

The Sustainability Imperative

CIMdata 2022 PLM Market & Industry Forum

Enabling Sustainability in the PLM Economy

PLM Market & Industry Forum

A CIMdata PLM Leadership Event

31 March 2022—Ann Arbor, MI USA

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Global Leaders in PLM Consulting
www.CIMdata.com

#plm4um

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Our Mission...

Strategic management consulting for competitive advantage in global markets

CIMdata is the leading independent global strategic management consulting and research authority focused exclusively on PLM and the digital transformation it enables.

We are dedicated to maximizing our clients' ability to design, deliver, and support innovative products and services through the application of PLM.

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Key Takeaways

Enabling Sustainability in the PLM Economy—2022 CIMdata PLM Market & Industry Forum

- CIMdata believes that PLM is central to sustainability; industrials, ISVs, and SI/Reseller/VARs need to succeed together
- Virtually all PLM revenues leaders have efforts underway that seek to support both sustainability within their own organizations and to support their customers' efforts
- The three stakeholders are mostly aligned but there are some interesting differences in perception
- This is an existential challenge that also offers significant business opportunities

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Agenda

Enabling Sustainability in the PLM Economy

- Responding to the Sustainability Imperative
- 2022 CIMdata Foresight Sustainability Research – ISV/SI
- Elements of their Response
- Understanding their Customers
- Concluding Remarks

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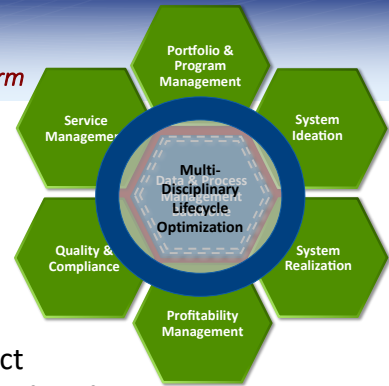
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PLM – CIMdata's Definition

Digital transformation of the lifecycle—enabled by a product innovation platform

- Strategic business approach
 - **NOT** just technologies
 - Consistent set of business solutions
- Collaborative creation, use, management & dissemination of product related *intellectual assets*
 - All product/plant definition information – the virtual product
 - AEC, MCAD, EDA, ALM, SE, requirements, simulations, analytics, portfolio, formulas...
 - All product/plant process definitions – the virtual processes
 - Processes that plan, design, produce, operate, support, decommission, recycle...
- An innovation platform that supports the extended enterprise
- Spans the full lifecycle, from idea/concept through life



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Colliding Major Trends

Systems thinking and PLM critical to a systemic response

- CIMdata formed to study the application of digital technology to the product lifecycle, there at the conception of PLM, evolved a lot over the last 20 years
- Industry 4.0 vision encapsulates some key drivers: smart connected everything, and sustainability
- Helped to drive a wave of digital transformation, success for product companies requires a strong PLM foundation
- Sustainability also requires a systemic approach, powered by PLM and business platforms

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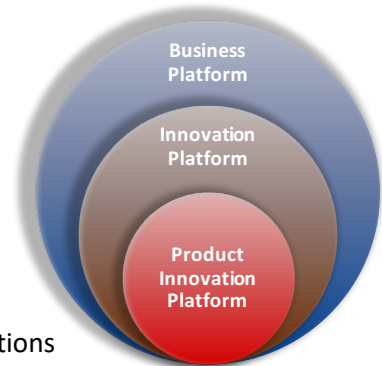
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Business Platforms Key

Elements of all three platform levels needed for sustainability (topic from 2015 PMIF)

- “Business Platform”
 - An architecture that allows a comprehensive set of heterogeneous functional process-enabling capabilities to be packaged and configured to establish and support standardized end-to-end business processes, and related data access
- “Innovation Platform”
 - A business platform designed to enable an enterprise’s innovation processes
 - Helping users to create, manage, and re-use data and intellectual property for maximum business impact and effectiveness
- “Product Innovation Platform”
 - An innovation platform that cultivates continuous creativity, yielding improvements in products and processes plus inspiring new and better ones throughout full lifecycles and across generations of a products



