Transformation

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Transformation

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Informd is a collaborative research and consulting think tank dedicated to generating knowledge and insights that drive positive change around the world.

informd

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Editor's Note on designing the future

Innovate, Regenerate, Transform

Welcome to the inaugural issue of Informl, a periodical born at the intersection of design, innovation, and responsibility. As we embark on this journey, our goal is to explore one of the most pressing challenges of our time - the sustainability of our planet Earth - with a lens of collaboration, future foresight, strategic design, and action.

This issue brings together a tapestry of ideas that challenge conventional boundaries and invite us to envision transformative possibilities and solutions. From rethinking business models to embrace circularity, to exploring the fusion of technology, design, and sustainability, these pages reflect a collective yearning for systems that are not only innovative but regenerative.

The world stands at a precipice. Climate change, resource depletion, and biodiversity collapse are no longer distant threats - they are urgent realities. Yet, within this crisis lies an opportunity to reimagine the frameworks that define how we live, work, and create. The voices in this issue invite us to explore a future that values coexistence over extraction, collaboration over competition, and resilience over reaction.

In "Transforming Business in an Era of Change," we delve into how foresight, human-centered design, and AI can transform uncertainty into opportunity. Elsewhere, the principles of Life-Centered Design urge us to shift from serving solely human needs to fostering planetary well-being, bridging the gap between ecological health and economic vitality.

This periodical is not just a collection of articles - it is a call to action. It is a space where designers, thinkers, and practitioners converge to catalyze change. Whether you are a seasoned professional or an emerging voice, our hope is that Informl ignites new ideas, sparks dialogue, and inspires you to engage deeply with the work of shaping a sustainable future.

We are grateful to you, our readers, for embarking on this journey with us. Together, let us push the boundaries of what is possible and build a world where ingenuity and ethics walk hand in hand.

With hope and determination,

— Teresa Francis-Garcia, **Editorial Director, Informl**

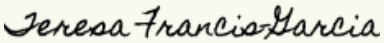


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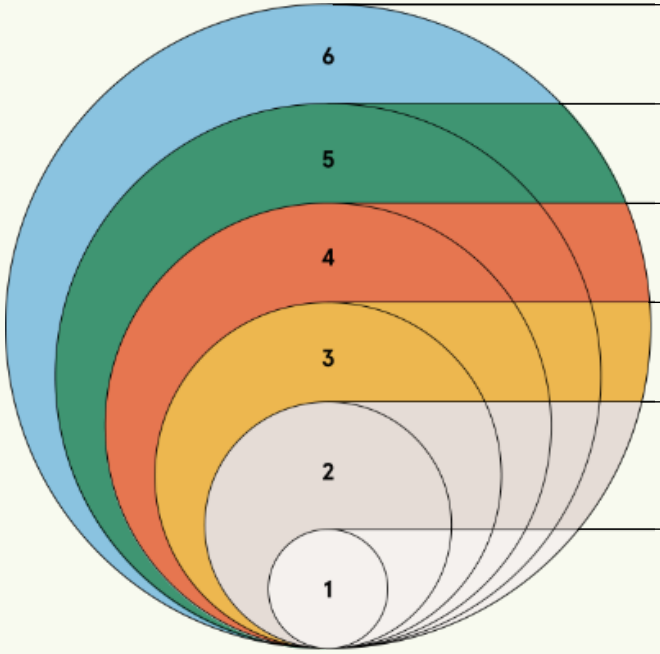
Don't miss the details!
Zoom in on images with this icon

The 6 Orders of Design

Richard Buchanan, a design theorist, proposed four orders of design in his book Wicked Problems in Design Thinking (1992).

At Informd, we posit that two additional orders of design are needed to address the growing crisis for our planet: design needs for nature and our biosphere. Examining problems at the sixth order can promote sustainability while balancing humanity's needs with those of our planet.

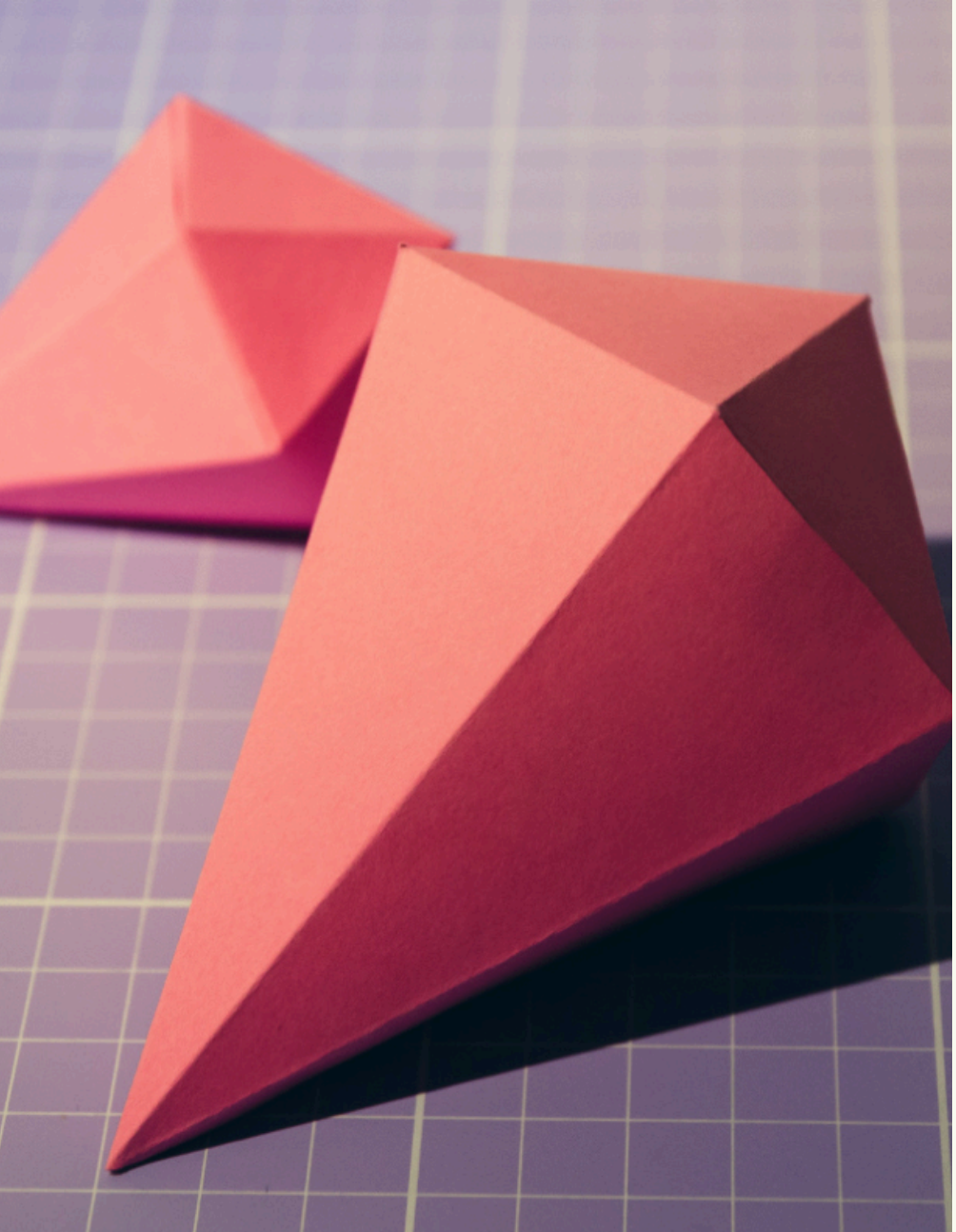
Thus, it is instrumentally important that designers should consider the impact of design on nature and the biosphere crisis for our planet: design needs for nature and our biosphere. Examining problems at the sixth order can promote sustainability while balancing humanity's needs with those of our planet. Thus, it is instrumentally important that designers should consider the impact of design on nature and the biosphere.



Biosphere & Environment	Environment Design Sustainable Design Strategic Design
Nature & Resources	Circular Design Life-Centered Design New Material Design
Complex Systems	Enterprise Design Business Design Organization Design
Activities & Services	Service Design User Experience Design Process Design
Material Objects	Product Design Engineering & Architectural Design Technology Design
Visual Communication	Information Design Graphic Design Visual Design

01

THE BIG PICTURE – RETHINKING SUSTAINABILITY



JOSEPH OLIVER

Transforming Business in an Era of Change



▲ **Joseph is a strategic design and business change practitioner, and a founding member of informd.**

In today's volatile business landscape, uncertainty is not just a challenge, it's a constant.

The traditional models of business development, built on stability and linear growth, are no longer sufficient to navigate the complex systems of the modern world. Instead, organizations must adopt a radically different approach, one that looks beyond current trends and prepares for the systemic shifts that are shaping the future.

The future isn't just something that happens to businesses, it's something that can be designed and anticipated. By embedding strategic foresight, human-centered design (HCD), and emerging technologies like Artificial Intelligence (AI) into the very fabric of business strategy, organizations can foster innovation, resilience, and long-term growth.

Why the Future Demands a New Way of Building Businesses

The pace of change across economic, political, technological, and societal spheres is accelerating. Global disruptions such as climate change, geopolitical shifts, geopolitic conflicts, and rapid technological advancements are making traditional business planning inadequate.

Organizations can no longer rely solely on reactive strategies or assume that past successes will guarantee future growth.

A future-centric approach is about utilizing strategic foresight, anticipating not just market trends but the systemic shifts that will redefine entire industries. Leaders must look beyond immediate gains and consider how these broader changes will impact their value chains, customer needs, and societal expectations. By integrating this perspective into every aspect of business development, organizations can proactively shape the markets and ecosystems of tomorrow.

From Reactive Models to Strategic Foresight

The most significant shift in today's business environment is the move away from product-focused innovation towards value ecosystems. Industries like energy, healthcare, and agriculture are increasingly moving towards service-based models that focus on sustainability, efficiency, and the well-being of both consumers and the planet.

/ Strategic Foresight
/ Sustainable Strategy
/ Business Transformation
/ Future Ready

This shift requires a deep understanding of the forces shaping the future; technological advancements, environmental challenges, and changing consumer behaviors.

Strategic foresight is no longer a luxury but a necessity for building businesses that can thrive in unpredictable times. Foresight goes beyond simple trend analysis. It's about identifying multiple possible futures and preparing for them, ensuring that organizations remain agile, adaptable, and capable of capturing new opportunities.

Companies that embed foresight practices in their decision-making processes can more easily pivot in response to emerging challenges, whether those are driven by technological disruption, environmental crises, or changing regulatory landscapes.

Human-Centered Design: Designing for Tomorrow's Needs

Human-centered design (HCD) has long been a key component of product and services development, but in recent years, its role has often been diminished from a multiple-disciplined team of practitioners combining scientific methods within their design processes to basically a group of visual designers employing rudimentary UX research and UI delivery, typically led by marketing or product team leadership without a deep understanding of the powerful tools and practices it encompasses.

The truth is, there is no simple, one-size-fits-all team workshop template for this complex and nuanced practice!

In reality, HCD has evolved significantly. It's no longer just about enhancing user experience; modern HCD integrates systems thinking, mixed-method research, sustainability measurement, circularity strategy, and AI to create solutions that are adaptive, scalable, resource-efficient, supply chain optimized, and future-ready.

As user needs continue to evolve, so must design practices

By placing this thinking at the core, businesses can ensure their products and services remain relevant over time. The next generation of design solutions will go beyond simply solving today's problems. They will anticipate the needs of the future, addressing the challenges of environmental sustainability, digital transformation, and evolving consumer expectations.

In this way, HCD is not just about building better products and service offerings; it's about building adaptable systems that can evolve in sync with the world. In harmony with materials use, and our natural ecosystems, while rationalizing pragmatic economic sense.

The Role of AI in Future-Centric Business Building

AI is poised to be one of the most transformative technologies of the 21st century, offering businesses unprecedented opportunities to optimize processes, enhance customer experiences, and generate new value streams. However, from a design lens, a real potential of AI lies in its ability to augment foresight and HCD practices, creating adaptive systems that can anticipate change in real-time.

The future is coming, whether we are ready or not. The question is: will your business be ready to lead?

Through machine learning and predictive analytics, AI can help organizations process vast amounts of data, identifying emerging patterns and trends that human analysts might miss. This capability can dramatically enhance an organization's ability to innovate, enabling them to manage their supply chains proactively and responsibly, create products, services, and business models that are not only relevant today but designed to thrive in the future.

Beyond Innovation: Building Resilience and Adaptability

Innovation has long been seen as the key to staying competitive, but in today's world, innovation alone is not enough. To succeed in the future, businesses need resilience, the ability to withstand shocks and adapt to new realities. A future-centric approach integrates resilience into every aspect of business development, ensuring that organizations are prepared for whatever the future might bring.

This is where strategic foresight, HCD, and AI intersect to create a powerful framework for building resilient businesses. By understanding and preparing for multiple possible futures, designing with empathy and adaptability, material and ecosystem responsibility, and leveraging the power of AI to anticipate and respond to change, organizations can build systems that are both innovative and durable.

Leading from the Future

The businesses of tomorrow will be defined by how well they integrate future perspectives into their core strategies. Those that adopt a future-centric approach will not only survive but thrive, leading the way in creating new markets, ecosystems, and value streams.

Leading from the future requires a mindset shift. It means moving beyond reactive business models and embracing a proactive, strategic approach that incorporates foresight, human-centered design, and AI. This is not just about keeping up with change, it's about becoming the architects of that change, creating businesses that are built to last in an era of unpredictability.

The future is coming, whether we are ready or not. The question is: will your business be ready to lead?



JOHN ROUSSEAU

Deconstructing Green Futures



▲ **John is a foresight and design leader specializing in guiding strategic inquiry and innovation within complex problem spaces.**

In today's volatile business landscape, uncertainty is not just a challenge, it's a constant.

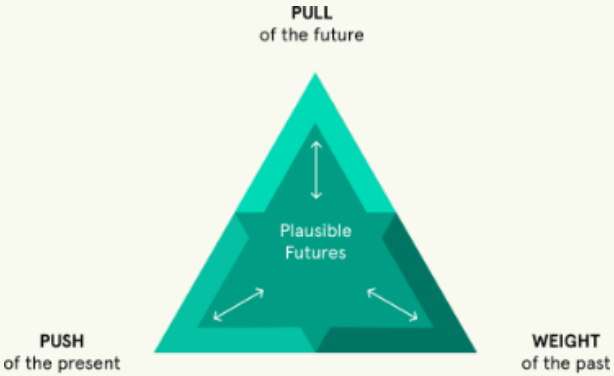
Fredric Jameson quipped that it is "easier to imagine the end of the world than the end of capitalism." Whether this is true for you probably depends on your worldview and what you think of capitalism. But in a more nuanced sense, it depends on how you approach the future—your perception of reality, your theory of social change, and your perception of how much agency people have to shape long-term outcomes. It also depends on what you think is immutable, inevitable, or preferable—in short, the range of assumptions you make when you think about the future, along with your values, beliefs, and supporting narratives, and the extent to which you are open to new information and/or alternative ways of knowing.

Much of this occurs outside of conscious thought—we theorize about the future all the time, whether making sense of current events, speculating about the implications of technological change, creating new strategic choices for a business, or designing policy interventions for complex problems. Every action in the present is a statement about the future.

I like the capitalism example because it illustrates that some images of the future—like dystopian scenarios or straightforward extrapolations of current trends or previous patterns—require less of us than others. Futurist Sohail Inayatullah calls these mainstream, default-mode ideas "used futures"—where hegemonic discourses shape what we might conceptualize as possible and desirable, as well as the inverse [1]. His thinking was informed by Foucault, who termed this the "episteme," meaning the socially-constructed territory of knowledge and truth as shaped by power in a given period [2].

Used futures are baked into contemporary sustainability thinking in examples like the near universal preference for market-based solutions and supply-side incentives to drive change, the focus on decoupling emissions and GDP (and the primacy of GDP as a measure in the first place), assumptions about the role and potential of green technology and innovation (and/or a bias in favor of technology in general), sustainable design oriented toward increased consumption of consumer goods, the clean energy transition and electrification of mobility, "net zero," and many corporate sustainability initiatives, among others.

/ Sustainability Narratives
/ Futures Thinking
/ Systemic Change



◀ **Futures Triangle**
Originally developed
by Sohail Inayatullah

What all these have in common is a desire to transform aspects of the current global system of systems—often well intentioned—while nonetheless maintaining its underlying ethos, purpose, and structures. As narratives, these tend to privilege solutions that fit within current modalities and paradigms—for example, by assuming the norm of individual car ownership versus rethinking the nature of mobility, housing, work, or consumer lifestyles at a more transformative level.

I don't mean to suggest that these initiatives or "green growth" in general represent unworthy goals or that "post-growth" in its various forms is inherently superior (though an argument can be made)—only that the dominant sustainability discourse is clearly weighted toward a specific image of the future—a used future—that is grounded in contemporary capitalism and makes claims about what is possible and/or preferable, serves some stakeholder interests over others, and is rarely the subject of critical introspection.

The trouble with used futures is that they impede the emergence of other, more profound possibilities. Given the current state of overshoot across six of nine planetary boundaries, it seems reasonable to point out that more fundamental shifts in our thinking may be required—starting with alternative images of the future and aligned to the ambition of broader systemic change. What's more, if we consider longer time horizons (e.g., 2050 or farther), we might give ourselves permission to think bigger and imagine more. A modest step toward this goal is simply making an effort to deconstruct the underlying narratives that shape our consciousness, by externalizing our everyday assumptions and creating the space for new discourses and actions in the present.

> It is easier to imagine the end of the world than the end of capitalism.
>
> — Fredric Jameson


02
HUMAN TO
PLANET-
CENTERED
DESIGN



DR. MICHAEL LO BIANCO

Life-Centered Design – Shifting Perspectives to Planetary Wellbeing



▲ **Michael is a human-centered design leader with over a decade of experience in Australia and the United States.**

Sustainability is a crucial issue as global environmental crises, such as climate change and biodiversity loss, intensify [1].

Insurmountable evidence demonstrates that humanity's consumption and production patterns are unsustainable [2], and a shift towards circular value realization models is required [3]. As societal values shift towards more sustainable ways of being, designers are responding by widening their perspectives on their practice and applying empathy through a broader lens—shifting from human-centered design to life-centered design [4]. This shift represents a macro-level transformation in how designers research, design, and create, emphasizing a deeper cultural evolution in our approach to sustainability.

Human-centered design has historically focused on creating solutions that meet human needs, improve daily life, and foster well-being [5]. This approach, dominant throughout the 20th and early 21st centuries, has prioritized empathy for human users and problem-solving through research and innovation. While this has led to the development of user-friendly products, services, and strategies, it has also fostered unsustainable outcomes [6]. Focusing solely on human needs and maximizing convenience has resulted in resource depletion, increased waste, and significant ecological harm [7].

/ Life-Centered Design
/ Sustainable Innovation
/ Ecosystem Thinking

In contrast, life-centered design expands the scope to consider the planet's broader ecosystems and all forms of life [8]. This holistic approach reflects a growing recognition that human well-being is intricately tied to the health of the environment. Life-centered design emphasizes the interconnectedness of life, acknowledging that design decisions must account for ecological impacts and future generations. It encourages the use of sustainable materials, reduces waste, and promotes the conservation of biodiversity. This shift signals a broader cultural transformation. Sustainability is no longer simply about mitigating damage but about fostering systems that enable life on Earth to flourish.

