


# The Top 10 opportunities for transforming consumer experiences in home & hybrid workspaces

-Realizing the promise of the Metaverse

An STL Digital Point of View on the Consumer Industry by  
**Spandan Mahapatra, CTO@ STL Digital**

Image credits: **OpenAI DALL.E 2 software:** AI generated images on consumer experience for home enrichment & improvement”





As per a recent Fannie Mae Monthly National Housing Survey, the Fannie Mae Home Purchase Sentiment Index® (HPSI) decreased significantly to its lowest level after twelve consecutive monthly declines. There is a consensus amongst the home and **living spaces ecosystem** on investing in enriching and **transforming experiences** in the places we live today.

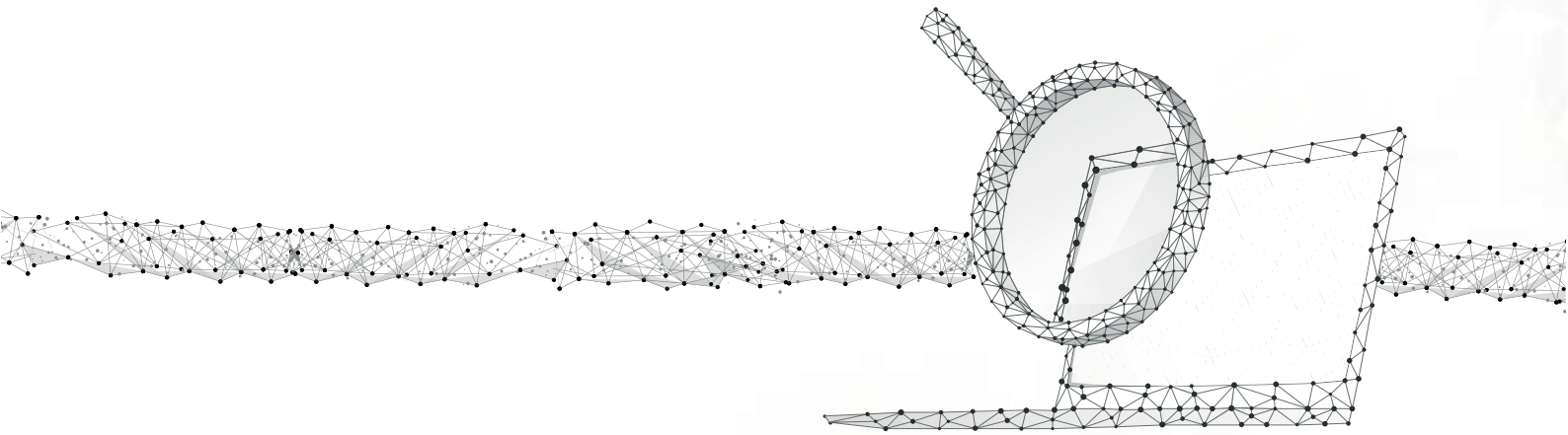
This is due to the intended and unintended convergence of many factors, stemming from still very highly inflated **home prices**, continued unfavorable **mortgage rates** at least for the next few years, changing **demographic patterns**, and the need to **change lifestyles** in the near future based on personal plans around retirement, health, aging, family changes, attention to sustainability needs and many others. Downsizing is not the only answer anymore for changing lifestyles. **Transforming** and **reimagining** living spaces is very much in play.

Consumers both Individuals and families also have to plan **home experiences realization** against a family budget, and it is not a single transaction, home experience is a continuum with transactions happening at different points in time, along with balancing other life needs like education, mobility, health, tourism, food and entertainment, and kid or personal activities, etc. With an increasing variety of climate-related disasters in different parts of the country, consumers have latent needs for **managing experiences** while prioritizing and **balancing the safety & resiliency needs**, of the places we live, in alignment and navigating state building codes and regulatory guidelines. Hence, the purpose of this paper is to extend the conversation about the potential areas of focusing efforts to drive better trusted **consumer experiences**, by leveraging **technologies, communities, and ecosystems**.



# “Product Search is dying, long live the Search”.

Searching for products and services has reached its functional boundary. Imagining experiences, connecting with experiences, planning for experiences, and transacting for and realizing experiences are already here and will make the case for future technology innovations!



For a very long time, the majority of consumer decisions began with a search for a product or a service. Mostly, customers today use a web search or their preferred e-commerce retailer and read a review of a particular product or service they want to buy whether it's apparel or a home improvement product. If they know the product well and are clear about their requirements, it is a seamless transaction, where customers directly click to buy, wherever they want to buy. This process has been engineered well and it works in the current times. **“Everything starts with a search for a product or service”** is the foundational paradigm and that is shifting right in front of us. The consumer perspective is shifting away from a **“Product + Service search”** paradigm to **“Search & Realize Experiences”**.