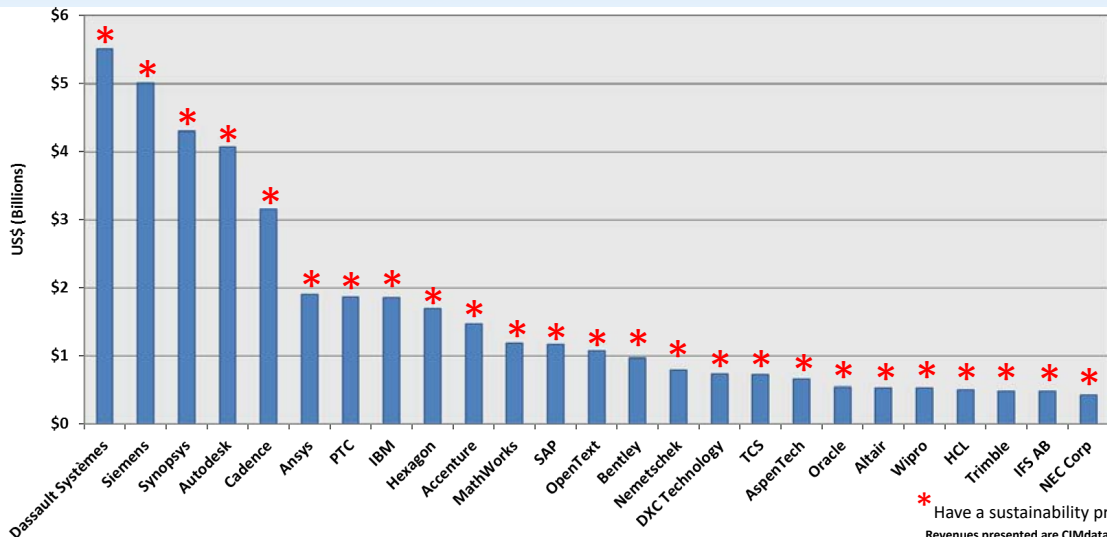
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2021 Overall PLM Revenue Leaders

Many diverse companies generate PLM revenue



* Have a sustainability program
Revenues presented are CIMdata estimates

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UN Sustainable Development Goals

Cited by many of the market leaders as helping to drive their sustainability program



- Many leaders cited the UN SDGs in their discussion of their sustainability efforts
- How many SDGs will their efforts cover?
- Connecting SDGs to specific businesses, offerings
- Common frameworks helpful to frame the discussion

<https://www.un.org/sustainabledevelopment/sustainable-development-goals/>

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CIMdata Sustainability Survey for ISVs/SIs et al.

How are solution providers and SI/Reseller/VARs responding to these requirements?

- Conducted a second survey, focused on independent software providers (ISPs) and System Integrators/Reseller/VARs
- Promoted using multiple emails to CIMdata's contacts in those segments, social media
- 134 responses, including most of the global PLM leaders
 - Not an exhaustive survey
- What topics are central for them, which ones are critical for their clients, what do they think that clients want/are asking for...
- More successful if in the organizations DNA

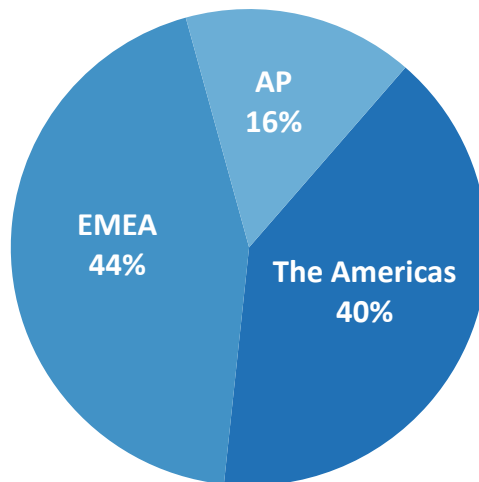
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Geography of Respondents

Very close to historical split of global PLM revenues



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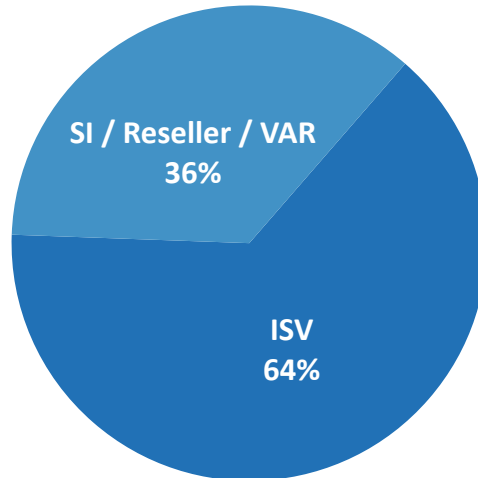
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Primary Business of the Respondent's Company