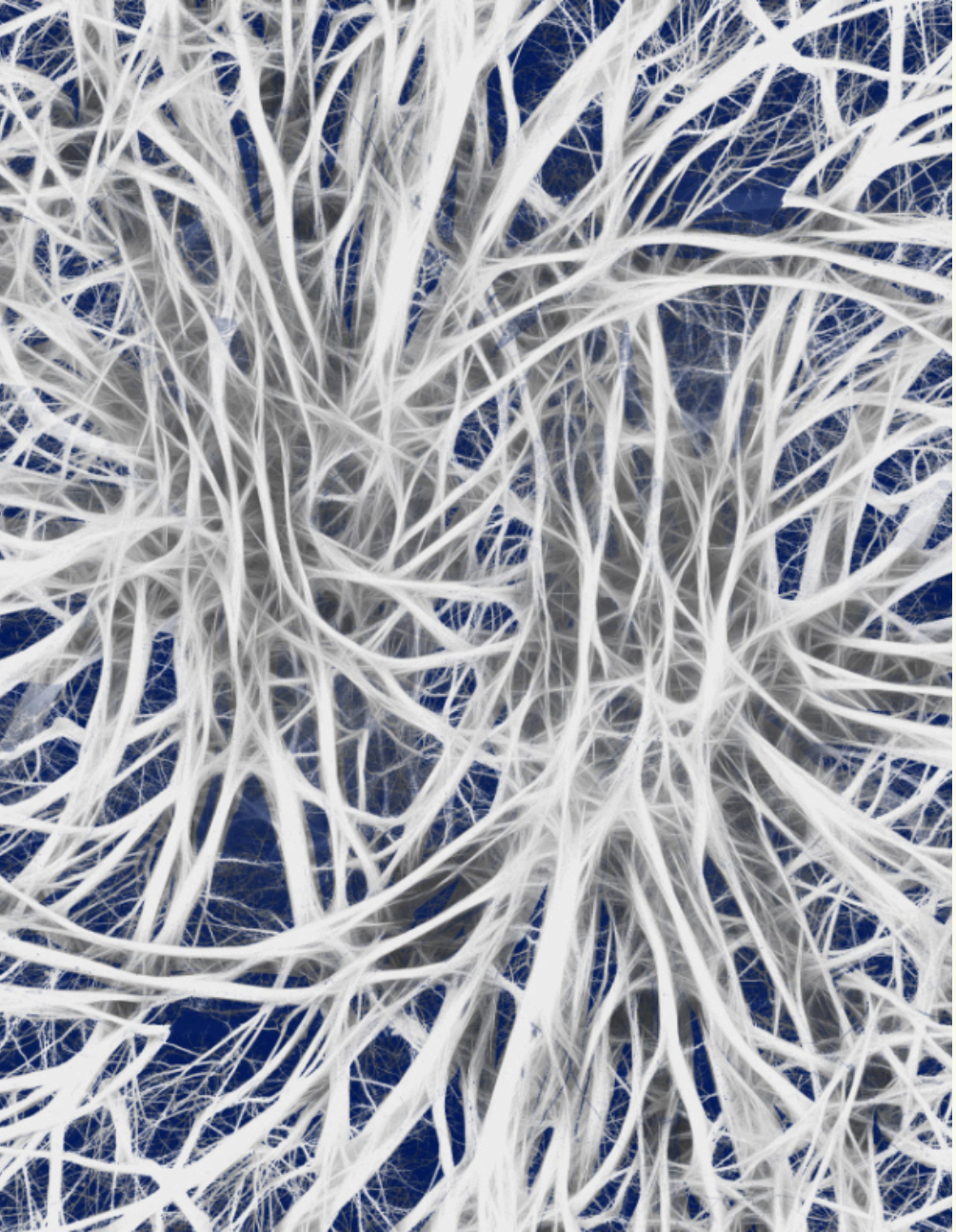
At the core of this shift is a transformation in how we understand value. Linear value realization is short-sighted; a shift to circular models is needed to move from harm to global regeneration [9]. Sustainable value transformation expands this definition to include environmental and social impacts. It requires a multi-dimensional view of value, incorporating ecological integrity, social equity, and long-term resilience.

Design plays a pivotal role in driving these cultural shifts by shaping behaviors, systems, and mindsets. Life-centered design requires considering a product's entire lifecycle, from raw material extraction to its eventual disposal or reuse, while optimizing the experience for all living entities within that ecosystem. It also promotes regenerative design—creating solutions that restore natural systems rather than merely minimizing harm.

Sustainability is no longer simply about mitigating damage —it's about fostering systems that enable all life on Earth to flourish.

Technology is crucial in facilitating sustainable value transformation. Digital tools enable organizations to streamline processes, optimize resource usage, reduce waste, and ensure sustainable best practices across their supply chains. For example, the Internet of Things (IoT) allows companies to monitor resource consumption in real time, reducing energy waste. Data analytics and business intelligence tools help organizations identify inefficiencies, promoting data-driven decision-making aligned with sustainability goals and compliance standards.

Shifting from human-centered to life-centered design is essential as we face growing environmental challenges. Designers, businesses, and governments need to focus on solutions that benefit both people and the planet. By using sustainable materials, promoting circular economies, and embracing regenerative design, we can create a future where innovation supports the health of all living systems. With the help of technology and collaboration, we can make lasting changes that ensure future generations inherit a healthier and more sustainable world.



BRIAN WARD

Biomimicry: A Direction for Sustainability & Circularity in Product Design



▲ **Brian is an Industrial Designer with 15+ years' experience, specializing in sustainable, circular design.**

"Biomimicry is about valuing nature for what we can learn, not what we can extract, harvest, or domesticate. In the process, we learn about ourselves, our purpose, and our connection to each other and our home on earth."

— The Biomimicry Institute (Janine Benyus)

The Core Principles of Biomimetics

Biomimicry or Biomimetics serves as a critical intellectual framework, asserting that nature, with its evolutionary time, intricate organisms and ecosystems, is a rich reservoir of knowledge for innovative problem-solving. The maxim "Nature knows best" encapsulates this philosophy, reinforcing the idea that nature's designs have evolved over millennia to optimize survival and efficiency.

As Leonardo da Vinci aptly noted, "Learn from nature: that is where our future lies." Some examples of Biomimicry solutions in man made objects are: Velcro from a cockle burr, nose of the Shinkansen high speed bullet train from a kingfisher's beak, self cooling building from termite mound structure, Whale fin dynamics into windmill blade design and a multitude of other examples.

The term Biomimicry was popularized by Janine Benyus, an esteemed writer and innovation consultant, whose groundbreaking work, Biomimicry: Innovation Inspired by Nature (1997), laid the groundwork for a movement that continues to gain momentum. As the founder of the Biomimicry Institute, Benyus has championed the exploration of nature-inspired solutions to modern challenges, advocating for a paradigm shift in how we approach design, innovation, and sustainability. Her writings, research and observations have had a profound influence on a generation of people who create Products and Services in our world.

Biomimicry's Relevance in Today's Climate

Biomimicry as a methodology transcends traditional design approaches. It empowers us to view science, systems, and nature through a new lens—one that recognizes the interconnectedness of all life forms.

/ Biomimicry
/ Circular Design
/ Nature-Inspired Design

Today, as humanity faces an existential crisis, it is increasingly imperative that we confront the consequences of our actions on the planet. Our oceans are filled with plastic waste from various sources, the plastic that does break down into microplastics are ingested by the fish we eat and is passed along to us.

Our climate and weather is changing, putting into question the quality of our future. Will we be forced to wear "Still Suits" like Dune, or live underground in Silos?

The damage we have inflicted is not a simple binary issue but rather a complex accumulation of effects. Companies and producers that are creating damage are not going to close and disappear, and people who carelessly consume, contribute to the continuation of the cycle by purchasing products that are not sustainable or at a minimum packaged with sustainable materials. However, with: market, societal and regulatory changes that are occurring, it can produce change.

A Contemporary Pioneering Influence in Product Design and Biomimicry : Ross Lovegrove

In the realm of Product Design and Industrial Design, few figures stand out as prominently as Ross Lovegrove. He is a distinguished British industrial designer whose career spans over three decades with extensive experience encompassing various domains, including: product design, furniture design, and architectural projects.

Lovegrove's philosophy, which he refers to as DNA (Design, Nature, Art),epitomizes the integration of aesthetics, functionality, and sustainability. This holistic approach positions him as one of the major leaders in the application of biomimicry in contemporary design practices.

As he eloquently articulated in his TED2005 presentation, "...form can touch people's soul and emotion." Lovegrove emphasizes the intrinsic relationship between design and human experience.

His assertion that we are still connected to our natural instincts, even in our modern selves and creations, underscores his authority in translating technology into user-friendly products that resonate with our innate sensibilities.

Exemplifying Biomimicry in Design

Ross Lovegrove is also renowned for his pioneering exploration of new materials and technologies that emulate the characteristics found in nature. For instance, his Supernatural Chair (Image 1) for Moroso exemplifies his commitment to pushing the boundaries of conventional design.

"This is an idea for a gas-injected, one-piece polymer chair. What nature does is it drills holes in things. It liberates form. It takes away anything extraneous. That's what I do. I make organic things which are essential."

— Ross Lovegrove



◀ **Image 1**
Supernatural Chair
by Ross Lovegrove

Biomimicry as a Blueprint for Sustainable Design

Lovegrove's works are not only deeply rooted in natural forms and biological processes but also advocating for an approach to design that considers, aesthetic appeal, prioritizes materials, user experience, functionality, and sustainability. His work emphasizes that products should not only be aesthetically pleasing but also environmentally friendly.

Here are some key points about his contributions in Sustainability:

- **Sustainable Practices:** Promoting the integration of sustainability into design, as his projects serve as examples of how nature-inspired design can lead to more efficient and eco-friendly products.
- **Lifecycle Consideration:** Encouraging designers to consider the complete lifecycle of products and their environmental impact.
- **Pioneering Biomimicry:** Recognized as a pioneer in embedding biomimicry into industrial design, companies and their products. This has great success in raising awareness about sustainable practices and introducing Biomimicry into the marketplace and people's minds.

Biomimicry & Product Sustainability Case Study

One of Lovegrove's notable and ubiquitous projects is the Water Bottle (Image 2) designed for Ty Nant developed between 1998-2001, and released in December 2001.

Concept: The bottle represents an impression of water, aiming to embody its essence and encapsulate the nature of water itself.

"When they sent it to me, I thought I'd failed. It felt like nothing. It has to feel like nothing. It was when I put the water in that I realized that I'd put a skin on water itself. It's an icon of water itself, and it elevates people's perception of contemporary design. Each bottle is different, meaning the water level will give you a different shape. It's mass individualism from a single product."

— Ross Lovegrove



◀ **Image 2**
Water Bottle by Ross Lovegrove -Ty Nant 1998-2001 Released December 2001

Material Future

Lovegrove emphasizes the need to move away from traditional polymers, suggesting the use of biopolymers in the future. Despite biopolymers not appearing as visually appealing, he believes they are essential for sustainable design.

The Visionary Influence of Ross Lovegrove in Biomimicry and Industrial Design

Ross Lovegrove is not just a designer; he is a transformative figure in the fields of Product Design and Biomimicry. His work serves as a testament to the power of nature-inspired design, urging us to rethink our approach to creating products that resonate with both our aesthetic sensibilities and our environmental responsibilities.

Lovegrove envisions a future where design integrates seamlessly with the environment. His profound understanding of the interplay between art, science, and technology positions him as a pioneer in this field and he predicts that this fusion will unlock new possibilities, inspiring a generation of designers and students to draw from the wisdom of nature in addressing contemporary challenges. The transformative effect not just in people's lives, but in economies, businesses and marketplaces.

So, How Can Business and Economies Leverage Biomimicry? Where do we start?

The concept in Biomimicry of a "Competent Universe" illustrates the profound intelligence inherent in natural systems. As articulated by Ms. Benyus the originator of Biomimicry, "Organisms in nature have evolved methods and systems that are not destructive to themselves and the environment." This perspective is not only intellectually compelling but also infused with hope for a better future. Moreover, the strengths of Biomimicry extend beyond merely sustainable or circular solutions; it functions as a dynamic innovation laboratory. The insights derived from nature can be employed as models or directly applied in various contexts, fostering the design of solutions that address pressing global challenges.

Research into the amount of R&D and capital spent by companies, the future of biomimicry in business looks promising, as it offers innovative solutions that can lead to more sustainable and efficient practices. Some key insights into how biomimicry is expected to shape the business landscape are particularly centered in Circular Economies and Closed Systems.

Educating Through Inspiration

A way of educating others about the transformative potential of this approach is showcasing how biological forms and processes can inform design. Highlighting biomimicry as a powerful tool in industrial design and engineering as a method not only to enhance aesthetic appeal and function but also to offer viable solutions to environmental issues.

Sustainable Product Development is a prominent area of research

Biomimicry encourages the creation of products that are inspired by nature, leading to sustainable materials and processes. This can result in products that not only meet consumer needs and have adequate material properties but also contribute positively to the environment. Cradle to grave, repairability and upgradability for products are strong areas for concentration and companies can be delivering in the present and near future and not just in the distant future.

- **Energy Efficiency:** By studying natural systems, businesses can design energy-saving forms, materials and processes. This can significantly reduce energy consumption and operational costs, making companies more competitive.
- **Valuing Material Circularity:** Making used material a lucrative and valued resource. If the material and its re-use is worth it, then it is very unlikely to be discarded.
- **Resilience and Adaptability:** A biomimetic approach promotes resilience in business models. Companies that adopt these principles can become more adaptable and resistant to changes in the market and environmental conditions, ensuring long-term viability.
- **Innovation in Manufacturing:** Biomimicry has the potential to revolutionize manufacturing processes, leading to more efficient and less wasteful production methods. This aligns with the goals of future Industrialization, which emphasizes smart and sustainable manufacturing.
- **Holistic Design Thinking:** Businesses are increasingly adopting a holistic approach to design, inspired by nature's interconnected systems. This can lead to more comprehensive solutions that address multiple challenges simultaneously.

Interdisciplinary Collaboration

A collaborative approach with scientists, engineers, and other experts underscores the interdisciplinary nature of biomimicry, which is crucial for fostering innovation. This collaborative spirit encourages a holistic approach to design, essential for effectively addressing the complex environmental challenges we face today.

- **Market Differentiation:** Companies that leverage biomimicry can differentiate themselves in the marketplace by offering unique, nature-inspired products that appeal to environmentally conscious consumers.

In summary, the integration of biomimicry into business practices is expected to lead to a more sustainable, efficient, and innovative future. As companies continue to explore nature-inspired solutions, they will likely find new opportunities for growth and positive impact on the planet.

But there are still questions and challenges.

However, real, sustainable change value happens when large populations adopt Sustainable and Circular based Products and Services:

- How do we encourage companies to see the values of Biomimicry and Sustainable Circular Economies?
- How do we persuade people to value: purchasing products and services as sustainable and Circular Economies?

Conclusion

In conclusion, the activity in research and development surrounding Biomimicry and circular Sustainability underscores its potential to revolutionize our approach to design, innovation and economies. By reimagining our relationship with nature as a mentor from which we can learn—not as a resource to exploit—we can unlock a wealth of knowledge that informs sustainable practices and solutions. Embracing the wisdom of nature not only enhances our design capabilities but also paves the way for a future that celebrates the interconnectedness of all life on Earth. As outlined in the text above Designer Ross Lovegroves' Philosophies and body of work reveals the example and practical application of Biomimicry and Product Design to the projects he works in and the successful economic outcomes for the companies that believe and partner in his vision. As we move forward, let us think about and leverage the profound insights of Biomimicry to create a more successful, sustainable, bountiful and harmonious existence for ourselves, nature and future generations.

> Biomimicry is a practice that learns from and mimics the strategies found in nature to solve human design challenges—and find hope.
>
> — The Biomimicry Institute (Janine Benyus)

DR. MICHAEL LO BIANCO

Reimagining Sustainable Value Realisation & Transformation



▲ **Michael is a human-centered design leader with over a decade of experience in Australia and the United States.**

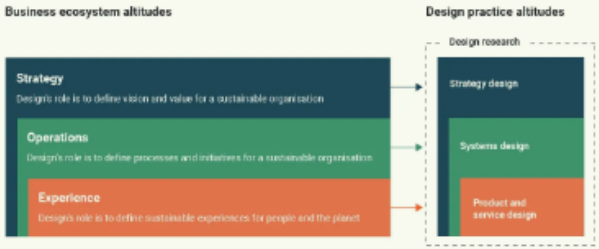
Traditional linear notions of value realisation are not fit for purpose within the context of sustainable transformation.

Linear value realisation is short-sighted, and a shift to enduring circular models is required to transition from degenerative impacts on living systems to global regeneration. Therefore, a reimagining of the fundamentals of enterprise value, including the business ecosystems supporting its realisation, is necessary. Herein lies an opportunity for design-led innovation to fundamentally rethink the problem space, foster empathy, and define value not only for businesses and customers but also for the environment through life-centered design.

Within an enterprise, value is commonly associated within the conventional domains of finance, strategy, customer, etc; these conventional domains overlook sustainability and circularity and fail to consider their inclusion within the context of enterprise value.

Therefore, we propose the Sustainable Value and Benefits Spectrum (the Spectrum) as a value framework which extends beyond the business and also considers both the environment and people. The Spectrum provides opportunities to identify, define, discuss, and optimise value-drivers beyond traditional views, enriching enterprise perspectives and intelligence regarding how sustainability and circularity value may be achieved.

/ Sustainable Value
/ Design-Led Innovation
/ Circular Transformation



Sustainable value transformation phases	Discover	Optimise		Deliver	
Altitudes	Strategy	Operations		Experience	
Design practice service / consultancy	**Sustainable Value Discovery**	**Sustainable Value Prioritisation**	**Sustainable Operations Enhancement**	**Sustainable Value Realisation Playbook**	**Sustainable Product and Service Portfolio Review**	**Sustainable Design Practice**
Description	Sustainable Value Discovery defines a value baseline for the organisation. Outcomes are visualised on the Sustainable Value and Benefits Spectrum.	Sustainable Value Prioritisation defines what is important in the organisation's sustainable value transformation journey and identifies the strategic levers that need to be pulled (or created).	Sustainable Operations Enhancement takes a capability-based planning approach, assessing current capabilities, identifying gaps, considering processes, continuous improvement, transparency, etc.	Reflecting on the preceding phases, how might all of this bundle into an initiative playbook for sustainable value transformation?	Reviewing and optimising the organisation's product/ and service portfolio to identify redundancies, opportunities, risks, etc.	Enhancement of the organisation's design practice.

To realise sustainable value transformation, organisations must find a balance across three levels — or altitudes — of the business ecosystem: Strategy, Operations, and Experience.

Focusing on only one or two of these levels will not yield enduring and scalable outcomes; all three must be fit for purpose to achieve scalable success. Furthermore, within the context of sustainable value realisation, we reflect the role of design within this business ecosystem as a driver of innovation and change.

Within the following framework we disassemble common design practice disciplines and cross-map them against the aforementioned business ecosystem altitudes to highlight design's role, relevance and reliance on rigorous design research and a life-centered design mindset to produce quality outcomes.

We propose a three-stage approach to achieve sustainable value transformation. Our approach enables organisations to derive greater value from existing resources and highlights both gaps and opportunities on the sustainable transformation journey. Furthermore, it incorporates proven design innovation techniques and methods to help organisations translate value-based insights into actionable and tangible initiatives to achieve success.

	Value	Benefits
Environment	The significance of preserving and enhancing environmental, social, and economic resources for the long-term well being of the planet and its inhabitants. This includes recognising the inherent worth of natural ecosystems, biodiversity, and ecological services in sustaining life and supporting human activities in a balanced and resilient manner.	The positive outcomes or advantages gained from sustainable practices and initiatives aimed at protecting, conserving, and restoring the planet's natural resources and ecosystems. These benefits may include mitigating climate change impacts, preserving biodiversity, ensuring clean air and water, promoting social equity and resilience, and fostering economic prosperity through green innovation and resource efficiency.
Business	The worth or significance of a product, service, or initiative to the enterprise, encompassing tangible and intangible advantages across financial, operational, and strategic dimensions.	Positive outcomes or advantages derived by the enterprise from realising value, including tangible improvements such as cost savings and revenue growth, as well as intangible benefits such as enhanced reputation and employee satisfaction.
People	The importance of promoting the well-being, health, and prosperity of individuals and communities, while also respecting human rights, diversity, and cultural heritage. This involves recognising the intrinsic value of human dignity, equity, and social justice in fostering inclusive and sustainable development that meets the needs of present and future generations.	The positive outcomes or advantages derived from sustainable practices and initiatives that prioritise the welfare and empowerment of people or customers. These benefits may include improved quality of life, enhanced social cohesion and community resilience, greater economic opportunities, and increased consumer trust and loyalty through ethical and responsible business practices.

