State of PLM: Today's Market & Leading Trends

2024 Market & Industry Forum—27 March 2024

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Key Takeaways

State of PLM: Today's Market & Leading Trends

- CIMdata continues to expand & adjust to major PLM market trends
- CIMdata's global A&D PLM Action Group has entered its 10th year in partnership with market leaders—major research continues
- Multiple disconnects still exist, e.g., prioritization of digital initiatives, and management's narrow understanding of lifecycle management
- The global PLM Economy is growing and continues to add value
- To be successful, companies need to transform people, processes, and technologies—there are at least 12 evolving critical elements
- The next industrial revolution is already upon us

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Agenda

- What's New from CIMdata
- 2023: The Year in Review
- 2024: Today's Trends & Challenges
- Looking Towards the Future
- Digital Twins: Enhancing Lifecycle Performance
- Concluding Remarks

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Global Knowledge & Relationships

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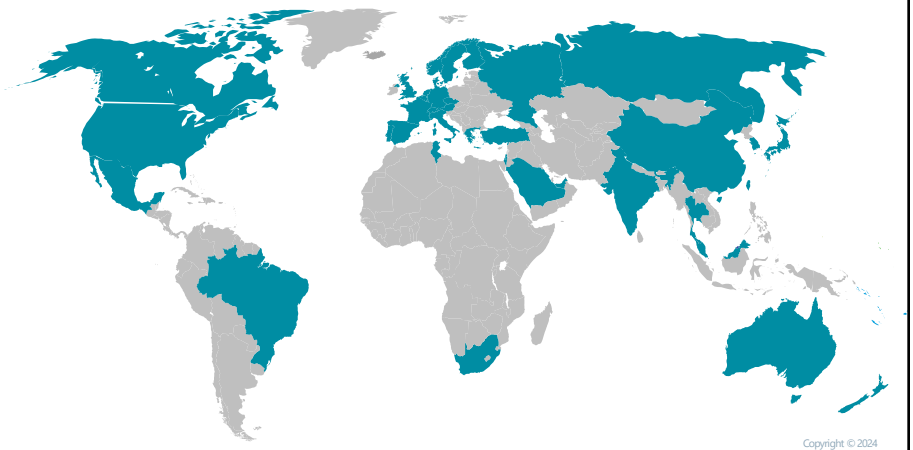
Diverse, deep experience across industry verticals…delivered on six continents!

Clients & offices in the Americas, EMEA, and Asia-Pacific



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CIMdata's Contribution

CIMdata

We facilitate and energize the global digital ecosystem

CIMdata sits at the critical intersection of the digital ecosystem, helping define & implement what's next

We address challenges & identify opportunities for both solution providers and industrial organizations

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CIMdata's Services

Strategic advice & counsel through a comprehensive & integrated set of services

- Research & analysis
- Technology evaluations
- Market-specific insights
- Industry news & trends

- Industry conferences
- Seminars & webinars
- Certificate programs
- Best practices

- Strategic guidance
- Aligning solutions with needs
- Program management advisement
- Market positioning

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Success Methodology

Services for software & service providers to support their drive toward market success

Driving growth & competitive advantage in a complex, dynamic market

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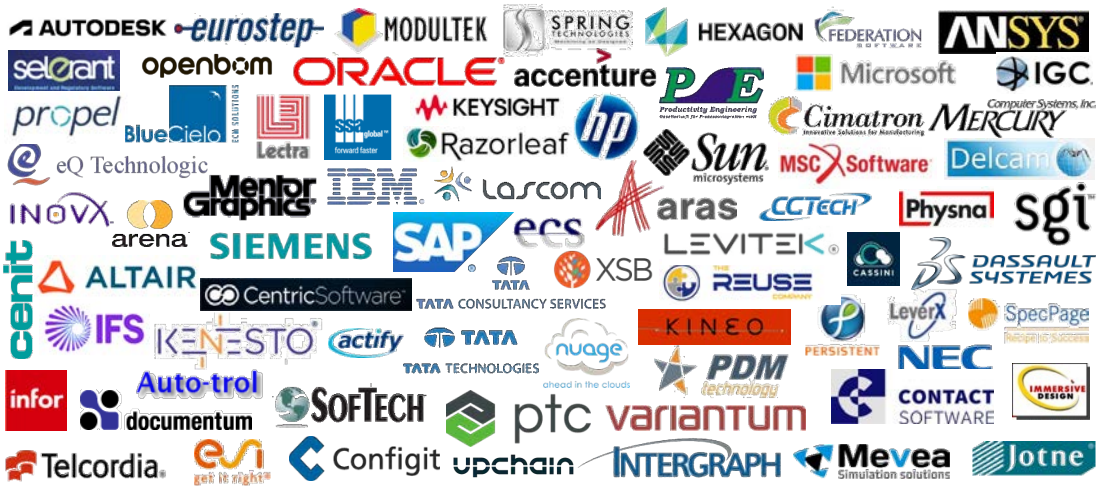
Select Success Clients



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Invest Methodology

Optimizing investments in the evolving global digital ecosystem

Informed analysis of global PLM markets for industry analysts, private equity firms, and other financial service organizations

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Select Invest Clients

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GTCR
LONGVIEW PARTNERS
GI PARTNERS
Goldman Sachs
BAIN & COMPANY
J.P.Morgan
Hg
TEMASEK
THOMABRAVO
BANK OF AMERICA
REDBURN
SYMPHONY INDUSTRIAL AI
SILVERLAKE
Banneker Partners
FP FRANCISCO PARTNERS
TA ASSOCIATES
generation
VECTOR CAPITAL
WCM INVESTMENT MANAGEMENT
MATRIX CAPITAL MANAGEMENT
GOLDEN GATE CAPITAL
McKinsey & Company
CVC

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Transformation Methodology

Services for industrial organizations to enable digitalization of their product lifecycles

Supporting growth & evolution of enterprises across a wide range of industries in their pursuit of digitalization

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Select Transformation Clients

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Aero & Defense

Auto/Transportation

Fab & Assembly

High-Tech

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Select Transformation Clients

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CPG/F&B/Process

Medical/Pharma

Emerging Industries

Academic & Research

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CIMdata's Team

Working closely with clients from industry & technology gives us a unique perspective

- Extensive team of senior consulting professionals
- Experienced in multiple industries
- Extensive relationships with industrial clients and solution providers

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Chief Revenue Office Role Added

Alan Mendel rejoins CIMdata after a lengthy leave of absent

Thursday, August 17, 2023

PLM Industry Veteran, Alan Mendel, Joins CIMdata as Chief Revenue Officer

Ann Arbor, Michigan, USA 17 August 2023—CIMdata, Inc., the leading global Product Lifecycle Management (PLM) strategic management consulting and research firm, announces the appointment of Alan Mendel as its Chief Revenue Officer reporting to President & CEO, Peter Bilello.

Over his 36-year career, Alan has served in various management roles at Aras Corporation, LeverX, CIMdata, Schlumberger CAD/CAM, Groupe Bull, and Adra Systems. He's developed and implemented world-class PLM/CAD/CAM software, consulted and assisted international organizations to establish PLM and digital transformation initiatives, select solutions and service providers, and has driven business benefits generating global PLM deployments.

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CIMdata's New Director of Research

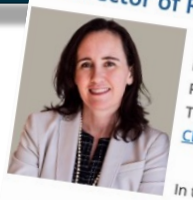
CIMdata

Christine joins CIMdata and takes over main MAR responsibilities

Stan Przybylinski, CIMdata's Vice President, has transitioned to lead CIMdata's overall research agenda. Additionally, he will provide essential support for CIMdata's broader market research initiatives and consulting projects.

Friday, March 01, 2024

CIMdata Announces the Promotion of Christine Longwell to Director of Research



ANN ARBOR, Michigan, USA 1 March 2024—CIMdata, Inc., the leading global research, consulting, and education firm specializing in Product Lifecycle Management (PLM) and the Digital Transformation it enables, is pleased to announce the promotion of Christine Longwell to Director of Research.

In this role, Christine will assume primary responsibility for CIMdata's core market analysis activities, including data gathering, analysis, and reporting. With her experience as a design and manufacturing engineer and proven track record in research and analysis, she is well-positioned to lead CIMdata's research efforts and drive continued excellence in delivering valuable insights to our clients.

CIMdata's Vice President, Stan Przybylinski, will transition to lead CIMdata's overall research agenda. Additionally, he will provide essential support for CIMdata's broader market research initiatives and consulting projects. Stan will continue in his role as the Vice President of CIMdata.

