) does not want to replace or redesign it

leverage – to gain more business effectiveness by taking advantage of various collaborative actions

LDA – lifecycle data architecture – a design and analysis technique based on the macro-level analysis of lifecycle data within an enterprise; a general-purpose model for the structure and deployment of data on an enterprise-wide basis

library checker – checks and corrects essential missing part attributes listed in the BOM

library editor – adds and modifies attributes for individual or selected electrical devices, physical outlines and parts

LCAIM – lifecycle asset information management – a holistic software solution concept over the full lifecycle of an industrial plant and equipment, which guarantees availability of the right information in the right place at the right time through all phases of the plant asset lifecycle

life-limit – the projected length of life for a manufactured product

line balancing – defining a planned production rate for a demand program of several materials that you would like to produce in a certain period, and guaranteeing the average work content of each line segment can be performed in the processing time available from the capacity available

LMS – a leading provider of test and mechatronic simulation software and engineering services; as a business segment within Siemens PLM Software, LMS provides a portfolio of products and services for manufacturing companies to manage the complexities of tomorrow’s product development

LoA – limits of authority – Siemens has defined various methods and processes to ensure profitable project business within the corporation, such as project management (PM@Siemens), financial reporting and compliance. Further amendments to the corporate regulations such as sector or division regulations apply. One of those mandatory instruments is a systematic risk escalation and approval process for bids called “Limits of Authority” (LoA). During the acquisition phase, projects must be thoroughly assessed on risk dimensions according to the guidelines and compliance regulations. A decision meeting is required to enable management to analyze risks and make a bid decision

LoA (HR) – leave of absence; time away from work outside of PTO

lofting – taking dissimilar surfaces and blending them together, such as a square in one plane and a circle in another; a lofted surface between the two begins as a square at one end and transitions to a circle at the other end

M

MDE – managed development environment – digitally connecting products, processes and people

manufacturability – a key focus throughout the development process during which manufacturing equipment is validated in parallel with product design

manufacturing 2.0 – an approach integrating manufacturing operations into the supply chain, or “demand-driven value networks,” due to the growing complexity of the environment in which manufacturing organizations have to operate

MES – manufacturing execution systems – deliver information enabling the optimization of production activities from order launch to finished goods

manufacturing intelligence – typical manufacturing and production (performance) data

manufacturing use case – a manufacturing scenario of what can be done with a certain software application, explaining the value and helping define the needs of a customer

manufacturing part planning – development of the discrete manufacturing steps to produce component parts

manufacturing process management – technologies and methods used to define how products are to be manufactured in a collaborative environment

manufacturing process planning – an application within Teamcenter for the process creation leading to an alignment of engineering bill of materials (BOM) and manufacturing BOM with the manufacturing bill of process (BOP)

manufacturing resource planning – a method for the effective planning of all resources of a manufacturing company; ideally, it addresses operational planning in units, financial planning in dollars and has a simulation capability to answer “what-if” questions and extension of closed-loop MRP

MCAD – mechanical computer-aided design – the systematic, computer-aided representation and dimensional specification of mechanical and architectural structures

mechatronics – synchronizing the mechanical, electrical, electronic and software lifecycles

ME&S – Maintenance, Enhancement & Support

metadata – data about data; descriptive statistical information about the elements of a set of data

metrology – the science, or a system, of weights and measures

mil – a unit of length equal to 1/1000 inch used especially in measuring thickness (as of plastic films)

milling – the process on a machine tool on which work, usually of metal secured to a carriage, is shaped by rotating milling cutters

miniaturization – designed or constructed in small size

mitering – to match or fit together in a miter joint; to bevel the ends for making a miter joint

mold – shape, most often made of steel, used to maintain the shape of the desired composite product, used in making composite structures, plastic and metal parts.

moldability – a key focus throughout the development process during which molding equipment is validated in parallel with product design

MPEG – a standard for the compression and encoding of sound and video images

MQL – a marketing qualified lead is a SFDC lead record that marketing has determined is ready to be passed to sales for follow-up and is routed to the appropriate GSS resource for that follow-up via SFDC

MRO – maintenance, repair and overhaul

MSS – manager self-service – managers find three additional tabs titled work list, manager self-service (MSS) and reporting in addition to their other ESS applications. The work list application allows them to view and process SAP-related workflows. The manager self-service application provides easy access to information and services for managers to manage employee reviews. The reporting application provides flexible employee and staffing request reporting capabilities

