Sustainable Architectures

LISA A. PRATICO – CHAIR, SUSTAINABLE ARCHITECTURES. BOARD MEMBER ON IASA CAF

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Agenda

Problem Statement

Our Challenge / Purpose / Mission

Deliverables

Key Areas of Focus

Business Value

Our Call to Action

Join Us

Sustainable Architectures

Problem Statement

“To do good, you actually have to do something.”
– Yvon Chouinard, Founder of Patagonia

Technology has a Massive Impact on the Planet

While there are numerous organizations working on sustainable goals, there is very little information for how teams achieve those goals aligned to corporate mission statements and accurate reporting.

Cloud, AI and Society Demand Experts in Creating Sustainable Outcomes

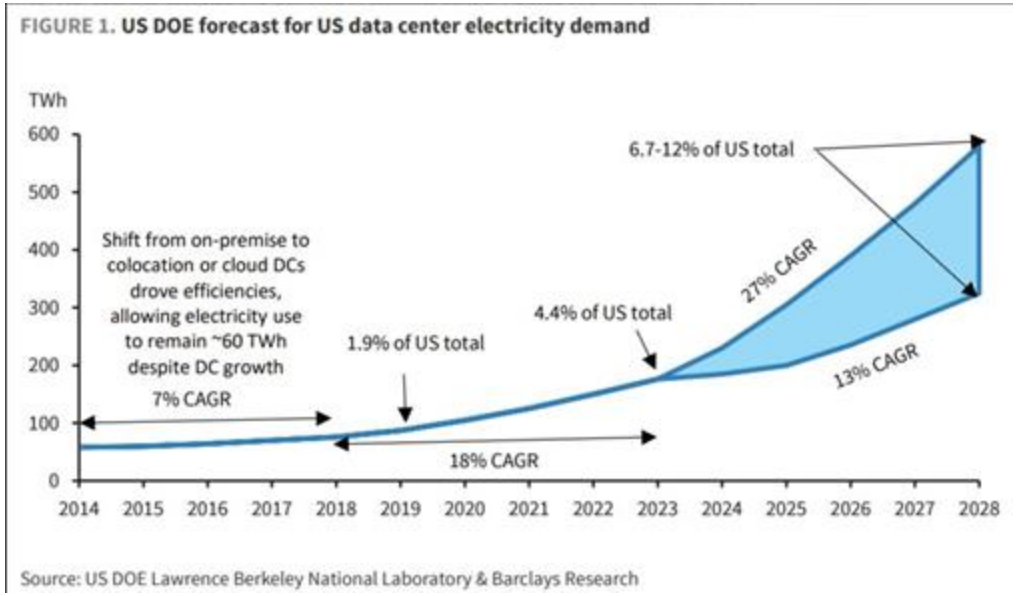
There is a massive growing demand for expertise in sustainable delivery of technology exacerbated by the growth of cloud and AI in society. This requires a huge shift in available resources familiar with sustainability targets, methods and techniques.