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CIMdata Foresight

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Delivering actionable research to the global digital economy

- Market Research
  - Global and regional market analysis reports
  - PLM benefits appraisal guide, pricing analysis, etc.
- CIMdata Communities
  - Industrial organizations and solution providers
- CAM Market Service
- Publications
  - Late-breaking news, commentaries, etc.
- Custom Research Projects

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Consulting Practice Areas

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Guidance & insight focused on multiple facets of digital transformation

- Additive Manufacturing
- AEC & Manufacturing Convergence
- Aerospace & Defense
- Data Governance
- Digital Skills Transformation
- Collaborative Innovation & Social Product Development
- Manufacturing Systems Engineering
- Organizational Change Management
- Simulation-Driven Systems Development
- Sustainability & Green Energy

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AD PAG 2024 Research Agenda

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AEROSPACE & DEFENSE PLM ACTION GROUP

The Aerospace & Defense PLM Action Group was founded in February 2014

Mission

An association of aerospace & defense companies within CIMdata's globally recognized PLM Community Program, which functions as a ***PLM advocacy group*** to:

- Set the direction for the aerospace & defense industry on PLM-related topics that matter to members
- Promote common industry PLM processes and practices
- Define requirements for common interest PLM-related capabilities
- Communicate with a unified voice to PLM solution providers
- Sponsor collaborative PLM research on member-prioritized industry and technology topics

Members

AIRBUS, BOEING, GE Aerospace, Gulfstream, Pratt & Whitney, Rolls-Royce, SAFRAN, SPIRIT AEROSYSTEMS

20 Website: www.ad-pag.com

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MBSE Industry Research

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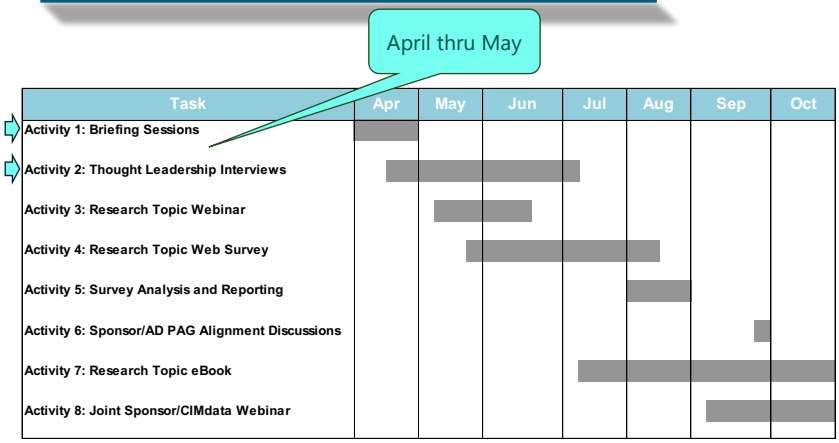
AEROSPACE & DEFENSE PLM ACTION GROUP

CIMdata has initiated research on behalf of the AD PAG members and other sponsors



Information Request

- CIMdata intends to feature 12+ leading solution providers in our analysis and report
- We will request a briefing on provider's MBSE solution strategy and an interview with their domain experts
- Support of this information request will influence our line of inquiry and result in a more comprehensive representation of the provider's strategy and solution in our report

Please contact James Roche at j.roche@cimdata.com

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Digital Twin-Thread Benchmark Study

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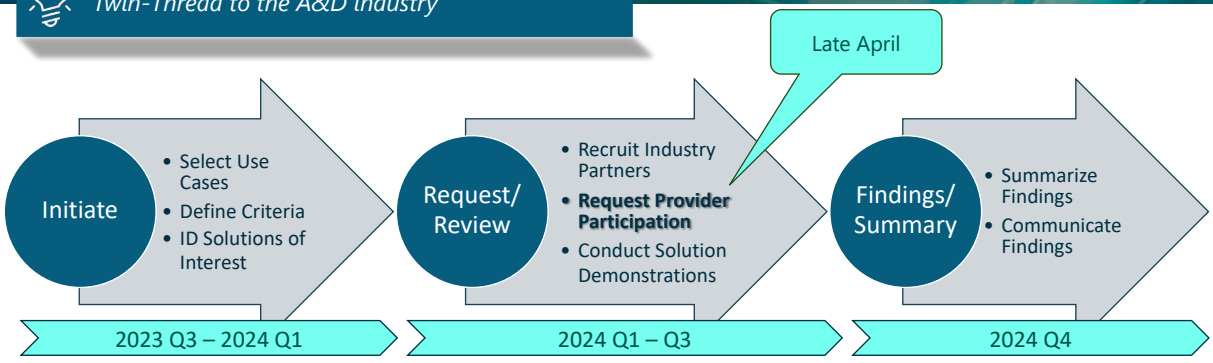
AEROSPACE & DEFENSE PLM ACTION GROUP

Validating the value proposition of the Digital Twin-Thread to the A&D industry



Benefits of Participation

- Demonstrate commitment to collaborate with industrial PLM advocacy group
- Enjoy publicity and enhance stature as an industry leader
- Share perspectives and learnings with a broad community of industry thought leaders

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PLM Green Global Alliance

CIMdata

PLM professionals advocating for a low-carbon circular economy

- CIMdata is a member of this community of PLM professionals collaborating, educating & advocating a low-carbon circular economy
- The PGGA supports five themes related to PLM: Sustainability, Circular Economy, Climate Change, Green Energy & Lifecycle Assessments
- Mark Reisig, CIMdata, co-moderates the PLM & Sustainability theme with Jos Voskuil, the Virtual Dutchman, which includes webinars with solution providers, blogs & news
- Additionally, Mark Reisig, CIMdata moderates the PLM & Green Energy theme with blogs and news

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CIMdata Leadership

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Industry leading conferences, seminars, and educational programs (1 of 3)

- Speakers at international conferences
  - CM Trends 2024 – August 2024, Las Vegas, NV USA
  - PDT EMEA 2024 – October 2024, Gothenburg, Sweden
- PLM Market & Industry Forums for PLM solution providers
  - North America 2024 – March 27
  - EMEA 2024 – April 11
  - India 2024 – April 15
  - China 2024 – April 19
  - Japan 2024 – April 23

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CIMdata Leadership

Industry leading conferences, seminars, and educational programs (2 of 3)

- CIMdata Community Events
  - A&D PLM Action Group Workshops
  - Industry PLM Action Group Workshops
  - Others to be announced
- PLM Road Map™ Series
  - PLM Road Map™ NA 2024—8-9 May, Washington D.C. area USA
  - PLM Road Map™ EMEA 2024—23-24 October, Gothenburg, SWEDEN

PLM Road Map, in its 31st year, continues to be a premier international PLM industry event in the rapidly transforming digital world

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CIMdata Leadership

Industry leading conferences, seminars, and educational programs (3 of 3)

- PLM Certificate Programs
  - Schedule: https://www.cimdata.com/en/events/cimdata-plm-certificate-program
- Self-paced E-Learning courses
  - https://www.cimdata.com/en/education/plm-basics-e-learning-course
- Digital Transformation Short Course
  - Schedule: https://www.cimdata.com/en/education/digital-transformation-short-course
- Systems Modeling and Simulation Certificate Program
  - https://www.cimdata.com/en/education/sms-certificate-program
- Monthly Complimentary Educational Webinars
  - Schedule: http://www.cimdata.com/en/education/educational-webinars

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Over 1,200 PLM Professionals Certified

Now offering more than 30 half-day Master Classes!

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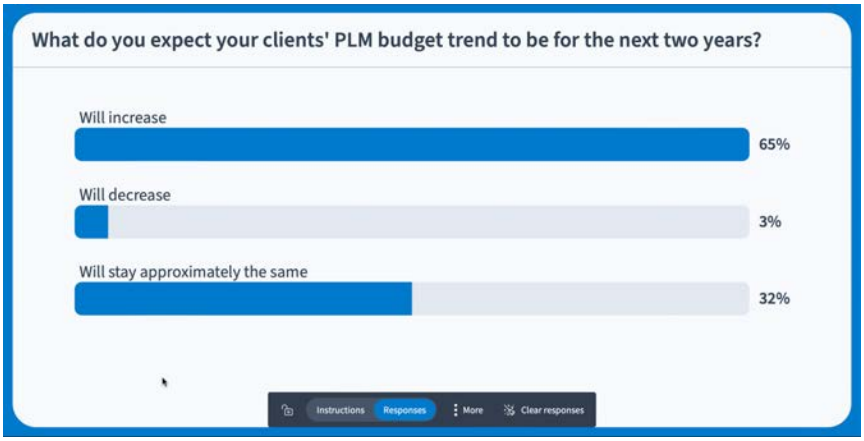
CIMdata Foresight Poll

What do you expect your clients' PLM budget trend to be for the next two years?