▶ **Right** Spectrum Framework by Dr. Michael Lo Bianco for informd

Top and previous page Three stage approach for sustainable value transformation



JOSEPH OLIVER

Beyond Human-Centered Design — How Life-Centered Design Transforms Development



▲ **Joseph is a strategic design and business change practitioner, and a founding member of informd.**

Are you tired of designs that prioritize profit or convenience at the expense of our environment and well-being?

If so, you may be interested in life-centered design, an emerging approach that prioritizes the health and well-being of all living things in the design process.

Life-centered design is a holistic approach that considers the entire life cycle of a product or service and its impact on the environment, society, and human health. It is based on the understanding that all living beings are interconnected and interdependent and that designing for the well-being of one living being can have a positive impact on others.

There are various approaches to life-centered design, including circular design, biomimicry, systems thinking, and interspecies design:

- **Circular design** is based on the principles of the circular economy, which aims to eliminate waste and pollution by keeping products and materials in use for as long as possible.
- **Biomimicry** is inspired by nature's designs and processes and seeks to learn from and emulate nature's solutions.
- **Systems thinking** considers the interconnections and interdependencies of all living beings and seeks to design for the well-being of the entire system.
- **Interspecies design** acknowledges the importance of designing for the well-being of all living beings, including non-human animals and plants.

A **'Future Design Fiction'** [*] framework speculating the future of life-centered design by merging current variations can be an exciting prospect. This methodology involves creating prototypes of desirable futures as a way of exploring new possibilities and inspiring innovation. By imagining and visualizing potential life-centered futures, researchers and designers can experiment with different ideas and technologies in a safe and low-risk way, generating new insights and stimulating collaboration from all stakeholders.

/ Beyond Human-Centered
/ Life-Centered Design
/ Future Built Environment

To enhance the life-centered design approach, researchers and designers should consider 11 supporting practices that prioritize humans as part of the overall ecological ecosystem, rather than as the center:

01 Circular Design

Circular design is about creating products, systems, and services that are regenerative and restorative. It seeks to eliminate waste and pollution by keeping products and materials in use for as long as possible through practices such as reuse, repair, and recycling [1].

02 Biomimicry

Biomimicry is inspired by nature's designs and processes and seeks to learn from and emulate nature's solutions. It involves observing nature and applying its principles and patterns to solve human problems [2].

03 Systems Thinking

Systems thinking considers the interconnections and interdependencies of all living beings and seeks to design for the well-being of the entire system. It involves understanding how different elements of a system interact with each other and how changes to one element can affect the entire system [3].

04 Interspecies Design

Interspecies design acknowledges the importance of designing for the well-being of all living beings, including non-human animals and plants. It involves understanding the needs, behaviors, and habitats of different species and designing with their well-being in mind. [4]

05 Regenerative Design

Regenerative design is about creating systems and processes that are regenerative and restorative. It seeks to regenerate ecosystems, improve soil health, and promote biodiversity. [5]

06 Permaculture

Permaculture is a design system that seeks to create sustainable and regenerative ecosystems. It involves designing systems that mimic the patterns and processes found in natural ecosystems. [6]

07 Social Design

Social design is about designing for social impact and well-being. It involves understanding the needs and behaviors of different communities and designing with their well-being in mind. [7]

08 Human-centered Design

Human-centered design is a design approach that prioritizes the needs and behaviors of humans. It involves understanding the needs, behaviors, and motivations of humans and designing with their well-being in mind. [8]

09 Design for Resilience

Design for resilience is about creating systems and processes that are resilient and adaptable. It seeks to create systems that can withstand and recover from shocks and stressors such as climate change, natural disasters, and economic downturns. [9]

10 Sustainable Design

Sustainable design is about creating systems and processes that are sustainable and do not harm the environment or society. It seeks to minimize waste, reduce carbon emissions, and promote social equity. [10]

11 Cradle-to-Cradle Design

Cradle-to-cradle design is about creating products and systems that are regenerative and restorative. It seeks to eliminate waste by designing products that can be easily disassembled and repurposed. [11]

Case Study: Brescia 3.0

Life-centered design is being increasingly deployed in urban city centers to create more sustainable, regenerative, and just cities. One such case study is the redevelopment of the Brescia industrial area in Italy, which was transformed into a model of sustainable and regenerative urban development using life-centered design principles.

The Brescia industrial area was a heavily polluted and degraded site that was in urgent need of regeneration. The regeneration project, called "Brescia 3.0," [12] was designed with the well-being of all living beings in mind and involved a range of life-centered design practices.

How did Brescia achieve this?

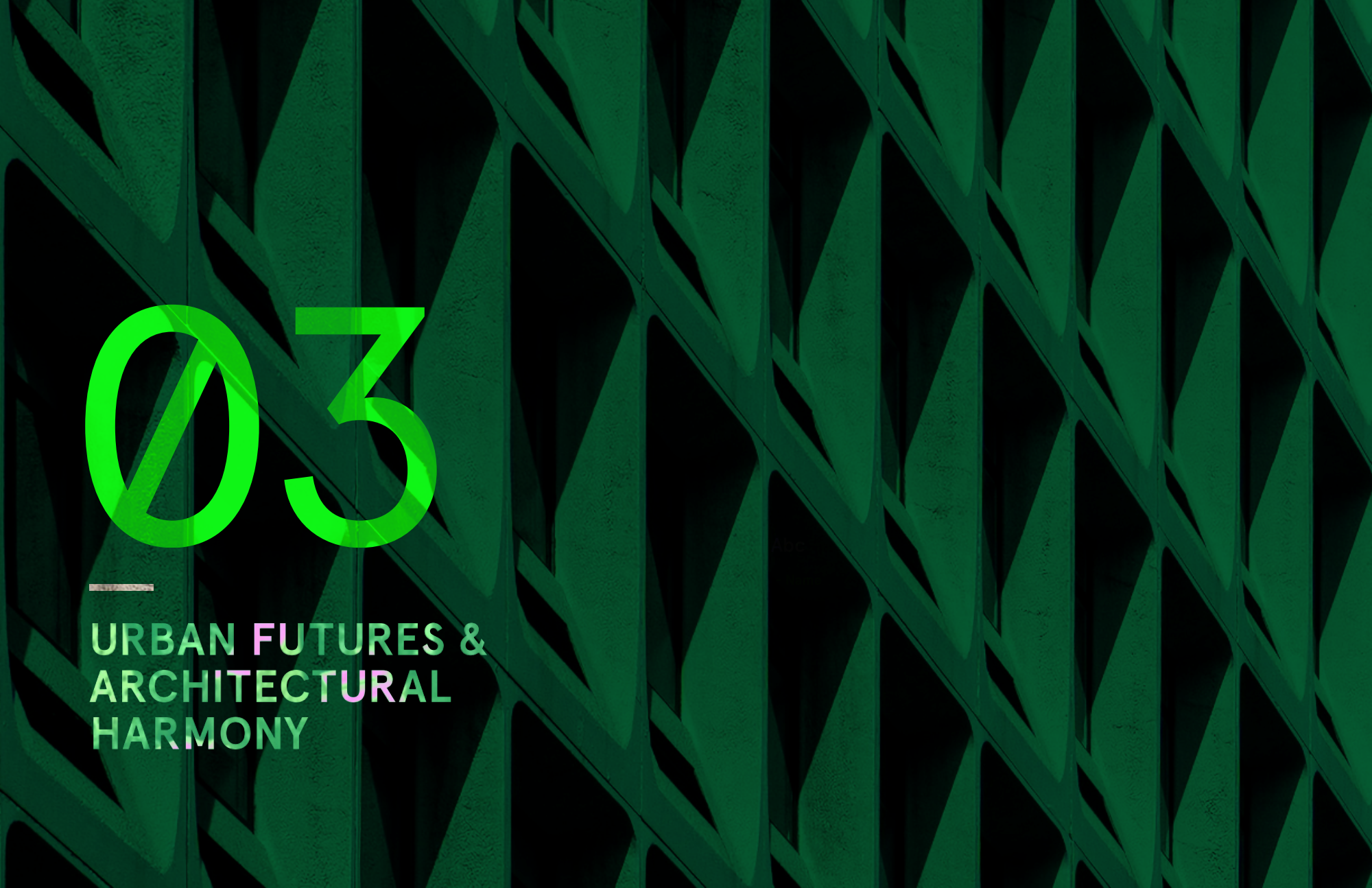
Circular design principles were used to minimize waste and maximize resource efficiency in the redevelopment of the area. Existing buildings were renovated and reused, and new buildings were designed to be energy-efficient and made from sustainable materials.

Biomimicry was used to design green spaces that mimic the natural ecosystems found in the surrounding area, promoting biodiversity and improving air quality.

Systems thinking was used to design a network of green infrastructure that integrated water management, mobility, and energy production. The green infrastructure includes a system of green roofs, rain gardens, and permeable pavements that capture and reuse rainwater, reducing the risk of flooding and improving water quality. The mobility system includes an electric car-sharing service [13] and bike lanes that promote sustainable and healthy transportation.

Social design principles were used to ensure that the redevelopment project benefited the local community. The project involved extensive consultation with local stakeholders, including residents, workers, and businesses. The project also included the development of social housing and community facilities to support the needs of the local community.

Overall, the Brescia 3.0 regeneration project is an example of how life-centered design principles can transform urban areas into sustainable spaces. An integrated approach was used to estimate how much urban afforestation can contribute to achieving carbon neutrality in the city. By using life-centered design practices, including circular design, biomimicry, systems thinking, and social design, the project was able to prioritize the well-being of all living beings in the design process and create a model of sustainable and regenerative urban development.


03
URBAN FUTURES &
ARCHITECTURAL
HARMONY



VALENTINA ANANIA

Urban Developments, Sustainability & Nature



▲ **Valentina is an Italian architect and industrial designer whose work intersects sustainability, life-centered design, and regenerative strategies within the built environment segment.**

Cities. From small towns to metropolises with millions of people.

Today about 56% of the world population lives in cities and the Institute for Economics and Peace has projected that nearly 70% of the world population will live in main urban areas by 2050.

The reasons for this urbanization are many but some that deserve to be mentioned are: need to feel safe, looking for better living conditions, ecological degradation, lack of workers in the countryside.

As cities become bigger and bigger a more sustainable urban development and a repurposing of existing built areas become essential to break the overly built cities skylines.

In the last decades building new areas of cities became a constantly growing phenomena both in overbuilt regions and in those countries with big land available to be developed. This rapid urbanization presents both challenges and opportunities for sustainable development.

While many of these projects have had no impact in the search for a more sustainable approach, some others have been conceptualized and developed as pilot projects, an example of architectural virtuosity with a meticulous search for the perfect utopian city.

Between the many projects, in 2022 the city of Shanghai has selected the world famous firm Pininfarina Architecture project to develop a new area called "The Blue Loop" in the unesco area of Xitang where water is considered an essential element to maintain and vital the local communities both socially and economically. In addition the project takes into deep consideration the fact that those channels of water are the central pivot of all the ecosystem and the microclimate of that region.

This innovative development prioritizes water conservation, renewable energy, and sustainable living. By integrating these elements into the urban fabric, the Blue Loop aims to create a thriving community that respects and benefits from its natural environment.

/ Smart Cities
/ Green Infrastructure
/ Built Environment

The amazing perspective of this unique project is not the integration of the natural environment and the smart use of green technologies but is the development that adapts itself to the existing territory and nature.

Traditionally many cities were built in substitution of natural environment, sometimes saving some small natural areas in parks. But the switch of perspective in Pininfarina's project is essential to develop new areas of those already mega cities into bigger megalopolises in the near future.

While it can be really easy to use this approach when building a whole new city or a whole new building in the middle of untouched nature it becomes really difficult when cities are overbuilt and the space is limited.

Contemporary architecture has created wonderful examples of integration of nature in new buildings: green roofs, green facades, entire building floors dedicated to cultivate fruits and vegetables for everyday needs, but those efforts have an impact on a limited number of people. While they improve the lives of those using that building, they don't necessarily improve the community life. There are also excellent examples of urban regeneration projects. Think about the old port of Nordhavn, Copenhagen or the New York Climate Exchange or the project for the requalification of the spaces under the elevated train line in Melbourne.

These projects are pioneers for a better future for all.

There is another interesting phenomena diffusing in many cities where space is a need: regeneration of squares and other "non-places" as "urban homes" where citizens can spend their time, share experiences, socialize, and interact. This is especially true in Europe, where space is one of the most valuable resources. Sweden, Switzerland, Portugal, Denmark are only some of the countries where squares and other urban spaces are experiencing a metamorphosis into a new experience.

Cities are constantly changing and transforming themselves and this has been true since the beginning of men starting to live in stable communities. Though today the word "expansion" can be interpreted in several ways.

The social phenomena of overurbanization often is an important factor in the disconnection that people feel with the urgent goals of working towards a healthier world for a better near and far future for all. Everyday urban life challenges, the impact and influence of social media are just some of the impactors on contemporary citizens lives which are under the constant pressure to fit in a preset lifestyle not alway ethically and ecologically prone.

The maximum urbanization and the optimization of spaces has created cities covered by buildings and roads where the contact with nature in everyday life can be easily lost.

These projects are pioneers for a better future for all.

► **Top left:** Melbourne Train Station. Photo credit Peter Clark

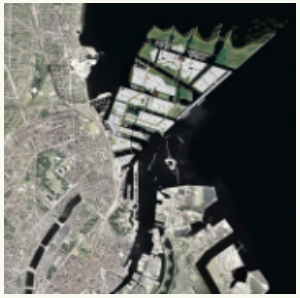
Top right: New York Exchange. Photo credit SOM Architecture

Bottom: Port of Copenhagen (before and after).Photo credit Cobe.dk









▲ **56%**
Global population lives in cities

▲ **70%**
Global population projected to live in urban areas by 2050

Urban areas are at the heart of human development, influencing everything from economic growth to climate resilience. The United Nations' Sustainable Development Goal 11 aims to make cities inclusive, safe, resilient, and sustainable by 2030. However, progress towards this goal has been slow, with many cities struggling to meet their targets.

So much effort is put today into sustainability at any level but before anything it is important to work with those citizens to elevate their sense of responsibility.

The simple imposition of regulations and law enforcement to drive change is not enough to modify the way people think and act.

Architecture and urban planning are powerful tools because through creativity, analysis and unique projects can help diffuse a new, more responsible and aware perspective that many can embrace as a new vision.

Cities face numerous challenges, including housing shortages, waste management issues, and inadequate transportation systems. These problems are often exacerbated by persistent inequalities, with over one billion people living in informal settlements without access to basic services. To address these issues, cities must adopt innovative solutions that integrate nature into urban planning.





◄ **Symbiotic furniture** in Bejing, Project Blue Architects. Photo credit Interni Magazine

What about bringing nature into these new "urban homes"? Nature means many things, from green areas to food production for a neighborhood, for example. What about repurposing abandoned areas into common fields where anyone can take care of them and share them with others? Or perhaps integrating green areas while renovating or repurposing entire areas or buildings?

The integration of greenery of any typology will improve the lives of many in the community. There are several studies showing the benefits of living in areas with more green: it lowers the stress levels and consequently many conditions and diseases connected with high levels of stress, it creates more happiness and kindness.

Green infrastructure, such as urban green spaces and natural ecosystems, plays a crucial role in mitigating pollution, reducing flood risks, and improving air quality. In addition, the addition of more greenery in cities could be a way to reconnect people to nature and its beauty and perhaps raise a communal spirit of responsibility towards our planet.

If there is awareness towards the beauty of nature and the strong connection we have with our planet perhaps more and more people will feel the need to do their part in a better way.

There are already cities in the world that have worked hard to change for the better and that are wonderful examples for all: Stockholm, Helsinki, Copenhagen, London, Vancouver, Sidney, Berlin, just to mention a few.

Few months ago a famous Danish architectural studio, Henning Larsen, published a very interesting project for a new development for the city of Copenhagen. As the project site has a very strong identity they have used "big data and AI to inform and qualify the design drivers for developing the district without losing its creative edge."

The studio has collaborated with Aarbol University and Ramboll Management Consulting to collect and analyze data coming from social media accounts about that particular district, geo-social insights, biodiversity metrics, existing buildings and Urban Decarb tools. All of these data were added to an AI generator to create ideas for the new area to be developed.

► Rendering of new neighborhood in Copenhagen. Photo credit Henning Larson









The results are extremely interesting for several reasons. The use of new technologies and analysis data methods can be extremely useful when in combination with decarbonization targets to achieve extraordinary and creative project inspirations.

Additionally, looking at the image proposed, it is clear that the inclusion of green infrastructure in future urban developments and regenerations will be essential practice to build better sustainable cities.

By leveraging local knowledge and resources, cities can develop tailored solutions that address their unique challenges. Collaborative initiatives, such as the BiodiverCities Challenge, are also promoting innovative approaches to create nature-positive cities.

Integrating nature into urban development is vital for creating sustainable, resilient, and livable cities. By adopting innovative solutions we can ensure that urban areas thrive while preserving the natural environment for future generations.



VALENTINA ANANIA

Architecture, Design & AI: Creating a Sustainable Practice



▲ **Valentina is an Italian architect and industrial designer whose work intersects sustainability, life-centered design, and regenerative strategies within the built environment segment.**

The landscape of creativity is currently experiencing a profound transformation courtesy of AI-generated imagery.

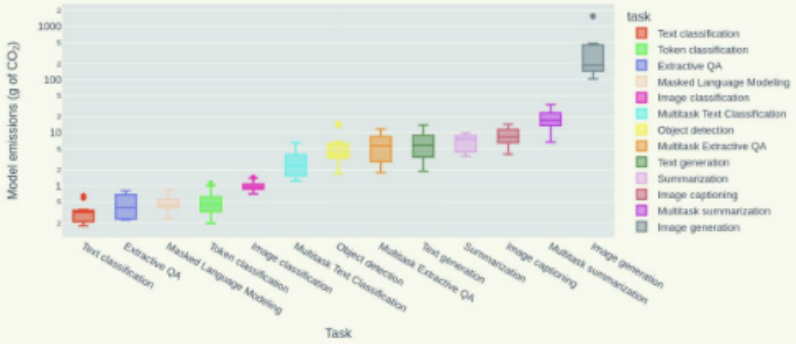
From impeccably realistic landscapes to avant-garde abstract art, AI is revolutionizing visual creation at an unprecedented pace. While many within the creative community eagerly adopt this innovative tool, a pivotal question looms large: what is the sustainability of this burgeoning AI art phenomenon?

This query unfolds on two fronts. Firstly, there exists a tangible environmental impact associated with generating images through AI. A study conducted by AI researchers at Hugging Face, detailed in the MIT Technology Review in December 2023, underscores this concern. It reveals that generating 1,000 images using a robust AI model like Stable Diffusion XL yields a carbon footprint comparable to driving an average gasoline-powered car for 4.1 miles.

This revelation prompts a critical introspection among designers and creatives alike: are the visually stunning outputs facilitated by AI justified in light of their environmental costs? Sustainability emerges as a pivotal facet of this complex issue, prompting designers to contemplate energy-efficient models, advocate for sustainable AI initiatives, and refine image generation workflows to curtail unnecessary iterations.

Yet, beyond sustainability lies an ethical dimension of equal significance. AI-generated imagery possesses the transformative potential to reshape our perception of the world. Designers, as custodians of visual storytelling, wield profound influence over societal ideals, product desirability, and the built environment. With AI as their tool, creatives possess an unprecedented capacity to mold these perceptions on a monumental scale.

/ Sustainable Architecture
/ AI for Design
/ Built Environment



▲ **Source**
MIT Technology Review, December 2023

This underscores the weighty responsibility inherent in AI image generation, necessitating a thorough grasp of the processes involved in translating conceptual designs into tangible forms. Today, the design realm stands poised to leverage its influence for societal good, fostering awareness and championing environmentally responsible choices through a uniquely creative lens.

Illustrating this intersection of innovation and responsibility is Beta Realities, a German-based architectural firm. Their recent unveiling of "Collective Parts," an AI-driven platform facilitating the 3D printing of sustainable, affordable housing, exemplifies this synergy. By empowering future homeowners with customizable kits comprising functional components and smart building materials, the platform offers scalable solutions for entire neighborhoods.

In the skilled hands of designers, AI emerges as a potent catalyst for positive societal change.