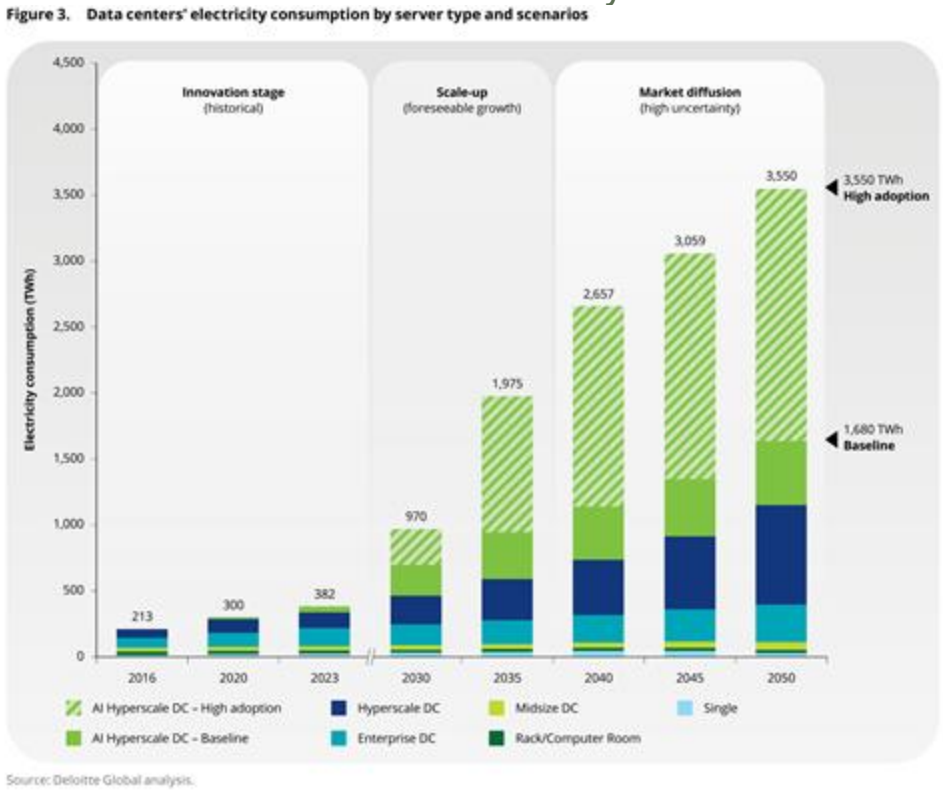
Lack of Dependable Architectures

While there are numerous organizations working on sustainable goals, there is very little information for how teams achieve those goals in their designs and architectures.

US data center energy demand could grow to 12% of available power by 2028

The **U.S. Department of Energy 2024 Report on U.S. Data Center Energy Use** predicts the electricity demand of U.S. data centers will increase by approximately 13-27% annually, reaching 325-580 twh by 2028, accounting for 6.7%-12% of U.S. electricity.





Global data center energy demand is accelerating faster than expected

Deloitte's assessment of growing demand for AI will likely drive global data center energy requirements to a compound annual growth rate (CAGR) as high as 43% between 2023 and 2030.

Expansion of hyperscale facilities could push consumption from 382 twh in 2023 to 970 twh by 2030 and up to 3,550 twh by 2050 in the "high adoption" deployment scenario.

Our CHALLENGE

Tech is missing the ESG boat

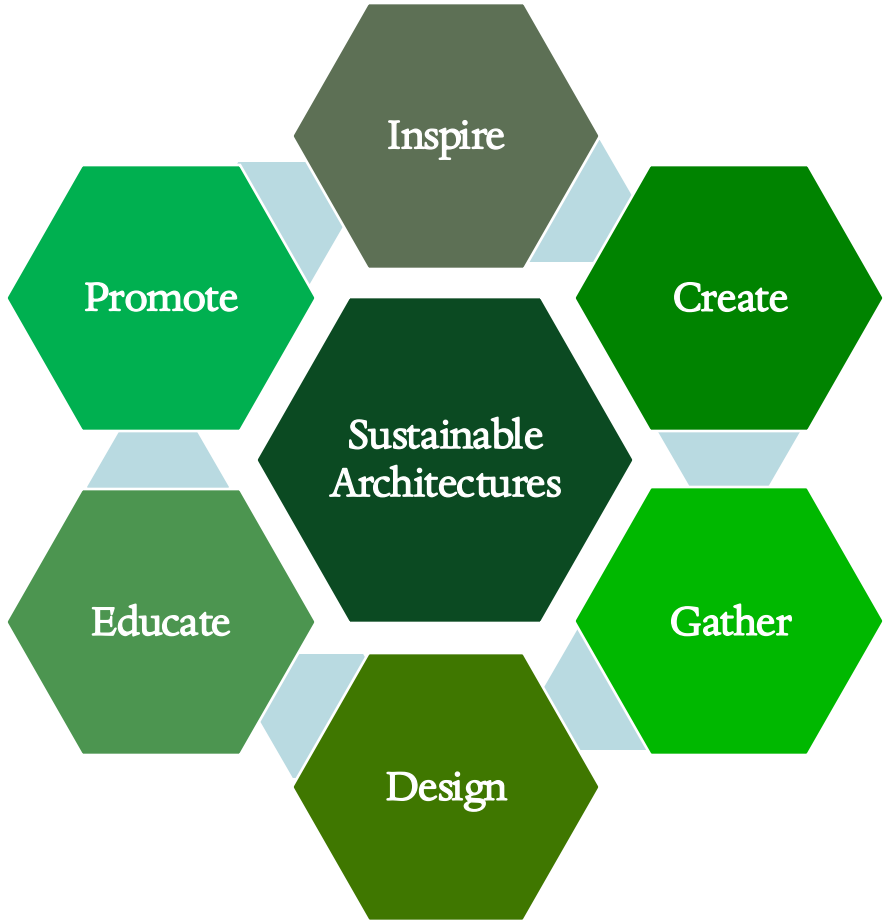
- CIO's, CTO's and Technology Architects **lag far behind** their business colleagues in understanding their roles in achieving their organization's **ESG goals**.
- Few understand the current **environmental impact** of their technology portfolios, even as the **impact is accelerating** with digitization, big data and **AI**.
- Organizations are relying on technology leadership to both provide data and solutions for improving **technology sustainability.**
- Global regulatory organizations are demanding more **detailed ESG reporting** for both owned and outsourced services.
- Technology architects play a key role in **optimizing the sustainability of technology architectures**, but few are trained or prepared to provide solutions.