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Agenda

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- What's New from CIMdata
- 2023: The Year in Review
- 2024: Today's Trends & Challenges
- Looking Towards the Future
- Digital Twins: Enhancing Lifecycle Performance
- Concluding Remarks

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Defining PLM

CIMdata

Digital transformation of the lifecycle, enabled by the product innovation platform

PLM is…

- A strategic business approach powered by a consistent set of solutions
- Enabled by product innovation platforms that support the extended enterprise
- An approach that spans the full lifecycle, from idea through life
- Enables a set of evolving functional domains orchestrated by an extended enterprise-level "systems of systems" approach

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PLM's Critical Role

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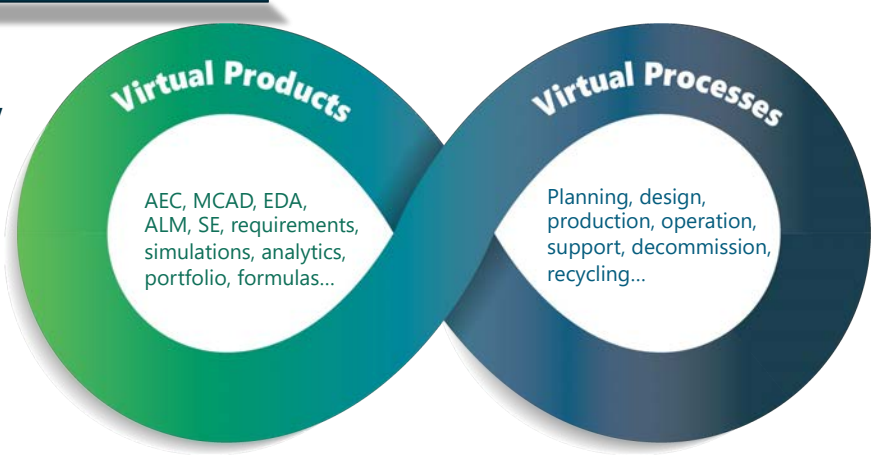
Spans the full lifecycle: from concept through launch and beyond

PLM is the collaborative creation, use, management, and dissemination of product-related ***intellectual assets***



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CIMdata's PLM Status & Trends Survey

CIMdata

Some key conclusions—7th year of CIMdata's PLM Status & Trends global survey

- This year's respondents represent a wide & diverse community
- Most implementations still focus on "traditional" PDM aspects of PLM
- For the most part, companies continue to find PLM worth investing in
- Configurability has become a bigger issue for many
- There continues to be an emphasis on getting faster, better, cheaper
- Enterprise digital priorities & systems confusion still exists
- Management disconnect appears to be widespread
- PLM appears to have continued its positive momentum

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Respondent Demographics

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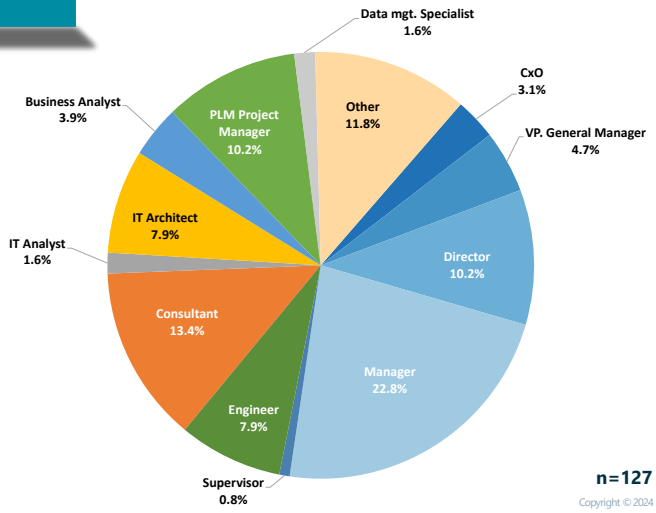
What is your role/title?

CIMdata comment: ~42% of the respondents hold a role of supervisor or higher in their organization, and another, >10%, are PLM Project Managers. A good cross section of PLM influencers and users.



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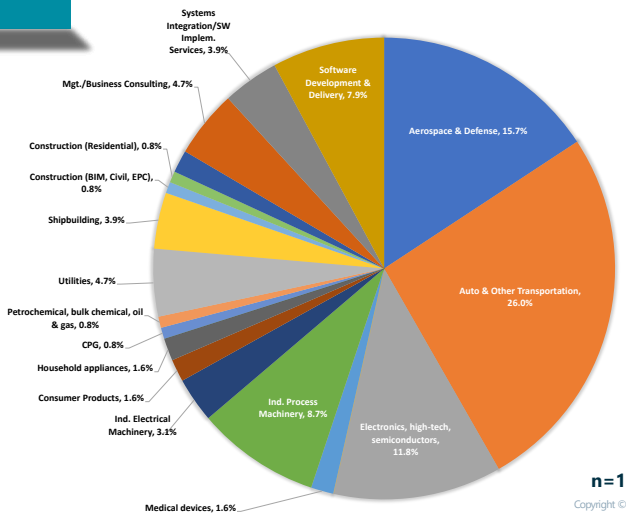
Respondent Demographics

CIMdata

What is the primary industry your company serves?

CIMdata comment: This industry spread approximately matches the overall spend on cPDm offerings, traditionally led by automotive, aerospace and defense, high-tech, and industrial machinery. The inclusion of software development is notable.



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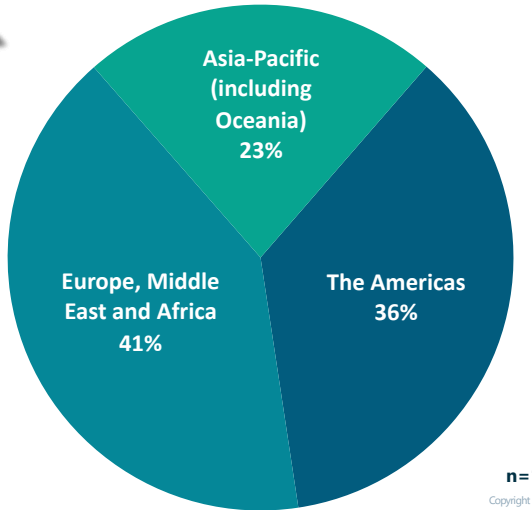
Respondent Demographics

CIMdata

In which geographic region is your company's headquarters located?

CIMdata comment:
Respondents primarily from EMEA and the Americas, and a good representation from Asia-Pac this year. Global PLM spend is typically ~40-40-20.



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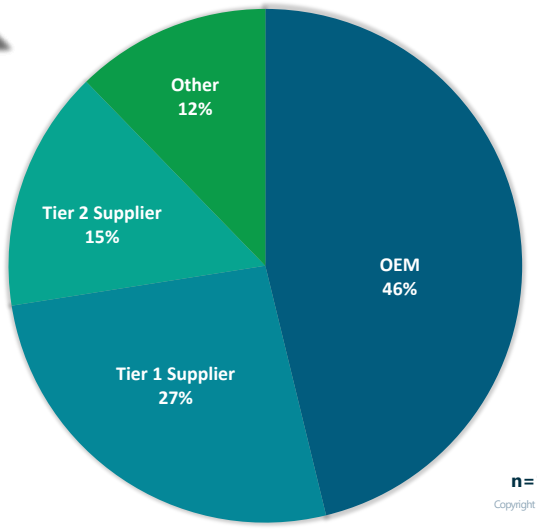
Response Demographics

CIMdata

What is the primary position of your company in the ecosystem?

CIMdata comment: Good spread among supply chain participants.



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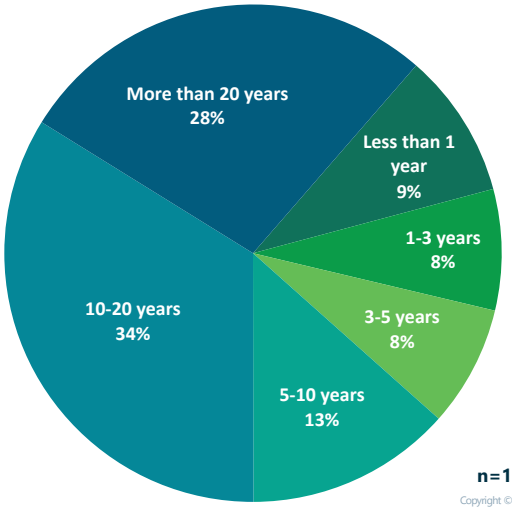
Response Demographics

CIMdata

How long have you been working in PLM?

