[Design Thinking Requires the Human Touch in a World of Technology and GenAI.](#)

A six part posting series looking at the changing world for Design Thinking where technology, GenAI and Ecosystems all are challenging its current approach to the single organization or problem

We are facing a growing complexity, aided in finding solutions through greater access to technology, GenAI and the growing need to work in collaborative ecosystems for cocreation and problem solving.

Building out our innovation ecosystem in design and thinking

Finding the new building blocks of innovation ecosystem design and thinking.

Why change our thinking and designing around innovation ecosystems?"

For me, ecosystem thinking and design offer fresh ways for accelerating mutual learning, and through this innovation, outcome potential for sharing and knowledge building.

As we build an understanding of the power of digital platforms and ecosystem thinking, we can see gains and new values and realize different opportunities denied to us in the past by a lack of clarity, depth of understanding of what was in front of us but not appreciated, as we were looking at it differently and not seeing its potential in a combined value or bundling.

Today we live in a more connected world; technology has enabled this.

We are becoming far more networked and have a growing awareness of hyper challenges that we are in part resolving. Still, we face many blurring boundaries across market positions, competitors and global trade that need combining our talent and expertise to provide a new set of solutions, delivering on promise and impact. We are in a more complex world, needing different approaches within business organizations.

We hold the promise of liberating potential in resolving wicked problems and opportunities, providing we embrace the potential to combine and share outside our organization and tap into the rich diversity of knowledge, equally keen to collaborate and cooperate to achieve a more cross-cutting innovation that provides solutions to these more complex problems.

Organizations today are no different from the past.

The organization still seeks fresh growth and looks to establish new competitive positions. The organization must be liberated from the straight jacket they so often have "worn" constrained significantly by the current, often disjointed, innovation system and design they have adopted, built in piecemeal fashion over the years. We need a holistic, fully connected, open innovation architecture to exchange and build our ideas and concepts. Technology platforms hold that promise.

There is a real need for a new conceptual innovation framework

We need a better conceptual innovation framework, this innovation ecosystem one, to achieve this.

What is needed is something more radical and cohesive than we presently have. It moves from many "strands" of systems into one of building on one "single point of reference" that ecosystems achieve by being built and designed for a more cohesive set of innovation activities. It is knowledge-based and well-grounded.

The quest for knowledge

To achieve this evolution and allow innovation to thrive and work, organizations need to become better equipped in supporting knowledge, data, insights and people in their data handling, management, analysis sharing and processing.

This means we finally need to address controls and provide different structures and emphasis by re-orienting at faster learning rates on the reliance on the technical aspects. Having technology platforms as central to this becomes vital.

Building a collaborative environment requires digital technology as the platform.

The need for digital platforms and ecosystem designs has the growing potential to achieve this collaborative environment. The ability to evolve enterprise capabilities is evaluating value webs and artificial intelligence, pushing the need to reshape structures to be more outwardly facing, open to receiving new knowledge and prepared to share and exchange in return.

We are shifting critical capabilities that are growing the agility to trial, pilot and learn quickly as information flows in. We are achieving a faster adaptation and exploring mentality. Combining data and human knowledge reveals this collaborative potential and a new set of competitive opportunities. We are seeking collaboration and co-creation.

The increased ability to deploy, activate and utilize multiple organizations' resources and assets requires these digital platforms to constantly exploit latent potential through the network and relationship engagements that engage in mutual pursuit.

Ecosystems and platforms become the core of any design.

"Ecosystems fundamentally challenge how we currently do things and rearrange how innovation is managed today. It cannot work through stand-alone systems or software components. It needs "digital platforms that offer the technical and organizational context so a community can interact for a shared purpose" (adapted from Yochai Benkler)

Ecosystem design relies increasingly on building networks and relationships of interconnected organizations organized around one or a few valuable focal points. These firms can contribute to a shared platform that offers both producers of value but constantly engages with user-side participants, helping to dynamically shape, offer and provide insights, understanding and a forum for criticism and discovery on what they see as valuable to them.

It is in this ecosystem design that organizations can act differently on strategies, business models, leadership commitment and encouragement, building out different capabilities to build collectively new value creation, breaking down previously complex or challenging problems by having in place capturing systems and organizational models that reflect a common ecosystem design thinking.

Seeing the result, **achieving a more significant impact and contribution from our innovation activities**

The result of designing and thinking innovation ecosystems needs to have a robust, dynamic and holistic approach in its dimensions; it has to be systematically designed and implemented, knowledge-driven by events and process design, and driven by dynamic interactions.

This call for a different result than what innovation offers today.

Achieving this innovation ecosystem thinking does require a profound shift in how innovation is viewed and approached in the business landscape today and in the future.

To solve the more complex challenges we face today, we need to build sustaining, lasting impact in what we offer in future. This needs this growing dependent type of complementary innovation that ecosystem design and thinking provides.

Innovation thinking in Ecosystem and Generative AI design.

Innovation thinking in Ecosystem and Gen AI design

I believe there is a real need to construct a different innovation process. We are rapidly seeing the past of innovating simply in terms of operating on our own.

We must question partnerships we have seen work in the past and ask if they are suitable for the future.

Innovation is undergoing a radical change, in opening up to technology, collaborative thinking and the value of generative AI thinking.

For me, ecosystem innovation and generative AI have arrived at that pivotal point to significantly influence future innovation design. It is where we need to question workflows and processes, as openness has become increasingly central to our thinking and development-building process.

Innovation needs reinventing. There are new ways to capture, extract and deliver value. Adopting ecosystem thinking combined with Generative AI will augment, automate and rapidly scale innovation.

I have been exploring this to support those recognizing change is happening to support this innovation transformation. This follows from several posts in building this into a new approach and thinking over innovation designs.

Diving deeper…..

In my first post, "Embrace AI-driven innovation, it is the future." I have been looking specifically at the way the (traditional) innovation management process will change. The deployment of AI-driven thinking utterly alters my perspective of "delivering" innovation.

Earlier this year, I proposed a different framework for the innovation process and thinking. I provided a multiple series of posts that outline how I built this out, and this is a sum of all those posts. The building out of the Composable Innovation Enterprise Framework.. Designing a technology-enabled innovation process still holds good for the individual company that wants to evolve this out in more open thinking.