MTM – a standards and research association that pioneered procedures to improve methods and establish time standards by recognizing, classifying and describing the motions used to perform given operations and then assigning predetermined standards to these motions

N

NC – numerical control – computerized control of machine tools; a computerized technique for controlling machine tools in which the position or action of a tool – for example, the depth of a drill – is determined by a numerical value

NDL – a needs development lead is a SFDC lead record that is a good lead but needs more development by marketing before sales agrees that it is qualified as an opportunity

node-locked license – permission to run only on the machine an application is installed on

NPDI – new product development and introduction – the complete process of bringing a new product to market; “development” or “design” refers to the idea generation, product design and/or formulation and detail engineering; “introduction” involves market research and marketing analysis

NX – NX offers the industry's broadest suite of integrated, fully associative CAD/CAM/CAE applications. NX touches the full range of development processes in product design, manufacturing and simulation, allowing companies to encourage the use of best practices by capturing and re-using product and process knowledge

NX Nastran – a finite element analysis (FEA) program integrated into NX; Nastran is a registered trademark of the National Aeronautics and Space Administration

O

O2O – opportunity to order – O2O is an “umbrella” term encompassing two separate but similar global applications that share much of the same DNA. Q2O (quote to order) supports the direct sales process and P2O (partner to order) supports the indirect/partner sales process. Both Q2O and P2O form a virtual “bridge” which joins the upstream world of sales/marketing/legal with the downstream world of customer services/export compliance/distribution/finance, providing a data freeway that underpins the crucial middle stages of the lead-to-revenue lifecycle. As with any bridge O2O provides a transport mechanism (workflow) for the finalized sales order, passing through global policy checks/ approvals on its way to delivering the internally approved sales order package (including a vault for all associated documents) directly to the customer services team and finally to continue on its journey within SAP

OEM – original equipment manufacturer

offsetting – when the offset of an edge represented by an ellipse or parametric curve intersects itself, the profile geometry manager (PGM) performs the appropriate trimming operation

OpenAir – NetSuite OpenAir software is a cloud professional services automation (PSA) solution, providing project-based businesses with powerful project management, resource management, project accounting as well as timesheet and expenses management capabilities

open architecture – the ability to integrate new hardware and software into a system; the layered hierarchical structure, configuration or model of a communications or distributed data processing system that enables system description, design, development, installation, operation, improvement and maintenance to be performed at a given layer or layers in the hierarchical structure

open-by-design platform – intentional strategy of open architecture to enable integration of hardware and software into a system

openness – [see open architecture]

orthographic view – two-dimensional drawings used to represent or describe a three-dimensional object

out-of-the-box – similar to off-the-shelf; easy to set up and use; ready to go; what comes standard with the product

outsourcing – obtaining goods or services from an outside supplier

P

P2O – partner to order – P2O forms a virtual “bridge” which joins the upstream world of sales/marketing/legal with the downstream world of customer services/export compliance/ distribution/finance, providing a data freeway that underpins the crucial middle stages of the lead-to-revenue lifecycle. As with any bridge, P2O provides a transport mechanism (workflow) for the finalized sales order, passing through global policy checks/approvals on its way to delivering the internally approved sales order package directly to the customer services team and finally to continue on its journey within SAP

Parasolid – Siemens PLM Software's geometric modeling kernel

patterning – plan or create according to a model or models

PCF – packaged collaboration file – allows multiple documents from different sources to be packaged into a single file that contains all the information needed for collaborative communication

PCR (HR) – forms within SAP where you create change requests that start workflow

P&ID – process and instrumentation diagram – describes the system components and component connectivity in a process plant

parametric – relating to any of a set of physical properties in which values determine the characteristics or behavior of something

part centroid – center of a part's mass

part library – A collection of pre-drawn, commonly used items, such as fasteners, springs, bearings, gears, shafts, cams, and pulleys that can be inserted into an assembly

PDM – product data management

PDS – product-driven services

personalized portal view – ability for an individual to access an online database or portion of a database that most directly relates to his needs

plant design and optimization – development and analysis of manufacturing facilities utilizing 3D parametric smart objects for layout of efficient factories faster and reducing flaws during the planning process while optimizing material flow, handling, logistics and indirect labor

plant simulation – a discrete event simulation tool, enabling the creation of digital models of logistic systems (e.g., production) so that systems' characteristics can be explored and optimized