AI-enabled planning further enhances user experience by providing accurate estimates of floor area, cost projections, and carbon footprint calculations. Once finalized, designs seamlessly transition to on-site 3D printers for automated construction. This pioneering initiative epitomizes a constructive application of AI, ensuring adaptability, fostering a circular economy, and paving the way for scalable global implementations, exemplified by a pilot neighborhood in Austin, TX.

AI, akin to any tool, derives its impact from the adeptness of its wielder. In the skilled hands of designers, AI emerges as a potent catalyst for positive societal change. Envision its potential to produce visuals that not only advocate for sustainable practices but also inspire a collective vision of an environmentally conscientious future, particularly within urban landscapes.

By catalyzing discourse on the responsible integration of AI in creative realms, we chart a course where this transformative technology fosters a more inclusive design landscape, bridging the gap between visionary concepts and tangible creations. This collaborative synergy between human ingenuity and AI innovation holds the promise of guiding us toward a future defined by sustainable choices, where creativity serves as a universal bridge rather than a barrier.

In essence, the future of creative expression transcends the dichotomy of humans versus machines. It beckons a collaborative endeavor wherein AI serves as a pivotal ally in our journey toward sustainable progress.



MUKUL KRISHNA

Becoming More Aware — The ESG Conundrum



▲ **Mukul is a global research leader with over 25 years of experience in developing growth strategies, market entry plans, and product launch strategies.**

Like it or not, we are moving into an era of more compliance requirements, especially when it comes to ESG related regulations.

Customers also want to know that the products they are buying have been sustainably sourced and are part of a circular economy. Too often we find organizations trying to tip-toe around these issues due to lack of access to relevant data or just the lack of data, only to be accused of greenwashing and it becomes a PR nightmare.

As companies scramble to create more resilience and become more compliant in their operations, the past couple of years have put a spotlight on the importance of data – but not just any data, as data quality matters a lot. This couldn't be truer for supply chains as they are particularly vulnerable to spurious data that could potentially disrupt the entire supply chain from procurement to distribution. Data needs to be Accurate, Timely, Relevant, Reliable, Accessible, Consistent, and Complete.

As we move towards more digital workflows and collaborate on data across the supply chain, such instances should start diminishing rapidly because with better and more data comes greater visibility and accountability. Once at that level, either you have the data to show how ESG aware and competent you are, or you are going to be shredded by regulators and customers alike – and we are fast approaching that point. The great news is that we are seeing that transformation rippling across all manner of industries today.

Let's look at the procurement process at auto manufacturers as an example.

The Automotive Industry – Moving out of the Dark Ages

Traditionally, procurement in the automotive industry was driven by the purchasing group at the auto manufacturer. The bidding process would be hidden, and corruption seeped in, as suppliers were heavily embedded with a small group of purchasers who worked autonomously. The entire process was riddled with inefficiencies and discrepancies in pricing, as purchasers assigned to different car models would separately negotiate different prices for the same components. The amount of waste used to be staggering.

/ ESG Challeneges
/ Data Driven Sustainability
/ Corporate Accountability

Becoming More Informed – How Access to Data is Transforming Industry

Today, the purchasing process in the automotive industry has been drastically transformed. The process starts with a small team (also known as the "Group of Four" at some of the largest automakers) typically consisting of an engineer, a purchaser, a representative from finance, and a cost estimator.

This core team sets the specifications, sends out RFQs, and holds a design competition as finance provides forecasts for production runs. The team conducts sensitivity analyses and investigates different metrics including Return-on-Investment (ROI) and Total Cost of Ownership (TCO). The team's recommendations are forwarded to a purchasing group that performs its own due diligence based on the recommendations provided.

Once verified, the recommendations are pushed to a global steering committee that makes the final decision. From start to finish, the procurement cycle typically takes six months or more. This use-case demonstrates that not only has the number of individuals involved with purchase decisions increased substantially, creating a need for tighter collaboration and data sharing, but the decision-making process has also become more metric-driven and longer in duration than ever before.

That said, not only is better access to data and better quality of data helping shrink this cycle, but now automotive manufacturers also have access to data that can help substantiate their claims of being good corporate citizens.

There are now a multitude of tools and partners that can help companies such as automotive manufacturers achieve their profit margins while being responsible corporate citizens. From Planning Software to Procurement and Order Management, down to Warehouse Automation and Last mile Delivery Solutions, today the supply chain ecosystem provides organizations with a wide array of capabilities to build in greater efficiencies while getting access to data to help them become more sustainable and be a part of the circular economy.

The economic impact is substantial especially when you look at the opportunity cost of not providing more data-driven visibility and accountability across your supply chain, including reverse logistics.

Conversations within the industry reveal that:

- Demand for more data and economic impact metrics was ranked as the #1 requirement by purchasers.
- The number of stakeholders and influencers involved with the purchasing decision has increased three-fold – what historically has been 1-2 people has now become an average of 5.
- Sales- cycles have lengthened and can range anywhere from 6 to 24 months.

The Last Word

Supply Chains today are under tremendous pressure from multiple sources.

- **Access to more information** and requirements for increased transparency and accountability are lengthening sales cycles.
- **More individuals are providing input** to and influencing purchasing decisions than before.
- **The need to substantiate ESG initiatives** is becoming even more important.

In such an environment, companies that do not harness data to empower their operations to be more efficient, resilient, and have greater visibility and accountability across their supply chains, will be dead on arrival.

Call to Action

Before you leave, quickly review the following statements. If any of these statements ring true, you owe it to yourself to explore how you can use a data-driven approach to become more efficient and accountable.

▼ Graphic by Mukul Krishna for informd

	True/False
Our customers would like to see more sustainability initiatives reported by our organization, but we struggle to generate data to support that.	
We are not using AI to optimize business processes to be more ESG complaint.	
We do not have easy access to data to support any sustainability claim.	

04

VOICES OF TRANSFORMATION – PROFILES & PERSPECTIVES



JEROEN SPOELSTRA

From Profit to Benefit – Embracing Value Creation over Value Extraction



▲ Jeroen has nearly 20 years designing products are services that are human-centered, climate-friendly and socially just.

In the ever-evolving landscape of design, a paradigm shift is underway. This shift, termed Life-Centered Design (LCD), offers a transformative approach that empowers designers and creatives to encompass all life forms in their work, advocating for biological ecosystems and often overlooked communities.

Life-Centered Design marks a significant transition, from the traditional pursuit of value creation solely for end users and shareholders to a more inclusive approach that adds value to nature, communities, and the economy. This holistic perspective challenges the conventional mindset of extracting value from natural resources and marginalized communities purely for profit. Instead, it emphasizes a reciprocal relationship where value is infused back into these entities.

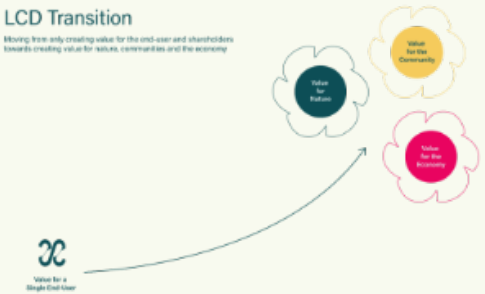
When adopting a more comprehensive view of design, we must question if the relentless pursuit of growth is sustainable for the entire ecosystem encompassing a product, service, or organization. The current economic discourse presents divergent perspectives on growth: the prevalent model of exponential growth, benefiting a privileged few at a substantial environmental cost, and the concept of degrowth, advocating for wealthy economies to abandon GDP growth as a primary objective.

The latter envisions scaling down destructive production forms to reduce energy and material use, prioritizing human needs and well-being over material excess. While exponential growth remains the status quo, the vision of degrowth offers a glimpse into a more sustainable future.



▶ Graphic by Jeroen Spoelstra

/ Value Creation
/ Social Impact
/ Life-Centered Design



◀ Graphic by Jeroen Spoelstra

How would we allocate profits if nature were considered a shareholder?

However, the reality of exponential growth persists, driven by a business world fixated on short-term returns on investment. This addiction to immediate gains necessitates a reimagining of how we measure success and well-being. Imagine evaluating a nation's progress not by its GDP but by the number of girls riding bicycles, a metric reflecting social progress and environmental consciousness [1].

Incorporating Life-Centered Design at the organizational level raises profound questions: What if design projects were mandated to deliver value to six capitals: Nature, Social and Relational, Human, Intellectual, Manufactured, and Financial [2]?

How would we allocate profits if nature were considered a shareholder?

If we regard the resources extracted from nature as its investment, we owe it a return; not merely through token gestures like tree planting to offset carbon but by fostering biodiversity and creating intrinsic value for nature itself.

To achieve this, we must innovate both within and beyond existing systems. Experimentation is crucial, and it must occur at multiple levels. Large corporations like Amazon, Nike, and Nestlé can spearhead these efforts, inspired by regulatory pressures such as Extended Producer Responsibility [3] and visionary leaders like former Unilever CEO Paul Polman, who advocates for net-positive organizations [4].

Simultaneously, radical innovation must thrive at the local level, where grassroots experiments in cooperatives, cooperations, and prototyping communities can reveal effective models for sustainable practices.

In essence, the journey from profit to benefit and from value extraction to value creation requires a fundamental rethinking of our relationship with nature and communities. It demands bold experimentation and a willingness to redefine success, ensuring that our economic activities serve the well-being of all life forms and the ecosystems they inhabit.

As designers and creatives embrace this life-centered ethos, they hold the potential to reshape the future, creating a world where value is not merely extracted but genuinely shared.

> There exists an opportunity to think of ourselves not just about human and human culture, but ourselves within a broader system, a broader ecosystem of other living things of which we are a part of.
>
> — Jane Fulton Suri, IDEO



NEIL BELLEFEUILLE

Three Keys to Reframing & Accelerating Value Creation



▲ **Neil is a strategic leader and consultant specializing in sustainable innovation, and value creation, with expertise spanning Fortune 500's, startups, and clean energy entrepreneurship.**

Corporate leaders and shareholders are increasingly focusing on sustainable value creation as a prerequisite for long-term success. And the numbers are beginning to speak loudly for themselves.

The growing trove of research and data confirming what nature and common sense have been telling us for years is becoming undeniable.

Companies that prioritize holistic value creation are better positioned to attract investors, mitigate risks, retain top-flight talent, and enhance brand reputation, to name just a few notable benefits.

But holistic value creation — deeply integrating environmental, human, and financial sustainability into core strategy so that your organization recognizes and accounts for the full spectrum of value created as primary drivers and indicators of success — requires leaders to reframe organizational perspectives around new ways of thinking and working.

Here's a look at three steps leaders can take today to begin reframing value creation for a better tomorrow:

01 **Revisit your values**

To begin reframing and accelerating value creation, you need to revisit your core corporate values. In fact, to kick this process off well, you should be evaluating each of the foundational pillars of your corporate strategy — Vision, Purpose, and Values — to determine whether they're aligned with a truly sustainable view of value creation. Are they leading you toward sustainable choices and behaviors that will help you win the decade? Or are they emphasizing outcomes and ideals that are pulling your people off course in the service of myopic, short-term outputs that won't matter after the next quarter?

/ Value Creation
/ Sustainable Leadership
/ Holistic Strategy

Leaders are often hesitant to take a knife to these core pillars for fear of harming the patient in the process. But the truth is that the core principles holding up and guiding the corporate structure are paramount to your success. If they're not aligned with your desired direction and current market realities, or worse, they're not really being used as key decision-making tools, then your company is at significant risk of drifting strategically and underperforming.

When considering values especially, there is some practical advice:

01 **Build around truly differentiating values** that capture how you want your team to uniquely show up for each other and your customer. You don't need a list of traits, like 'integrity', that are baseline expectations for most human relationships. They do nothing to help people understand the unique traits you want to exemplify as an entity.

02 **Keep the list small** (five or fewer) so your people can easily recall and apply them in their day-to-day work. Purposefully model and mention those traits in your own interactions with staff and customers to reinforce their importance and validity.

03 **Use plain language** and perhaps even short phrases instead of words. The goal is authenticity and clarity, not loftiness.

04 **Reflect on how these traits will help** you create sustainable value for your staff, your shareholders, and your customers. They don't all need to speak directly to sustainability, but they need to encourage and enable a holistic value creation mindset.

02 **Reframe what value creation means**

Your corporate values now clearly espouse the outputs and behaviors you value at a macro level. Next you need to clarify how you define value as a company and decide how you will reward people for creating it. This is where a lot of the rubber hits the road.

If you're just embarking on this journey, chances are that you will need to reframe the internal systems and guidance that define what value is and how it is measured within your organization.

In one respect, the financial part of this equation is the easy part. Most companies have a robust set of well-defined tools to define and measure financial value creation from a traditional revenue and profits perspective. However, that over-developed muscle can make it difficult to shift the focus toward a more balanced and sustainable way of working.

To get to a more holistic, sustainable view of value creation, you need to shift the enterprise from a shorter-term, profit-centric mindset to a more holistic and integrated approach. An approach that recognizes the interconnected nature of financial, environmental, and human sustainability and optimizes for the long-term health and success of all three. This reframing requires leaders to consider and align a much broader spectrum of value sources, creators, and recipients in their decision-making processes and objectives.

Here's a small starter set of questions for consideration in when working through this shift in your own company:

- What forms of value does the company produce? What forms of value are each of our stakeholders seeking from us?
- What kind of tangible and intangible value do the products deliver to customers? What role does the product experience play in creating that value?
- What is important and valuable to employees? Time? Flexibility? Opportunity?
- What value do we extract from and deliver to the communities and ecosystems in which we work?
- What does sustainable growth actually look like from a human and environmental resource standpoint?
- How do the forms of value we create influence and interact with each other, and how can we optimize the system for a more holistic and sustainable flywheel effect?

There's a myriad of ways to evaluate what sustainable, holistic value creation actually means and looks like for any given organization. The point is that you need to consider the themes with the concept of sustainability (in the broadest sense of the word) at the core.

03 Reset the bar culturally

With the right pillars and systems in place, it's time to reset the bar culturally around a sustainable value creation mindset. Leaders are usually at the epicenter of vast corporate change, often leaving them unaware of the reverberating aftershocks that their people are experiencing in the shift. By the time most significant changes are put into action, leadership has grown weary of talking about it, while often the staff hasn't even begun to come up to speed.

To reset the bar culturally and ensure success, you need to actively lead and model change for longer than may feel natural. And in that regard, it's one thing to send out a memo. It's another to walk the halls, speak with people, and actively model the desired thinking and behaviors.

You need to talk the talk, walk the walk, and teach other people to do the same. Too many leaders underestimate the importance of building champions and influencers within the staff to help carry the weight of change over time. Your people will need to see the confidence of your convictions in this new way of thinking and working in order to truly embrace it as their own.

And in that regard, it never hurts to lean on the old cliche of "never letting a good crisis go to waste". Nothing speaks louder to your staff than seeing you make a difficult choice in support of the new norm. That may be a tough client decision, or a hiring or firing decision, or even a shift in the way you compensate or manage people that comes with real costs and benefits that are evident to everyone.

Making the right choice — the choice aligned with your new values and value creation framework — is hard evidence that you mean business in shifting to a new way of thinking and working.

Reframing and accelerating value creation requires a paradigm shift

Putting it all together

Reframing and accelerating value creation requires a paradigm shift toward deeply considering and integrating financial, environmental, and human dimensions.

Understanding how each impacts the other yields a much clearer picture of reality, in turn leading to better decision making.

And optimizing for synergies between each form of value isn't just the right thing to do, it can unlock new sources of revenue, foster innovation, create paths to new segments, and build resilience against market disruptions, leading to higher sustained performance in the long-term.

As leaders navigate the evolving landscape of business and society, the integration of holistic value creation into core business strategies becomes not just a choice but a strategic imperative for long-term success and societal well-being.



CHRIS GRANTHAM

Going Full Circle – A New Innovation Frontier



▲ **Chris Grantham is a renowned expert in innovation, specializing in strategy and system design. He has led transformative projects at IDEO for companies like IKEA, H&M, and Danone.**

The story of most large corporations is the story of growth from a local business to a global enterprise. Now, risks to brand and business value from degenerative and wasteful practices are creating opportunities for businesses that embark on a place-based innovation strategy as part of their portfolio.

Many global businesses that depend on natural ingredients (such as Coca-Cola and Danone) are exploring ways to stimulate regenerative agricultural systems. These systems can help crops become more resilient to climate change, while also reducing the risks posed by biodiversity loss and the erosion of soil health caused by industrial farming.

At the other end of the supply chain, risks to value for incumbent corporations come in the form of more socially valuable or native circular businesses stealing market share by circulating products and materials post-sale. This is particularly evident in the fashion industry, where, for many years, fast-fashion retailers (unwilling to address unattractive displacement revenues) stood by as new-to-market resellers grew in market share. These resellers now threaten the sales of incumbents in key demographic segments.

Switching to circular and regenerative systems can help secure value. However, the business case for acting quickly and the task of executing these systems are challenging—particularly when incumbents remain conservative about their market roles and attempt to apply traditional industrial models of command and control to scale up. Innovation at the beginning and end of a value chain, by definition, requires innovation within distributed local systems.

Effective local ecosystems of regeneration leverage the uniqueness of place and community while operating at a local economic scale. An incumbent linear business may wish to benefit from this circular infrastructure but is unlikely to take on all the risks and costs or be deeply involved in operating an unfamiliar business. Collaboration becomes essential.

/ Regenerative Economy
/ Circular Innovation
/ Sustainable Business

When we reference effective regenerative systems like forests, it becomes clear that no single actor can circulate and regenerate value as effectively as a system of diverse actors playing different roles and working together. Similarly, diversity is key to fully harness the value that regenerative agriculture or circular product systems offer. Unlocking a self-sustaining regenerative local system requires an ecosystem of co-beneficiaries invested in the place and bound by a system of co-benefits. So, how might we catalyze that in an effective way, maximizing benefits while minimizing risks?

Adopting a multi-capital approach to circular economy design enables designers to see and develop links between the regeneration of natural or manufactured capital and the crucial role of regenerating human and social capital. For instance, a social platform that connects people—to each other (for discovering learning, and empowering), to place, to nature's abundance, and to craft and culture—can effectively build an ecosystem of actors invested in regenerating natural or manufactured capital.

In fashion, such an ecosystem might bring together local customizers/upcyclers, repairers, and resellers (e.g., The RCA's Regenerative Fashion Hub [1]). In food, it might connect organic food producers, regenerative farmers, local residents, and eco-developers. A social platform creates the enabling conditions for regeneration by stimulating market demand, investment, and innovation.

By building a social platform — a "festival of place" that regenerates social value—you can create a completely different model for regenerative systems to compete with incumbent linear systems like industrial agriculture or fast-fashion culture. This model allows emerging regenerative systems to compete for the attention and investment of citizens and other stakeholders.

In addition to securing future value chains or growing your share of the circular economy, regenerating places responds to a growing social need. In a world where so many consumer experiences are transactional, driven by remote globalized systems, or isolated within digital media, local goods and services platforms have the potential to address structural deficits in our lives.

Developing a strategy for place-making is the next innovation frontier for sustainable brands.

By fostering social and relational interactions, co-creation, and discovery in community settings, these platforms can build stronger systems for circularity and regeneration. The social platform acts as a Trojan Horse for regeneration.

As brands face increasing pressure to be "net positive" — more regenerative than degenerative across natural, social, and human capitals—social license and brand value are on the line. Regenerative brands that produce a surplus of social value will, in turn, generate a surplus of brand value.

This idea is supported by a recent report from Accenture [2], which highlights people's growing need for connection to others and for caring for their communities. A brand that helps people feel connected to a social purpose will be rewarded with growth in its social license.

We passionately believe that a different approach is needed to activate these systems — one that moves away from traditional top-down, one-size-fits-all models favored by global corporations. This approach requires making systems work at both local and global scales. It involves "scaling deep" in a few places to figure out the enabling conditions for a social platform that can be replicated elsewhere. As demonstrated by the story of Melbourne's McCafe [3], success often comes from being entrepreneurial, open to new roles in the market, and following value in regional business ecosystems rather than blindly adhering to past practices.



JOSEPH OLIVER

Can the Green of Our Earth & the Green of Our Dollars Coexist?



▲ Joseph is a strategic design and business change practitioner, and a founding member of informd.