Good representation of each business category



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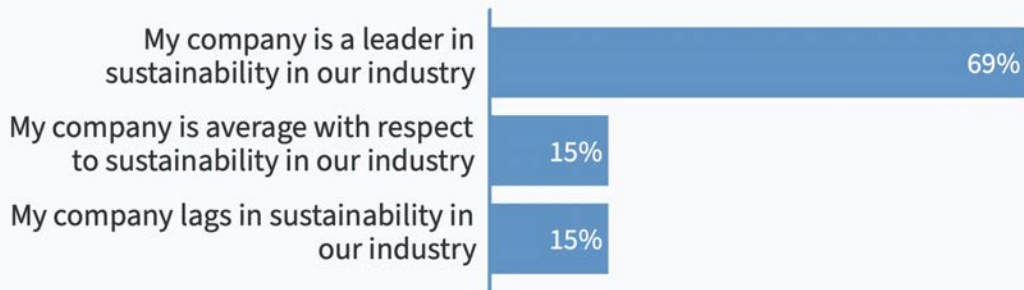
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PLM Foresight Poll

How does your company compare to your competitors in terms of progress on sustainability?

In your opinion, how does your company compare to your competitors in terms of progress on sustainability?



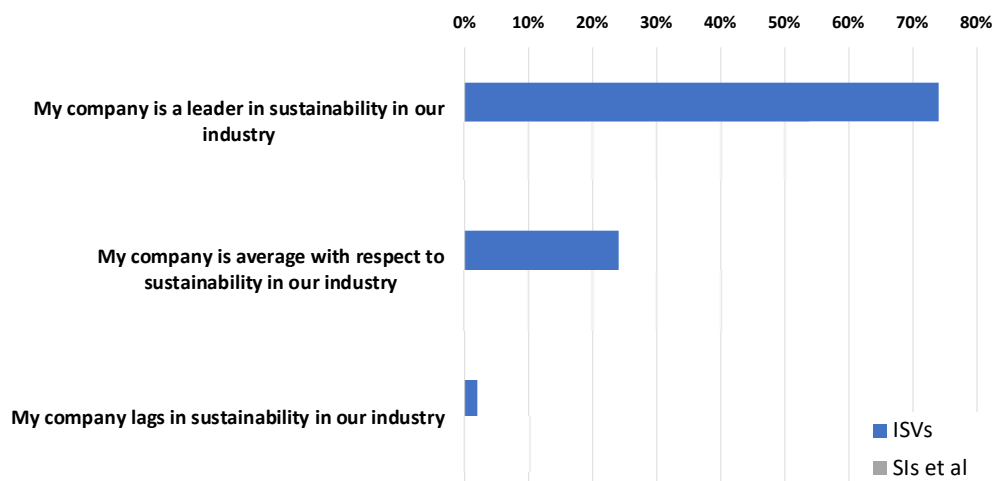
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Everyone is a Market Leader in Sustainability

"Where does your company rate against your peers?"



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Who Are the Market Leaders?

"Who are the leaders in sustainability among providers of PLM-enabling solutions (services)?"

ISVs

- Aras
- Centric Software
- Dassault Systèmes
- Google
- SAP
- Siemens Digital Industries Software