PCB – printed circuit board – thin rectangular plate on which chips and other components are placed

phase-gate – process automation that combines workflow with project schedule to support phase-gate processes; orchestrating phases, gates, deliverables and criteria to ensure successful program execution from start to finish

Pipeline – total amount of software sales opportunities

PKI – public-key infrastructure

PLM – product lifecycle management – the process of managing the entire lifecycle of a product from its conception, through design and manufacturing, to service and disposal. PLM integrates people, data, processes and business systems to provide a product information backbone for companies and their extended enterprise

PLM VDM – PLM VDM provides a structured process for delivering a PLM solution, emphasizing the unique aspects of delivering an enterprise-wide solution using Siemens PLM Software products. This methodology has been adopted globally across the Siemens PLM Software services organizations and is based on the PMBoK of PMI. The methodology identifies the following stages:

- Pre-align – to complete the process of defining the high level solution outline and supporting statement of work ready for the project to commence
- Align – to transform the solution concepts from the pre-project activities into a well-defined solution plan
- Plan – to develop the remaining documents that are used to execute and control the project. Depending on complexity of the solution, the detailed plans for scope, schedule, cost, skills, resources, risks, quality and communication are defined
- Build – to create the defined solution keeping strict attention to the customer's requirements as defined in the Plan phase

- Test – to validate that the solution is ready for production use
- Deploy – to deploy the production-ready solution to the end users
- Close – to make sure that all the administrative pieces of the project have been completed, lessons learned have been captured and the resources released

PM@Siemens – global program that supports the continuous and sustainable improvement of project management processes toward process and business excellence

PMI – Project Management Institute

PMP – performance management process –the practice of actively using performance data to improve operations. For people management, PMP involves business strategy and performance measures to establish individual performance targets and enable management to evaluate achievement of these targets as well as to evaluate the employee's capabilities shown through his/her actions and behaviors. 4Success is the application used to manage PMP data

PSA – professional services automation. NetSuite OpenAir's PSA module supports the services organization with real-time visibility and anytime, anywhere access to the tools and information you need. The following modules are available within Siemens PLM Software:

- Project management
- Time tracking
- Project reporting
- Resource management
- Project accounting

PGM – profile geometry manager – manages higher-level sketching operations on profiles in any application with a 2D DCM-based sketcher

PTO – paid time off – a U.S. program based on the calendar year that provides employees with greater freedom and flexibility in scheduling time away from their jobs to meet both personal and family needs. It is intended to be used for a variety of traditional types of time away from work. These include vacation, sick time, personal business, doctor/dentist appointments, emergencies, personal holidays, voluntary community service, family time, the waiting period before short-term disability, or for any other personal reason

PLC – programmable logic control – a programmable micro-processor control that can be monitored online, and is capable of finding faults within it and the devices connected to it

PLM – product lifecycle management – a set of capabilities that enable an enterprise to effectively and efficiently innovate and manage its products and related services throughout the entire business lifecycle, from conception through recycling or disposal

PLM components – family of software solutions developed by Siemens PLM Software that serves as foundational elements for many of the world's CAD/CAM/CAE and PLM applications. Examples include D-Cubed, JT Open and Parasolid

ply – a single layer of fiber reinforced fabric, the basic element of a composite part; a ply is a single piece of material in a composite part

plug-and-play – a system built into newer systems so you can more easily install devices built for it

pole editing – manipulating the control poles or points for surface blending and modeling

post cure – method for strengthening composite laminates after the resin is technically cured by applying heat for an extended amount of time, thus imparting increased cross-linking of the resin

PMI – product and manufacturing information – a set of data and other information relating to a specific product and the processes used to manufacture that product

preconfigure – prepare arrangement of parts for a particular use; to preset up, design, or arrange the parts of something for a specific purpose

prepreg – fiber reinforcement that is impregnated with a resin matrix prior to being used; prepreg material is cured by adding heat and pressure

press line – the path that sheet metal follows through a die-stamping operation

pre weld – relates to surface treatments for metal pieces before a weld is applied

process industry – an industry in which chemical reactions or physical actions transform materials, or whereby extracting, mixing, separating or forming materials is performed in batch or continuous production modes

process wizard – automated, interactive guide to installation or setup of a new manufacturing process program or function

producibility – the simulation result and relative manufacturability of a material for a given tool surface

product-centric – having the product as the focus of attention, interest or activity

product genealogy – the data and informational history of a specific product throughout its lifecycle

product lifecycle – complete process of change and development during a product's useful life

production flow control – a configurable solution that provides real visibility and control of both product and material flow along the whole manufacturing line

production management – planning, implementation and control of industrial production processes to ensure smooth and efficient operation

pultrusion – method of manufacturing composites by pulling raw fiber wetted with resin through a heated die; pultrusion is used to efficiently produce large amounts of a continuous profile

