Dassault Systèmes 3DLive

Messaging Grid

High-Level Business Goals: Continual Innovation to

- **Increase market share/competitive advantage**
- **Create new products to enter/create new markets**
- **Drive innovation to expand product line and maximize profits**
- **Improve productivity & operational efficiency across entire value chain**
- **Increase business agility/responsiveness**
- **Reduce development & maintenance costs**

Premise: Top 10 Reasons Why Product Launches Fail (AMR Research 2005)

1. **Product does not meet customer needs – 52%**
2. **Late to market/missed demand – 39%**
3. **Poor commercialization or promotion/marketing – 30%**
4. **Product quality – 29%**
5. **Pricing – 27%**
6. **Poor product differentiation – 23%**
7. **Inadequate distribution channel – 15%**
8. **Inventory shortage/availability issues – 10%**
9. **Regulatory issues – 9%**
10. **Other – 6%**

Specific Customer Challenges Addressed by 3DLive:

- Globally dispersed organizations struggle to access, share, and manipulate comprehensive PLM and other critical information – from individual product parts to enterprise program and business planning levels of detail.
- Data management and interoperability challenges impede collaboration, efficient and accurate decision making, and time to market.
- Fierce competition, pricing wars and increasing market segmentation are pressuring manufacturers to develop more product variations faster, while reducing costs to protect shrinking margins.
- Delivering more variations to more markets in less time is increasing the complexity of product designs and, in turn, the complexity of managing development processes, interactions, and knowledge.
- Increased complexity impedes efficient knowledge capture and reuse across products, disciplines, and global partners/suppliers.
- Difficulty integrating suppliers, partners, and manufacturing sites hinders alignment and standardization of global product development processes and best practices.
- Barriers between design, planning, and production prevent optimization of designs “with production in mind”.
- Both humans and systems struggle to respond quickly and accurately to constantly changing requirements – from concept through maintenance – slowing TTM, increasing costs, and increasing risk.

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Industry Business Goals/Drivers What are the most critical goals and challenges?	Challenges Obstacles and/or challenges that may impede competitive advantage and future growth	Capabilities Requirements/Solutions Capabilities the market/customer needs to overcome obstacles and meet business goals
1. Accelerate time to market 2. Introduce innovative new products and product variations at faster pace 3. Increase business agility & responsiveness to changing customer requirements 4. Improve product marketability, acceptance/reorders, reorders 5. Increase profit margins, reduce variable time/costs 6. Maximize global resource collaboration, utilization & productivity 7. Promote reuse, mass customization, design platforms, standardization. 8. Front-load critical decision-making to reduce downstream time & costs, allow time to innovate 9. Ensure quality, manufacturability/design for manufacture 10. Streamline/integrate product development processes	**Obstacles to Information Access, Sharing & Collaboration Waste Time & Money:** • Heterogeneous operating/systems environments, multiple distributed sites with complex data transfer, synchronization & security management • Difficulty developing and exchanging concurrent work & related knowledge with global partners, suppliers, and vendors • Cannot efficiently validate & propagate design changes across processes & value chains • Cannot configure project or lifecycle data to support decision making in a shared PLM workspace **Information Systems & Process Silos Hinder Responsiveness, Slow Decision Making** • Competitive systems and functional silos prevent sharing/leveraging of multidisciplinary and/or program and lifecycle information. • Functional data models and silo'ed development processes are hard-coded into legacy systems application logic, impeding • Managing changes across systems and organization • Understanding actual project status and costs **Increasing Product Complexity Drives Data Management & Process Complexity** • Multiple configurations to cover more markets • Retrieve up-to-date product information • Assess product deliverables (by configuration) **Global Competition & Pricing Wars Placing Downward Pressure on "Time/Cost to Innovate"** • Need to streamline knowledge access & collaboration	• Immersive 3D environment where stakeholders can search, navigate, work and collaborate in real-time on any or all aspects of their PLM programs, to bring life to IP. • Single "live" PLM environment leverages existing DS solutions to accelerate decision making and knowledge exchange, reducing TTM & increasing opportunities for innovation • Online collaborative 3D environment Allows Rapid Download & Point-and-Click Access to any DS PLM-related information in any format, anywhere, anytime. • Enables convergence of the right knowledge and the right people in real time, providing contextual snapshots or comprehensive overviews of resources, program, and product status to drive decision making. • Intuitive, User-driven Search & Navigation For Quick Updates or In-Depth Analysis, enabling rapid problem solving, or immersive collaboration, multidisciplinary review, partner/business/customer meetings, etc. – all in a single online session. • Easy-to-use 3D based Interface Reduces Learning Curve, streamlining access and communication across value chain partners, locations, & languages • Enables Real time Insight into Stored and "In-Work" 3D Virtual Product & Development Processes as They Evolve. • Comprehensive 3D design viewing, simulation & review capabilities from lightweight 3DXML to virtual reality immersion, across heterogeneous CAD systems • Flexible Service-Oriented Architecture (SOA) streamlines implementation and facilitates agility to grow & change with evolving business needs. • Leverages Web Services and standards-based middleware to minimize IT deployment time and maintenance costs, TCO over long term.