Now, I am building context and further thinking and insights to fuse the power of AI-driven innovation into this framework, with technology and ecosystem design as more central.

Taking my thinking further, I have been looking at different aspects of GenAI and Ecosystems for innovation.

This is a work in progress only, so let's continue on that journey:

Achieving an Ecosystem AI-driven innovation engagement process

Thinking through any engagement process, one that is required to break through traditional innovation processes needs to break down the new areas of discovery.

1. **Scenario Selection:** Identifying and selecting the right scenarios is crucial where ecosystem engagement and the use of generative AI can be significantly central. The first critical step is understanding an organization's goals and challenges and determining where Generative AI thinking and Ecosystem partnering can be most beneficial.
2. **Ecosystem Establishment:** Creating the necessary infrastructure and environment to support AI-driven innovation is essential. This might involve assembling the right team, procuring the needed technology, and ensuring data availability. The need to reach outside the organization to relate and understand what this can mean is essential.
3. **AI Initial Investigative Work:** Before diving into full-scale AI generative thinking, preliminary research and development becomes necessary. This includes understanding the capabilities and limitations of AI models, data preprocessing, and initial model training relating to potentials and constraints and evaluating differences between "go it alone" or in collaborations and then in what form and means.
4. **Innovation Concept Application:** Once you have gained a growing understanding of the value of AI models and brought this into any forward-thinking, you can use them to generate innovative ideas and solutions to "fuse" into your idea creation capabilities.
5. **Verification and Validation:** It's critical to validate the generated ideas to ensure they align with your organization's goals, are technically feasible, and have real-

world applicability. This step involves testing and refining the concepts. This step may involve iterative processes of idea generation, refinement, evaluation, and real-life testing and prototyping. This is to gain growing "comfort" on what this new combination of taking this out in AI-driven ecosystem thinking can bring. This needs to be purposefully built, compared and validated.

6. **Learning Plan:** Continuous learning is essential in evaluating ecosystem AI-driven innovation. This step involves creating a plan to gather feedback, analyze the outcomes, and adapt your AI generative thinking process for ongoing improvement. Evaluating and deciding what can be built "in-house" and what needs to go partnering.

Some additional considerations that need care when thinking through radical change around external data and GenAI thinking :

- **Data Quality:** High-quality data is fundamental for AI generative thinking. Ensure your data sources are reliable, diverse, and representative of the problem you aim to solve.
- **Ethical and Responsible AI:** Incorporate ethical considerations into your AI generative thinking process to avoid biases and ensure responsible AI use.
- **Human-AI Collaboration:** Leverage AI as a tool to augment human creativity rather than replace it. Encourage collaboration between AI and human experts.
- **Scaling and Integration:** As you see success in your initial deployments, plan for how to scale AI generative thinking across your organization and integrate it with existing processes.
- **Feedback Loops:** Establish feedback loops with stakeholders, users, and the AI system itself to refine and improve the generative thinking process over time.
- **Regulatory Compliance:** Be aware of any regulatory requirements or industry-specific standards that may apply to your AI-driven innovation projects.

I do believe the principles of design thinking, agile development, ecosystem thinking and design coupled with AI integration offer a radically exciting new innovation approach.

To make an innovation process stand out

When using Gen AI and ecosystems with a focus on continuous learning and adaptability, you need to reflect on the following key elements:

1. **AI-Driven Ecosystem Integration:**
   - Emphasize the integration of AI into the organization's existing ecosystem. Ensure that AI technologies connect seamlessly with data sources, analytics tools, and other relevant systems. This integration allows for real-time data collection and analysis, enhancing the generative thinking process.
2. **Continuous Data Monitoring and Feedback:**
   - Implement a system for continuous data monitoring and feedback. AI models can analyze ongoing data streams to identify emerging trends, challenges, and opportunities. This real-time feedback loop enables quick adjustments to the generative thinking process.
3. **Adaptive AI Models:**
   - Develop AI models that can adapt and learn from new data that employ techniques such as online learning, reinforcement learning, or transfer learning

to keep AI models up-to-date with changing environments and problem domains.

4. **Dynamic Scenario Generation:**
   o Create a scenario-generation process that can respond to real-time data and evolving business needs. This involves adjusting AI models to generate scenarios that address current challenges and opportunities.

5. **Contextual Innovation Concepts:**
   o Ensure generated innovation concepts are contextual and relevant to the current ecosystem and market conditions. AI models should consider the latest market trends and customer feedback in their idea generation.

6. **Learning Plan and AI Evolution:**
   o Develop a learning plan for both the AI models and the human team. This plan includes regular training and updates for AI model skills development and knowledge sharing for the innovation team.

7. **Experimentation Framework:**
   o Create a framework for conducting controlled experiments to test and validate innovative ideas in real-world scenarios. AI can help design experiments and analyze results.

8. **Open Innovation and Collaboration:**
   o Foster a culture of open innovation by collaborating with external partners, startups, and industry experts. Use AI to identify potential collaborators and assess their value to the innovation process.

9. **Performance Metrics and KPIs:**
   o Define clear performance metrics and Key Performance Indicators (KPIs) to track the success of the AI-driven innovation process. Regularly evaluate and adjust these metrics as needed.

10. **Knowledge Management and Transfer:**
   o Create a centralized knowledge repository to store insights, best practices, and lessons learned. Facilitate knowledge transfer within the organization to support ongoing learning.

By combining these elements, your innovation process will stand out as a dynamic, AI-driven ecosystem system that adapts to changing circumstances, leverages real-time data, fosters a culture of continuous learning, and consistently delivers innovative solutions that are well-aligned with the organization's ecosystem and goals.

Gaining immediate real-time value

AI-driven generative processes allied to an ecosystem setting give the potential to conduct real-time research. It offers the potential:

1. **Learning from Past Innovations**: By training an AI model on a dataset of past innovations, the model can learn to recognize successful patterns or features. This could include understanding what made certain innovations successful, identifying trends, and more.

2. **Generating New Ideas**: Once trained, the AI model can generate new innovative ideas based on what it has learned. It can use the patterns and features it recognized during training to generate ideas that are likely to be successful.