CIMdata comment: An excellent spread of respondents. Some 62% have been at this for more than 10 years, much higher than last year's 48%. A rather mature pool of respondents.



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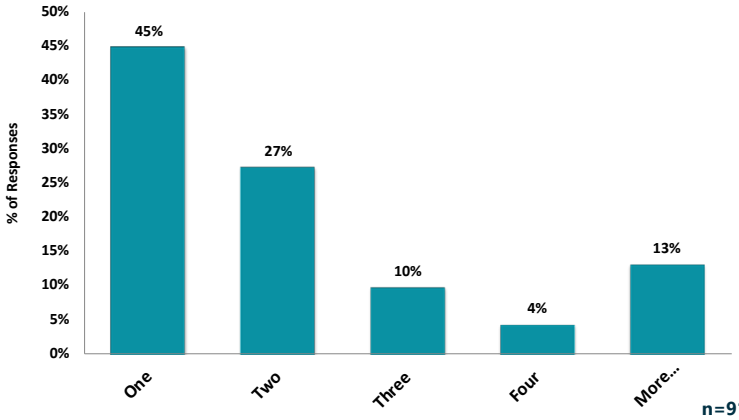
Response Demographics

CIMdata

How many commercially available PLM solutions are currently in operation within your company?

CIMdata comment: ~55% of the respondents have more than one PLM solution. This is consistent with CIMdata's industrial consulting work, where many large companies built through mergers and acquisitions have many solutions in place. Slightly less than last year.



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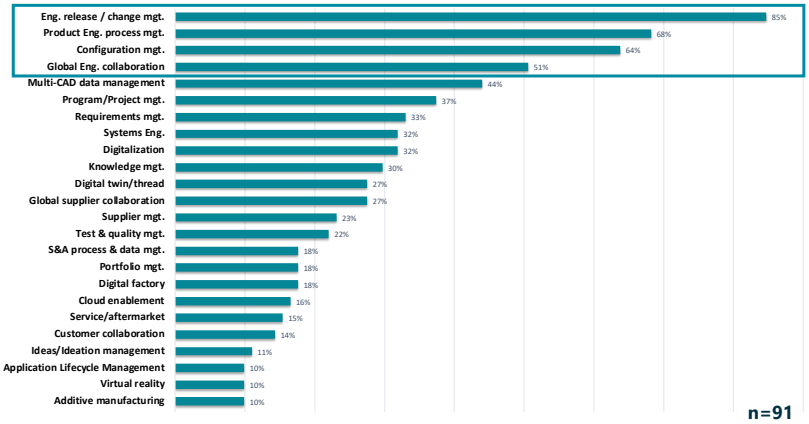
Implementation Status

What is the business process scope of your current generation PLM solution?

CIMdata comment: Heavily weighted towards the "traditional" PDM aspects of PLM. This is consistent with CIMdata's experience. Others: Single-CAD data mgt.



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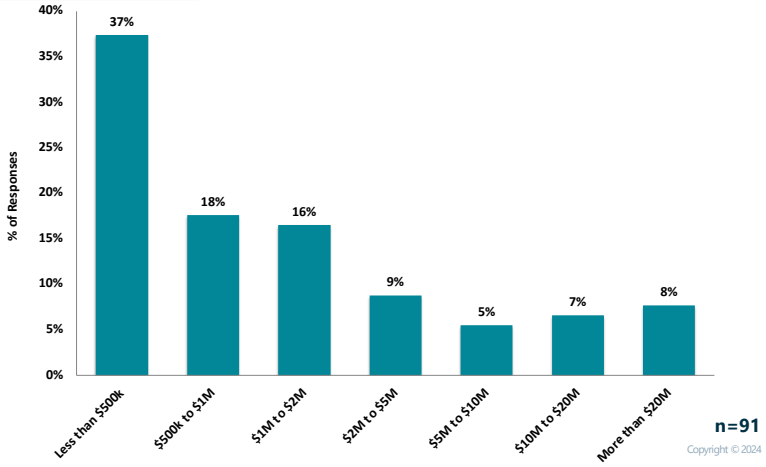
PLM Financials

What is your current annual PLM budget?

CIMdata comment: A good cross section of implementation sizes, with 45% spending more than US$1 million each year.

2023: 61%
2022: 47%
2021: 52%
2020: 58%
2019: 43%



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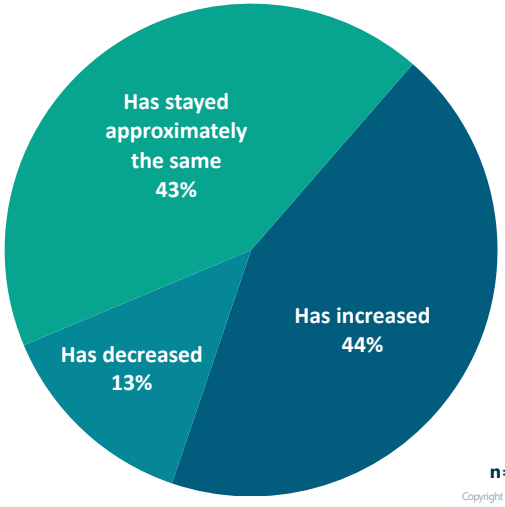
PLM Financials

CIMdata

What is your PLM budget trend from the previous two years?

CIMdata comment: A significant majority agree, PLM is worth spending money on. **87%** stated increased or stayed the same.

2023: 84%
2022: 88%
2021: 82%
2020: 84%
2019: 80%
2018: 76%



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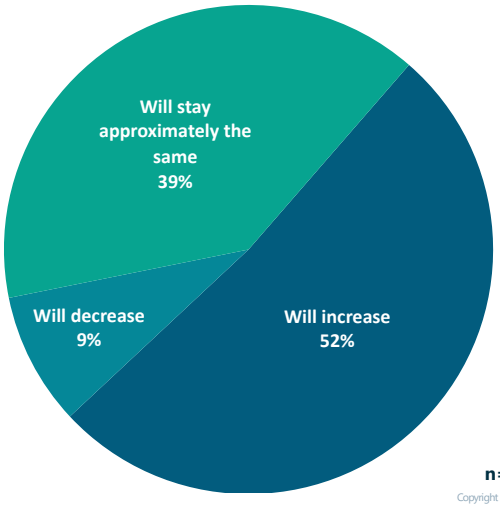
PLM Financials

CIMdata

What is your expected PLM budget trend for the next two years?

CIMdata comment: A potential sign of slowed investment. **52%** will increase. Only 9% expect a decrease.

2023: 62% Will increase
2022: 62%
2021: 51%
2020: 42%*
2019: 64%
2018: 48%



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42 *Most of the responses received prior to major 2020 European and US COVID-19 outbreak.

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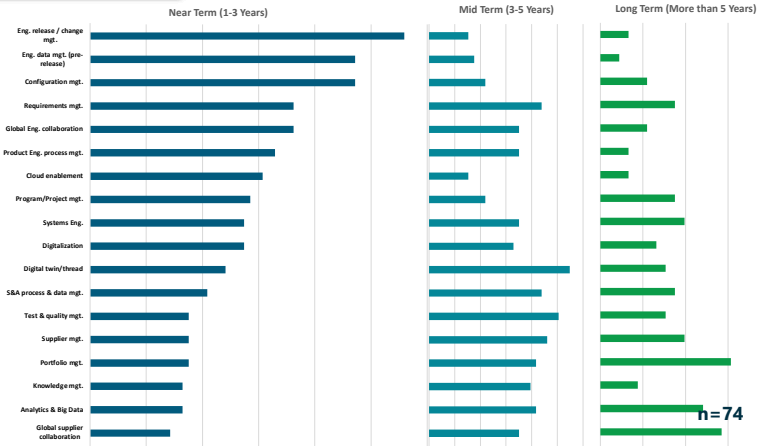
State of PLM: Today's Market & Leading Trends

2024 Market & Industry Forum—27 March 2024

PLM Investment

What business process areas/capabilities will you invest in the coming years and what is the time frame for each area?

CIMdata comment: Short-term still mostly focused on "traditional" areas. Mid-term spread across traditional & non-traditional areas. Long-term non-traditional areas. Others: Data Protection & Classification, MBD, MBE, Integration with ERP and MES, Mechatronic Product Architecture & Modularization, DevOps way of Working, and Cost Management.