Q

Q2O – quote to order – Q2O forms a virtual “bridge” which joins the upstream world of sales/marketing/legal with the downstream world of customer services/export compliance/distribution/finance, providing a data freeway that underpins the crucial middle stages of the lead-to-revenue lifecycle. As with any bridge Q2O provides a transport mechanism (workflow) for the finalized sales order, passing through global policy checks/approvals on its way to delivering the internally approved sales order package directly to the customer services team and finally to continue on its journey within SAP.

QA – quality assurance – 1. the evidence needed to establish confidence that quality-related activities in manufacturing are performed effectively; these actions may be systematic or specifically required to meet defined processes and given requirements 2. in PLM, a systematic method to measure, analyze and improve the manufacturing process in order to build quality into the process

QC – quality control – testing products to uncover defects and reporting to management, who make the decision to allow or deny product release

R

raceway – tube or channel that holds, guides and protects electrical wires and cables

RFID – radio frequency identification – small electronic devices consisting of a small chip and antenna

RDV – repeatable digital validation – digital design validation is dynamically and continuously performed in the context of all design changes

reachability – relating to ergonomics to ensure the feasibility of human tasks; also to the reach for completing robotic tasks

RMA – records management application – also called return material authorization software; automates and web-enables all processes for handling and tracking customer returns

release process – the interface between the development process and the deployment process

repeatable checkpoint methodology – to make certain your Siemens PLM solution meets your requirements and delivers fast time to value

repository – a central computer storage in which an aggregation of data is kept and maintained in an organized way

RFP – request for proposal – formal letter and associated documents from a prospect or customer requesting a formal proposal from an outside source

requirements management – a systematic approach to eliciting, organizing, documenting and managing both the initial and the changing requirements of a system

ROA – return on assets – a percentage that measures profitability of a plant in effectively calculating the revenue of its assets, e.g., total assets (fixed and current), long-term assets and operating profit

RFI – request for information

RFP – request for proposal

RFQ – request for quotation

RT (HR) – round table – select managers, manager+1 and HR calibrate all selected employees on performance, potential

RV residual value ribbon bar – a part of Solid Edge- software's SmartStep, which guides designers through the feature creation process, presenting design decisions in a logical sequence, filtering decisions that can be taken for

granted and letting designers easily review and change decisions to optimize their designs

robustness – normally refers to software that is multifunctional and feature-heavy

RoHS – Restriction on Hazardous Substances – the European Union's lead-free legislation, or more accurately, the restriction of hazardous substances directive, that went into force July 1, 2006

ROI – return on investment – a concept used in accounting and finance to show the relationship between profit and invested capital

rolling-ball blend – computerized design technique for modeling a product surface by rolling a virtual ball of variable radius along the surface to create desired surface indentations and sweeps

rosette – A reference axis used to measure ply orientation; the rosette is defined using a point and curve segment projected on a tool surface

RTM – resin transfer molding – method of forming a composite laminate by injecting resin into a closed mold, or by pulling resin through a mold using a vacuum

S

SAL – a sales accepted lead is a SFDC lead record that has been formally accepted by sales, which is then compelled to work the lead in a given timeframe. It is still under qualification by sales and has not been converted to an SQL

SAP systems applications process – PL HR data; also enterprise software management system

scalable, scalability – describes a computer, component or network that can be expanded to meet future needs

SCD – Siemens corporate directory

schema – diagram or plan showing the basic outline of something

seamless – characterized by integration into an existing software or hardware system without causing any disruption, as if the new item were part of the original design

seat – individual workstation or location where a particular software is installed

