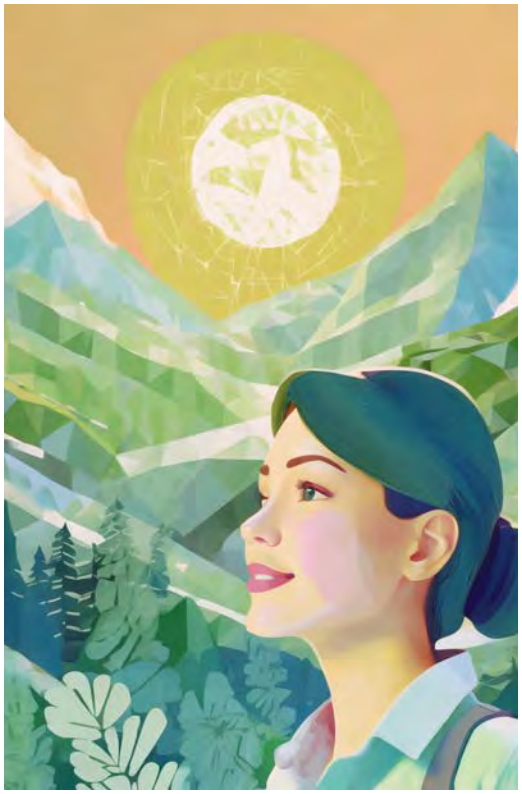

Four Pillars of Sustainable IT

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What is Sustainable IT?

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Sustainable IT is a series of practices and principles to reduce waste, decrease the environmental footprint, and reduce the costs of IT.

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These four pillars build upon each other; they are:

- Awareness
- Consciousness
- Enablement
- Empowerment

We'll examine each of them in more detail.

Awareness

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It all starts with Awareness. Without being aware that there is a problem or, more importantly, that there is a way to do something about it, progress cannot be made.

Awareness

In 2020, Information and Communications Technology accounted for 3.5% of the total carbon footprint of the planet.

How smartphones are heating up the planet

Awareness

By 2040, Information and Communications Technology will account for 14% of the total carbon footprint of the planet.

How Green Is Your Software?

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Awareness

A 2kg laptop requires 400kg in raw resources

The Digital Collage - A workshop to understand the impact of digital technologies on the environment

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Awareness

Microsoft's global water consumption increased 34% between 2021 to 2022 to nearly 1.7 billion gallons

A.I. usage fuels spike in Microsoft’s water consumption

Awareness

ChatGPT uses 16oz water for each 5-50 questions

A.I. usage fuels spike in Microsoft's water consumption

Awareness

1.13 billion smartphones were shipped in 2023.

2024 smartphone market rebound: What's driving the change

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Awareness

There are ~5.4 billion internet users in 2023, a 45% increase since 2018.

ITU Statistics

Consciousness

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Once you are aware, then you can become conscious of areas where improvements can be made. You'll notice areas which can use improvement. You'll become more conscious of what and where things should change.

In the Phoenix Project, Gene Kim introduced the concept of the Three Ways.

The first way is to remove barriers to delivering value to customers. Find a speed bump, mitigate it, and repeat. The mitigation does not have to be a permanent solution -- it's more important to make iterative solutions. For instance, a post-it note might reduce barriers to delivering value. Rather than creating a huge platform which will take 18-24 months to implement, if it ever is completed, you can make progress today. This isn't to say that there isn't value in platforms or CI/CD systems, but more that sometimes IT professionals get caught up in the tools and the nifty-factor rather than concentrating on what's important -- creating value for your customers.

In the context of Sustainable IT, this entails finding inefficiencies and areas of unnecessary expense. Whether it be inefficient algorithms, wasted disk space, or issues with the architecture, these are all areas which could benefit from improvement.

But be pragmatic about it; be agile. Smaller, incremental changes are better than grandiose change.

The Second Way is about fast feedback loops. Measure all the things. The only way to truly know that a change has made a difference is if you have metrics.

The third way is continuous improvement and experimentation.

Enablement

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Enablement is the ability to make a change.

After becoming conscious of the issues, the Manifesto helps enable people by allowing them to see ways in which they can make a difference.

Empowerment

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Once enabled, you can then become empowered and make a difference.

Empowerment is gaining the power and skills to be able to make a change.

Sustainable IT Manifesto

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The Sustainable IT Manifesto is a series of principles embodying sustainability in Information Technology. What differentiates the Manifesto from other practices is that they encapsulate the entire scope of IT -- from inception, thru value delivery, continuous improvement, and maintenance.

The Manifesto, at its heart, is Pragmatic. Achieving sustainable practices in IT takes time and effort; it is not something which can be encapsulated within an 18 month project, at the end of which your organization is "sustainable". Recognizing that the path to sustainability is a process, the manifesto encourages individuals and organizations to make Better Choices and to continuously improve their products, processes, and practices.