As a researcher and strategic designer, I often ponder the trajectory of corporate business landscapes. Traditionally, a chasm was perceived between environmental stewardship and economic gain.

Yet, as we march deeper into the 21st century, a revelation unfolds: The green of our earth and the green of our dollars should not be at odds, but rather dance in a symbiotic ballet. Perhaps this is an overly optimistic, nay naïve, lens.

One might argue that the corporate world stands at the precipice of this evolutionary leap, where sustainability becomes the backbone of profitability. But there is a growing global chorus of voices stemming from the academic and scientific community, which has now percolated into every corner of humanity, that the reality is much darker.

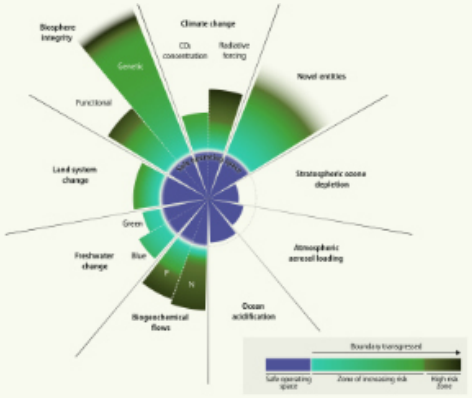
We are in fact more likely at the precipice of both biodiversity and civilization collapse, marshalled by rapid climate change and its associated cataclysmic weather, overconsumption and subsequent decline of raw materials and resources, and hyperinflation.

In the very near future, fresh water will become as precious as gold in some regions, crops will fail, famine will wipe out millions of human lives, and mass migration will occur. Are we ready for this? (Figure 1).

In Sept 2023, a team of scientific researchers and academics led by Dr Katharine Richardson, University of Copenhagen, stated that Earth has surpassed its ecological boundaries, with six of the nine critical planetary limits already breached1]. This stark reality indicates that current strategies focused solely on preventing further harm are now inadequate. So, how do we return to safe ecological boundaries when 2050 is widely considered the point of no return [2,3]?

Additionally, The Circularity Gap Report, 2024 [4], elucidates the escalating challenge of diminishing global circularity, noting a stark decline from 9.1% in 2018 to 7.2% in 2023, against the backdrop of rising global discourse on the circular economy.

/ Sustainability Economics
/ Planetary Boundaries
/ Circular Economics



◄ **Figure 1**
Current state of control variables for nine planetary boundaries

This report underscores a disconcerting surge in material consumption, which has reached over half a trillion tonnes in just six years, mirroring the consumption patterns of the entire 20th century. It calls for an urgent pivot towards circular economy principles to confront the inefficiencies of the prevailing 'take-make-waste' model, advocating for significant policy reforms, innovative financial strategies, and substantial labor transformations.

The report emphasizes the necessity of immediate, systemic shifts to reverse detrimental trends and foster a sustainable, equitable distribution of resources, highlighting the critical role of circular economy solutions in achieving global environmental and social objectives.

In a future-oriented world, the marriage of environmental stewardship and economic prosperity is no longer an idealistic fantasy, it's a burgeoning reality. As we traverse the ever-evolving corporate ecosystem, a striking symbiosis emerges, the health of our planet is becoming inextricably linked to the wealth of our businesses. We are witnessing a tectonic shift where the allure of green initiatives extends beyond moral appeal and roots itself firmly in the realms of financial prudence and strategic foresight.

The tale is an old one, retold with a contemporary twist, profitability now blooms from the seeds of sustainability. The narrative, reinforced by studies such as the MIT Sloan Management Review revealed that 37% of surveyed companies have reported a profit from their sustainability efforts, a number that continues to grow [5].

▼ 2% decline
Global circularity from 2018 to 2023

▲ 37%
Companies reported sustainability profits

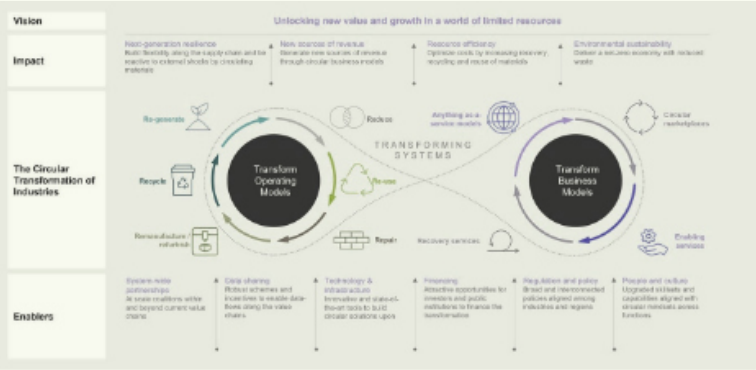
▲ Half Trillion
Tonnes of material consumption in 6 yrs

These companies are not only seeing a return on investment (ROI) through reduced operational costs but are also enjoying increased market share and improved product differentiation. This economic alchemy transforms energy efficiency into cost savings and waste reduction into bottom-line nourishment. Moreover, it bestows upon brands a luster that attracts customer fidelity and a talent pool eager to engage with conscientious employers.

Yet, to truly embed this ethos within the corporate framework, sustainability must be redefined in the language of the boardroom. It's a compelling story that positions green practices not as altruistic sideshows but as solutions to pressing business challenge, a story that's gaining momentum through the actions of trailblazers, such as IKEA, BP, Unilever, Philips and Puma who are not merely adopting sustainable materials or targeting carbon neutrality; they are sculpting a market identity that harmonizes financial aspirations with ecological considerations.

This march toward sustainability is underscored by robust metrics that chart progress and inform strategy, transcending the role of mere benchmarks to sway investor sentiment and market direction. The influence of policy and incentives in shaping this journey cannot be understated. Tax incentives for renewable energy and frameworks like the European Union's Green Deal [6] are recalibrating industry standards, effectively endorsing the narrative of sustainability as sound business strategy. But regulations influencing credible business transformation at a global level is severely lacking and more effort needs to happen collectively and globally, immediately.

Amidst these strategic shifts, the concept of the circular economy emerges as a guiding star for the corporate world. It's a transformative approach where the life cycle of products is renewed, where consumption becomes regenerative, and where waste is exiled from the lexicon of business operations. This circular model, a focal point in the World Economic Forum's paper, Circular Transformation of Industries, The Role of Partnerships [7], presents a visionary blueprint for businesses poised on the cusp of change.



At the heart of this circular renaissance are partnerships that defy traditional paradigms. Collaborations among businesses, sectors, and even erstwhile competitors are becoming the fulcrum of innovation. These alliances catalyze the transformation, propelling the creation of circular feedstocks, extending product lifespans, and nurturing nascent markets for novel services. Such partnerships aren't just the glue that binds the circular economy; they are its architects, laying down the infrastructure for a sustainable corporate landscape.

Examples abound of corporations that have embraced the circular frontier. Schneider Electric's refurbishing programs signal a departure from a disposable culture, championing a model where products are designed to live multiple lifespans [8]. Hewlett Packard Enterprise (HPE) showcases the evolution of business models, offering IT as a service and championing a new philosophy of consumption that emphasizes use over ownership [9].

▲ **Diagram 1**
World Economic Forum, 2024

Businesses will be heralded not just for their financial acumen but for their role as stewards of our planet

These pioneering strategies are redefining the value we derive from products, inviting businesses to navigate a new course toward sustainable innovation.

As we knit together the narrative of sustainability and profitability, the vision for a green future is not a nice to have, it's a need to have, our very survival on this planet may depend upon it. It is a mountain we have to climb or die on. We are charting a course where sustainability is not just a trend, but rapidly becoming a mandatory cornerstone of business strategy. The horizon we gaze upon is not distant; it is the very foundation upon which corporate success needs to be rebuilt.

In this new era, businesses will be heralded not just for their financial acumen but for their role as stewards of our planet that they are learning to nurture through innovation, collaboration, and bold leadership.

Therefore, sustainability and profitability are not just factors for compatibility, they have to become co-dependent drivers.

The economics of change are rapidly compelling businesses to adapt, and in this green race, the winners will be those who recognize that their economic growth is inexorably linked to their environmental footprint. It is with absolute certainty that no organization will be able to achieve true sustainability alone. Instead, leadership thinking needs to shift towards partnerships with other actors and players within and across their entire ecosystem.

05

INDUSTRY SPOTLIGHTS & CASE STUDIES



DAVE HOFFER

The Role of Partnerships in the Circular Economy



▲ **Dave, a Silicon Valley designer since the dotcom inception, champions impactful design, writes on Medium, and fosters learning to address global challenges.**

In the modern quest for sustainability, a stark reality emerges: the lion's share of responsibility falls on the shoulders of individuals, not the corporations whose rhetoric champions stakeholder capitalism.

This incongruity challenges the efficacy of corporate-led initiatives and reveals a fundamental imbalance in the distribution of sustainability burdens. In the diagram below, I adopted the RSA Great Recovery Model but switched the emphasis of color and orientation to focus on the fact that individual people bear the burden of sustainability.

In our home, we dutifully collect our recyclables. These materials are diligently cleaned of any residue and then set aside in paper bags to carry to the recycling bin...which faithfully gets rolled to the curb once a week. We do this because we've been educated to believe that we're doing our part to help save the planet.

▼ Adaptation of RSA Great Recovery Model by Dave Hoffer



/ Strategic Foresight
/ Responsibility
/ Business Ethics





◀ **Right** Tide Carton, Photo Credit Pixelbay ds_30; **Left** Photo credit Dropps

But consider the following from MIT Technology Review:

"A total of 95% of the plastic used in packaging is disposed of after one use, a loss to the economy of up to $120 billion annually, concludes a report by McKinsey. (Just over a quarter of all plastics are used for packaging.) One-third of this packaging is not collected, becoming pollution that generates 'significant economic costs by reducing the productivity of vital natural systems such as the ocean.' This causes at least $40 billion in damages, the report states, which exceeds the 'profit pool' of the packaging industry."

Incremental Change

In our home, we've made the following change. We used to buy a large plastic container of Tide Laundry detergent. We'd use it, wash out the container, and throw it away. Each container we'd use likely went to a landfill somewhere and is still there. Alternatively, it was burned in a foreign country, polluting both the atmosphere and the air in people's lungs.

To counter these negative scenarios, we made a change and started using a product called Dropps. They are biobased laundry detergent pods, shipped to our home in a cardboard container. Dropps has incrementally improved the situation by reducing the consumption of single-use plastic bottles, but the burden of use is still on us.

Stakeholder capitalism, championed by some of the world's largest corporations, emphasizes the importance of considering the interests of all stakeholders, including employees, communities, and the environment, alongside shareholders. In theory, this approach should lead to more sustainable business practices, with companies taking greater responsibility for their environmental footprint and societal impact. However, in practice, the pursuit of profit (shareholder capitalism) often takes precedence, leaving individuals to deal with the consequences.

One of the primary ways in which the burden of sustainability falls on individuals is through consumption patterns. Despite growing awareness of environmental issues, many products are still designed for single-use or rapid obsolescence, contributing to waste and resource depletion.

> Currently, about 430 million tons of plastic is produced yearly, according to the United Nations Environment Programme (UNEP) — significantly more than the weight of all human beings combined. One-third of this total takes the form of single-use plastics, which humans interact with for seconds or minutes before discarding.
>
> — United Nations Environmental Programme, 2024

While some companies have made efforts to offer eco-friendly alternatives, these options are often more expensive or less accessible, placing the onus on people to seek them out and make sustainable choices. Dropps seems to provide fewer washes per dollar spent than the Tide alternative. Cost parity isn't available in this case, but we're willing to pay a few dollars more to help the environment. The fact that the Dropps product isn't sitting on the shelf at my local supermarket means access and awareness are also problematic. Again, the burden is on us.

Moreover, the emphasis on individual responsibility for sustainability can exacerbate existing inequalities. Low-income communities and marginalized groups often bear the brunt of environmental degradation, yet they may have fewer resources to invest in eco-friendly alternatives or participate in sustainable practices. This perpetuates a cycle in which those least responsible for environmental harm are most affected by its consequences.

Step Change

The above example about Dropps still produces waste. The waste comes in the form of cardboard but because paper recycling occurs at a much higher rate than plastic, at approximately 63%, this is still a better solution. Yet because this alternative product isn't available in stores, we have to rely on truck delivery. However, we could shop at The Daisy Refillery for our laundry detergent. They sell non-toxic detergent in bulk. We would show up, fill our existing container with detergent, and therefore reuse the same container.

We could even buy a single container of Tide, use it up, then refill from Daisy, and we'd potentially only ever need one container again for the rest of our lives. There is a delivery service, so if we lived in the right location, it could be delivered to us just like when a milk person used to deliver milk to people's homes. However, the delivery is limited at this time, so the burden of purchase would be even greater on us. This kind of thinking however is enough of a change from how we currently behave, in that it represents the next level of sustainability. Yet the onus is still on us.

Disruptive Innovation

As a designer, I was excited to read about Julia Marsh on the Designers Fund website about her company Sway. She and her colleagues want to replace plastic altogether with material naturally derived from seaweed. The list of potential benefits is truly groundbreaking, so I strongly encourage you to read about their efforts to 'Sway the future'. Not only is the material completely biodegradable, but because seaweed is fast-growing and abundant, it makes manufacturing that much easier. So Julia and her co-founders' idea is to replace single-use plastic. The beauty of this solution is that companies producing food items (for instance) could use their existing tooling to a large degree. In Julia's words:

"I came to see that design was essential for enabling the transition to plastic-free solutions — because plastic waste is a design flaw. "

— Julia Marsh



▲ Graphic by Dave Hoffer

Of the three ideas presented, Sway would be the most preferable as it fits into that portion of the supply chain most easily, although there would be changes and disruption to the plastic industry. Sway's material REMOVES the burden from us. Here's an encouraging new future outlook: when we're done using a Sway package, my wife and I could throw it into a compost pile in our backyard. When we buy a bag of pasta from the supermarket, that bag would be fully biodegradable. No more need to seek out special deliveries, like Dropps; no paper to fret about recycling. Here, the burden finally falls on companies who must take the chance to switch from a known material they've worked with to one like the Sway product.

While individuals play a crucial role in promoting sustainability through their consumption habits and lifestyle choices, the burden should not rest solely on their shoulders. Corporations must recognize their responsibility to society and the environment, rather than shifting the onus onto individuals. Only through collective action and shared accountability can we achieve a truly sustainable future for generations to come.



NANCY NAZ

AI & the Climate Crisis — Redefining UX Design as Regenerative Thinking



▲ **Nancy is a strategist and researcher using human-centered design to envision innovative solutions for complex, high-priority challenges.**

"We have a brief and rapidly closing window of opportunity to secure a livable and sustainable future for all."

– IPCC, 2023 [1]

We are collectively at a precipice. My news feed is overtaken by two roaring paradigm shifts, the Era of AI and the Climate Crisis. As a design thinker armed with an arsenal of tools and methods to inform transformation, I itch to reframe this moment of impending upheaval as a gift, an opportunity to rethink our approach to UX innovation.

Welcome to the party: Regenerative Design

Regenerative design. A phrase beginning to trend in popularity. An approach to design, often material, industrial, architectural, that seeks to create systems, products, and processes that minimize negative environmental impact while positively contributing to the regeneration of an ecosystem [2].

Some of the key principles of regenerative design include:

01 **Biomimicry:** learning from and modeling patterns from nature [3]

02 **Circularity:** closed loop systems that eliminate waste and emphasize re-use [4]

03 **Community engagement:** hyper-local consideration in the creation of design solutions [5]

This approach goes beyond sustainability. In a regenerative system, feedback loops allow for adaptability, dynamism, and emergence to create and develop resilient and flourishing ecosystems [6]. Solutions are not just designed to do less harm; they actively contribute to a net positive effect. In the realm of material design, even product design for hardware and packaging, these principles are inspiring and ambitious, but also somewhat clearly actionable [7].

/ Data Driven Decisions
/ Sustainable Metrics
/ Impact Measurement

In this article, I attempt to explore which aspects of regenerative design can light the path forward for UX design during this lightning rod moment for our industry.

Is the era of AI the end of an era for UX?

A lightning rod moment you ask? Yes. All the hype, excitement, and noise aside, we are still in a relatively nascent stage in the Era of AI. Given the speed, appetite, and investment in AI though, it's unclear how long this glimpse into the future will hold before it metastasizes into the next new normal [8].

Designers have a rare crystalline moment, hung between the death of business-as-usual and the birth of something entirely new, to rethink our systems and adopt new approaches built on the shoulders of everything we've learned from what's come before. Now is the moment to put our creative, empathetic, visionary thumb on the scale and influence how our craft evolves for this new era [9].

I won't belabor the point by going into a designer's tirade about all the things that could be better. Suffice it to say the year opened with FastCompany sounding a bell on a generation of design leaders grappling with their futures, calling it a "big design freak-out" happening in board rooms across corporations. But it's not really a freak out, it's a wall, and it's what we've been up against all along.

Over the past decade, design leaders have successfully expanded their influence on business to land a seat at the table. Unprecedented. But after years of pouring effort into proving design's worth, I feel we've been gaslit into believing evangelizing and championing our worth is the job, instead of design itself. And now, once again, design's value has come into question, maybe once and for all. Coupled with the rapid proliferation of GenAI, our craft might be on a one-way train to displacement [10].

Where the sustainable rubber meets the proverbial road

At the intersection of AI, Climate, and Design is our mea culpa. Putting humans at the center of innovation, building around our users, and making customers king has left us sprinting to generate the next deliverable, produce more assets, and ship more features, to feed a ravenous system gluttonous for the narcissistic supply we've trained it on-user above all!

How many of us can say this is the work we dreamed of doing when we changed careers, took the leap, learned through trial by fire to make a difference in people's lives [11]. I worry we've over indexed on evangelizing and championing the design process rather than testing and evolving design impact. Now I'm left dreaming about going back to my design roots, not as problem-solver, but as form-maker. Designers are uniquely gifted at giving shape to the unknown, imagining and then materializing the unimaginable, creating deep, thoughtful designs that enhance life.

Life-centered, not just human-centered

Taking a page from the regenerative design playbook, this is where I want to start:

Ø1 Simplicity is not a design style. It's a regenerative necessity.

It's fun to create re-designs, it pays to pitch new concepts, and ship more features. The magic of creativity, an elusive essence that feels almost immaterial, spawning from the ether to produce majestic designs that border artistic expression. But digital design is not art, and every product, feature, and interaction has a very real cost that ties back to a very real physical data center on our planet. The energy to power a site in dark mode is far more efficient [12], but is that how we should pitch it to decision-makers?

A great place to start is biomimicry, finding powerfully simple patterns in nature, using simple rules that help focus our efforts on accomplishing the targeted business goal with the most efficiency. To get simplicity right we really have to get very clear and very explicit on what it is we are trying to achieve and what good enough means. Less design thinking theater [13], more resonant tuning fork.

Ø2 Leading with inclusion to design repeatable patterns

In inclusive design, we elevate voices and design for equity by co-creating with groups that are underrepresented [14]. It's not an altruistic task. Designing for the edge cases improves the experience for the bell curve [15].

And as we've learned with inclusive design, the first step to radical empathy is checking our own biases, acknowledging our vantage point, and spotting the gaps in our thinking. How do we take a more holistic perspective? What if the systems we designed co-evolved with our users? The first step in designing circular systems is making the natural environment an equal stakeholder in a continuous feedback loop designed to improve a system, a system trained to reduce waste and emphasize re-use by repeatedly honing a pattern.

Ø3 Life-centered, not just human-centered

Prioritizing user needs is a song I still sing every day. I champion the humans in the equation in the face of technology-led, feasibility driven ambitions that don't account for empathy or sometimes even desirability. We've hit a turning point where considering what people will think, feel, and do feels like a shallow veneer on an ADO ticket instead of an empirical, insights driven approach. Might as well go big or go home, and expand to consider a life-centered approach [16].

Rather than hyper-fixating on a user's immediate needs and desires for an already well-established digital interaction, with life-centered design we can expand on the principles of HCD to include a broader context of human life. Societal, relational, environmental, and ethical factors considered into the equation. Co-creation with communities, not just users.