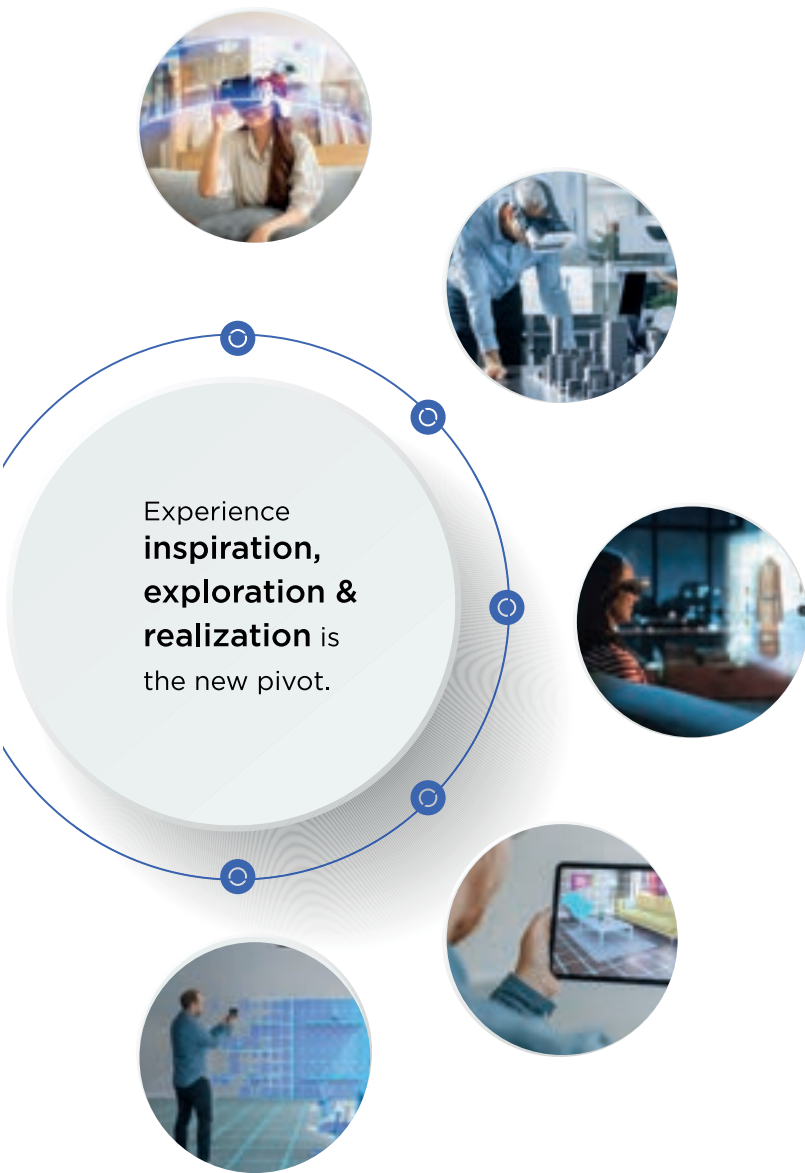
# Organizations that are differentiating

themselves from their peer group will seize the initiative of transforming their businesses to shift to a new pivot of connecting with experiences.

To make any purchase decision at home, it starts with a **search**. Whether you have to buy furniture for your bedroom or living room, you start by looking for inspiration in public searches or social media channels like Instagram, reading disjointed product reviews, and then doing specific searches at different retailers. With some retailers you can virtually imagine those products using **AR/VR**;

simulating the presence of those items in your own living space, like **Ikea Kreativ (Virtual & Mixed reality room design)**. This is the progression that has happened from search to visualization of products in your context using **AR/VR/MR** which is also the precursor to the Metaverse use cases. At all times the interaction design and execution between a **consumer** and a **consumer experience provider's** ecosystem need to allow for **multiple forks**. The moment of engagement between a retailer and a consumer at a point in time is for different reasons. Sometimes the engagement is primarily based on a very specific search wherein you need a specific type of power tool, and you already know what you need, you go and get it through a search process. With a **predetermined search**, you either buy online or go to a physical store and you either seek guidance from retailers to go to a specific aisle and buy (physical) or to a specific product page (digital), and/or view aggregator sites to compare options, pricing, reviews, capabilities to complete or save purchase transactions for later. This works well today; **does it cater to the expectations of spectacular consumer experiences that technology promised?**





## The promise of mass personalization,

Hyper personalization, and precision retailing **has not been delivered.** The outcomes have primarily manifested in the form of **precision targeting** with information collected from physical and digital transactions. The extent of transformation and enriching consumer experiences with mass personalization has been limited to some use cases at some retailers, otherwise, most of the retailers currently have the closest store near your location zip code and auto login with your digital credentials; showing recent searches, recent digital purchases and clumsy recommendations for the next potential product and service purchases.

Shift to **experience exploration** is the new pivot. Today retail interaction in many channels and across the majority of retailers is almost standard with little variations. Modern digital e-commerce transactions follow a very standardized format with minor incremental variations, especially.

around the cycle of **“Search – Browse – Add to Cart/Buy Directly – Pay – Deliver- Post purchase feedback- Recommend”**.

While planning a home project, if there are specific interdependent parts that are not fulfilled in a synchronized manner, the whole project starts falling apart because things are not connected in time as far as supply chain delivery time is concerned and that throws off the entire experience.