SI/Reseller/VARs

- Capgemini
- Dassault Systèmes
- Siemens Digital Industries Software

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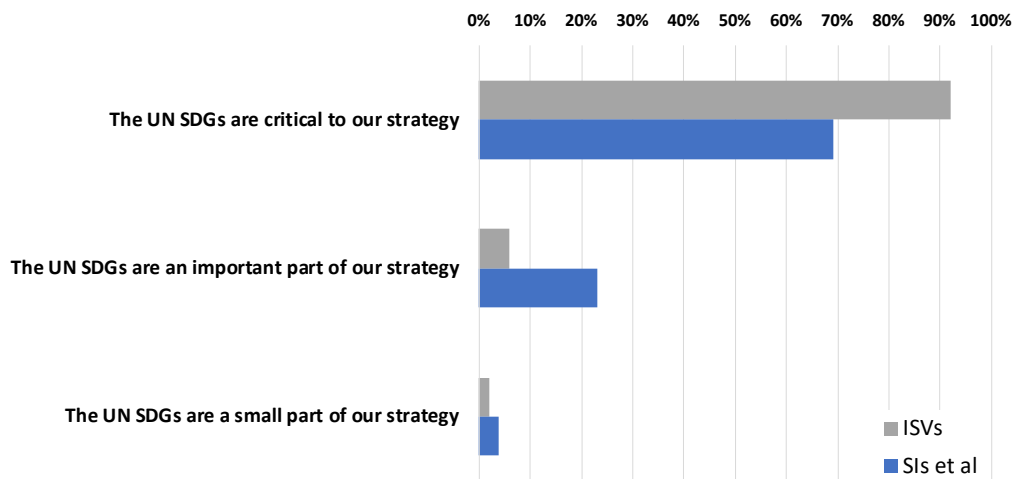
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Importance of the UN SDGs

ISVs are pretty consistent



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Culture and Workforce Topics

Choose those relevant to your company



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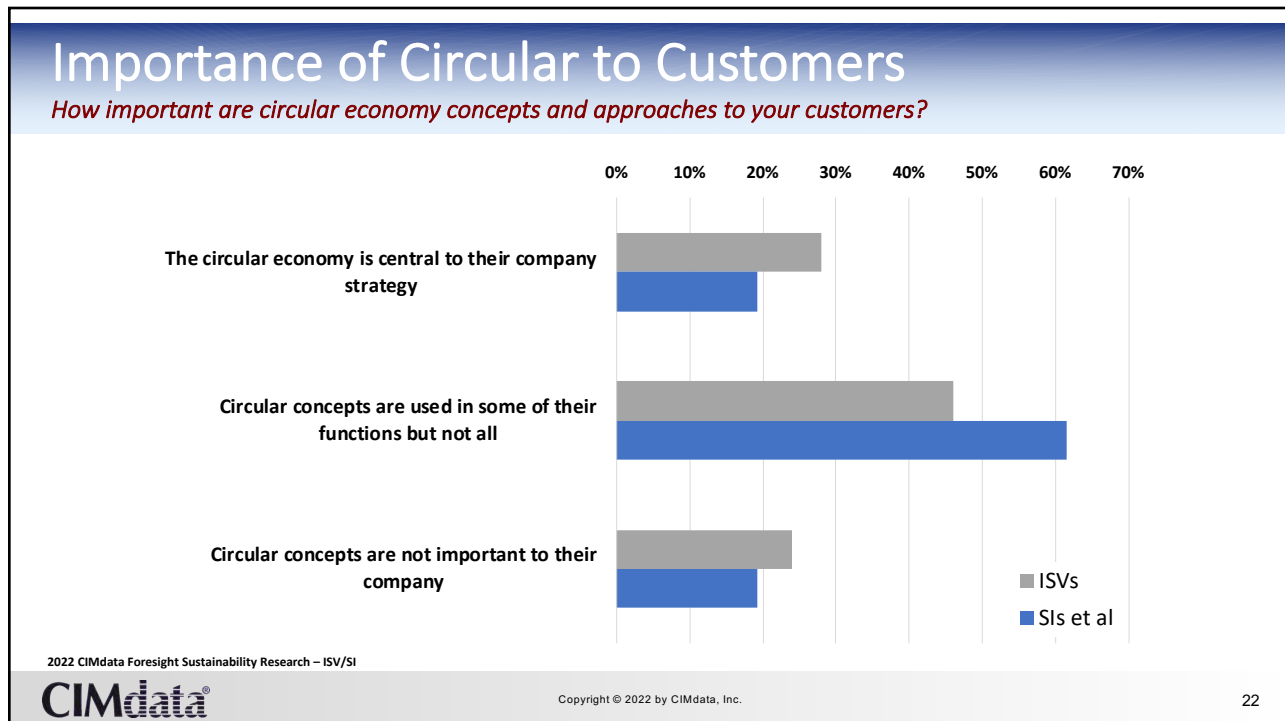
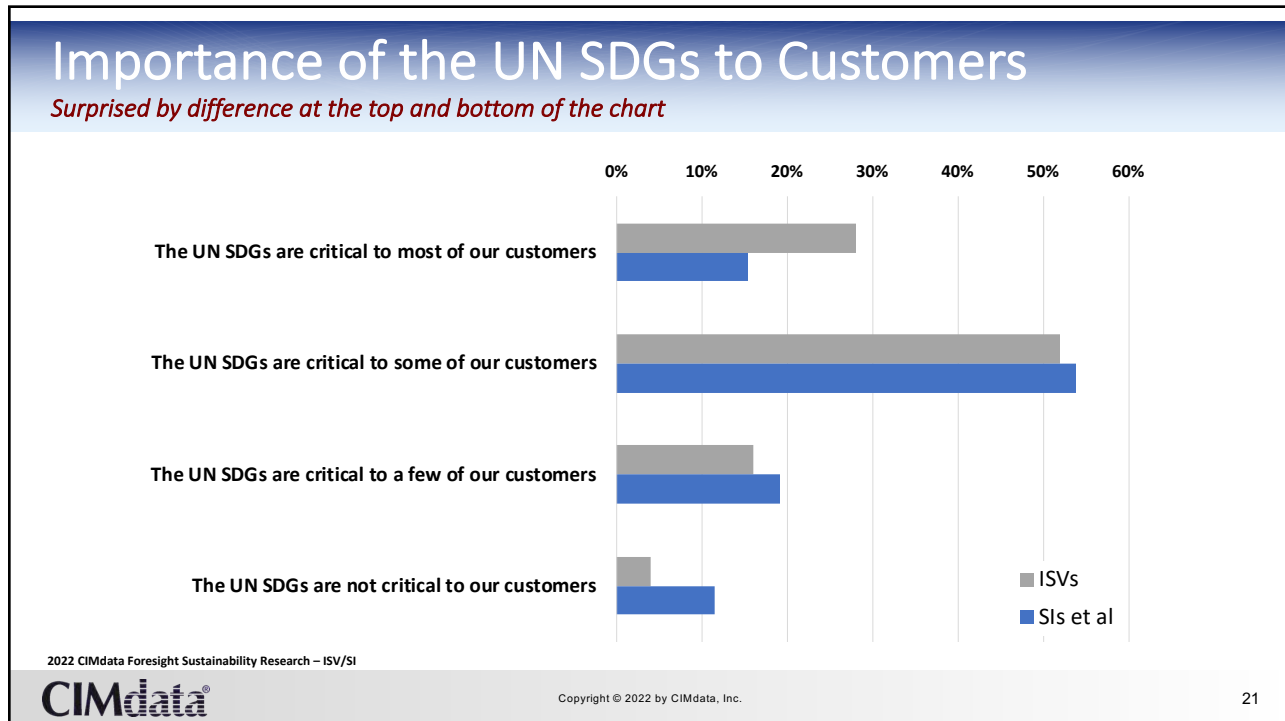
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What Technologies Can Help the Most?