3. **Evaluating Ideas**: A trained AI model can also evaluate new innovation ideas. By comparing a new idea to the patterns and features it learned during training, the AI model can estimate the potential success of the idea.
4. **Refining Ideas**: As the AI model learns from new data, it can help refine and improve innovation ideas. This continuous learning allows the model to adapt and improve over time.

Switching to an AI-driven generative thinking process for innovation can offer significant benefits:

- **Efficiency**: AI can automate and streamline many aspects of the innovation process, saving time and resources.
- **Scalability**: AI can handle large amounts of data and complex calculations much more efficiently than humans, allowing for scalability.
- **Data-Driven Decisions**: AI can analyze large amounts of data to generate insights and recommendations, leading to more informed and effective decision-making.
- **Continuous Learning**: AI models learn and improve over time, leading to continuous improvement in the innovation process.
- **Personalization**: AI can tailor the innovation process to the specific needs and preferences of different users or contexts, leading to more relevant and impactful innovations.

Deepening the dive is part of my ongoing research and recognising we are at a point of some truly transformational innovation thinking.

Generative AI can ignite ecosystem innovation.

If done right, its potential can contribute to solving complex problems and challenges that organizations "standing alone" cannot resolve.

Innovation does need to be re-invented; GenAI and the value of ecosystems give the potential for higher-value work and greater sustaining return. We require rethinking our (entire) workflows to cover ideation, discovery, collaboration and execution.

It's important to consider these factors outlined above as part of this different thinking and plan accordingly to ensure a successful transition to an AI-driven generative ecosystem thinking and design process for innovation.

With the incredible assistance of ChatGPT to prompt, connect and help synthesize my thinking

The limitations, criticisms and new pathways for Design Thinking – Part One

Let me summarize where we are today in design thinking. In the past couple of weeks, I have been spending a fair amount of time on investigating design thinking.

This is **part one** of my thoughts that came out of investigating and researching design thinking **Part two link is here.**

In these two posts, I want to provide my outcomes, bridging the present and pointing towards a better design thinking future, in my opinion urgently needed.

The 'product of my work' itself is presently being worked through to be available as an e-book in the coming weeks.

The intent of the e-book with a direct link here (design-thinking-improving-potential-innovation) is to offer a practical, direct takeaway of design thinking, the present practices and where it is possibly heading. I tried to go linear, gone circular, gone holistic and at times ballistic and sought out tactical and strategic design, recognizing how its orientation has moved through product, service, experience, business model and lifting design into new ways of orientation at tactical and strategic levels.

As I found out from my research, there is an awful amount of "noise and hype" to work through to find the past, present and future positions of design thinking. In summary, I think design thinking is undergoing a revolution, a certain maturing but it is littered with a very messy, highly competitive present.

I am suggesting that perhaps design thinking is a current 'burning platform' and the term 'design thinking' is so loaded it might need to be reworked under different banners to allow it to evolve as it equally needs to be restated and deepened in its skills, practices, uses, and methodologies.

I certainly get the impression that there is an immense interest in design thinking as being a valuable contributor to being part of a solution within organizations to tackle their tougher problems as well as those that need a level of creativity to move through in understanding. For many though, I feel it lacks a real understanding of its value for the majority to sort the 'good from the bad' in design thinking or design thinkers, along with the what and where it can really contribute to achieving better solution outcomes.

It needs to break free of the magic 'black box' and evolve into its promise of being increasingly important to use, to balance out and integrated with other skills, capabilities, and methodologies that tackle real, often complex problems but more importantly, to be generally understood as a creative, human-centered methodology to get fully behind.

So part one of a two-part reflective summary:

I believe design thinking has a great role to play in contributing to solving problems and challenges, yet we have a series of problems to bring it back to a valuable order, we need to rein in the hype and the lack of a deep design thinking skill-set.

Far too many people are claiming to be design thinkers, after simply attending very limited "crash course" or "boot camps" and do not have the deep investment and experience to be true 'design thinkers'. If this continues design thinking will fail in its potential to be a really good creative problem-solving approach.

Design thinking has raised a lot of expectations as well as its fair share of controversy. Why are organizations so caught by DT? Often it became the promise of having creative ways to solve solutions and work in harmony with all the rational thinking that dominates much of business thinking today, DT sounded so appealing, it quickly became "*oh, we need some of that*."

The ramping up begins

So, the marketing of Design Thinking kicks in, looking to capitalize and add a real momentum. DT got heavily promoted. It quickly became simply sold as a process, just like Six Sigma, it became limited by those jumping on the latest concept not being true design thinkers, apart from attending a short course or two.

Then this new process became a little uncomfortable living alongside more established rational ones, it was difficult to integrate, so as this 'new kid on the block' struggled, questions started to raise their head on how does this compliment and add to all the efficiency and effectiveness that is expected around an organization's dominating mindset. Most lost the plot that design thinking was different. It was so different, it was human-centered, not process-centered.

What was soon realized that extra "fuzziness" can sit uncomfortably in highly organized and rational structures? Design thinking was looking for those "leaps of faith" and lots of 'being

creative', seeing failure and diversity was actually something akin to being hard to accept and conflicting in 'being judged'. Fun and engaging perhaps but it needed to be separated and contained.

Organizations have come up against this growing recognition that there is no one "plug and play" system for design thinking.

When you are asked to be flexible, agile, willing to experiment and often fail, sometimes publicly, this can take you into some very uncomfortable territory. You might like the idea but will the boss? When you do not have a clear definition of design thinking of where and how it can actually fit, how it works or means, it continuously suffers from a lack of clear assignment, it makes it feel a little bit of an oddball.

You are left wondering who executes this and how it might be applied and implemented at scale. What answers to what, what links into what? Yet it feels useful and needs to be more embraced for its creative value. So, the short answer is to give everyone a short exposure and let everyone embrace design thinking as the creative avenue for all to explore. It suddenly gets broken down so it can be repeatable, a step-by-step process. Then easy, we all become suddenly design thinkers, or are we?

Then we get the "let's systematize this" into a familiar, **easy to use and follow process**

Organizations suddenly turned design thinking into a linear, often gated, by-the-book methodology and suddenly it is not true design thinking anymore, it becomes just another too linear, too slow and not as bright a way to be 'so creative' but hey, we are design thinkers, that's not bad, is it? The dominating thinking about 'process' suddenly starts to screw up the 'freedom' within true design thinking. It quickly became boiled down to aiding and supporting the incremental innovation. It loses its real powerful edge of harnessing creativity to solve problems in highly imaginative and insightful ways, it becomes just the encouragement to help thinking along.