"We don't need a handful of people doing zero waste perfectly. We need millions of people doing it imperfectly."
– Anne Marie Bonneau

Our MISSON

To advance the adoption of sustainable IT patterns and practices in the global architecture community.

- **Inspire** commitment to sustainability across technology leadership.
- **Create** an open community of architects dedicated to advancing sustainable architecture and operations.
- **Gather** metrics, stories, patterns and best practices to showcase sustainable architecture implementation successes.
- **Design** reusable tools, frameworks and techniques for achieving ESG-aligned goals.
- **Educate** organizations on sustainable IT strategies.
- **Promote** responsible AI use to meet evolving customer expectations while reducing negative environmental impacts.



Our Purpose

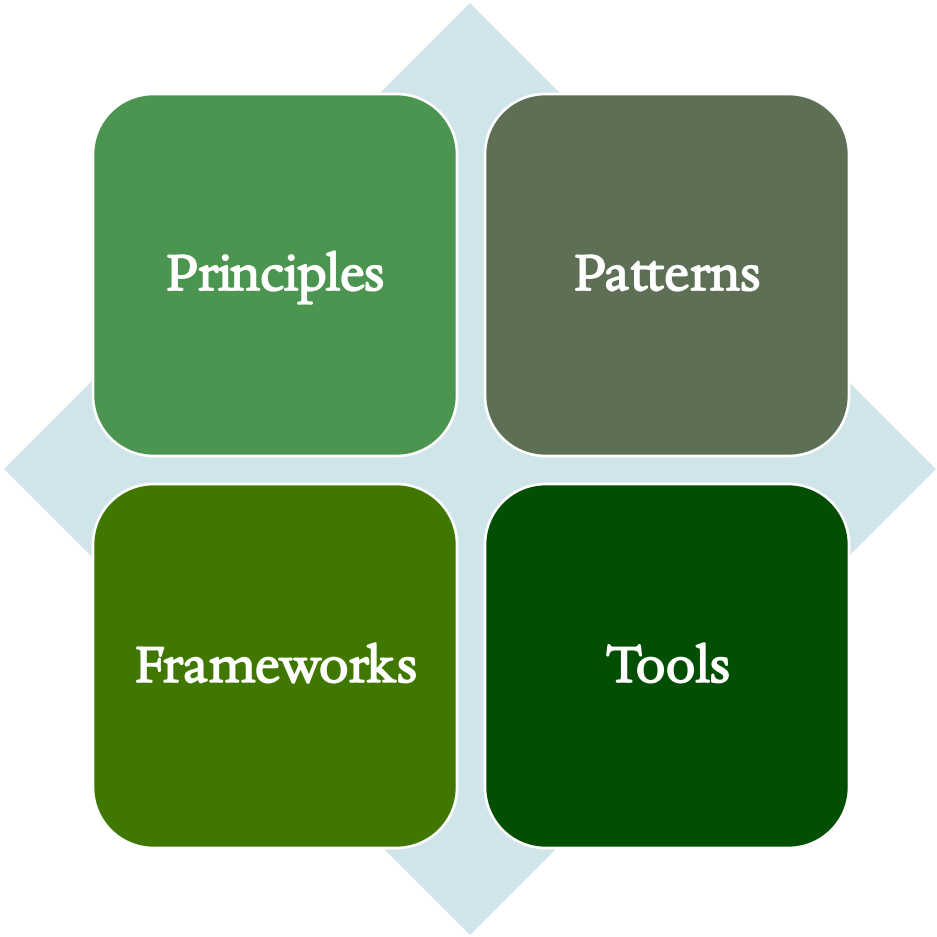
Extend the open-source architecture frameworks that align with the United Nations' Sustainable Development Goals (SDGs), empowering CIOs and decision-makers to:

- **Generate commitment to improving Information Technology's impact on the environment and climate change**
- **Address challenges such as climate change, biodiversity, social inclusion, and cybersecurity.**
- **Reduce environmental debt through systematic architectural and operational strategies.**
- **Drive innovation without compromising ecological and social integrity.**

"The greatest threat to our planet is the belief that someone else will save it. "
– Robert Swan, Author and the first person to walk to both poles.