SDE – seat design environment – portfolio of software for engineering transportation seating and interiors enables engineers to design and manufacture innovative automotive and aircraft seat systems and interior components; SDE captures a complete digital product definition of a seat system which accurately and efficiently shares design detail, eliminates extensive physical prototyping and reduces time-to-market; SDE is the first-ever seat design software application that addresses the entire seat engineering process

serviceability – the quality of being able to provide good service

SOA – service oriented architecture – multi-tier computing in which resources on a network are made available as independent services that can be accessed without knowledge of their underlying platform implementation

sewing – computerized design function that provides automatic surface stitching of loose faces into sheet or solid models

SFDC – Salesforce.com – because capturing and managing customer information is crucial to managing customer relationships, partner relationships and winning new business, Siemens SISW uses its CRM/PRM system (customer relationship management/partner relationship management), Salesforce.com, to accomplish this process

SMP – shared memory parallel – a type of computer architecture where computers have a common memory shared by multiple processors

Siemens Product Lifecycle Management Software Inc. – legal name of Siemens' PLM business unit. NOTE: Never use Siemens PLM or SPLM in text, and only use Siemens as a standalone name if you are referring to the larger organization

simulation – a computer program or network of computers that attempts to simulate an abstract model of a particular system

Six Sigma – a rigorous, focused and highly effective implementation of proven principles and techniques related to quality

SMR – Siemens management review SOC - Siemens organization charts – intranet tool for presenting organization plans

SQL – a sales qualified lead is a lead that has been accepted as an opportunity by GSS or a partner and converted to an opportunity. All SQLs will be reported and are considered active. All SQLs include all opportunity stages, including "discover," "define" and "confirm"

SaaS – software as a service – sometimes referred to as "on-demand software," a software delivery model in which software and its associated data are hosted centrally (typically in an internet cloud) and are typically accessed by users using a thin client, normally via a web browser

Solid Edge – a 3D CAD parametric solid modeling software for the mid-market. It runs on Microsoft Windows and provides solid modeling, assembly modeling and drafting functionality for mechanical engineers, designers and drafters. A core component of the Velocity Series™ portfolio, it is the most complete hybrid 2D/3D CAD system that uses synchronous technology for accelerated design, faster change, and improved imported reuse.

solid primitives – simple solids – such as a block, sphere, cylinder, cone, wedge and torus – that can be created directly in AutoCAD

solid stitching – stitching together a collection of solid surfaces to define a new complex, free-form shape

SoL – solution outline. A document describing a customer specific software solution, including an associated budget indication.

SOM – Siemens organization management. Tool used to populate the SOC

SoW – statement of work. A formal document that captures and defines the work activities, deliverables, and timeline a vendor must execute in performance of specified work for a client. The SOW usually includes detailed requirements and pricing, with standard regulatory and governance terms and conditions.

SPC – statistical process control – method of monitoring a process during its operation in order to control the quality of the products while they are being produced rather than relying on inspection to find problems after the fact

splice – A cut through a ply that results in two separate plies. Splices are used to relieve layup stress in the deformed material

spline – 'smoothed' connection of defined surface points

SpoDoM – Sponsoring, Donations, Memberships, Hospitality Packages, Other Contributions. As part of its hospitality activities, Siemens acquires Hospitality Packages in order to invite external guests. The rules and strategic directions for making such contributions are set out in the Guidelines for Sponsoring Activities, Donations, Memberships, Hospitality Packages and Other Contributions without Consideration. The SpoDoM tool enables users to bundle these activities in terms of their respective strategic

objectives, to create transparency, to ensure compliance with the applicable legal requirements and to improve cost control. Use of the SpoDoM tool is mandatory for Siemens and its affiliated companies.

In addition, the invitation of external guests to an entertainment event and the payment of costs for non-local travel and accommodation needs to be registered and approved using the SpoDoM tool.

SRF – staffing request form – form required for all new hires and attrition including full time, part time, students and contractors

stakeholders – somebody or something with direct interest; a person or group with a direct interest, involvement, or investment in something, e.g. the employees, stockholders and customers of a business concern

STEP – standard for the exchange of product model data – is the goal (per ISO 10303) to interrelate all geometric and nongeometric data in a useful way so the complete description of a product can be shared between CAD systems

stereolithography – creating prototypes, patterns or actual parts from CAD drawings by building them one layer at a time in a stereolithography machine

stitched fabric – unidirectional fiber reinforcement which is layered and oriented on top of one another, and stitched together to form a fabric. The fibers are oriented at off-axis angles, most commonly + or - 90 degrees, and + or - 45 degrees. This provides increased strength to the end FRP product

suite – integrated software package; a collection of integrated application programs functioning as a single program, each of which can incorporate data from the others, eliminating the need for re-entry or transfer of data