Design thinking so often then gets reduced down to supporting small project-related work, happily working at the periphery of the organization, it becomes simply a friend to incremental innovation and change. Leaders start to ask a question about all this design thinking 'hype' and began demanding far more from a design thinking process to tackle their complex problems. Then it is suddenly "*Huston, we have a problem.*"

Enter the need for a new design thinking way that is emerging.

Design thinking can play a richer role and be a more powerful contributor to bigger problems but it needs to evolve and be seen in a wider context and not seen as specialized, narrow and limited. It can connect to a wider universe of problems and complexity of design itself, over the centuries has broken out of past confines. Design thinking makes us all design-conscious if we allow it too. It is the human-centered design that can draw out the best of our thinking if we *do* allow it too.

DT encourages us to abandon the linear thinking and keeps us constantly undergoing that looping circularity as the accepted process and that needs resetting mindsets significantly. DT to evolve in all our minds, away from those past experiments limited to

narrow, linear paths of design thinking understanding is highly liberating, sometimes scary but deeply satisfying when you truly break through a complex problem.

We need to connect multiple thinking, diversity and different experiences that so often diverge initially to then collectively find the path to converge, in a common understanding, to translate the combined creative thinking into real action, achieving valuable outcomes.

There is a different pathway ahead, otherwise, Design Thinking in its existing form alone will fail.

Design Thinking will not be evolved if we step back from this wrong path that many have been following in recent years, it will get pushed back and sink into the background, occasionally turned too, in a world far more dominate and schooled in detail-orientated highly rationale process methodology and thinking. Design Thinking can be increasingly integrated towards business and becomes both stronger in the human consciousness for process and culture contributions.Yet to get to this point there is this need to firstly, go back to the design thinking drawing board.

Design Thinkers should restate their value proposition before it becomes too late, to deepen the techniques and avoid moving out of their specialized role of being great facilitator to connect others to thrive and build solutions. Otherwise, there is this risk that DT fails in its real potential as a real creative process to search out imaginative solutions that *DO* solve complex problems. It is up to the design thinking community to come together on this, as today it is a real mess of conflicting message and extremes, some offering snake-oil solutions, others keeping design front and focused from experience, exploring all the design thinkers options and honing their practice.

Design Thinking should be seen as a specific creative, human-centered process *all* our thinking should pass through. It needs a new lifting up into both tactical and strategic design thinking.

We need to allow the 'creative flow to emerge'

Design and good well-trained design thinkers are 'schooled' to be naturally creative thinkers, that is their space. They need to extend their toolkit of methods and tools to produce new value through the approaches they undertake. They thrive in the ambiguities recognizing in growing complex problems there will never be a concrete set of predictable answers.

Design thinkers work through the messy and unpredictable business, so typical of innovation and discovery doing analysis and synthesize to push more those unpredictable, surprising creative outcomes. To achieve this DT cannot be a prescribed step-by-step detailed process, it simply passes through stages, loops back when needed and moves forward when it 'seems' right.

I recall one comment I read: "*thinking does not convey action*". If constructed well, through experienced, trained design thinkers have the ability to draw out all the diverse thinking present, through a fuller inspiration, ideation and implementation mindset. It can offer a creative pathway that promotes a messy, sometimes conflicting, failure allowed, 'full on' set of emotions, to energize and tackle complicated problems.

The search is even more centered around strategically connected value creation

As we all are faced with the task of solving more complex problems that are strategic in need, it is for design thinking to step up and become more a key component on how to 'do' this. These as relating far more to the customer needs, to solving organizational challenges or market challenges and those more 'knotted problems' that corporations and society are grappling with. The ability to extract from design thinking methodologies can significantly help in the future.

Today what is being increasingly demanded is to solve more complex problems in creative ways as essential, then design thinking needs to work in harmony with many other thinking skills to make its contribution.

It certainly needs to mature way beyond a 'one frame thinking concept' to achieve this, to be central to finding solutions.

The limitations, criticisms and new pathways for Design Thinking – Part two

This is **part two** of my thoughts that came out of investigating and researching design thinking in the past couple of weeks. Part one is above

 Within these two posts, I want to provide my thoughts, bridging the present and pointing towards a better design thinking future, one that in my opinion, is urgently needed.

These two posts are not intended as a mapping of the present DT landscape, they are reflective posts coming from what I researched.

The 'product of my work' itself is presently being worked through to be available as an e-book in the coming weeks. It has not been easy and often I found a level of confusion that kept forcing me to dig some more and I'm still not sure I have the answers, perhaps just lots of open questions. I think design thinking seems presently fairly messy and I feel is in need of a complete reset.

The intent of the e-book- direct link here (design-thinking-improving-potential-innovation) is to offer a practical, direct takeaway of design thinking, more of the present practices and then where it is possibly heading. I tried to go linear, gone circular, gone holistic and at times ballistic and sought out tactical and strategic design, recognizing how its orientation has moved through product, service, experience, business model and is lifting design into new ways of orientation at tactical and strategic levels.

As I found out from my research, there is an awful amount of "noise" and "hype to work through to find the past, present and future positions of design thinking. In summary, I think design thinking is undergoing a revolution, a certain maturing but it is littered with a very messy, highly competitive present.

I would suggest that design thinking is a current 'burning platform' and the term 'design thinking' is so loaded it might need to be reworked under different banners to allow it to evolve but it needs to be restated and deepened in its skills, practices, and methodologies.

I certainly get the impression that there is an immense interest in design thinking as being a valuable contributor to being part of a solution within organizations but for the majority of interested parties, it is difficult to sort through the good from the bad in design thinking. Often you miss that certain clarity of knowing where DT can contribute, what it all means to achieve better solution outcomes.

It needs to break free of the magic 'black box' and evolve into its promise of being increasingly important to use, open and transparent in what it can achieve and its limitations. It is to balance this out and point to the need to be integrated with other skills, capabilities, and methodologies that tackle real, often complex problems within organizations.

So part two of my reflective summary:

Design thinking becomes the best friend to innovation, strategically and tactically.