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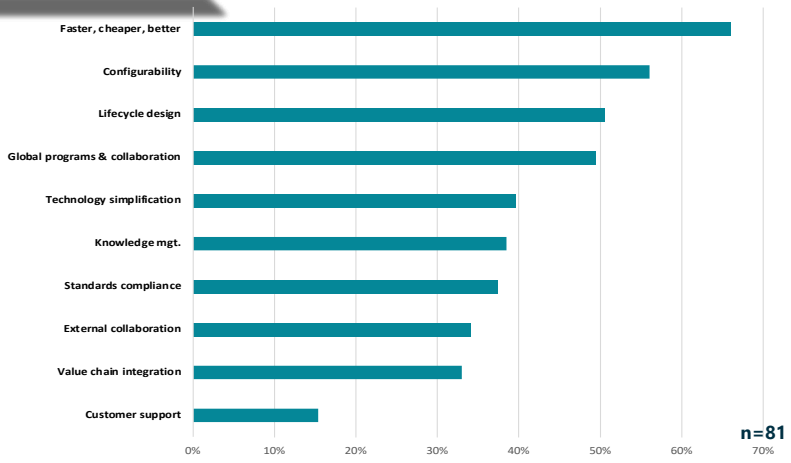
PLM Investment

What are the business objectives that have been established for your future PLM solution?

CIMdata comment: Significant future focus getting faster, better, cheaper. Same as in 2019, 2020, 2021, 2022 & 2023.

Top 2 remain the same.
Global programs & collaboration down one spot.
Lifecycle design moved up one spot.



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State of PLM: Today's Market & Leading Trends

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Investment Challenges

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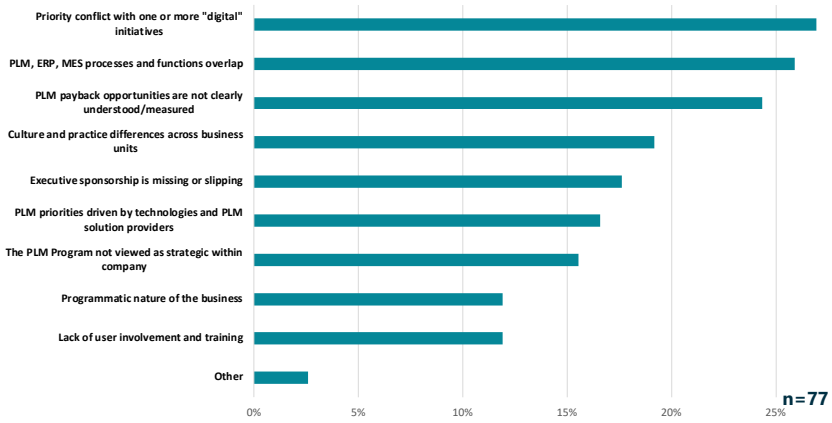
What are the major challenges to be overcome for successful PLM?

CIMdata comment: Top two unchanged. "Executive sponsorship" moves down two spots, and "Culture and practice" moves up one spot.



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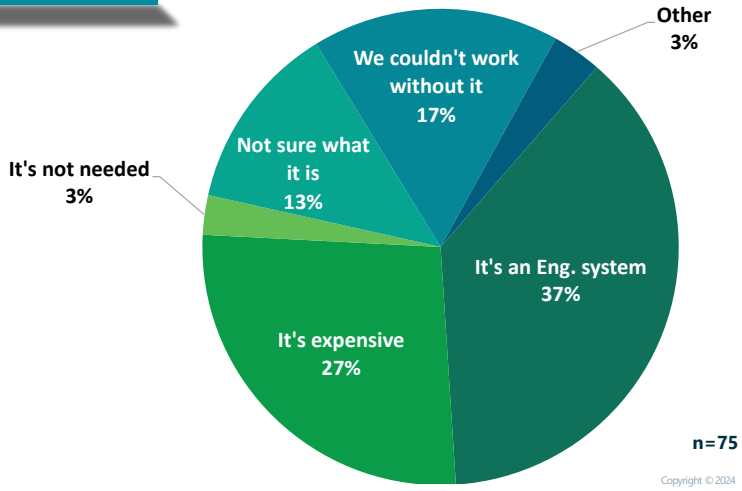
PLM's Future

CIMdata

What does your company's management think of PLM?

CIMdata comment: There is a significant value disconnect. Only 17% couldn't work without it.

2022: 15% couldn't work without it
2022: 16%
2021: 20%
2020: 14%
2019: 16%



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State of PLM: Today's Market & Leading Trends

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PLM's Future

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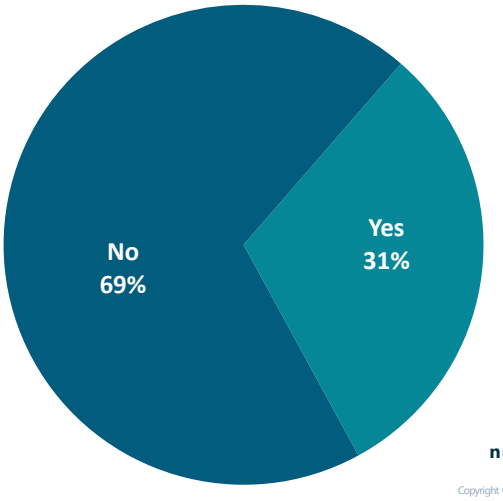
Has the term PLM run its course?

CIMdata comment: A significant majority still believe that the term PLM has value.

2023: 31% Yes
2022: 38%
2021: 31%
2020: 44%
2019: 52%

Please join our webinar on May 16, 2024 for a full review of our 2024 PLM Status & Trends survey.



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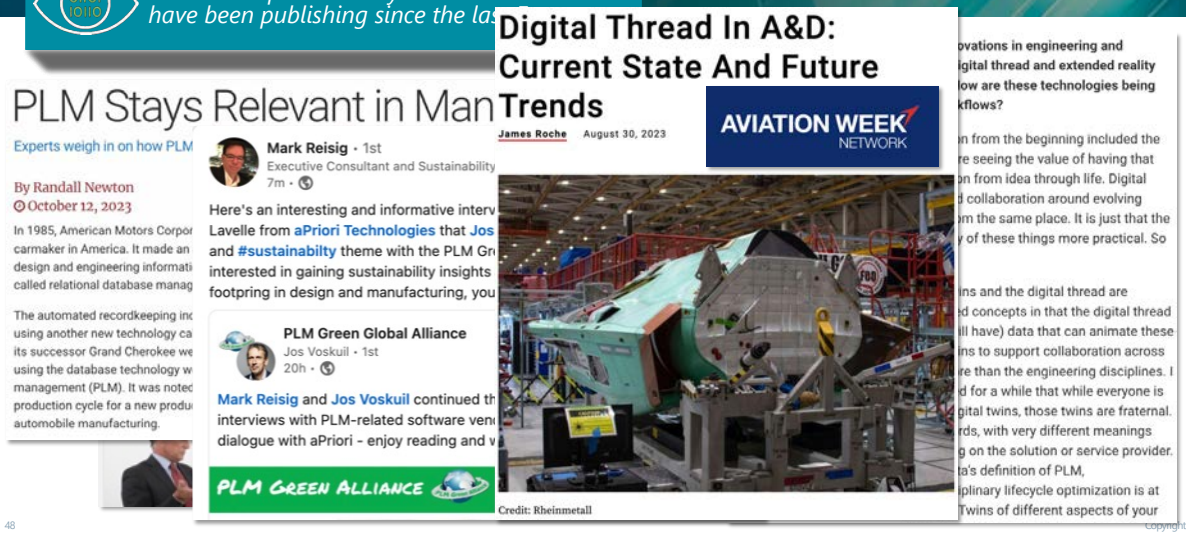
What CIMdata Has been Saying

CIMdata

Some examples—have you seen what we have been publishing since the las



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State of PLM: Today's Market & Leading Trends

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2023 PLM Market – Overall State

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PLM market—overall growth of 8.6%

- The global PLM market missed CIMdata's forecast*
  - Overall, the PLM market was up ***8.6%*** to ***$73 billion*** (vs. forecast of 10.1%)
  - cPDm sector @ $23.8B(7.0%); solid software and services growth
  - Tools sector @ $48.3B (9.4%); led by significant EDA & S&A growth
  - Digital Manufacturing sector @ $968M (6%)
- Bright spot for partners:
  - Integration of Low Code/No code solutions (e.g., Mendix, ThingWorx & Aras) enables companies to increase the flexibility of their solutions (win/win for customers & SIs)
- Digital Transformation driving PLM investments
  - Led by major service provides, e.g., Accenture & Atos, expanding their reach
  - EDA and S&A are outpacing the market as companies look to better anticipate life of a product
  - AEC is performing well as BIM usage is becoming widespread across projects of all sizes