▼ **Case study** Patagonia's Regenerative Organic Certification [7]

As we leap off this precipice into the future of design, before we rush in and re-package our old thinking to fit the new normal, I encourage us to take a beat. To feel this moment around us: the approaching sound of a rolling quake, the crackle releasing a downpour, a sizzling hiss that catches the blaze. What would we do differently if the slate was wiped completely clean and we had to build it all anew? Would it be the same UX discipline that's burning out our leaders and forfeiting a seat at the table or would it be something much more resilient and sustainable? Let's start here.



> Adaptation planning and implementation has progressed across all sectors and regions, with documented benefits and varying effectiveness. Despite progress, adaptation gaps exist, and will continue to grow at current rates of implementation.
>
> — IPCC (2023)



ELLIE MCBAIN

The Case for a Transparency Revolution in Scope 3 Emissions —And How Blockchain Can Help



▲ **Ellie is a service designer focused in sustainability. A PhD candidate in Design, Ellie creates transformative solutions for environmental stewardship.**

In the battle against climate change, corporations are increasingly scrutinized for their carbon footprint.

While direct, company-owned emissions and indirect emissions from purchased energy (Scope 1 and 2) are relatively straightforward, an elusive category lurks in the shadows: Scope 3 emissions. It's an organization's remaining indirect emissions that dwarf their overall emissions production. Scope 3 emissions typically account for over 70% of a company's carbon footprint, and it's entirely out of their control. So, as businesses grapple with the complexities of monitoring out-of-house carbon production, the demand for transparency across supply chains grows.

Supply chains are complex webs of suppliers, distributors, and end-users, all with independent goals and objectives. For a company to accurately measure their Scope 3 emissions, they must rely on the players across their network to capture their own accurately.

So when evaluating and reporting on emissions targets for the year, an organization must consider the entire product lifecycle; from cradle-to-gate. Each action a supply chain player takes throughout that time contributes to the organization's footprint, and without standardized procedures, opens up risks around improper reporting and double counting. This fact has long since hindered the efforts to gather reliable Scope 3 data.

Enter blockchain technology, a game-changer for reliable Scope 3 data. Industry leaders and academics are turning to this distributed ledger system as a promising solution to revolutionize supply chain transparency. By leveraging blockchain's inherent characteristics of immutability and decentralized consensus, companies may soon have the tools to track, verify, and report Scope 3 emissions with unprecedented accuracy and trust.

/ Scope 3 Emissions
/ Block Chain for Sustainability
/ Carbon Transparency

One of the critical advantages of blockchain in Scope 3 reporting is its ability to support "chain of custody" tracking. A major limitation in current practices is the lack of available, comparable, and consistent data. Hetter & Graf-Vlachy (2024) [1] found, in a review of current literature on Scope 3 data collection, that several researchers attribute inconsistencies in measurement and coverage as a major hinderance to organizations' ability to produce accurate carbon footprints. ISS ESG reported a rejection rate of approximately 70% for Scope 3 emissions data from 2022 and 2023 due to oversight and report variability (Wegener et al., 2019; Singh, et al., 2023) [2,3]. Implementing consistent procedures in a secure environment would enable organizations to trace emissions data from suppliers to end-users reliably.

The utilization of blockchain technology to improve supply chain traceability and transparency is by no means a new phenomenon. Several organizations are already implementing this technology; like Walmart [4]. The multi-channel retailer utilizes a blockchain solution to track and share the journey of their fresh produce; immediately being able to trace an apple's journey all the way back to the orchard it grew on. This level of transparency is not only appealing to the consumer but inherently captures emissions throughout the product journey.

The interoperability of blockchain opens further realms of opportunity. By integrating blockchain with other technologies, like IoT devices and supply chain management systems, organizations can be better adept to tackling challenges around data quality and availability.

This kind of integration enables real time data collection and verification through smart contracts and tokenization. For example, if an IoT sensor provided real-time emissions data that a blockchain solution then verified and stored, an organization would have an accurate and ongoing source of their emissions performance. This could then be used as a feedback loop that they could use to, not only gather emissions data but, adapt their operations to further optimize their supply chain.

While these technologies present a surplus of opportunity, it's important to acknowledge the barriers to entry in this space. Blockchain shows promise—the technology can enhance data quality by providing verifiable emissions data—but is still in its infancy in this sector.

The effectiveness of any solution, emerging or already in the market, is purely at the whim of stakeholders. To capture a holistic view of an organization's footprint, they need commitment and guarantees that their extended ecosystem is contributing their share of data (CDP & BCG, 2024) [5]. While we can't magically solve that problem with technology, we can utilize the growing unrest from increasing requirements from governing bodies.

By integrating blockchain with other technologies, organizations can be better adept to tackling challenges around data quality and availability.

The undercurrent of regulatory pressure for organizations is forming a swell. With international governments recognizing the significance of Scope 3 emissions reporting and management in our fight against climate change, the call for consistent and robust data collection and reporting tools to stay ahead of the ever evolving global standards grows louder (Hettler & Graf-Vlachy, 2024).

The European Union has been a front-runner in the regulatory space, with the Corporate Sustainability Reporting Directive (CSRD) mandating Scope 3, among other, emissions reporting for large organizations operating within the EU marketplace. With little accurate, comparable data in the current ecosystem, industries and governments must prioritize the standardization of Scope 3 data collection and reporting.

This is not unachievable. Organizations like the Greenhouse Gas (GHG) Protocol are spearheading procedure standardization in this field. GHG Protocol released a Corporate Value Chain Accounting and Reporting Standard to support organizations by providing requirements and guidance to understanding and capturing their value chain emissions in the endeavor to reducing their footprint, while identifying optimization opportunities.

Utilizing standards, like the Corporate Value Chain Accounting and Reporting Standard, as a baseline to guide the development and storytelling around a blockchain or blockchain integrated solution has the potential to create meaningful data pools of consistent and trustworthy insights for industry benchmarking. There still lies a challenge around stakeholder buy-in, which opens another conversation around incentivization.

There are advantages to adopting Scope 3 reporting mechanisms early. Visibility across the value chain, as previously mentioned, enables organizations to better identify inefficiencies and foster collaboration with stakeholders to drive innovation. An understanding of current pain points or optimization opportunities can then lead to actionable strategies that reduce emissions, lower operational costs, and enhance resource efficiency.

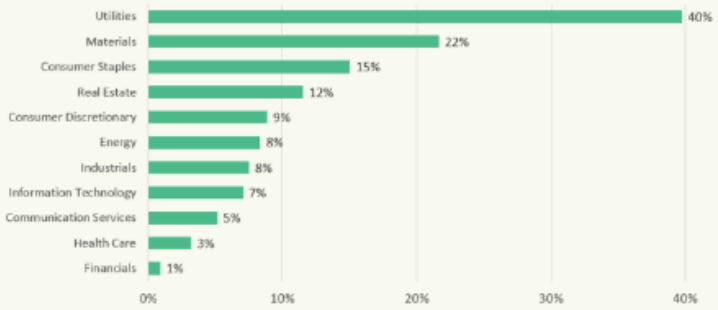
A report from CDP and the Boston Consulting Group (2024) [5] found that 63% of responders to SBTI's 2023 scope 3 survey noted supplier engagement in Scope 3 activities as a roadblock, however only 28% actually engaged with suppliers initially. Remedies to this could include further climate education as well as contracting incentives and supply chain finance programs.

Early adopters also gain a competitive edge by setting higher sustainability benchmarks, which not only appeal to environmentally conscious consumers but also attract investors increasingly focused on ESG performance. Additionally, these insights could be leveraged for long-term resilience planning to better adapts for further change and the introduction of carbon pricing schemes.

So here we stand at the crossroads of environmental responsibility and technological innovation. There is no question that Scope 3 reporting will become required, and we will need to find ways to address that.

The use of blockchain technologies to enable emissions transparency across complex supplier networks is a very tangible reality that is being explored today. It's this shift that will allow businesses to alter how they approach sustainability practices and strategies fundamentally; providing the clarity needed to make meaningful strides in reducing global carbon emissions.

▼ Reported Scope 3 Emissions for U.S.-Headquartered Companies, by Sector (2023), ISS Insights (adapted) [3]



> Regulatory interventions, voluntary initiatives, and an enhanced sense of value chain risks could be crucial in helping various stakeholders step into transparent and standardized Scope 3 reporting.
>
> — ISS Insights (2023)

06

TOOLS FOR TOMORROW – TECHNOLOGY & SUSTAINABILITY



BRIAN WARD

Humanizing Technology in an Industrial Design Practice



▲ **Brian is an Industrial Designer with 15+ years' experience, specializing in sustainable, circular design.**

As an Industrial Designer, there is an old joke that many of us in this field experience at one time or another when asked the dreaded question, "So, what do you do?"

We reply cheerfully, "I'm an Industrial Designer," yet often receive a blank look, a questioning expression, but sometimes worse, the truly 'dreaded' reaction of "Oh! You design factories!" An extensive explanation then follows.

Industrial Design is not about designing factories. Industrial Design is about designing and crafting objects and services in the market beneficial for people's use. Thus, humanizing technology in industrial design is a foundational concept of creating products that not only address functional and aesthetic aspects but also enhance the overall human-centric experience. At the core of this philosophy lies a deep understanding of users' needs, emotions, and behaviors, which drives the design process to prioritize human well-being, inclusivity, and sustainability.

Intertwined with humanizing technology is the adoption of circular economy practices. A Circular economy aims to minimize waste and maximize the lifespan of products by promoting reuse, repair, refurbishment, and recycling. In Industrial Design, this translates into creating products that are durable, repairable, and adaptable to different user needs, thereby reducing the environmental impact of manufacturing and consumption.

Sustainable design further complements the human-centric approach by emphasizing the use of eco-friendly materials, energy-efficient processes, and ethical production methods. By integrating sustainable practices, designers can not only reduce the environmental footprint of their products but also contribute to a more responsible and ethical industry.

/ Human-Centered Technology
/ Circular Economic Design
/ Sustainable Innovation

When the philosophy and practice of humanizing technology is combined with circular economy and sustainable design principles, the result is a holistic approach that benefits users, markets, and the environment. Designers are challenged to create products that are not only aesthetically pleasing and functional but also environmentally conscious AND socially responsible. The human-centered approach not only leads to more user-friendly products but also drives innovation, inclusivity, creativity and success in the marketplace.

Humanizing technology (in my Industrial Design practice) grew from observations, care, and interest in people's immediate lives, and also as importantly, future generations.

From that, several recurring questions arose and are keenly important to answer for Humanizing Technology in the future.

01 What happens to people's lives in the future vision of Sustainable Design?

02 Changes in how people live and work over the last few years have generated global anxiety regarding the future (e.g. – global environmental change/pandemic/ work from home / Augmented Intelligence AI). How do we create hope for the future to reduce these anxieties? Or, does anxiety compel us to find solutions and make those changes?

03 How can we use nature to create products not only in materiality and processes but possibly in the realm of Biomimicry, using nature's shapes, languages, and processes, reminding us about what we are a part of – this Earth?

These questions are not only crucial for Industrial Design but also society and the planet.

Humanizing technology through circular economics and sustainable design practices in Industrial Design is not just a trend but a fundamental need in today's world.

In conclusion, humanizing technology through circular economics and sustainable design practices in Industrial Design is not just a trend but a fundamental need in today's world. By prioritizing human well-being, environmental sustainability, and ethical production, designers can create products that not only meet users' needs but also contribute to a more sustainable and responsible future.

This integrated, empathetic Industrial Design practice approach offers a dual outcome – it benefits users and the environment, and it also paves the way for a more conscientious and innovative marketplace.



JEFF JONES

The Future of Data-Driven Sustainable Design



▲ **Jeff specializes in strategy, systems thinking, and business model development, advising firms on growth, M&A, and organizational design.**

/ Design for Good
/ Sustainable Strategy
/ Data Innovation

My mom is smarter than I am. To anyone who has met both of us, this is hardly a revelation. It is like saying that George Clooney is more handsome than Winston Churchill. It's objectively true.

In recent years, I have been reminded of this truth in part because of how business has evolved and how she somehow understood the value of that evolution. She consciously supported sustainable and responsible companies through her purchases and investing long before it was fashionable.

Let's set the record straight: a new era of business isn't coming; it is already here. Multinational firms like Apple and Microsoft have made meaningful statements in terms of their commitment to delivering sustainable, long-term value. Financial giants like State Street and Blackrock have fundamentally altered the direction of investment strategies. Sustainability-minded movements like B-Corp and Conscious Capitalism continue to mature and influence reporting trends for stakeholder capitalism.

Even the Business Roundtable, a collective of more than 100 of the largest, most influential brands of our time, decided to redefine the purpose of a business to benefit all stakeholders rather than only shareholders. This new era of business is both exciting and uncertain, promising and increasingly complex.

My mom is not a businessperson, but she understood that it was not enough to simply hope that companies would "do good" and expect those good intentions to drive fundamental system change. She comprehended (long before I did) that the entire ecosystem needed to reshape and redefine the concept of integrated value creation. She was the first purpose-driven investor that I knew who envisioned a world where business would create more value for more people. It only took me two decades to catch up.

The Default Definition of Value

Milton Friedman's shareholder primacy framework has been the dominant school of economic thought over the last five decades. This paradigm prioritizes shareholder returns over any other form of value, and it has driven immense economic value for shareholders.

However, the singular profit focus has also led to short-termism and severe underinvestment in non-financial assets, which has had negative long-term impacts on people and the planet. It is important to note that economic profit is not the enemy. It is good and necessary, but profits can and should be leveraged as an enabler of doing more good for more people. But how?

We need new ways to think about value and value creation.

We need new ways to think about value and value creation.

The Paradox of Value

An expanded definition is helpful. However, it doesn't address a simple but critical concept called the paradox of value. This concept was introduced by Adam Smith, the father of capitalism, a few hundred years ago. For those of you that aren't economics geeks, check out this 3-minute video primer on the concept.

In the most simple terms, the value of something can be expressed in terms of its exchange value or its use value. The default for business has been to seek to satisfy the more tangible and short-term exchange value, meaning the product or service is worth what someone is willing to pay for it right now. While this is certainly a key form of value, this simple economic default mode is becoming less complete as a broad range of stakeholders seek multi-dimensional forms of value.

Alternatively, use value is often long-term in nature and can be either tangible or more intangible (like an experience).

What we are seeing is more people lean into preservation of assets that are:

- Shared
- Critical for life and happiness in ways not easily defined by money
- Long-term in their value provision, cost to repair and use (the climate, earth's rare resources).

The idea in either case should be to maximize the "utility" that best satisfies the needs of all stakeholders, not just the shareholder. If you think of the young people in your life, it's likely that they are more motivated by non-financial utility than any previous generation. This generation is moving toward a more integrated, long-term value perspective and any business that ignores this fact is in trouble.

Leveraging Capital Creates Value

While value is a fairly abstract concept, it may be easier to connect it to a more tangible idea: capital. Businesses create value by leveraging capital for the benefit of stakeholders. When most of us think about the term capital, we gravitate to the most tangible things like equipment and cold hard cash.

However, in the world of Business 2.0, we need to define and recognize four basic forms of capital that can be leveraged to create value:

- **Economic Capital** (e.g. cash, equity, debt)
- **Social Capital** (e.g. people, teams, groups, society)
- **Natural Capital** (e.g. energy, land, water, air)
- **Strategic Capital** (e.g. ideas, plans, designs, intellectual property)

To demonstrate these forms of capital, let's use the iPod launch in 2001. It is easy to forget how revolutionary this product was at the time, but consider how Apple leveraged all four forms of capital.

First, the idea. The concept, design and engineering required to conjure a completely new product (jukebox in your pocket) in a new category is an incredible example of leveraging strategic capital. Dozens of firms at the time could have had similar R&D product outcomes at the time.

However, the ability to focus on an entirely new business model required significant strategic thinking and innovation. This strategic capital could easily have been deployed on any existing Apple product at the time, so the opportunity costs were real.

Obviously, something at this scale required significant economic capital. While there is no definitive answer on the amount of investment, at a minimum, it required millions of dollars of high-risk development time. It's easy to gloss over this in hindsight, but clarity from leaders was a must to commit financial resources to an uncertain future.

In 2001, the idea of optimizing natural capital was not in vogue. It was a different time, where most decisions were simply hardware manufacturing choices seeking the lowest possible price. While that certainly drove outsourcing products through China, the idea of form factor and usability drove very specific long-term design and materials decisions. That design was viewed as functional art by early users and contributed to the long-term brand value.

The true genius of the iPod launch was connecting the hardware product to a completely new world of social capital called iTunes. This virtual community enabled artists, music labels and consumers to connect in completely novel and empowering ways. The social value of the product was truly revolutionary.

Interestingly, all forms of invested capital in this case (whether recognized or not) contributed to the outsized financial success and growth of the company. What might Apple have been capable of doing if they'd understood and intentionally leveraged all of these powerful forms of integrated value creation at the time?

So...What do we do now?

So what does this all mean in practical terms? How can leaders make actual progress toward generating more value for more people without failing their shareholders? There is no perfect solution or best practices, so stop chasing them. Be like my mom and seek progress, not perfection. A few smart, strategic and integrated actions on material items will set you on the path of sustainable competitive advantage.

Here are four pragmatic suggestions to consider based on our experience. You will definitely not have decades to catch up, so get started now:

01 Map your entire ecosystem.

Value is likely hidden all over your organization. But we see even more untapped value when we help our clients explore beyond the organizational and entity boundaries. Suppliers, alumni, trade associations... completing a full map of your business landscape forces leaders to seek value opportunities for more people.

02 Avoid the trap of simply translating non-financial capital into economic terms.

While this approach is fairly easy to comprehend and often more comfortable to express on balance sheets, we believe this risk leads to false equivalence and poor decisions. For example, when trying to quantify the level of social cohesion in an organization, it is very hard to equitably compare the multi-dimensional value to the hard costs or returns of implementing such a program. It requires deep strategic thinking, not just a simple cost comparison.

03 Decipher & optimize connections between all forms of capital.

This suggestion is probably the hardest to execute, but is also the most beneficial. While this article presents clear lines between the forms of capital and types of value, in real life the lines are very blurry. It's hard to specifically determine how investments in your supply chain impact your workforce, your shareholders or the citizens in the town where your factories are located. These are multivariate challenges and require a deep dive to make informed and material decisions.

04 Upgrade your enterprise risk management capabilities.

A majority of mid-market firms that we partner with underinvest in risk management. That is going to become a serious problem in the future when trying to deliver even more value to more stakeholders. The reputational risk of doing nothing, or even worse, doing more harm, is increasingly punitive in modern business. The COVID-19 crisis and Black Lives Matter movement have both taught difficult lessons to reactive organizations. Taking a proactive long-term view of the connected ecosystem risks is now the required way of doing business.

The era of expanded value is emerging and uncertain, so don't believe anyone that says they have all the answers. There are certainly risks involved in moving in this direction, but it reminds us of a famous JFK quotation:

> There are costs and risks to a program of action, but they are far less than the long range risks and costs of comfortable inaction.
>
> — John F Kennedy



DR. EMILIO LONARDO

Reimagining Relational & Regenerative Design



▲ **Emilio is a versatile designer and educator specializing in design and innovation.**

We live in a world where connectivity is not just digital.

Our interactions extend to the spaces we inhabit, the objects we use, and the people we encounter daily. The boundaries between the physical and virtual have become porous, perhaps even dissolved, and previously distinct design taxonomy—such as product, interior, or service design—are becoming obsolete in the face of new paradigms. This shift prompts a critical question if should design still focus solely on creating objects, spaces, interfaces or experiences.

In the era of sustainability and circularity, design must evolve beyond the production of mere artifacts. A relational design approach requires a holistic perspective that considers the complex mesh of interactions within the ecosystems we create.

Every element introduced into the world through design should contribute not only to human life but also to the regeneration of environments and the well-being of ecosystems that connect all living and non-living entities. The goal is to balance the human and the non-human, fostering regenerative processes that support ecological harmony and social equity.

The Core of Relational Design

A decade ago, after completing my studies in design, I had a transformative experience that forever altered my perception of time, space, and design. One evening, while gazing at a particularly bright star, I witnessed its light slowly fading until it disappeared entirely. This event, the death of a star that had occurred thousands of years before, made me realize that time and space are far more interconnected than we often perceive.