Deliverables

- **Educational Programs:** Courses on Sustainable Technology metrics, ESG mandates and IT's environmental impact. A new offering for Architects: Sustainable Architectures certification program including a focus on Responsible AI.
- **Research Repositories:** Curated patterns, principles and frameworks for Sustainable Architectures, GreenOps and Green Computing.
- **Assessments:** Tools and frameworks to evaluate IT maturity and ensure sustainability readiness.
- **Architectural Artifacts:** Templates, frameworks and guidelines for ESG-aligned technology strategies.



Key areas of focus

The Sustainable Architectures organization focuses on multiple areas:

- Sustainable & Governance
- Solution Architecture
- Infrastructure
- Data Architecture and AI
- Metrics and GreenOps
- Security and Compliance

Business Value

By leveraging Green Computing and Sustainable IT principles, we create scalable, adaptable, and eco-conscious architectures and operating models.

Our solutions ensure organizations can achieve:

- **Profitability and Cost Efficiency:** Through energy and resource optimization.
- **Growth and Market Differentiation:** Driving innovation while addressing sustainability challenges.
- **Data-Driven Decision-Making:** Enabling holistic alignment with long-term business and environmental objectives.
- **Regulatory Compliance:** Meeting ESG goals with robust governance.

“Sustainability and profitability go hand in hand. That’s how you build a resilient company, whether you’re an incumbent or starting from scratch.”
- Henrik Henriksson, CEO of H2 Green Steel

Our Call to action

We are creating artifacts which connect the world's sustainable delivery methods across **the globe**.

- Develop best practices, case studies, and design patterns.
- Document repeatable sustainable architectures that balance economic growth and environmental preservation.
- Educate technology architects and leaders on sustainable IT best practices.

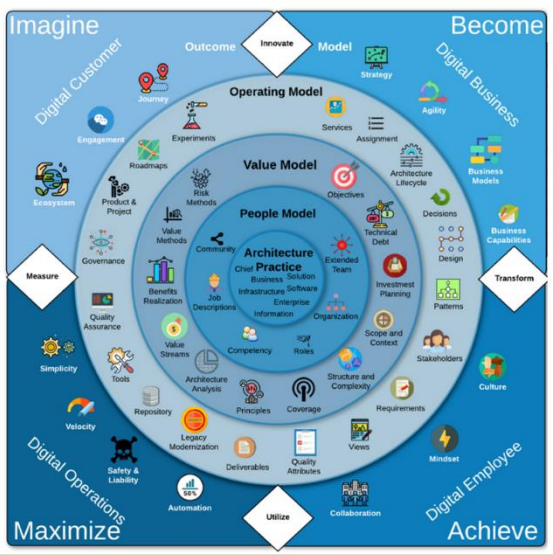
We are not doing this alone. Instead, we are working together leveraging the world's greatest organizations to create best practices, case studies, design patterns and repeatable sustainable architectures!

Go to their site
SUSTAINABLEIT .ORG

IASA

Green Software Foundation

GREEN WEB FOUNDATION
TOWARDS A FOSSIL-FREE INTERNET BY 2030



ABOUT SUSTAINABLEARCHITECTURES.ORG

Sustainable Architectures is a development track for IASA Global

Focused on creating a community of architects to develop best practices, patterns, principles and frameworks for sustainable systems design and operations

Contributions will be posted to the BTABoK – the open- source business technology architecture book of knowledge

Development of education, assessments and certification to spread sustainability principles and best practices

Collaborating with the GSF and SustainableIT.org

"Sustainability is no longer about doing less harm. It's about doing more good."
– Jochen Zeitz, CEO of Harley-Davidson

IASA GLOBAL – Developed by Architects for Architects

Sample Clients and Partners

The world's leading professional association for all Business & Technology architects. IASA is the preeminent knowledge-based association focused on the IT architecture profession through the advancement of best practices and education while delivering programs and services to develop highly qualified IT architects of all levels.

Growing Network of over 80,000 worldwide

Thousands of certified Architects Globally

Hundreds of IASA Distinguished Architects leading Global Companies

OUR UNIQUE APPROACH LEVERAGING IASA GLOBAL

POWERED BY OPEN SOURCE

- BTBoK…
  - Patterns, Reference Models, Styles, Principles, Decisions
  - Business Cases Methods, Value, ++
- SustainableIT.org body of knowledge
- Green

PROFESSIONALLY DRIVEN

- Leverage Thousands of Architects at Fortune 100 organizations
- Skilled in consulting, strategic planning and Architecture as well as operations.