49 *MCAD grew at a slower rate than forecasted

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Agenda

CIMdata

- What's New from CIMdata
- 2023: The Year in Review
- 2024: Today's Trends & Challenges
- Looking Towards the Future
- Digital Twins: Enhancing Lifecycle Performance
- Concluding Remarks

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CIMdata's Critical Dozen

Digital thread/digital twin convergence—some from of a digital thread is required if you wish to have an up-to-date digital twin

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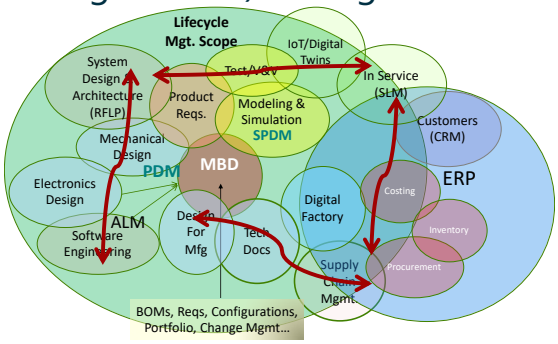
Digital Thread

CIMdata's preferred definition

06 Digital thread/twin

- A ***communication framework*** that allows a connected data flow & integrated view of an asset's data (i.e., its Digital Twin) throughout its lifecycle across traditionally siloed functional perspectives

Digital thread is enabled and supported by a robust end-to-end and connected systems model and MBSE processes



52 Extracted from: https://www.dodmantech.com/ManTechPrograms/Files/AirForce/Cleared_DT_for_Website.pdf
Also see: http://www.manufacturing-operations-management.com/manufacturing/2016/04/what-is-the-digital-thread-and-digital-twin-definition.html

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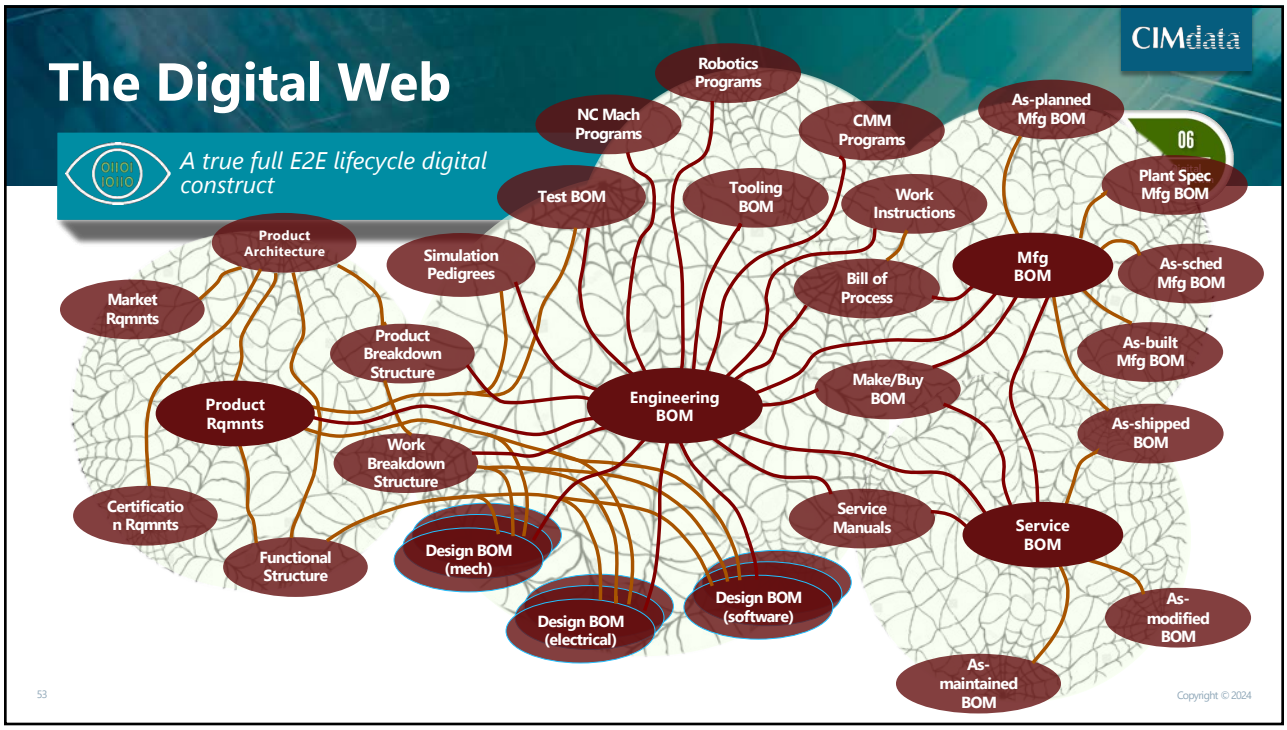

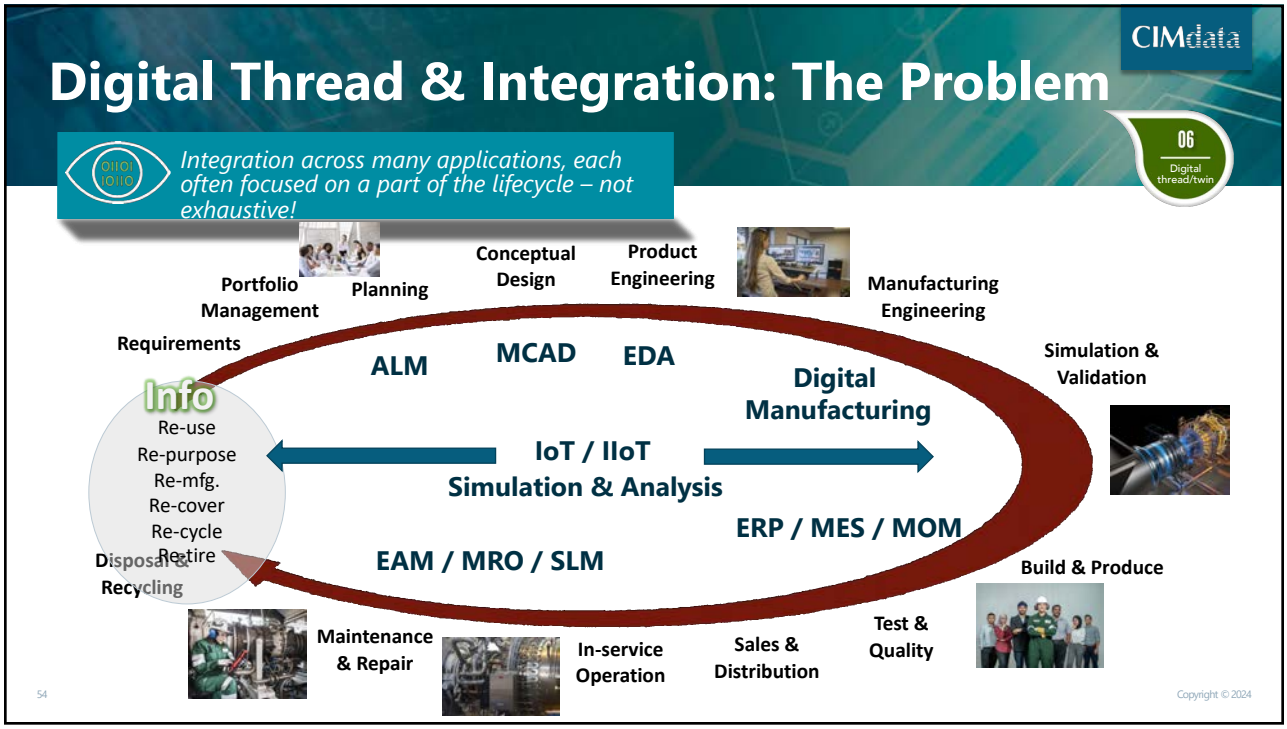

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Digital Twin

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06 Digital thread/twin

A digital representation of products and/or services at any point throughout the lifecycle

- A ***virtual representation*** (i.e., digital surrogate) of a physical asset or collection of physical assets (i.e., physical twin) that exploits data flow to/from the associated physical asset(s).