When DT is applied to business or social issues it is by making creativity logical, you have its power of contribution, it can transform our innovative solutions. Design thinking is a highly creative problem-solving approach with a toolkit of methods but more a specific mindset where adapting is constant. By doing the same just over and over again brings the same results or dampens the potential to spark different ideas and solutions. Design thinking as something far too prescribed 'dulls' the process.

There is hope, actually, it is well beyond a glimmer, we are seeing design thinking recognize it needs to step up and take design thinking into a more strategic position. This will mean that design thinking will change in the future, into a greater, fuller "thinking" mindset that can be applied to these more complex problems at an organizational level and contribute this creative thinking to numerous challenges organizations are facing today. It needs to evolve, otherwise, it simply fades away, into the background of being just 'helpful and useful'

Where Design Thinking Can Earn its Place

Where design thinking makes its contribution is through a good understanding of the users, making sense of ambiguous information, reframing opportunities, ecosystem conceptualization, prototyping to fail early and often. All this adds up to a creative process. Creativity is one of the key essences contributing to innovation.

Much of DT is working in a parallel space with many different paths to work through broad phases of investigative work. This makes DT seem "fuzzy, ambiguous and strange to many who are more trained in being analytical, often with backgrounds in science and engineering. It is bringing a degree of art and creativity to science and rational thinking. This combination must constantly search for a common language.

The need is for deeper immersion, for synthesis, for conceptualization, for constant evaluation, for exploring prototyping and it is seeking the right combinations that help blend all the different thinking into those valuable solutions. This is why DT can stand alone but is better in a broader system thinking approach. It can be so simple to tackle a specific customer problem, product design or service need, no question, where its design lies in its four elements to work through: of define, create, refine and repeat (as optional but likely) to eventually move towards a winning solution from the work of the combined thinking. The point is today organizations are asking for more out of their design thinking to tackle complex issues as well.

The constant danger is these different "open" steps or stages are equally a strength but also a weakness. For so many, these steps seem so insufficient and unconnected to their past reality. It is the need to connect this all up, to show it is real, it is the intuition, chaotic, divergent, naturalistic inquiry form and we need to offset our current more linear, sequential and reductionist inquiry mindset, so dominate in organizations today. Design thinkers need to tack on this challenge.

Lastly here, as complex problems become ever-louder in need to solve at both tactical and strategic level we must recognize their root causes are: "*often multiple issues, all tangled together, often hard to identify the critical parts and more than often hard to extract from the effect as solving one part often can worsen another or have greater consequences. Breaking up complex problems is tough as they are dynamically linked and deeply nested*" (Quote from Chris Lawer in his paper on design thinking and healthcare)

Strengthening our thinking through processes.

The strength of thinking needs to be constantly working at creative blending a design and business thinking, each time that will need to be different applying different techniques and frameworks. We need to move from that 'one' correct answer, often blindsiding us, into the many solution possibilities that take innovation out into new realms of solutions that meet a more integrative thinking that connects ideas more to customer needs.

It is that search for involvement from the diverse voices of users and inventors, it needs to be analytical and intuitive, it needs a blend of deductive, inductive and adductive thinking and that needs huge space and time to allow the thinking to work through. This divergent and convergent thinking, to zoom out, zoom in and connect all the diversity within the thinking

and design of the ultimate solutions. The ability to connect, to manage this is the 'art' of the design thinker leading the facilitation process.

We often lose sight that if we lack customer or outcome focus we are more likely to fail, and if the construction and framing of the design thinking are not well stated it simply becomes a failure potential before any investment is made.

We move from consuming the idea of design thinking into a deeper participation as it synthesizes our thinking by allowing us all to have imaginations, thus feeding the roots of creativity that leads to innovation that tackles those complex issues we all face. We get equipped to bring all those cross-disciplinary thinkers together to break down the problem in a human-centered design construct.

Presently we are in the middle of this change, seeing how it evolves.

As I have finished in my e-book, I really feel design thinking is about to evolve. I feel I've not captured that change sufficiently but the e-book was constructed as more to assist in current DT understanding giving a background to why we need to change within the framing, so it built on a better understanding of the foundations of design thinking.

Within the e-book, currently in the 'production works,' I have taken the work of two different design thinking consultants or organizations to 'cast' out design thinking into a possible future. They offer more upstream strategic design thinking or take the view that that design is increasingly circular. Both are trying to shift the current race-to-the- bottom narrative you see in many design thinking suggestions into more strategic and broader system thinking levels, recognizing the need for greater change to tackle a growing complexity and mounting frustration that design thinking can't stand on its own.

One is the collaboration between Ideo and the Ellen MacArthur Foundation, focused more around the concept that design is increasingly circular.**The Circular Design Guide** is a collaboration between the Ellen MacArthur Foundation and IDEO

The other is **Humantific** who are taking design thinking out and forming it around a more robust set of thinking methodologies, way beyond 'just' design thinking but more into "sensemaking" through these different approaches and framing and methodology techniques.Humantific takes a **hybrid approach** that looks to integrate the best of human-centered design thinking, strategic problem solving, and information visualization.

Pointing towards a future.

That future can happen if design thinking wants to evolve itself and I think we would all want that, it needs to move beyond its current present often caught up in a "fad" and "hype". We need to develop it out and put it to use as more advanced problem learning capabilities, that challenge the desire for quick, handy "quick fixes" and think more deeply in strategic design terms to achieve better, more sustaining outcomes. Today, many of the outcomes get 'push back' as they did not account enough on the broader context, the system impact, they defined the challenge in far too limited ways and the results were limited, even though their was a lot of creative energy.

In this recent report by RSA an action and research centre called "**From Design Thinking to System Change**"

"Great design doesn't always generate impact. As we show in this report, innovations attempting to scale and create systemic change often hit barriers to change, sending them catapulting back to square one. We call this the 'system immune response'. The particular barriers will differ dependent on context, but might be cultural, regulatory, personality driven or otherwise.....