Asked the same question of the three different audiences: ISVs, SIs et al., and Industrial companies

- Mechanical Computer-Aided Design (MCAD)
- Data and process management solutions that support value chain collaboration (PLM)
- Simulation and Analysis (S&A)
- Electronic Computer Aided Design (ECAD) / Electronic Design Automation (EDA)
- Model-Based Systems Engineering (MBSE)
- Digital twins
- Digital thread
- Internet of Things (IoT)
- Augmented Reality (AR)
- Manufacturing Process Planning and Simulation, often referred to as Digital Manufacturing
- Supply Chain Management (SCM)

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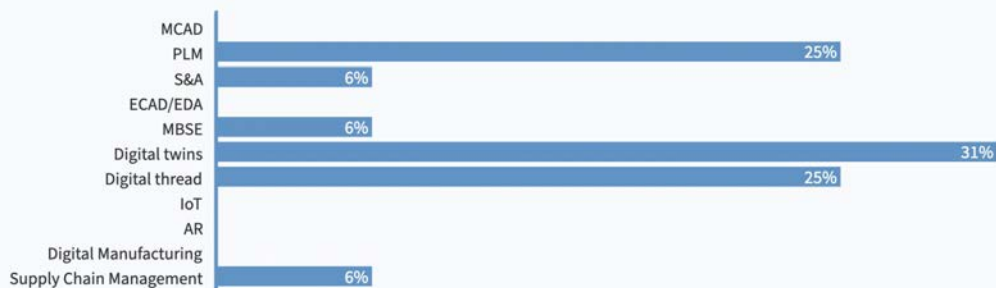
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PLM Foresight Poll

Which of the following capabilities is the most essential to achieving a company's sustainability objectives?