Digital Twin of the Product

Digital Twin of Production

Digital Twin of Service

Digital twin is enabled and supported by a robust end-to-end and connected systems model and MBSE processes

55 *Adapted from input from ASSESS (see www.assessinitiative.com)

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The Ultimate Vision

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06 Digital thread/twin

Many credit Vickers as the first person to use the phrase—"digital twin"

"The ultimate vision for the digital twin is to create, test and build our equipment in a virtual environment. Only when we get it to where it performs to our requirements do we physically manufacture it.

We then want that physical build to tie back to its digital twin through sensors so that the digital twin contains all the information that we could have by inspecting the physical build."

John Vickers, Manager, NASA's National Center for Advanced Manufacturing

56 https://www.forbes.com/sites/bernardmarr/2017/03/06/what-is-digital-twin-technology-and-why-is-it-so-important/?sh=783735a22e2a

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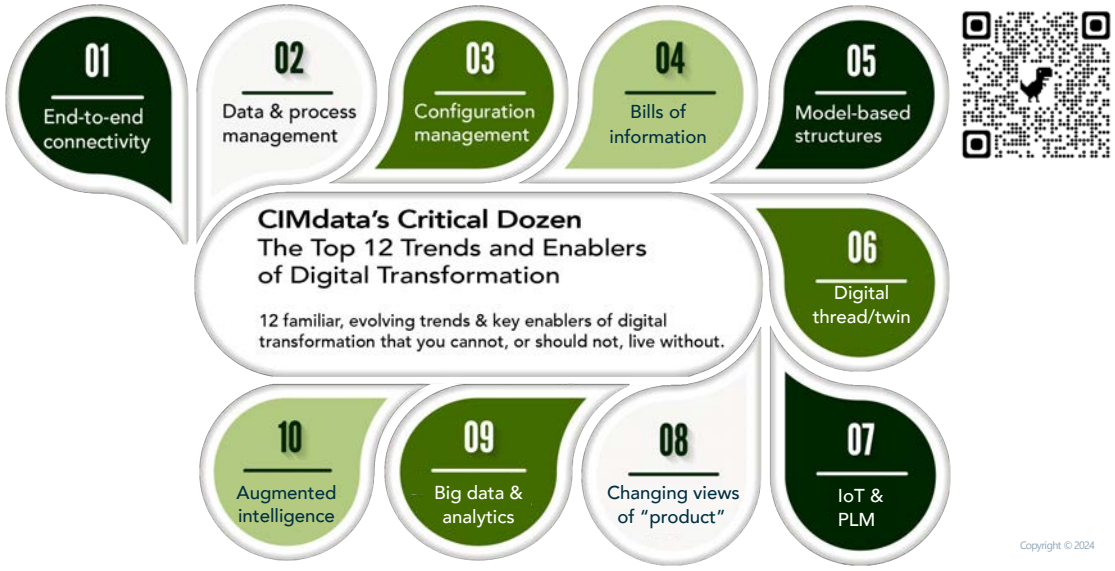

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Some Definitions

What is artificial intelligence, machine learning, and deep learning?

- ***Artificial Intelligence*** (AI) is the ability of a machine to perform tasks that normally require human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages
- ***Machine Learning*** (ML) is making predictions and recommendations by algorithmically detecting patterns in available data and information, and improving the algorithms over time with new data and information, without explicit programmed instructions
- ***Deep Learning*** (DL) is a type of machine learning in which a cascade of interconnected layers of processing units extract increasingly complex features from the output of previous layers, leading to a hierarchy of concepts that can help make determinations about new data

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Augmented Intelligence

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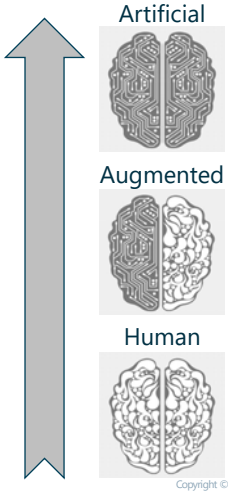
10 Augmented intelligence

This is where we are at

- ***Augmented Intelligence*** or intelligence augmentation (IA) is not about replacing human intelligence but rather about amplifying or augmenting it by enabling humans to make use of the large volume of data we're generating by combining human and machine intelligence

"Over the next decade, AI won't replace managers, but managers who use AI will replace those who don't."

Erik Brynjolfsson and Andrew McAfee, HBR (2017)



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Generative AI

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10 Augmented intelligence

The AI revolution is upon us

- Deep-learning models that can generate high-quality text, images, and other content based on the data they were trained on
- AI has gone through many cycles of hype, but even to skeptics, the release of ChatGPT seems to mark a turning point
- OpenAI's chatbot, powered by its latest ***large language model*** (LLM), can write poems, tell jokes, and churn out essays that look like a human created them
- Prompt ChatGPT with a few words, and out comes love poems in the form of Yelp reviews, or song lyrics in the style of Nick Cave

60 Source: https://research.ibm.com/blog/what-is-generative-AI

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Large Language Models

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10 Augmented intelligence

Defining LLM

- A specialized type of AI that has been trained on vast amounts of data to understand existing content & generate original content
- A type of AI program that can recognize and generate text, among other tasks
- They are trained on huge sets of data
- They are built on ML: specifically, a type of neural network called a transformer model
- A computer program that has been fed enough examples to be able to recognize and interpret human language

61 Source: https://www.cloudflare.com/learning/ai/what-is-large-language-model/

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What Is RAG?

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10 Augmented intelligence

Retrieval-Augmented Generation (RAG)—a simplified definition

- A technique for enhancing the accuracy & reliability of GenAI models with facts retrieved from external sources
- RAG fills a gap in how LLMs work
  - LLMs are neural networks, typically measured by the number of parameters
  - An LLM's parameters essentially represent the general patterns of how humans use words to form sentences
- Deep understanding, sometimes called parameterized knowledge, makes LLMs useful in quickly responding to general prompts
  - Does not serve users who need a deeper dive into a current/more specific topic

62 Source: https://blogs.nvidia.com/blog/what-is-retrieval-augmented-generation/

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RAG's Importance

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10 Augmented intelligence

Setting the appropriate context

- When a LLM doesn't have enough information or has no contextual knowledge of a topic, it is more likely to hallucinate, and provide inaccurate or false responses
- AI researchers and developers have been exploring numerous RAG technologies, including:
  - Text chunking, query expansion, hybrid search, knowledge graph, reranking, and others
- An LLM needs the right data so that it doesn't have to make things up, and you need the best search technology to find the right data

63 Source: https://cloud.google.com/blog/products/ai-machine-learning/rags-powered-by-google-search-technology-part-1

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How People Are Using RAG

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10 Augmented intelligence

The application of RAG has just begun

- With RAG, users can essentially have conversations with data repositories, opening new kinds of experiences
  - This means the applications for RAG could be multiple times the number of available datasets, for example,
    - A generative AI model supplemented with a medical index could be a great assistant for a doctor or nurse
    - Financial analysts would benefit from an assistant linked to market data
    - Manufacturing professionals' knowledgebase would expand significantly as an enterprise's search engine spans the organization's systems & data repositories*
- Almost any business can turn its technical or policy manuals, videos or logs into resources called knowledgebases that can enhance LLMs

64 Source: https://blogs.nvidia.com/blog/what-is-retrieval-augmented-generation/

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How RAG Impacts Enterprise Search

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10 Augmented intelligence

Maximizing ROI: How RAG Impacts Enterprise Search Strategies—from Sinequa

- RAG is leading the way in revolutionizing enterprise search
- RAG's combination of information retrieval & NL generation not only improves search relevance and precision but also…
  - It optimizes information resources, empowers decision-making, enhances business intelligence, and yields a significant ROI
- As organizations continue to use RAG, they will pave the way for a future where information retrieval goes beyond traditional boundaries, driving businesses towards greater efficiency & innovation

65 Source: https://www.sinequa.com/resources/blog/maximizing-roi-how-retrieval-augmented-generation-rag-impacts-enterprise-search-strategies/