SCADA – supervisory control and data acquisition – a category of software application program for process control; the gathering of data in real time from remote locations in order to control equipment and conditions

SRM – supplier relationship management – a comprehensive approach to managing an enterprise's interactions with organizations that supply the goods and services it uses. The goal of SRM is to streamline and make more effective the processes between an enterprise and its suppliers just as customer relationship management (CRM) is intended to streamline and make more effective the processes between an enterprise and its customers.

supply chain – a network of facilities and distribution options that performs the functions of materials procurement, transformation of these materials into intermediate and finished products, and the distribution of these finished products to customers

surface blending – creating a new surface that smoothly blends between existing surfaces.

surface tangencies – a surface that is tangential to another surface

SCM – supply chain management – the art and science of improving the way a company finds the raw components it needs to make a product or service, manufacture that product or service and deliver it to customers

SMB –small- to mid-sized business

SVS – strategic value selling – SVS is a sales methodology for identifying and managing sales opportunities. SVS enables you to better engage and defeat the competition while focusing on the identification and delivery of value to your clients. The SVS stages are:

- Identify – In the Identify phase, you use tools to collect information about a territory, clients, their environment, their issues and competitors
- Discover – Calling on the client and building superior client relationships begins with the Discover phase. At the end of this phase you have qualified the opportunity
- Define – In this phase, you work directly with the client to create a shared vision. You also create a strategic plan that sets a clear direction for the sales pursuit in order to win
- Confirm – This step incorporates the competitive advantage of relationship superiority and political strategy into the SVS methodology to differentiate its approach from the competition and improve sales effectiveness through higher close rates
- Deliver –The last phase of SVS begins after the client and Siemens SISW have formally agreed to form a business relationship and signed a contract

sweeping – base, boss or cut feature created by sweeping an open or closed profile sketch along one or more path curves

Syncrofit – The Syncrofit portfolio of software for airframe assembly is the only production-proven, CAD-integrated, commercial off-the-shelf (COTS) solution for managing the complexities of airframe assemblies, with a particular emphasis on fastened structures. Syncrofit has broad

capabilities to efficiently author, validate and communicate both the engineering definition and the manufacturing assembly states of the airframe

systems engineering – the art and science of designing a complex technical product that fully meets customer demands for performance and quality within specified resource and timing constraints

systems-driven product development – the ability to connect all engineering data in a common data model, minimize variability, manage change and issue across all domains on a common program and platform

T

T&A – PL U.S. time and attendance system

TAF – travel authorization form

Teamcenter – an integrated suite of product lifecycle management applications; Teamcenter powers innovation and improves productivity by connecting people across global product development and manufacturing organizations with the product and process knowledge they need to succeed

Tecnomatix – a comprehensive portfolio of digital manufacturing solutions that delivers innovation by linking all manufacturing disciplines together with product engineering – from process layout and design, process simulation and validation, to manufacturing execution. Built upon the open PLM foundation Teamcenter manufacturing platform, Tecnomatix provides the most versatile set of manufacturing solutions on the market today

Turnkey – A type of project that is constructed so that it can be sold to any buyer as a complete product. This contrasts with build-to-order, where the constructor builds an item to the buyer's exact specifications, or when an incomplete product is sold with the assumption that the buyer will complete it

2D – two-dimensional

3D – three-dimensional

3DSync – Utilizes Siemens PLM Software synchronous technology; 3D editing software that allows a user to edit mechanical parts and assemblies from virtually any CAD system

24x7 – twenty-four hours a day by seven days a week

tape – unidirectional fiber reinforcement held together in a prepreg matrix, either thermoplastic or thermoset. Tape is cut, laid and cured using a combination of heat and pressure

take-to-market – the process of introducing and distributing a new product to the marketplace

take-to-product – the process of developing a concept and designing, engineering and manufacturing a new product

Teamcenter digital lifecycle management – Connecting people throughout the lifecycle with a single source of product and process knowledge; Teamcenter digital lifecycle management is built on an open PLM foundation

Tecnomatix digital manufacturing – a comprehensive portfolio of digital manufacturing solutions that delivers innovation by linking all manufacturing disciplines together with product engineering – from process layout and design, process simulation and validation to manufacturing execution

tessellation – the method used to represent 3D objects as a collection of triangles or other polygons; all surfaces, both curved and straight, are turned into triangles either at the time they are first created or in real time when they are rendered

throughput – volume of data or material handled; the amount of something, such as data or raw material, which is processed over a given period