/ Regenerative Design
/ Systems Thinking
/ Eco Collaboration

As designers, we must take this into account, especially when considering sustainability and the long-term impact of our creations. We are not merely shaping the present but creating echoes that will reverberate far into the future.

Relational design is about embracing this complexity. In a world of finite resources and increasingly fragile ecosystems, design should not be about creating isolated products or services. Instead, it should focus on relationships—between people, environments, and objects—and how these relationships can foster sustainability. This approach aligns with the broader goals of circularity and regenerative design, both of which seek to minimize waste, maximize resource use, and restore natural systems.

Moving Towards Regenerative Design

The principles of regenerative design challenge traditional notions of human dominance over nature. Rather than imposing control, regenerative design emphasizes a collaborative relationship with the environment, where design plays a role in healing and regenerating ecosystems. This is not just a matter of creating sustainable products but of adopting a broader, eco-centered approach that views all design outputs as part of a living system.

Circularity, in this context, is not just about recycling materials but about designing for close-to-infinite loops of use, repair, and regeneration. Products are conceived as never truly "finished," but rather as part of a dynamic system that evolves over time. This non-linear thinking encourages designers to create open-ended solutions, where the trajectory of a product's life is not predetermined but adapts to changing conditions. It is in this flexibility that we find a closer alignment with the natural world's cycles of growth, decay, and renewal.

For instance, designing a bench for a public space is not simply about creating an object for human use. It involves considering its relationship with the surrounding environment—how it will interact with the sun, rain, wind, and even non-human actors like birds or plants and even non-living actors such as dust. The bench may wear and change color over time, and these transformations should be embraced rather than resisted. The notion of designing for the long term, and for the diverse interactions that occur throughout an object's lifespan, is a hallmark of regenerative design.

Technology has a crucial role to play in achieving regenerative goals. Smart materials and adaptive technologies enable us to design environments that respond to both human needs and natural processes. Thermochromic finishes, for example, change color based on temperature, revealing new visual information as the environment shifts. Such technologies allow us to create dynamic, evolving spaces that not only serve functional purposes but also engage with ecological cycles.

More importantly, technology can serve as a bridge between the human and non-human worlds. By capturing data from our environments—be it air quality, temperature, or biodiversity levels—we can make informed design decisions that contribute to the overall health of ecosystems. This creates a dialogue between the built environment and the natural world, where each informs and influences the other. As such, with this "gentle" approach, technology is not merely a tool but an integral actor in the relational and regenerative design process.

For too long, design has been focused on the human experience. Human-centered design, while valuable in certain contexts, often overlooks the broader ecological implications of our actions. In a world facing climate change, biodiversity loss, and resource depletion, we must expand our view beyond human needs and consider the larger systems in which we operate.

This shift requires moving towards from an ego-centered to an eco-centered design approach, which prioritizes the health of ecosystems over the desires of individual users. For example, many urban public spaces are designed to exclude "undesirable" elements, such as homeless people or pigeons, through the use of hostile architecture like benches with armrests or spikes on ledges. Such designs, while solving immediate human problems, fail to consider the broader ecological or social consequences.

A regenerative approach, on the other hand, would consider how to create inclusive spaces that serve multiple species and purposes. Instead of viewing pigeons or homeless individuals as problems to be eliminated, eco-centered design would seek to integrate solutions that benefit both human and non-human communities. This could mean designing spaces that offer shelter for birds and humans alike or creating urban environments that encourage biodiversity rather than suppress it.

From Circularity to Spirality in Design: A Path to Sustainable Futures

The concept of circularity has been integral to regenerative design. Circular systems are designed to eliminate waste and maximize resource use by encouraging products to be disassembled, repaired, or repurposed, rather than discarded after use. For example, a chair should not simply serve its primary function for sitting; it can also act as a temporary shelter for an animal, a place to hang clothes, or a play structure for a child. By designing with multiple uses in mind, we can extend the lifecycle of objects and reduce the need for constant production of new materials. This approach conserves resources and minimizes the environmental impact of manufacturing and disposal.

However, in evolving from circularity to a spiral approach, we recognize that returning to the same point is not enough. In a spiral system, each cycle builds upon the previous one, creating new value and knowledge with every iteration. Rather than returning to the starting point, the system progresses, evolving in complexity and adaptability. For instance, materials designed to be reused or recycled do not merely revert to their original state; they ascend through new layers of purpose and functionality, continually advancing towards greater sustainability and regeneration.

This shift from a circular to a spiral model break from the traditional linear path of "take, make, dispose." In a spiral design, the end of one product's life is not just the beginning of another's in the same form, but rather an opportunity for transformation and enhancement. This requires designers to think about how products can continuously evolve over their lifecycle, integrating new technologies, methods, and uses as they move through each phase of their existence.

The future of design lies in its ability to create regenerative systems that nurture rather than exploit the planet.

Conclusion: Designing for the Future

The future of design lies in its ability to create regenerative systems that nurture rather than exploit the planet. By adopting a relational approach, designers can contribute to the healing of ecosystems and the creation of more balanced, equitable societies. In doing so, they will not only improve the quality of life for humans but also ensure the survival and flourishing of all species.

As we look towards tomorrow, it is clear that the challenges we face require innovative thinking and a radical shift in how we approach design. By embracing sustainability, spirality, and regenerative principles, we can design a world that is not only livable but thriving for generations to come.

ANUSHREE JAIN

Designing for Circularity, Not to Create More Waste



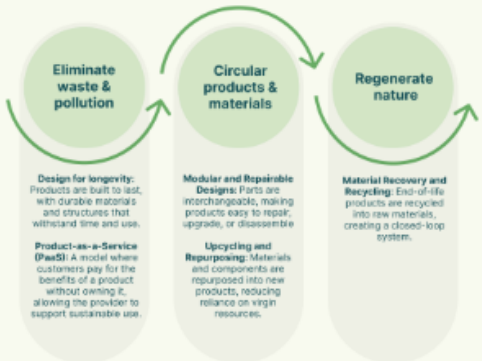
▲ **Anushree, a design-led product and venture strategist, specializes in human-centered innovation, transforming ideas into impactful solutions that align user needs, technology, and business value.**

As environmental concerns heighten globally, companies across industries are embracing the circular economy, a model that reimagines waste as a valuable resource.

A model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products for as long as possible. Products designed to land in landfills lack the upfront thinking on circularity.

According to the World Bank (2021), global waste production could reach 3.4 billion tons by 2050, and only 8.6% of global materials are reused in the economy [1]. This represents a major challenge, but also a chance for innovation, especially in product development and design, where circular principles could vastly reduce waste generation. The transition to a circular economy and reducing waste has the potential to unlock $4.5 trillion in GDP growth by 2030 [2].

▼ Graphic by Anushri Jain



/ Circularity
/ Waste Reduction
/ Sustainable Design

We have an opportunity in product development, to leverage circular economy principles to reshape how products are designed, manufactured, and used. By focusing on extending product life cycles, promoting reuse, and designing for disassembly, circular practices in product development, waste can be minimized and resources conserved.

A systems solution framework that tackles global challenges by Ellen Macarthur Foundation's guide is based on three principles, driven by design: eliminate waste and pollution, circulate products and materials (at their highest value), and regenerate nature [3].

Layering some design principles and approaches to each of those pillars presents ways to drive innovation with circular thinking in the product design and development process (See Table 1).

Circular product design is about ensuring that products are created with their entire lifecycle in mind. This means that from initial concept to disposal, products are designed to minimize environmental impact and maximize resource efficiency. Some companies are leading the charter in setting examples for applying these circular design principles in their innovation and product development processes.

Design for Longevity & Repairable Design

Dell's innovative use of "Ceralumin" (a material blend with properties akin to ceramic and aluminum), as showcased at London Design Festival, 2024, aims to contribute to circular economy goals by enhancing the recyclability and durability of its devices.

This material's unique composition offers the structural advantages of aluminum while allowing for more efficient recycling and repair processes. It plays a role in minimizing electronic waste by creating laptops that are more resilient and modular, increasing their lifespan and simplifying component reuse in the production cycle.

Modular Product Architecture

A modular approach enables easier repairs and upgrades by making parts interchangeable. Fairphone, a leader in sustainable technology, designs modular smartphones with replaceable components, allowing users to replace broken parts without discarding the entire device. This model not only extends product life but also reduces electronic waste, a growing environmental challenge.

Design for Disassembly

Creating products that can be easily taken apart at the end of their lifecycle ensures that components can be reused or recycled. IKEA's disassembly guides help customers dismantle furniture for recycling, emphasizing reuse and making it simpler for customers to participate in the circular economy.

Use of Sustainable and Recycled Materials

In addition to creating products that last, brands such as Patagonia are integrating circular economy principles by encouraging clothing repairs and resale through its "Worn Wear" program. They also utilize recycled polyester in their products and provide a lifetime repair program, encouraging customers to repair rather than replace items.

From modular electronics to upcycled clothing, circular design can reshape product development

Similarly, Nike's Flyleather is made from at least 50% recycled natural leather fibers, reducing the demand for virgin leather.

Product-as-a-Service (PaaS) Models

Instead of selling products outright, companies offer them as services, retaining ownership and managing end-of-life recovery. Philips' "pay-per-lux" lighting model for commercial spaces allows customers to pay for light as a service. Philips maintains the lighting, ensuring optimal energy use and recycling all components at the end of the product lifecycle. This model is ideal for resource-intensive products, ensuring that products are recovered and repurposed.

Implementing circular product development does come with challenges, including higher upfront costs, supply chain adjustments, and consumer behavior shifts. Yet, the benefits of reduced waste, conservation of resources, and potential for brand loyalty make circular practices highly attractive.

In a resource-constrained world, companies that adopt circular principles may gain a competitive edge by appealing to environmentally conscious consumers and anticipating future regulations.

As more companies prioritize circularity, they are setting new industry standards and pushing for a sustainable future. Governments and consumers are increasingly supportive of circular practices, creating momentum for continued innovation. From modular electronics to upcycled clothing, circular design can reshape product development, paving the way for a future where waste is minimized, and resources are conserved. By adopting circular principles, companies can make a positive environmental impact while creating lasting value for consumers.

07

A CALL TO ACTION



EMILY MCNAMARA

The Economics of Circularity



▲ **Emily, a trained architect, specializes in user insights, design strategy, and technology, using creativity and systems thinking to deliver impactful, sustainable solutions.**

Like many of its other applications and avenues, there is no singular destiny for AI in the particular profession of architecture.

The future of AI in architecture won't be a singular path, but a spectrum of possibilities where architects, from individual to visionary, leverage AI's evolving capabilities to design groundbreaking structures, democratize expertise, and even create for both physical and virtual worlds, just like past masters embraced new technologies.

The profession, or discipline, has always been a pursuit of exploration, rigorous curiosity and the embracing of new tools and technologies. AI is tackling the built environment from every angle - design aesthetics to performance analytics to construction efficiencies of costs and materials to operational monitoring.

This research began with the intention of identifying clear models for AI's influence on architecture. However, the issue's complexity revealed a wider range of possibilities. Focusing on sustainable practices across various scales (individual buildings, neighborhoods, cities), the exploration aimed to understand AI's potential within an ecological framework.

The most surprising aspect wasn't the impact on information, jobs, or robotics, but the substantial energy consumption associated with every AI interaction.

Even basic online activities require significant power from data centers, highlighting the environmental impact of this technology. There is inherent tension between the power between AI's computing capabilities and applied comprehension potential with the resource drain it requires for each computation.

AI is not new, but its recent surge in attention has generated a global user base in the billions. Its energy consumption already poses a challenge on resources creating a tangled paradox: AI could be both a key factor in the fight against climate change and an unintended contributor to the very problem it seeks to solve. It would not be surprising if AI is able to solve this energy-use problem for itself.

/ AI in Design
/ Sustainable Architecture
/ Future Urban Planning

How can architects insert “Nature-al” data sets into AI models to replicate these inexplicable efficiencies and beauty?

To return to the topic of architecture, many preceding masterminds of the profession looked to nature for inspiration and answers, even outside of the Biomimicry movement: Antoni Gaudi studied biological functions to inform his structures, Frank Lloyd Wright’s buildings convened with the outdoors through his use of natural light, water and plants; there are structural efficiencies in nature that cannot otherwise be explained or derived, but must only be imitated.

How can architects insert “Nature-al” data sets into AI models to replicate these inexplicable efficiencies and beauty?

An optimist’s perspective is that AI unlocks more specializations — decades ago there were generic “designers” who crafted visions and executed constructions of furniture, objects, environments, graphics and illustrations. Today, these are parsed into specific industries with specialized titles and educational qualifications. Does the future hold more granular applications to the title of Architect, where one specializes in a particular component of the proverbial art and science of building?

Only curious exploration, ideally with responsibility, sustainability and integrity, will it be determined. So much of the media highlights the fear and dangers of AI – which are, to be clear, not unwarranted – but there will always be irreplaceable value in the presence of the human, the curiosity and motivation to create, to feel and to connect with other humans and the environment.

> The future of artificial intelligence is not about man versus machine, but rather man with machine. Together, we can achieve unimaginable heights of innovation and progress.
>
> — Fei-Fei Li, Co-Director of the Stanford Human-Centered AI Institute.



PAUL MATO

A New Sustainability Directive



▲ **Paul, develops products and services that promote economic prosperity while advancing social and environmental well-being through life-centered design.**

The new Sustainability Directive of the European Union's has arrived to change the rules of the game worldwide.

It forces companies willing to operate in the EU to rethink almost everything they do, from the design of products to how they market them. In this context, strategic design is not just a good idea; it's almost a superpower. Because, let's face it, adapting to this regulation is not optional, but turning it into a competitive advantage is playing it smart.

The Directive that will make companies rethink their existence

Not only does the Sustainable Products Initiative cover more products than its predecessor, but it also requires companies to be clear, transparent and, of course, sustainable from A to Z. It is no longer enough to say something is 'green', now you have to prove it. From energy efficiency, to durability and recyclability, to absolute transparency in the supply chain even if it happens out of the EU frontiers. Don't worry, no one's asking you to invent the wheel... Well, maybe a little, but with strategic design you have it easier.

If you don't adapt, be prepared for a big headache if you pretend to operate en the EU. But, for those who understand that sustainability is not just a buzzword, but a strategic tool, it opens a lot of doors. More customers? More efficiency? An improved brand image? Sure, but what you're really gaining is something even more valuable: resilience. Yes, that word that has crept in everywhere lately, but in this case it matters. Because adapting is not just about compliance, it's about evolving and positioning yourself better for what's next.

Redefining the future and selling more

What we mean here is about taking advantage of the directive to redesign processes and products in a way that really makes your company more competitive. Have you ever thought the non-sense it is to design products that cannot be repaired, recycled or reused? The time has come to change your mind. And, mind you, this is not just because the EU is imposing it on you (although yes, it is a good push), but because the market is asking for it. People no longer buy just a product, they buy an idea, a commitment.

/ Circular Leadership
/ Sustainable Growth
/ Business Ecosystems

The Directive may be a little scary, especially if your organization wasn't already prepared. However, there's a huge opportunity for the companies that embrace the change: they will not only survive the crisis but will thrive over it. By shifting your mindset and viewing this Directive as a catalyst for transformation, you can unlock a wealth of opportunities for growth and innovation.

To turn this challenge into a business opportunity, consider how embracing it can influence in the next areas of business:

- **Enter new markets and gain new consumers.** Consumers are increasingly interested in products that don't harm the planet. If you offer something that tops up this thinking, not only you will win their favour, but your competitors will start to look old-fashioned by comparison.
- Less **Cost, More Efficiency** Optimising resources and designing more durable products is not only good for the environment, it's good for your wallet. Less materials, less energy, less waste. It's like they're saying, 'Hey, do things smarter and you'll save money".
- **Develop flexibility as the key to resilience** Companies that embrace sustainability now will be better positioned for whatever comes next. Regulations, global crises or the next waves of market changes: the key is to be prepared. And believe me, if we've learned anything lately, it's that the world doesn't look like it's going to calm down any time soon.
- **Investors who love sustainability** Sustainable investing is becoming more and more relevant everyday. If your company not only complies with regulations, but also has a clear and sustainable strategy, you will attract those investors who no longer look just at ROI, but at long-term impact. Yes, those who can help you grow without burning the planet in the process.

Just by focusing on these four areas, you can not only meet regulatory demands but also redefine your future and boost your business. Embrace the journey towards sustainability, and you will find that your organization emerges stronger, more resilient, and more successful.

Strategic Design and Life-Centered Design for a sustainable future

At Ikigai Design, as part of the Informd collective, we believe that strategic design is the key to successfully navigating this new landscape. It's not just about complying with a regulation, but taking advantage of it as a tool to innovate, differentiate and, for sure, sell more (that's almost always the ultimate goal). What we are talking about is redesigning products and processes to be both sustainable and competitive. Life-Centered Design is our approach to encompass everything, from consumer impact to the environment.

At Ikigai Design, we have long been driving this approach within the Informd network, and together we help organisations integrate sustainability into their DNA. We're not just complying with regulations, we're using strategic design to position companies at the forefront of sustainability, and that's what really matters in this changing landscape.

Leveraging the Directive to lead

Organizations that adopt Life-Centered Design position themselves not just as participants in sustainability but as leaders in a transformative business landscape. Envision a future where your products don't just meet regulations but redefine them, offering solutions that are innovative, modular, and easily repairable—all integral to a circular economy.

This shift both provides genuine value to your customers and opens up new business opportunities. Services like maintenance, product refurbishment, and recycling aren't just buzzwords but actionable steps that businesses can take today to thrive in the future.

At Informd, we partner with organizations to weave these sustainability principles into their core operations. We believe that strategic design is more than just adhering to regulations; it's about forging a path toward innovation, differentiation, and sustainable profitability. Through Ikigai Design and our collaborative network, we equip businesses with the insights and strategies necessary to turn sustainability into a true competitive edge.

The future Is sustainable and profitable

The new EU Sustainability Directive represents a radical change for business. But, like all change, it is also an opportunity. With the right strategic design approach and the power of Life-Centred Design, organisations will not only comply, they will be one step ahead. Sustainability is not a burden; it is a competitive advantage, a tool that drives business success. With the right approach, sustainability is much more than an obligation; it is a powerful lever for success.



DAVE HOFFER

Redefining Design For Future Resilience



▲ **Dave, a Silicon Valley designer since the dotcom inception, champions impactful design, writes on Medium, and fosters learning to address global challenges.**

A common approach to designing is to be human-centered. Generally, this means focusing on the people who will use your product, engage with your service, or experience how they interact with you.

The key is to understand people's needs and behaviors and design to serve those needs. This works best when aligning people's needs with your organization's goals.

When we create, we start with User research to gain as much empathy as possible. We might interview people and hear them describe their situation. Through dialogue, we gain an understanding of their context and draw insights. If we're designing a service, and talking to people who tell us how they spend their time and what they feel, we can extract behaviors and needs and apply them to the solution in our design work.

To be Human-centered means including this inquiry into the process such that you understand and have a level of empathy with the people you're designing for.

/ Design Transformation
/ Sustainable Practices
/ Future Ready Innovation

Human-centered design has taken since the middle of the last century to take hold as (relatively) common.

Human-centered design originated as an approach to creative problem-solving in technical and business fields. Professor John E. Arnold first proposed that engineering design should be human-centered as part of the Stanford University design program in 1958. This work coincided with the rise of creativity techniques and the subsequent design methods movement in the 1960s.

As designers, we've been advocating for it for years as a way to produce better products and services inside the enterprise. We've been fairly successful.

However, the idea of being human-centered is as old as humans. Humans have always been focused entirely on ourselves. We act in our self-interest. We put our needs at the fore of any problem we are trying to solve. It's not unreasonable to say that our focus on our historical issues, like feeding and managing larger and larger groups of people, has been the cause of our current issues, and being human-centered led us here.

Humanity started in Africa and began migrating. As they did, they came across a variety of species on different continents and subsequently killed/ate them out of existence.

"Our ancient ancestors contributed to the extinction of many of the world's largest mammals ('megafauna'). This was during an event known as the Quaternary megafauna extinction (QME). The extent of these extinctions across continents is shown in the chart. Between 52,000 and 9,000 BCE, more than 178 species of the world's largest mammals were killed off. These were mammals heavier than 44 kilograms, ranging from mammals the size of sheep to mammoths."