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ENOVIA 3DLive Benefits & General Examples – with sample ROI estimates

Executive Summary:

The following examples demonstrate reasonable & typical usage of 2 key business process where the application of 3DLive can deliver tangible benefits based on today's product capabilities and solution maturity. These are fictional use cases with estimated time and labor costs. The main purpose of these is to demonstrate the process for building a business case. The ROI numbers should not be used as definitive objectives, goals or results – a full business value assessment should frame the actual planned deployment usage to ensure accuracy and applicability.

3DLive Elevator Pitch:

An online 3D PLM environment that enables on-demand collaboration, search and navigation, real-time engineering, and streamlined decision support, leveraging customers' unique product, process and resource data and services that form their Intellectual Property – from product concept through retirement – all in one, easy-to-access and use workspace.

3DLive Target Users:

Engineering designers, suppliers/partners, project leaders, department heads, production planners, purchasing/sourcing, and miscellaneous middle and executive management,

Key Sales Cycle Influencers:

Engineering, production, supply chain middle & executive management, department heads, product planners

Key 3DLive Users:

Engineering, people who work with engineering, people who need to access product information to execute a business activity: production, supply chain middle & executive management, department heads, product planners, key business partners.

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3DLive Key Value: Increased productivity & accelerated decision making for faster TTM for high value products.

1. **GUIDING PRINCIPLE VALUE: All PLM IP (data, projects & processes) in one, unified work environment.**
   a. **Benefit: Streamline user access, reduce search and data management time, reduce errors and rework, etc.**
      i. Challenge: Opening multiple DBs & apps to facilitate discovery (capture, compile & compare)
      ii. Challenge: Diverse information in multiple formats.
   b. **Benefit: Promote collaboration, accelerate decision making, improve quality, and seize innovation opportunities.**
      i. Challenge: Difficulty collaborating on shared data, at same time, in same place in order to review, plan, and problem solve across multidisciplinary issues, processes or projects.
      ii. Challenge: Limited real-time "enterprise PLM view" to drive strategic planning.
   c. **Benefit: Accelerate time to value, reduce costs, improve margins and competitive position.**
      i. Challenge: Time/resources spent on low value search, find, access activities.
      ii. Challenge: Complex/cumbersome processes for multiple reviews, multidisciplinary collaboration & decision making
      iii. Challenge: Slow response to, and communication of, change create future/downstream challenges.
      iv. Challenge: No 360º view of PLM activities impeding planning, business development, and partnering.

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Example Case # 1 Goal: Demonstrate search/access savings in **engineering user $s,** using single-source, integrated PLM.

Target Benefit: Streamlines user access, reduces search and data management time, errors and rework, etc.

Cost Assumptions: Average manhour costs:

Engineers - $50/hr	Project/Team Leaders - $65/hr	Sales/customer Reps - $200/hr
Executives - $500/hr	Dept/Middle Mgrs - $80/hr	

1. Traditional Data Search/Capture:

- ✓ Hunt and peck method of searching for data, bringing up or searching multiple DBs & apps just to find information, then;
- ✓ Juggling multiple screens, links, files, to capture, aggregate, and/or analyze the information so that it can be acted upon; requires
- ✓ Multiple, manual or serial processes to capture, reformat, and organize data for appropriate use and reuse. ..or the research and work is lost.

Result: Estimated time for a typical "problem-solving" search (requiring multidisciplinary data/people) = 45 minutes; 2/day = 1.5 hrs x 5 = 7.5 hrs/wk x $50. = $375/wk x 48 wks = $18,000/eng x 100 engineers = costs $1,800,000/yr.