TIA – totally integrated automation – a new engineering framework that offers a uniform engineering environment for programming and configuring control, visualization and drive solutions

time-to-market – the amount of time it takes to go from new product concept to new product distribution to the marketplace

tolerant modeling – a design software feature that allows less-accurate imported geometry to be used effectively within particular modeling software

tooling – 1. For assemblies, the assembly of products; typically refers to both manual and automated jigs, fixtures and assembly machinery (e.g., welding stations and robots) used in assembly processes. 2. For part manufacturing, the production of castings, forgings, stampings and plastic parts; typically refers to the mold or die components that directly support the creation of those parts

tool path – usually written in CL (cutter location) data format, the calculated tool path is imported to the postprocessor which converts the CL data to the NC program for the specific machine

tool surface – A CAD system geometric entity that represents the surface on which a ply is to be laid upon

top-down design – a procedure that starts at the highest level of abstraction and proceeds toward the lowest level; also called top-down modeling

top-down modeling – [see top-down design]

traceability – ability to follow the step-by-step track or trail of a product from its conception to its end use

trunk wires – independent wires that merge into common segments

turning – to shape or cut something on a lathe by moving around an axis or point in a particular direction

U

UCS – user coordinate system; movable, user-defined coordinate system for convenient placement of objects

UDF – user-defined feature

UI – user interface; the portion of software that a user directly interacts with

unidirectional – structural fiber reinforcement that runs along only a single axis of direction

unified architecture – delivering the benefits of product lifecycle management to the entire value chain by harnessing knowledge within a PLM system, integrating data from other systems and presenting the right information in the right context anywhere on any device

use case – a scenario of who can do what with a certain software application, explaining the value and helping define the needs of a customer

user-defined feature – [see UDF]

user interface – [see UI]

V

value chain – the value chain consists of these key activities: inbound logistics, operations, outbound logistics, marketing/sales and service; the goal of these activities is to offer the customer a level of value that exceeds cost of the activities, thereby resulting in a profit margin

variable-radius blend – surface modeling technique that blends various radius-value curvatures

vault, vaulting – repository for certain data and other information

Velocity Series – a comprehensive family of modular, integrated solutions that address the mainstream PLM market, especially as it relates to small- to medium-size businesses (SMBs). The product line includes Solid Edge with synchronous technology 3D CAD software, Teamcenter PDM software, Femap FEM software and CAM Express software

Virtual commissioning – the use of a virtual model that represents an accurate and realistic 3D simulation of mechanical, electrical and control systems in order to validate the physical functions of a production system prior to actual physical implementation

visualization – the creation of a clear picture of something in the mind

VSOE – vendor-specific objective evidence – Siemens PLM Software strives to recognize software revenues upfront (upon delivery) via the residual value (RV) method. Under the RV method, we must first value all other contract elements, or offerings, at their fair value. The amount left over from the contract fee is allocated to software revenue. VSOE is the fair value measurement that Siemens PLM Software is required to substantiate each year for maintenance

W

web-native – database, program or other information accessible via and operating within the web environment

WEEE – waste of electric, electronic equipment – European Community directive on which, together with the RoHS (restriction on hazardous substances) directive, became European law in February 2003, setting collection, recycling and recovery targets for all types of electrical goods

weld bead – the metal that has been deposited in the weld joint after it has cooled

weldments – metal components that has been assembled by welding its parts or pieces together

where-used report – used to produce a bill of materials list where a given raw material is used

wireframe – a visual presentation of an electronic representation of a three-dimensional or physical object used in 3D computer graphics

work cell – workstation in a manufacturing operation where a specific computer-operated, robotic task(s) is performed

workflow – the progress or rate of progress of work done by a business, department or person

woven fabric – structural fiber reinforcement woven together, orienting fibers off-axis to one another; woven fabric has increased interlaminar strength properties as the structural fiber is intertwined with one another

X

XT file format –Parasolid’s native open XT file format, which can be accessed by any Parasolid-compatible application from any vendor

Y

Z

Zero D – approach to machine layout that starts by defining product structure before any geometry is committed to paper

zone – ply orientations and thickness requirements for a part that are supplied by the stress analyst

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