"Design thinking alone will not be enough. The core insight of this paper is that solving our most complex problems will require augmenting design thinking with a systems thinking approach as the basis for action"

I think this is our present problem with design thinking as outlined in the RSA report:

Figure 6: The system immune response
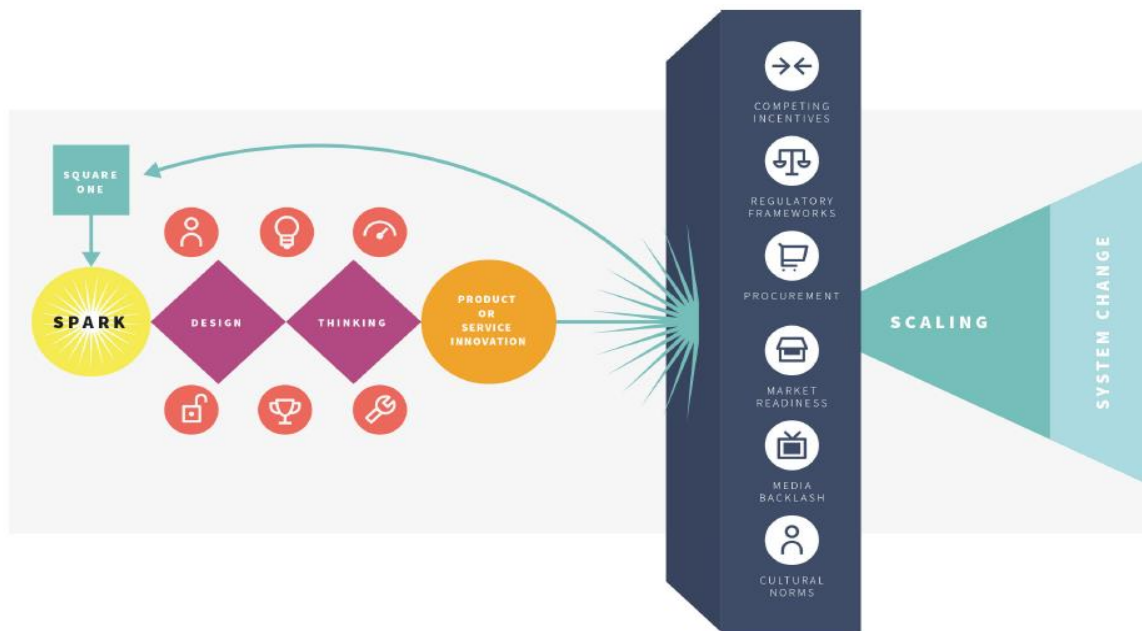
22. Ibid.

From Design Thinking to System Change

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"In reality what happens all too often is that the route from innovation to scaling, and thereby systems change, is fraught with obstacles".....and we create system immune response"

"The point is that scaling is usually far from a linear inevitability and the development of a product or service innovation may be just the beginning of a process of generating impact"

"While design thinking alone provides a compelling process for idea development, it fails to recognize that without due consideration of systemic complexity and power dynamics, even the best ideas can lie on the shelf unused, and thus without impact"

We fail to gain the impact we wanted or identified as we did not fully account for all the system dynamics and all that was necessary to make sustaining change. We end up often just moving the needle just a little and today, that is not good enough.

The recognition of change within design thinking is growing momentum

In a forthcoming online festival, called **the Disruptive Innovation Festival** organized on November 6th to 24[th]by the Ellen MacArthur Foundation, this might be interesting. They have three main themes. One of these will be on the Future of Design where you can join from anywhere for free, sign up by clicking on the above link.

To quote : "*Design has changed forever. Rather than just creating a single product for a single customer, designers of today have a new challenge: to create better systems adapted to a world of connected citizens, unpredictability and digital disruption.*".

There is this increasing need to understand the systemic conditions, the interconnected dynamics at play, the impact on the value chain and the ecosystem, on the business model and understand the organization and societal conditions in which this problem and challenge plays out. These need this deeper thinking so design thinking can marry the impact and understanding these more complex challenges require.

Summary

Design thinking has become a major methodology, it is presently running ahead in the expectations of what it can deliver and does need to re-think on how it is going to take this concept forward. The (real) design thinking community is racing to catch up and respond. The challenge for it is it has multiple voices all offering a wide choice in the past, what ones will emerge to give us a different design thinking future?.

We are presently in need of "buyer be (very) aware" otherwise you end up with a result that does not do the job you had in mind or more critically did not help solve the problem in your or worse still your customer's eyes. Investing time in knowing what you expect as outcomes mean designing the problem or challenge in far more thoughtful ways, before you embark is critical in any design thinking journey.

Yet be even more ready if it evolves in 'sudden and amazing' ways you never expected but to have a clarity of original purpose ever-present keeps design thinkers in that constant analysis, to then be able to embrace the synthesis.

"Holding the course" or "breaking out of the mold" both need the courage and a real trade-craft to systematically test and iterate concepts until they 'feel' right. To both 'conceive and make stuff' can be really exciting.It is so human-centered and that is what design thinking is all about. How design thinking evolves will determine its position in our innovating world.

Get comfortable with this thinking alternative and what it can potentially give you in tackling your challenge or problem. Also remember DT is increasingly needed to be a more worked at a system level, beyond 'just' product, customer experience or service level. This is where the future of design is focused and where much of the current confusion lies, we are in the middle of these changes and they are being worked through in multiple ways, it seems.

The future interplays between design thinking, technology and AI

Exploring the interplay between Humans, Technology and AI for design thinking

Why is design thinking regarded as so crucial to the future of innovation in a world of accelerating interplays between humans, technology and generative AI?

By embracing Design Thinking principles differently in the future of innovation, organizations can foster a more profound culture of creativity, empathy, collaboration, and user-centricity. This can lead to the development of innovative solutions that address real-world problems while considering the interplays between humans, technology, and generative AI.

Firstly, we have the interconnected global marketplace as our context

The change toward an interconnected and conscious global marketplace has been of significant importance, reshaping business strategies, consumer expectations, and societal values.

This shift has prompted innovation to develop tools and design approaches that support these changes in several critical ways based on four global aspects:

1. **Learning from real-time data**: Traditional analytics models and past performance data may not be entirely relevant in today's ever-changing business landscape. New analytics approaches powered by artificial intelligence (AI) can identify real-time data patterns, helping anticipate trends and inform decision-making.
2. **Moving to the edge**: Organizations are becoming more agile by adopting an "edge" approach. This involves moving computing power, data storage, and decision-making to the edge of operations. Technological advances and the pandemic-induced switch to remote working have boosted connectivity and information flows, allowing organizations to collaborate efficiently over distance.
3. **Embedding sustainability**: Companies are increasingly integrating sustainability into their operations. By embedding sustainability into everything they do, organizations create value for all stakeholders – staff, shareholders, customers, communities, and the planet. Operating sustainably is not only good for the environment but also good for business.
4. **A design-led approach** to embracing ecosystems: Embedding design thinking, methods, and tools from the outset of ecosystem development helps companies produce integrated ecosystem offerings that delight customers, stave off threats, and create new sources of value

We do need to think through the levels of different support the changes in the global marketplace can bring.