2. 3DLive Scenario: Single, integrated 3D workspace to access and work with products, projects, people = 15 minutes:

- ✓ Typically 1-3 clicks to get what you need…anywhere, anytime.
- ✓ Integrated PLM data & apps means no juggling, can "collage" work screens, etc.
- ✓ Automatic updates & reconciliation (based on customer infrastructure etc.) for knowledge use/reuse and work coordination, data integration.

Result: Two searches/day = .50 x 5 = 2.5 hrs/wk x $50. = $125/wk x 48 wks = $6,000/eng x 100 engineers = costs $600,000/yr.

Estimated time savings factor (per meeting) 3:1 w/ cost savings = $1,200,000.

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Example Case # 2 Goal: Promotes collaboration, accelerates decision making, improves quality, innovation opportunities.

Target Benefit: Demonstrate time/labor required to converge **multidisciplinary stakeholders/users** to solve problems, perform PLM project or initiative reviews and analysis, plan/strategize based on outcomes, decisions, etc.

Cost Assumptions: Average manhour costs:

Engineers - $50/hr	Project/Team Leaders - $65/hr	Sales/customer Reps - $200/hr
Executives - $500/hr	Dept/Middle Mgrs - $80/hr	

1. Traditional Collaborative Review / Problem Solving Meeting:

1. Typically do prep ahead of meetings with any management to ensure optimal perception and results; the usual "hunt & peck" scenario applies here. Note: this is driven in part by silo'ed systems and complicated access to PLM data.
2. Leader(s) group tasks & topics to do research and/or address specific issues ahead of time in separate meetings and emails; in use case #2: 1 initial meeting w/ 2 Project/Team Leaders, 1 Sales Rep = **1.5 hrs**. then
3. Closing the loop with 2 Team Leads + 2 Engineers = **1.5 hrs,** then short prep meeting with "internal" stakeholders = **1 hr.**
4. All onboard, **BUT MUST REPEAT PROCESS TO CLOSE LOOP AFTER MEETING** due to same constraints (add Exec!).

Results: Step one: Estimated time for 1st prep meeting = 1.5 x ($130/hr + $200/hr) = $495/mtg; 2nd prep meeting with 2 Leads & 2 engineers = 1.5 x ($130/hr + $100/hr) = $345/mtg; 1 short meeting w/ all = .5 x $530 = $265; total prep costs for one meeting = $1105.

Step two: the meeting: 2 hrs x ($130 + $200 + $100 + $500 = $930 x 2 = $1860/mtg.

Step three: the follow up: Due to constraints, similar processes as prep apply to closing loop (plus exec); 1st follow up meeting w/ Team Leads & Sales = 1hr x ($130/hr + $200/hr) = $330/mtg; 2nd follow up meeting with 2 Leads & 2 Engineers = 1.5 x ($130/hr + $100/hr) = $345/mtg = $675

Estimated time to complete meeting & follow-up = 2 weeks Total labor costs: $3640 / multidisciplinary mtg.

2. 3DLive based collaborative review /problem solving meeting:

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1. Typically do prep ahead of meetings with any management to ensure optimal perception and results; the usual "hunt & peck" scenario does not apply here. Note: can leverage 3DLive to any combination of users & disciplines
2. Again, Leader(s) group tasks & topics to do research and/or address specific issues ahead of time in separate meetings and emails; in use case #2: 1 initial 3D Live meeting w/ 2 Project/Team Leaders, 2 Engineers, 1 Sales Rep = **1.5 hrs**.x $430 = **$645/prep mtg. No need to close additional loops, as rehearsal occurs in 3DLive.**
3. All onboard, with streamlined closed loop processes repeated, if necessary. May be able to execute decisions immediately!

Results:

Step one: Total time/cost for 1st and only prep meeting = 1.5 x ($130/hr + $200/hr) = $645/mtg;

Step two: the meeting: 1.5 (efficient) hrs x ($130 + $200 + $100 + $500 = $930 x 2 = $1395/mtg.

Step three: the follow up: Due to streamlined access and 3D Live knowledge capture, follow up processes are simple or via email, in other words, may execute on decisions immediately. Cost = $0.

Estimated time to complete meeting & follow-up = 2 days! Total labor costs: $2040 / multidisciplinary mtg.

Time Savings = 12 days x 2 = 24/mo/288 days/yr = decision acceleration!

Cost Savings = $1600/mtg x 2 meetings/mo/yr = $38,400/yr (per test group).