Sustainable IT Manifesto

Energy Efficiency over Raw Performance

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Prioritizing energy conservation, whether in the design of software algorithms or the architecture of hardware components, even if it means potentially sacrificing top-tier performance.

Sustainable IT Manifesto

Resource Efficiency over Resource Abundance

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Using resources like processing power, memory, and material components efficiently, reducing waste in both software and hardware production

Sustainable IT Manifesto

Long-term Sustainability over Short-term Gains

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Making decisions in software and hardware design and development that favor lasting positive impacts on the environment, even if they don't provide immediate financial benefits.

Sustainable IT Manifesto

Holistic Impact Awareness over Siloed Focus

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Understanding and considering the broader impact of decisions, whether they pertain to software logic or hardware assembly, and recognizing their interconnectedness.

Sustainable IT Manifesto

Return to Environment over Return on Investment

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While profitability is essential, we should weigh the environmental benefits and contributions against the exclusive pursuit of financial returns.

Sustainable IT Manifesto

Inclusive Collaboration over Isolated Decision Making

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Including diverse perspectives, from software engineers to hardware technicians, to ensure that environmental considerations are comprehensively addressed.

Sustainable IT Manifesto

Adaptive Planning over Fixed Roadmaps

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Flexibility in planning, allowing for adjustments based on new information or changing environmental contexts in both software and hardware fields.

Sustainable IT Manifesto

Transparent Reporting over Selective Disclosure

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Being open and honest about the environmental impacts, both in software's energy consumption and the environmental cost of hardware production.

Sustainable IT Manifesto

Continuous Environmental Learning over Static Knowledge

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Committing to ongoing learning about environmental impact and sustainability, from understanding the energy costs of running software to recognizing the carbon footprint of hardware manufacturing processes.

Sustainable IT Manifesto

Community and Ecosystem Wellbeing over Individual Benefits

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Recognizing the importance of overall wellbeing and the impact of our software and hardware decisions on communities and ecosystems.

Sustainable IT Manifesto

Eco-friendly Materials over Cheap Alternatives

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When designing hardware, choosing materials that are sustainable, recyclable, or have a minimal environmental impact, even if they are costlier.

Sustainable IT Manifesto

Device Longevity over Planned Obsolescence

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Designing hardware that is durable and long-lasting, reducing the need for frequent replacements and thereby reducing electronic waste.

Principle	Column(s)
Energy Efficiency over Raw Performance	Consciousness, Enablement
Resource Efficiency over Resource Abundance	Consciousness, Enablement
Long-term Sustainability over Short-term Gains	Awareness, Empowerment
Holistic Impact Awareness over Siloed Focus	Awareness, Consciousness
Return to Environment over Return on Investment	Consciousness, Empowerment
Inclusive Collaboration over Isolated Decision	Empowerment, Enablement
Adaptive Planning over Fixed Roadmaps	Enablement, Empowerment
Transparent Reporting over Selective Disclosure	Awareness, Consciousness
Continuous Environmental Learning over Static	Awareness, Consciousness, Enablement
Community and Ecosystem Wellbeing	Awareness, Empowerment
Eco-friendly Materials over Cheap Alternatives	Consciousness, Enablement
Device Longevity over Planned Obsolescence	Enablement, Empowerment

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The Sustainable IT Manifesto consists of 12 principles focused on promoting sustainability in the development and usage of software and hardware. These principles emphasize energy and resource efficiency, long-term sustainability over short-term gains, holistic impact awareness, environmental contributions, inclusive collaboration, adaptive planning, transparency, continuous learning, community well-being, the use of eco-friendly materials, and device longevity.

This table attempts to align the manifesto's principles with the pillars based on the essence of each principle and how it relates to raising awareness, fostering a sustainability-conscious mindset, enabling sustainable practices, and empowering stakeholders to make sustainable choices.

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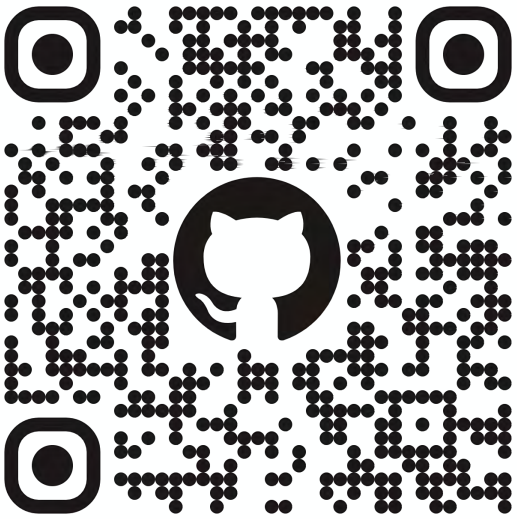
Other Resources

- Green Computing Foundation
- Green Software Foundation
- SustainableIT.org
- The Sustainable IT Manifesto
- Making Software Greener

Slides Available

https://github.com/making-software-greener/4pillars/



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