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CIMdata's Critical Dozen

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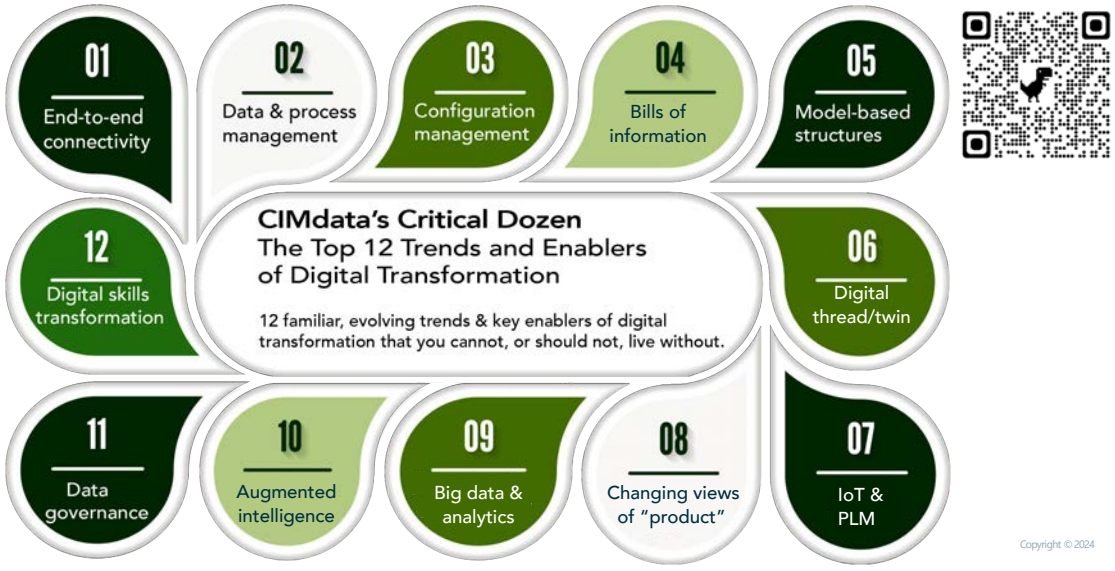

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Agenda

- What's New from CIMdata
- 2023: The Year in Review
- 2024: Today's Trends & Challenges
- Looking Towards the Future
- Digital Twins: Enhancing Lifecycle Performance
- Concluding Remarks

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Top Strategic Tech Trends

Gartner's Top Strategic Technology Trends

Direct connection Indirect/secondary connection

2022

1. **Data Fabric**
2. Cybersecurity Mesh
3. Privacy-Enhancing Computation
4. **Cloud-Native Platforms**
5. **Composable Applications**
6. **Decision Intelligence**
7. **Hyperautomation**
8. **AI Engineering**
9. Distributed Enterprises
10. Total Experience
11. **Autonomic Systems**
12. **Generative AI**

[68] https://www.gartner.com/en/information-technology/insights/top-technology-trends

2023

1. Digital Immune System
2. Applied Observability
3. AI Trust, Risk and Security Management (AI TRISM)
4. **Industry Cloud Platforms**
5. **Platform Engineering**
6. Wireless-Value Realization
7. Superapps
8. Adaptive AI
9. **Metaverse**
10. **Sustainable Technology**

https://www.gartner.com/en/articles/gartner-top-10-strategic-technology-trends-for-2023

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2024

1. **AI Trust, Risk and Security Management (AI TRiSM)**
2. Continuous Threat Exposure Management (CTEM)
3. **Sustainable Technology**
4. **Platform Engineering**
5. **AI-Augmented Development**
6. **Industry Cloud Platforms**
7. **Intelligent Applications**
8. **Democratized Generative AI**
9. **Augmented Connected Workforce**
10. Machine Customers

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What CEO's Are Saying

CIMdata

CEOs are facing a unique set of challenges and opportunities in 2024. McKinsey has identified eight key priorities for CEOs this year.

These include:

1. Leveraging generative AI across business operations and scaling its applications
2. Outcompeting with technology by fundamentally rewiring organizations to extract maximum value from digital transformations
3. Navigating the energy transition, which represents a significant capital reallocation
4. Identifying and leveraging organizations' unique strengths
5. Appreciating the critical role of middle management
6. Ensuring resilience against geopolitical disruptions
7. Driving continuous growth
8. Navigating the complexities of a fluctuating macroeconomy

69 https://businessleadershiptoday.com/what-are-the-mckinsey-leadership-development-trends-for-2024/#:~:text=McKinsey%20has%20identified%20eight%20key,maximum%20value%20from%20digital%20transformations

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The Next Industrial Revolution is Upon Us

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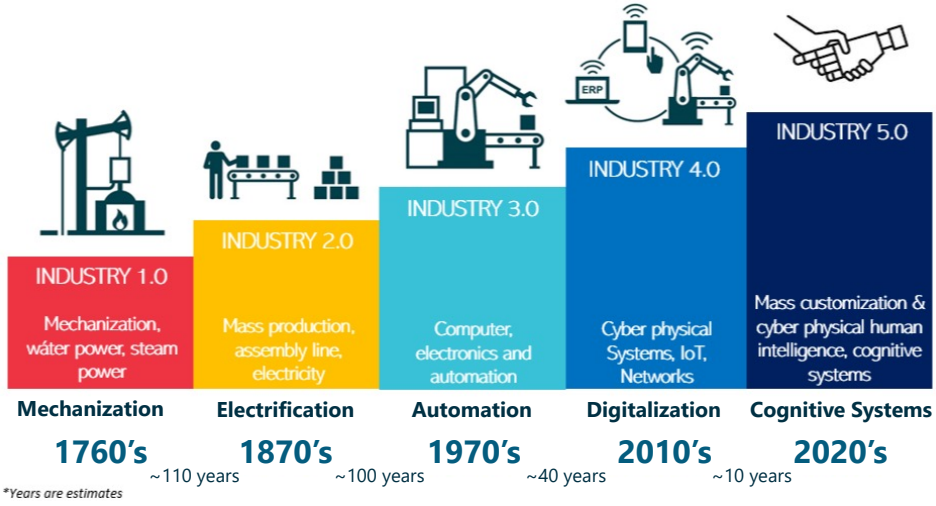

70 https://www.linkedin.com/pulse/getting-ready-5th-industrial-revolution-industry-50-christian-polo/

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Industry 6.0…What's Next?

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Given the rate of change we have seen, Industry 6.0 is probably already upon us.

71 https://graciousquotes.com/quotes-about-change/

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Agenda

CIMdata

- What's New from CIMdata
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- Digital Twins: Enhancing Lifecycle Performance
- Concluding Remarks

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State of PLM: Today's Market & Leading Trends

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This Year's Market & Industry Forum Theme

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Digital Twins: Enhancing Lifecycle Performance

- Digital twins are everywhere today
  - Virtually all the top 25 PLM market leaders globally are talking about and supporting the concept
- While not everyone agrees on exactly what a digital twin is, the need to better understand a product's lifecycle performance on a range of metrics is critical to optimizing its performance
- In this Forum, CIMdata will
  - Highlight the overall issue
  - Discuss how the global PLM Economy is responding
  - Discuss how well industrial companies appear to be achieving their objectives

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Today's Agenda

CIMdata

2024 PLM Market & Industry Forum (1 of 2)

- **Digital Twins: Enhancing Lifecycle Performance**
  - **Digital Twin Overview Presentation**
    Stan Przybylinski, Vice President
  - **Digital Twins: The Industrial Perspective**
    Stan Przybylinski, Vice President
  - **Digital Twins: The PLM Economy Perspective**
    Stan Przybylinski, Vice President
- **Break**

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Today's Agenda

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2024 PLM Market & Industry Forum (2 of 2)

- **Updates on Key Topics**
  - **Analytics & Artificial Intelligence/Machine Learning (AI/ML)**
    Sandeepak Natu, Executive Consultant, Simulation-Driven System Development
  - **News from the Field**
    Peter Bilello, President & CEO
- **Closing Comments**

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Agenda

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Concluding Remarks

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State of PLM: Today's Market & Leading Trends (1 of 2)

- CIMdata continues to expand & adjust to major PLM market trends—adding people & services to stay at the forefront
- CIMdata's global A&D PLM Action Group has entered its 10th year in partnership with market leaders—major MBSE research is underway & you can participate
- Multiple disconnects still exist, e.g., prioritization of digital initiatives, and management's narrow understanding of lifecycle management—executive education still required
- The global PLM economy is growing and continues to add value

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Concluding Remarks

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State of PLM: Today's Market & Leading Trends (2 of 2)

- The global PLM economy has reached another milestone—***$73 billion—a 8.6% increase***
- To be successful, companies need to transform people, processes and technologies—there are at least 12 evolving critical elements—the convergence of digital thread/digital twin & continued emergence of multiple forms & application of AI
- The next industrial revolution is already upon us—are you ready?

Agility is key to long-term success…is your organization agile?

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Questions & Answers

What's on your mind?

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