ADOPTION FOCUSED

- Number of organizations adopting architecture methods
- Impact assessments and maturity
- Training and certification levels per organization

JOIN US

Become	Influence	Contribute	Drive
Become part of a community shaping sustainable IT and responsible AI practices.	Influence global best practices.	Contribute to educational and research initiatives.	Drive impactful, sustainable innovation.

Individual Contributors

- Contribute articles, white papers and case studies
- Lead or participate in events, tracks and governance
- Design training materials
- Research and contribute to BTABoK artifacts

Company Sponsors

- Assign dedicated resources to contribute to building our community and practice
- Sponsor events and education to expand sustainability training and best practices
- Join other sponsors to influence priorities

To join the Sustainable Architectures community, register at: SustainableArchitectures.org

“The way to get started is to quit talking and begin doing.”

- Walt Disney

Thank you

Email: lpratico@iasaoffice.org

Website:

www.sustainablearchitectures.org

Appendix

Meet The Team

Lisa Pratico

Chairperson and Co-Founder

Kacy Clarke

Co-Founder

Paul Preiss

IASA CEO and Co-Founder

Sustainable Architectures Org

Executive Board

Board Chair Lisa Pratico	Co-Founders Kacy Clarke	Corporate Sponsor	IASA Sponsor Paul Preiss	SustainableIT.org Sponsor

Board of Advisors

Industry Experts	Thought Leaders	Key Researchers

Working Team

Track Leads	Education Leads	Community Leads

Community Tracks

Community Tracks	Track Areas	Description
Strategy and Governance	Sustainable/ESG Strategies and Governance, Business Architecture, Technology Strategy	CxO level, ESG mandates, sustainability goals, standards alignment (NIST, EU CSRD, …), Guidelines and principles for Business Architecture to ensure it is aligned with Sustainability goals, workload placement, vendor strategy, architecture governance
Solution Architecture	Solution Design and Patterns, Principles, Guidelines and Guardrails	Reference models, design principles, value and structural decisions (Will go deeper into specific topics like Sustainable Supply Chain)
Infrastructure	Infrastructure, Cloud, Energy, Data Center	Hardware, infrastructure, data center energy/cooling, cloud provider sustainability analysis, circular economy, e-waste
Data and AI	Data Architecture and AI	Responsible and sustainable data management and AI, digital litter, data retention, data replication/resiliency, access control, data integrity

Community Tracks

Community Tracks	Track Areas	Description
Metrics and GreenOps	GreenOps - Scoring, Metrics, Reporting, Optimization, Vendor Metrics	ESG reporting metrics, Scope 1,2,3 metrics, vendor sustainability evaluation metrics, continuous sustainability measurement, optimization, budgets and forecasting
Security and Compliance	Security, Risk and Compliance	Corporate ESG Audit for compliance. EA trackers support the Risk Office on impacts of deploying solutions that erode ESG measures. (Sustainability Due Diligence): AI applications are thoroughly analyzed before deployment at scale for current and long-term implications for governance commitments, policies and regulations (AI Risk Due Diligence): Architect ensure appropriate, transparent, secure, privacy compliant, consensual

Challenges in achieving ESG mandates are growing

SustainableIT.org's IT standards for ESG sustainability report shows that IT's share of carbon has grown 2.5x since 2007. With the sudden deployment of AI "everywhere" IT is having significant positive and negative impacts on organizations' goals to reduce greenhouse gas (GHG) emissions.

- IT's Scope 2 and 3 GHG emissions are equivalent to the UK's total annual emissions and half that produced by the aviation industry. Training a single AI model emits as much as five average cars over their lifetimes.
- Data centers consumed 220-320 TWh (trillion watts per hour) in 2021, roughly 7% of what the entire US consumes annually.
- GPT-3 training used energy equivalent to 120 average U S households' yearly consumption and generated equivalent to the yearly emissions of 120 US cars. GTP-4 is rumored to be 10x times larger.
- E-waste was 57 Mts (megatons) or 1 million metric tons in 2021, heavier than the entire Great Wall of China. E-waste will double to 120 Mts by 2050. Material value is $62.5 billion, but only 20% is recycled.
- Supplier ESG reporting, required for Scope 3 GHG emissions is often incomplete or flawed due to lack of regulations and liberal interpretation, leaving many customers and partners struggling for real data and metrics

Organizations Focused on Sustainability and Technology

SUSTAINABLEIT .ORG

Green Software Foundation

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TOWARDS A FOSSIL-FREE INTERNET BY 2030

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