Our innovation tools and design approaches must evolve due to the potential of bringing humans, technology and AI into this interplay thinking.

It is the design-led approach I want to focus on in the remainder of this post and its evolving relationships.

First, we have the growing impact of technology on Design Thinking

Technology continues to provide designers with powerful ideation, prototyping, and visualization tools. Designers can leverage digital tools to create interactive prototypes, simulate user experiences, and iterate designs more rapidly in this interplay environment.

1. **Digital Prototyping and Simulation**: Advanced digital tools enable designers to create interactive prototypes and simulate user experiences with remarkable fidelity and allow for rapid exploration of design concepts, helping teams visualize and refine ideas in a user-friendly and collaborative manner.
2. **Virtual Reality (VR) and Augmented Reality (AR)**: VR and AR technologies offer immersive platforms for designers to simulate and test user experiences in three-dimensional spaces. Designers can use VR and AR to understand how users interact

with products or environments, making Design Thinking more central in creating immersive and engaging solutions.

3. **Machine Learning and AI-Driven Insights**: Integrating AI and machine learning into the Design Thinking process can provide valuable insights. For example, AI can analyze large datasets of user feedback to identify patterns and trends, guiding designers in making data-informed decisions.

4. **Design Thinking Software Ecosystems**: An ecosystem of software tools tailored explicitly for Design Thinking is emerging. These ecosystems integrate various stages of the Design Thinking process, from user research and ideation to prototyping and testing. Such ecosystems facilitate seamless collaboration and data sharing among cross-functional teams.

5. **Data Visualization and Analytics**: Data visualization tools enable designers to distil complex information into visual formats that are easy to understand. This supports Design Thinking by helping teams make sense of user data, market trends, and feedback, which can inform design decisions.

6. **Collaboration Platforms**: Collaboration and project management platforms like Slack, Trello, and Miro provide digital spaces where cross-functional teams can collaborate in real time, regardless of geographical location. These platforms help teams ideate, brainstorm, and iterate designs, making Design Thinking more central to remote and distributed teams.

7. **User-Centered Design Software**: Specialized software focuses on user-centered design, allowing designers to prioritize user needs and preferences. This software can facilitate personas creation, user journey mapping, and usability testing, aligning with the core principles of Design Thinking.

8. **3D Printing and Rapid Prototyping**: Advances in 3D printing and rapid prototyping technologies enable designers to quickly transform digital designs into physical prototypes. This tangible aspect of Design Thinking can be central in industries like product design, engineering, and architecture.

9. **Big Data and Analytics**: Big data analytics tools allow designers to draw insights from vast datasets. Understanding user behaviour and preferences on a large scale can drive more informed and user-centric design decisions.

10. **Real-Time Collaboration and User Feedback**: Cloud-based collaboration tools and real-time user feedback collection platforms enable Design Thinking teams to continuously engage with users and stakeholders. This iterative feedback loop keeps users central to the design process.

11. **Design Systems and Component Libraries**: Design systems and component libraries streamline the design process by providing reusable UI elements and patterns. These resources make it easier for designers to create consistent, user-friendly experiences, reinforcing the user-centred aspect of Design Thinking.

12. **Natural Language Processing (NLP)**: NLP technologies can help designers analyze and understand user-generated content, such as reviews, comments, and social media posts, to gain insights into user sentiments and preferences.

13. **IoT and Sensors**: The Internet of Things (IoT) and sensor technologies enable designers to create products and environments that respond to user behaviour and preferences in real-time, enhancing the user experience and making Design Thinking more central in creating intelligent and adaptive solutions.

In summary, technology has revolutionized Design Thinking by providing designers with a vast array of powerful tools and resources to ideate, prototype, and visualize user-centred solutions. These technologies make the Design Thinking process more efficient and allow for

deeper insights, greater collaboration, and more innovative outcomes, ultimately reinforcing the central role of Design Thinking in the future of design and innovation.

So what about AI and its potential for Design Thinking?

Can we imagine AI increasingly taking over the lead for Design Thinking, not humans? What would be different?

If AI were to lead the Design Thinking process instead of humans, it would introduce some key differences. Here are a few potential ways in which AI-led Design Thinking might differ from human-led Design Thinking:

1. **Data-Driven Insights**: AI could leverage vast amounts of data to generate insights and recommendations for the design process. By analyzing patterns, trends, and user feedback, AI could provide designers with data-driven insights that inform decision-making.
2. **Rapid Iteration and Optimization**: AI could facilitate rapid iteration and optimization of design solutions. By simulating and testing multiple design variations, AI could help identify the most effective solutions based on predefined criteria or user feedback.
3. **Automated Ideation, Usability Testing and Prototyping**: AI could automate certain aspects of the ideation and prototyping process, even in real-time, streamlining the testing phase. For example, AI could generate multiple design concepts based on predefined parameters or user preferences, saving time and effort for designers.
4. **Enhanced User Personalization**: AI could enable highly personalized design solutions by leveraging individual user data and preferences. AI could predict user behaviour and preferences with high levels of accuracy and design choices can then be guided by these predictions. By tailoring designs to specific user needs, AI-led Design Thinking could create more engaging and relevant user experiences.
5. **Continuous Learning and Improvement**: AI could continuously learn from user interactions and feedback to improve design solutions through feedback, adapting and improving designs over time. By leveraging machine learning algorithms, AI-led Design Thinking could adapt to changing user needs and preferences.
6. **Generative Design**: AI can generate design ideas based on specified criteria or constraints. It can present designers with a range of creative options, potentially expanding the design space beyond human imagination. AI if properly managed, designed and trained, can reduce human bias through more objective decisions based on data, mitigating biases related to gender, ethnicity or personal preference.