— Our World Data [1]

This doesn't just apply to megafauna. Approximately 300,000 years there were as many as nine other hominid species.

"It's not a coincidence that several of them disappeared around the time that Homo sapiens started to spread out of Africa and around the rest of the world ... What we don't know is if that was a direct connection."

— Prof Chris Stringer, head of human origins at the Natural History Museum in London [2]

Perhaps you've had your DNA tested with a service like 23andMe [3]. One of the fun results here is that some people have a percentage of Neandertal as part of their DNA...so killing isn't the only thing we did. As our populations have grown, so has our need for food, and many people like to eat animals. To this end, billions of cows, chickens, and pigs are killed each year for food. Let's just look at chickens for example.

"An estimated 50 billion chickens are slaughtered for food every year – a figure that excludes male chicks and unproductive hens killed in egg production."

— weforum [4]

This has a variety of ancillary effects on how people exist on this planet. Forest clearcutting for grazing areas and methane production from all these soon-to-die animals are both major contributors to climate change. If aliens are viewing and judging us, we may be on the wrong side of history.

But what would it mean to be life-centered, and how might we get there?

ONE We need a greater level of empathy for the other life on this planet.

When I first met my wife, we went to dinner. Knowing that she was a Marine Biologist, I chose a seafood place. While this was a good choice, I learned several valuable lessons that night. She carries a small card with her that helps her make seafood decisions. I learned about farm raised vs wild caught fish. I also learned that my wife's favorite animal was the Cuttlefish and that she wouldn't eat cephalopods. So much for the Calamari app I ordered.

Turns out my wife has first-hand experience with Octopus intelligence. She spent time at the Woodshole Oceanographic Institute and knew that the Octopuses would escape to eat from the other tanks. This has been well documented and is a really good sign of intelligence. More recently, Mark Rober, a YouTuber and former NASA engineer, wanted to test Octopus intelligence by crafting a maze for it to navigate [5]. This video is delightful to watch, and through this effort, he learned firsthand just how intelligent Octopuses are and returned his to the ocean.

Perhaps you've also seen 'My Octopus Teacher' [6], where a diver "befriended" an Octopus he met.

Additionally, some recent fiction I read has some really interesting explorations of animal intelligence. In 'The Mountain and the Sea, ' author Ray Naylor explores a near future where Octopuses have evolved to form a primitive society. Parallel to this, he explores how Artificially Intelligent robots, avatars, and ships interact with their human counterparts. Although fiction, it provides a fresh perspective.

The lesson here is that humanity has a narrow set of ideas about intelligence. This applies to so many other life forms that we should perhaps rethink intelligence [7].

Feel free to explore this topic more, but the conclusion I'm drawing is to stop eating certain animals and reduce my intake of others. I'm for the exploration of the production of synthetic meats as that solves some other problems as well.

TWO We need to embrace nature more deeply through conservation, reforestation, and replanting locally.

Tend to your garden first.

During lockdown, my wife and I chose to work on our yard. We're fortunate to own a home. This is a luxury, and we don't take it for granted. We got great exercise; it got us outdoors and breathing fresh air, and our property is now more beautiful. When we moved in, much of the yard was overgrown and had been left for years to lie fallow. One thing that bothered me was the English Ivy. Why?

"The vine snakes its way up the tree and under its bark, firmly attaching its roots and tendrils as it grows. Simply yanking the ivy would also remove the bark, which serves as the tree's vital protection from insects, diseases, and the elements. In addition, the ivy's densely packed leaves can block sunlight from reaching the tree, inhibiting photosynthesis, which diminishes the nutrients it can produce."

— AP News [8]

It's an invasive species brought here and planted with little thought to what it might do to the local flora. Apparently, the sun still doesn't set on the British Empire, and colonization wasn't limited to humanity. One of my tasks was to remove it. We chose to replant the areas with local, drought-tolerant plants, several of which flowered. Now, our yard, which is a continuous work in progress, is more attractive to bees and hummingbirds. The variety gives us a greater range of colors in purples, yellows, and reds, and these plants don't creep up trees and kill them.

If you live in a city and don't have the opportunity we did, is there an empty lot nearby that can be turned into a community garden? Can your roof support some planting? Have you considered speaking to your local government about replanting that dying tree on the sidewalk or nursing it back to health with some water and fertilizer?

On a larger scale, deforestation has been devastating to the planet. Forests are natural carbon stores, so not only are we pumping more into the air, but it has less opportunity to be absorbed because there are fewer trees to "breathe" it in.

"Net forest loss is not the same as deforestation — it measures deforestation plus any gains in forest over a given period. Between 2010 and 2020, the net loss in forests globally was 4.7 million hectares per year. However, deforestation rates were much higher. The UN FAO estimates that 10 million hectares of forest are cut down each year."

— Source [9]

Let's focus on the Amazon Rainforest as an example.

"According to the Science Panel for the Amazon, the Amazon rainforest is at a "tipping point" – the point at which the degradation of the ecosystem is irreversible. Deforestation across the Amazon is 17%, and it is approaching 20% in Brazil. The tipping point will be reached at 20-25% deforestation, not 40% as previously predicted. To avert the tipping point, Amazon Watch is working towards the permanent protection of 80% of the Amazon via solidarity campaigns for the demarcation of ancestral territories"

— Amazonwatch.org [10]

The forces seeking to raze the Amazon are doing so for entirely human-centered reasons. Humans want to sell the timber they cut down. They want to clear the land to provide grazing land for cattle and/or plant commodity crops. These forces often say they care about the land and the people there, but driven by increasing shareholder value and profit, they deforest the Amazon anyway. These are all human-centered pursuits in as much as people need lumber, beef, and palm oil, and these companies were designed by people to provide these things.

How might we take a more expansive view and be more life-centered than human-centered? Amazon Watch is a great organization to support for exactly this reason. They are working directly with Indigenous populations to try to solve this problem. This approach applies another important construct taking root in design today, which is inclusivity.

"Inclusive design methods—designing objects with rather than for excluded users—can create elegant solutions that work well and benefit all."

— Kat Holmes [11]

Lumber companies clearing forests to sell the trees are human-centered but not inclusive. To design inclusively is to attempt to include as many different people with as many different backgrounds and abilities as possible. The lumber companies cutting down the Amazon Rainforest disregard the indigenous populations and more broadly, the global environment. I mention Inclusive Design here but, I hope that inclusivity resides within Life-centered design.

THREE: Nature and our environment must have a voice in the design process.

You might be asking: "But I'm on a team that makes an internal enterprise dashboard...what does nature have to do with it?" On the one hand, it's easy to dismiss everything that does not directly affect the usability or desirability of the enterprise software you're making. After all, it took your team years to introduce user research to be human-centered in the first place. Now, I'm asking you to think even more broadly, beyond user needs and behaviors, to include nature and consider our environment.

If this year has taught us anything, it's that AI is here and is becoming more and more ubiquitous. You've played with ChatGPT, MidJourney, and Claude, so you know. So even if the tool you're working on isn't about to include AI in some capacity, you've already spent an amount of energy prompting one of these tools to do something. Even though it was just to play with it. Additionally, you sound just like your CEO did when you introduced the idea of talking to users. "Why should we talk to users, we already know what to build." So, let's be open-minded.

On the other hand, you might be right. Nature has little to do with your enterprise dashboard. But perhaps we all need to be open-minded to the possibility that the product you're working on or the company you're working at cares more about increasing shareholder value than it does for the environment. To quote one of my favorite childhood book characters, "Unless someone like you cares a whole awful lot, nothing is going to get better. It's not".

My colleague at Informd, Jeroen Spoelstra [12] has been educating people about life-centered design, and you can find out more here: https://lifecentereddesign.school/ but among his offerings is a workshop where he takes a group out to natural location; a stream, a meadow, etc., and there you create a persona for the PLACE. This fosters empathy whether it affects your enterprise dashboard or not.

With the advent of AI, we're seeing energy usage skyrocket.

If the product you're making is a washing machine, the environment should have a voice. That washing machine uses electricity and water, so keeping those at a minimum is important, but maintaining these devices is also critical. How easy is it to repair this device? Was it designed to be easily repaired? What is intended to be easily disassembled once it has reached its lifespan? I wrote an article about this for Fast Company, and my main positioning was that companies could engage in planned longevity vs obsolescence [13].

—

Life-centered design intends to think more broadly, not only about how we design, purchase, use, and discard things, but importantly, how we behave in the world. Plastic has been ubiquitous to humanity's detriment. It solved a useful problem for so many things that it wove its way into the fabric of our lives. But we have to get past it as a design material or think more deeply about how its numerous varieties are sorted and recycled.

With the advent of AI, we're seeing energy usage skyrocket. So, if you're working on a piece of software and your roadmap indicates AI features being put in place, then by all means, consider the environmental impacts and seek to mitigate them. By all means, eat less meat, but consider starting with the smart animals. I'll never order Octopus again. Lastly, consider inclusivity when engaging in your design practice. It's the right thing to do.

Authors

Industrial Design Advisor

BRIAN WARD



Brian Ward is an Industrial Designer with over 15 years of experience in Silicon Valley and the UK/Europe.

He has worked in diverse sectors, including White Goods, Healthcare, Consumer Goods & Electronics, and Architectural Lighting. His awards include CES, R&D 100, and The Medical Device Awards.

Brian focuses on developing humane products, simplifying complex design challenges, and advocating for sustainable materials and circular design.

Brian, holds an MA in Industrial Design from Central Saint Martins and a BA in Industrial Design from San Jose State University.

Chair, University Design Challenge

DR. EMILIO LONARDO



Emilio Lonardo is a versatile designer and educator specializing in design and innovation. Since 2013, he has been shaping future designers at Politecnico di Milano and Poli.Design, mentoring students in the Master in Urban Interior Design (MUID).

As the founder of "Quadentro," Emilio integrates gentle technologies to foster meaningful human-environment interactions, transforming urban spaces into vibrant hubs. He leads the University Design Challenge at informd, driving collaboration among academic institutions, students, and industry leaders to address sustainability and circularity challenges.

A published author in design and poetry, Emilio earned his PhD from Politecnico di Milano, focusing on space and human-environment relationships.

Design Research Advisor

EMILY PRIVOT MCNAMARA



Emily Privot McNamara is a Senior Researcher on the hardware (Industrial Design) research team at Amazon, where she evaluates existing products and frames challenges around user behaviors and interests to identify new opportunities.

Her career began as an architectural designer, working on projects ranging from high-end retail environments to local non-profit urban streetscape improvements. She later transitioned into design strategy, focusing on aligning user needs with business goals.

Emily has held positions as a design strategist at firms such as Native Design and Fuse Project, and has also served as a jury member for the Core77 Design Awards.

Experience Design Advisor

NANCY NAZ



Nancy Naz currently serves as Experience Design Director at Microsoft leading the development of AI products that ground art-of-the-possible creative with research insights.

Nancy is a champion for the human in the loop, advocating for the voice of the user by defining and practicing responsible design principles. When working with founders, executives, and co-conspirators, her greatest contribution is amplifying signal in the noise.

Nancy, navigates through ambiguity with decisive action, focused on developing a shared vision to jump V0 toV1. Personally, she thrives on coaching designers, fostering a culture of creating without fear, and staying curious as we imagine a better future.

Head of Built Environment

VALENTINA ANANIA



Valentina Anania is an Italian architect and industrial designer with over 20 years of experience as a design leader and strategist.

Her work spans commercial and hospitality architecture and industrial design, blending cultural adaptability with brand identity. Having worked in Italy, the US, and China, she balances local traditions with global trends.

Valentina, collaborates with clients to create functional, sustainable designs and mentors young professionals. She holds a degree in Architecture from Politecnico di Milano and an MBA from the University of Firenze.

Strategic Design Advisor

DR. MICHAEL LO BIANCO



Michael is a human-centered design leader with over a decade of experience in Australia and the United States. Drawing upon his extensive experience, empathy, and global awareness, Michael delivers exceptional digitally enabled products, services, and strategies. He has solved complex problems for various private, public, not-for-profit, and academic organizations.

Before joining the team at informd, he led a transformative customer experience program as the Director of Product and Service Design (Behavioral Health) at Optum, UnitedHealth Group. Michael holds two degrees from Swinburne University of Technology: a Doctor of Philosophy in Design, focusing on the intersection of human-centered design and healthcare, and a Bachelor of Design with First-Class Honors in Digital Media Design.

Authors

Future Foresight Advisor

JOHN ROUSSEAU



John Rousseau is a foresight and design leader specializing in guiding strategic inquiry and innovation within complex problem spaces. He collaborates with organizations to generate new knowledge, explore future scenarios, facilitate stakeholder discourse, and catalyze change.

John's recent projects include strategic foresight and human-centered design for electric and autonomous mobility, scenario planning for sustainable retail, systems thinking for the clean energy transition, and research on the post-pandemic workplace.

John has held senior roles at Deloitte, Artefact, and Frog Design, and was a faculty member at the University of Washington. He holds a BFA in design from the University of Michigan, an MFA from Cranbrook Academy of Art, and an MS in strategic foresight from the University of Houston.

Life-Centered Design Advisor

PAUL MATO



Paul Mato is dedicated to developing products and services that promote economic prosperity while advancing social and environmental health. Based in Madrid, Spain, he leads a team of forward-thinking designers who partner with public and private organizations to address complex challenges through a profoundly human-centered approach.

Beyond his design leadership role, Paul serves as a lecturer in two master's degree programs focused on Customer Experience and UX Research. His teaching emphasizes equipping students with the skills and mindset to drive meaningful change in their fields.

Paul's passion for life-centered design fuels his mission to improve the world by creating impactful solutions that empower individuals, communities, and organizations to make a positive difference. His work embodies a blend of innovation, empathy, and strategic thinking, fostering better futures for all.

Life-Centered Design Advisor

JEROEN SPOELSTRA



Jeroen Spoelstra is a Dutch designer and educator with over 20 years of expertise in industrial and human-centered design. He holds a Bachelor's degree in Industrial Product Design and a University Teaching Degree.

In 2020, inspired by his experiences with climate change in the Spanish Pyrenees, Jeroen embraced life-centered design. This shift led to the founding of the Life-Centered Design School in 2022, where he serves as co-founder and lead designer, focusing on integrating nature and biological ecosystems into sustainable design.

Jeroen has held senior design roles, collaborating with organizations to tackle challenges through a life-centered perspective. His work is driven by a commitment to creating value for all life forms, emphasizing biological ecosystems and advocating for non-user communities.

Business Transformation Advisor

JEFF JONES



Jeff Jones leverages over 30 years of experience within key roles as a leader and advisor, focusing on sustainable competitive advantage. He began his career in leadership positions within asset management and telecommunications during the rapid growth of the 1990s and early 2000s.

Jeff later transitioned to consulting, supporting large and mid-market firms in mergers, market entry strategies, product design, and business model revitalization.

His expertise includes Systems Thinking, organizational design, and business strategy.

Jeff holds a BS in Finance with a minor in economics from Colorado State University.

Business Transformation Advisor

NEIL BELLEFEUILLE



Neil BelleFeuille has held leadership roles steering companies, managing teams, launching startups, and advising clients to enhance business performance while prioritizing sustainability.

Early in his career, he worked as a Design & Innovation Strategist with Fortune 500 clients, developing and launching products and brands. Later, Neil founded a clean energy social enterprise linking energy distribution in emerging markets with carbon offset revenue to drive sustainable growth.

Today, as a strategic consultant, Neil helps businesses integrate social and environmental sustainability into their operations, bridging economic goals with ethical purposes.

Strategic Design Advisor

DAVE HOFFER



Dave Hoffer has been a designer in Silicon Valley since the beginning of the dot-com era.

During his career, he's worked for both startups and large companies including Amazon, McGraw-Hill, Frog Design, McKinsey, and PwC.

Dave firmly believes that good design is critical to success and is hopeful for the future.

His writing on design can be found at Medium, and he is an active participant in the design community, positing that learning and education are instrumental in solving the many problems humanity faces.

Dave holds a Bachelor in Industrial Design from Rochester Institute of Technology.

Authors

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MUKUL KRISHNA



Mukul Krishna is a global research leader with 25+ years of experience in growth strategies, market entry, and product launches.

A trusted advisor to C-level executives, he specializes in business intelligence, emerging technologies, and supply chain digital transformation, including AI/ML, blockchain, and ESG.

Mukul is a keynote speaker, widely quoted with over 2,000 mentions in major publications, and has received awards like the Service Excellence Award.

Mukul holds a Master's in International Management from Thunderbird School of Global Management.

Design Research Advisor

ELLIE MCBAIN



Ellie McBain is a Melbourne-based service and strategy designer passionate about education, sustainability, and healthcare.

She thrives at the intersection of these fields, crafting visionary yet practical solutions that improve lives. Ellie partners with organizations to create sustainable strategies, turning complexity into clarity.

Guided by empathy and collaboration, she uses co-design to unlock new perspectives and drive impact.

Ellie holds a Bachelor of Design (First Class Honours) from Queensland University of Technology and is pursuing a PhD in Design.

Sustainable Design Advisor

ANUSHREE JAIN



Anushree Jain is a product and venture strategist building impactful solutions through design-led approaches.

She has led strategic initiatives with Amazon, BCG X, Kohler, SC Johnson, and a health-tech start-up. Her expertise lies in leveraging human-centered design and behavioral science to create products that balance user needs, technology, and business value.

Anushree has worked across Fortune 500 companies and start-ups globally, leading cross-functional teams and collaborating with executive stakeholders.

Anushree holds a Master of Design from IIT Institute of Design, Chicago, and a Bachelor of Product Design from NIFT, New Delhi.

Circular Economy Advisor

CHRIS GRANTHAM



Chris Grantham is a renowned expert in innovation, specializing in strategy and system design.

As Circular Economy Executive Director at IDEO for a decade, he led transformative projects for companies like H&M, IKEA, VF Corp, Solvay, SAP, and Danone. He adapted IDEO's CoLab for circular economy initiatives and built a key partnership with The Ellen MacArthur Foundation, resulting in The Circular Design Guide, used by over half a million people worldwide.

An Aspen Institute First Movers Fellow, Chris is also a Supervisor at Cambridge University's Institute for Sustainability Leadership, and contributes to Exeter University's Circular Economy Masterclass.

Design & Editing

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Aurelia is a user experience designer, researcher, educator, and media artist with 20 years of experience exploring human-centered systems in partner with scientists, engineers, architects, and policy makers.

Working in R+D labs across diverse sectors has helped her to advocate for sustainable growth across a range of topics, including: inclusive design, autonomous control, and systems reform.

Currently based in Oakland, Aurelia has worked internationally in Berlin, Paris, Los Angeles, San Francisco, and Pittsburgh. She holds a BFA in Communication Design from Carnegie Mellon University, and an MFA in Media Design Practices from Art Center College of Design.

Strategic Communications Advisor
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Teresa Francis-Garcia is an Emmy-nominated network correspondent in the Broadcast News industry. Prior to her career in journalism, she worked in public relations aboard Rogers and Cowan.

Teresa's passion for storytelling has earned her several awards covering breaking news and enterprise stories across a wide range of topics. During her tenure, she has interviewed and worked with Nobel Laureates, global tech innovators, media and movie celebrities, and leading political figures.

Teresa's skills and experience allow her to excel in any environment while delivering compelling stories to her audience.

Teresa is an alumni of UCLA, UC Berkeley, and Notre Dame.

Founding Partner
JOSEPH OLIVER



Joseph Oliver is a strategic design and business change expert and a founding member of informd. He has led global engagements at Wipro, Designit, EPAM Continuum, and Digitalist Group, earning over a dozen major awards.

His expertise includes research, service and business design, system mapping, critical thinking, and future forecasting.

Joseph has overseen multi-million-dollar business transformations with Fortune 500 clients, aligning design to business objectives for growth.

He holds a Master of Research in Design from the Royal College of Art, and a BEng in Mechanical Engineering from Sussex University, UK.

Contact Us

We believe that together we can create a better tomorrow. If you are looking to collaborate or have an idea of how we can make an impact, we'd like to hear from you!

Let’s work together towards a sustainable planet for generations to come.

→ Informd.life/contact

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