In your opinion, which of the following capabilities is the most essential to achieving a company's sustainability objectives?



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What Technologies Can Help the Most?

What was the most essential for each group? (1 to 10, 1 = most important)

	Industrial	ISV	SIs et al
MCAD	4	7*	7*
PLM	1	1	1*
S&A	7	4	5
MBSE	8	7*	9
Digital twins	9	5*	6
Digital thread	3	3	3
IoT	5*	2	7*
AR	10	7*	10
Digital Manufacturing	5*	10	4
SCM	2	5*	1*

*Tied

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Support for Different Lifecycle Use Cases

What was the most essential for each group? (percent of respondents selecting each choice)

	Industrial	ISV	SIs et al
Product carbon footprint	16%*	15%*	14.3%*
Sustainability compliancy	15%*	14%	14%
Design for Sustainability	22%	15%*	22%*
Material substitution – ecofriendly mat'l DB	16%*	24.7%	32%
Sustainability traceability via the Digital Thread	15%*	14.4%	22%*
Connected Assets – Digital Twin	3%	14%	14.3%*

*Tied

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Achieving the “Triple Bottom Line”

“People, planet, and profit” – consumer interest moving sustainability to a competitive advantage

- Public companies are beholden to their shareholders
- Corporate Social Responsibility (CSR) programs emerged in the 1960s
 - Business strategy?
 - Greenwashing?
- One way to evaluate CSR efforts is the Triple Bottom Line
- Elevated consumer interest in sustainability:
 - 93% of global consumers say COVID-19 influenced their views on sustainability
 - 22% more consumers say environmental responsibility is very or extremely important when choosing a brand than in 2019
 - 62% of consumers now say they’re willing to change their purchasing behavior to help reduce negative impact on the environment (up from 57% in 2019)
- PLM solutions and services can help with all three

IBM Institute for Business Value. “Sustainability at a turning point,” 2021

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Shaping the Sustainable Organization

Accenture study in collaboration with the World Economic Forum – leaders make significant gains!

- In a 2020 study by Accenture “73% of executives said that becoming a “truly sustainable and responsible business” was a top priority for their organization over the next three years.”
- “Of 1,122 CEOs surveyed by the UN Global Compact in 2021, 79% said the pandemic has highlighted the need to transition to more sustainable business models.”
- “...leadership teams that build sustainability into the DNA of their organizations are better able to deliver financial value and wider stakeholder impact. In fact, those with the most deeply embedded sustainability management practices outperform peers by 21% on both profitability and positive environmental and societal outcomes.”

https://www.accenture.com/_acnmedia/Thought-Leadership-Assets/PDF-5/Accenture-Shaping-the-Sustainable-Organization-Report.pdf

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What is the Business Opportunity?

How can the PLM Economy best support these requirements?

- Just like PLM, this is a people—process—technology issue
- ISVs and SIs et al. can help with all three, depending on their expertise and offerings
- The Triple Bottom Line is a laudable goal, but only the most committed achieve sustainability and financial success
- Demands a systemic approach and needs to be supported by a business platform and robust digital thread
- PLM or SCM is like the chicken and egg, must be more symbiotic, enabling continuous improvement
- A lot of work to do...

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Final Remarks

A critical challenge that offer significant business opportunities

- CIMdata believes that PLM is central to sustainability; industrials, ISVs, and SI/Reseller/VARs need to succeed together
- Virtually all PLM revenues leaders have significant efforts underway that seek to support both sustainability within their own organizations and to support their customers' efforts
- The three stakeholders are mostly aligned but there are some interesting differences in perception
- This is an existential challenge that also offers significant business opportunities



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To Learn More...

- Stan Przybylinski, Vice President, s.przybylinski@CIMdata.com, +1.734.276.3088
- CIMdata thought leadership white paper, available upon request
- CIMdata Webinar on sustainability
 - Register to access the recording
 - <https://register.gotowebinar.com/register/1217699650745422859>
- CIMdata industrial survey on sustainability in publication
- CIMdata ISV/SI survey on sustainability in publication



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