The essential place for the human touch

It's important to note, though, that while AI can provide valuable insights and automation in the design process, yet human creativity, critical thinking, and empathy remain essential**.**

The human touch is crucial for understanding complex emotions, cultural nuances, and ethical considerations; critical thinking and empathy are essential within the design process that AI cannot fully capture. For several reasons

1. **Complex Problem-Solving**: Many design challenges are complex and multifaceted, requiring the ability to think critically, analyze situations, and make nuanced decisions. While AI can assist with data-driven insights, human critical thinking is essential for evaluating these insights in context and making decisions that balance various factors.
2. **Contextual Understanding**: Human designers deeply understand social, cultural, and emotional contexts that can significantly impact design decisions. Empathy, in particular, allows designers to connect with users personally, uncover unarticulated needs, and design solutions that resonate emotionally.
3. **Creativity and Innovation**: Creativity is a uniquely human trait that involves generating novel ideas, envisioning possibilities, and pushing the boundaries of conventional thinking. While AI can assist in generating ideas, truly groundbreaking and innovative solutions often emerge from human creativity.
4. **Ethical and Moral Considerations**: Design decisions can have profound ethical and moral implications. Human designers make value-based judgments and ensure that design solutions align with ethical principles, societal values, and human rights.
5. **Interdisciplinary Collaboration**: Many design challenges require collaboration across diverse fields and disciplines. Human designers with varied backgrounds and expertise can engage in interdisciplinary collaboration more effectively, bringing together insights from psychology, sociology, ethics, and other fields.
6. **User-Centered Design**: Empathy is at the core of user-centered design. Understanding and empathizing with users' needs, emotions, and pain points is crucial for creating products and services that truly address user requirements and delight them.
7. **Adaptability and Contextual Flexibility**: Design processes often require adaptability and the ability to pivot in response to unexpected challenges and changing user needs. Human designers can apply their creative problem-solving skills to adapt designs in real time.
8. **Aesthetics and Emotional Appeal**: Aesthetic design, which plays a significant role in user experience, is human-driven. It involves crafting visual and sensory elements to elicit emotional responses and enhance user satisfaction, which can be challenging for AI to replicate authentically.
9. **User Engagement and Feedback**: Building relationships with users and collecting meaningful feedback is human-centric. Human designers can conduct user interviews, surveys, and usability testing while maintaining open communication channels to gather insights that inform design decisions.
10. **Innovation Beyond Optimization**: While AI can optimize existing solutions based on data, human creativity is essential for envisioning entirely new paradigms, products, or services that may not have precedent in the data.

Human creativity, critical thinking, and empathy are integral to the design process because they encompass aspects of intuition, emotion, ethics, and human understanding that are challenging for AI to replicate.

While AI can undoubtedly support and enhance the design process by providing data-driven insights, automating routine tasks, and assisting with aspects like rapid prototyping, it is most effective when working in collaboration with human designers who provide the nuanced, context-aware, and emotionally resonant elements that drive exceptional design outcomes.

The future of design will likely involve a symbiotic relationship between human designers and AI, each contributing their unique strengths to create innovative, value-driven solutions.

Humans will drive Design Thinking for the foreseeable future

While AI can provide valuable insights and automation in the design process, human creativity, critical thinking, and empathy remain essential. Here's why:

1. **Human Creativity**: Human creativity is characterized by generating novel ideas, thinking outside the box, and connecting seemingly unrelated concepts. It involves imagination, intuition, and the ability to challenge assumptions. AI can assist in idea generation and optimization, but it lacks the capacity for originality and the ability to envision entirely new possibilities.
2. **Critical Thinking** involves analyzing information, evaluating arguments, and making reasoned judgments. It requires cognitive skills such as logical reasoning, problem-solving, and decision-making. While AI can process vast amounts of data from the power of technology and evaluate big data it can provide different insights but not the critical thinking involved in human judgment, context awareness, and the ability to consider ethical implications.
3. **Empathy**: Empathy is the ability to understand and share the feelings of others. It plays a crucial role in design thinking by enabling designers to uncover latent needs, understand user experiences, and create solutions that resonate with users on an emotional level. While AI can analyze user data and preferences, it lacks the capacity for emotional understanding and the ability to empathize with human experiences.

Human creativity, critical thinking, and empathy are deeply rooted in our cognitive abilities, emotions, and social interactions. They enable designers to approach problems from multiple perspectives, consider ethical implications, and create solutions that address real human needs.

While AI can augment human capabilities in the design process, it cannot fully replace these essential human qualities. Technology will continue to evolve with even more powerful tools to help ideate, prototype and visualize user-centred solutions.

Yet the powerful combinations of humans, technology and AI can provide a new interplay that requires us to rethink the design-thinking process to enable a process of creativity and design that leverages on this.

The future of design will likely involve a more symbiotic relationship between human designers, technology and AI, each harnessing and contributing different, sometimes unique, strengths to create innovative, value-driven solutions.

** With the help and validation of Chat GPT3.5 and Bing Open AI GPT-4-

Design Thinking Requires the Human Touch in a World of Technology and GenAI.

Design thinking always requires the Human Touch.

Design Thinking is seen as the essential element that will combine with technology and AI in the future, yet the need for the human touch will still be essential.

As we form more around ecosystem thinking and design, design thinking will be essential as the significant enabler to creative input and provide added dimensions in this combination of human and machine..

There is a fascinating change by embracing Design Thinking principles differently in the future of innovation; organizations can foster a more profound culture of creativity, empathy, collaboration, and user-centricity, one we have often dreamed of in embracing design thinking but so often never achieving. This can lead to a radically different approach to developing innovative solutions, ones that need to consider the interplay between humans, technology, and generative AI.

It's important to note, though, that while AI can provide valuable insights and technology automation in the design process, human creativity, critical thinking, and empathy remain essential and the core of innovation**.**

The human touch is crucial for understanding complex emotions, cultural nuances, and ethical considerations. Critical thinking and empathy are essential within the design process that AI cannot fully capture. Exploring a number of these more human endeavours:

Let me summarize these here:

1. **Complex Problem-Solving**: Many design challenges are complex and multifaceted, requiring the ability to think critically, analyze situations, and make nuanced decisions. While AI can assist with data-driven insights, human critical thinking is essential for evaluating these insights in context and making decisions that balance various factors.
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