I believe that the value chain from a home improvement should include and orchestrate a complete end-to-end experience. Consumers should have the ability to have connected experiences, not disjointed searches in separate web browsers and having to manually make correlations. The whole process of inspiration and exploring experiences should allow consumers to explore, choose, and weigh options on timing, pricing, and quality vis-à-vis personal preferences, save separate projects, compare projects, and decide with certain time lock-ins.

The whole experience of getting inspired from the product catalogs and evaluating options in simulated environments using **AR/VR/MR** is now very prevalent at multiple retailers like **IKEA Kreativ, Home Depot, and many others. Facebook, Instagram, YouTube** & other social channels have become the hub for inspiring people with ideas. The current orchestration of planning and realizing experiences is extremely unstructured, disconnected, and not really coupled with retail exploration & buying experience. The connectedness between inspiration through ideas and the actual realization of experiences through product and price planning is not there.

**Are retailers leveraging social for product inspiration and driving higher sales?** Absolutely Yes. **Are Retailers leveraging social for crowd-sourcing product management?** Beyond advertising, marketing, and some post-purchase feedback loop management, are retailers using social to transform consumer experiences? The answers vary at different degrees of sophistication and maturity even amongst leading retailers today.

As a consumer, I would like **ideas, pricing and time** to complete estimates online without scheduling physical visits for a lot of projects, can I do that today? The answer is no. I would like to see options for what is possible to develop or transform a kitchen.



Images Credit to Open AI DALL.E 2





**Trust:** The ability to imagine and connect with experiences and transact for realizing experiences is underpinned by Trust. The platforms that continue to drive innovation in guaranteeing that trust every single moment of the transaction will set themselves for higher competitive advantages, greater pricing power, and customer retention. Trust does not stem from maximizing a particular e-commerce transaction but from participation in the overall experience journey with the customer

**Planning:** Customers make planning and purchase decisions for Home Improvement prior to searching for specific products or projects. In the current scenario, customers are continuously making long-term and short-term home improvement decisions based on immediate security necessities and quality of life experiences. The ability to plan for home and hybrid workspaces enrichment, and improvement should be pervasive



**Security & Resiliency:** Consumer Experience is tested heavily during weather disruptions or other unforeseen disasters. Home Improvement Ecosystem players who follow a Portfolio planning model with their customers would simulate the State building code ( E.g., Florida Building Code -FBC has very strict codes for weather-related hardening measures.).

**(Hurricane Shutters for Storm Damage protection)**

Home Improvement retailers can create in partnership with Home inspection firms a clear profile of the home's ranking vis-à-vis standards and codes and create several sequenced options of projects over a period of time with clear budgeting scenarios to remove friction in the experience process and to empathize with the limited buying potential in the form of surge investments from consumers and to develop a long term partnership with consumers over a longer horizon of time to cover all the necessary interventions to always taking care of the consumer's home.

# Trust is a huge element in Home Improvement.

There is a reason why there are building codes, but you can imagine how many times any consumer analyzes their house vis-à-vis evolving building codes. There are golden data and insights and actionable recommendations in the State building codes. As it is technical in nature, and also not contextually connected to each home at a personalized level, only a licensed inspector in each of the specific departments has an appreciation of the code and can understand and make necessary recommendations, all of which are done reactively when some product has failed at home. We all need licensed inspectors for making the evaluations. However, imagine if a Consumer's asset data is digitally inspected and stored as a consumer home **360 profile (with consumer opt-in & approval)** into a home improvement retailer's home **master data** and a full profile of the entire home is made by the retailer at one point of time and specific advice is provided with prioritization, it could lead to a lifetime relationship with the consumer.

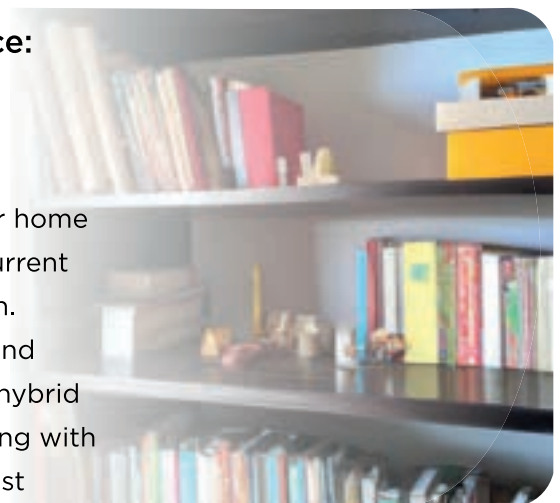
There is an opportunity to create a **taxonomy of knowledge** about how a house can be strengthened, improved, and always kept current with evolving codes. This is trust delivered, leading to the strengthening of consumer experiences. Imagine the **societal & financial value** of older homes catching up to code incrementally in the coastal areas where the intensity of hurricanes is continuously increasing.

Post-event, it looks very intuitive but before the event, if people are aware of the options, then it would increase the chances of people driving upfront strengthening and hardening their homes. All such initiatives are competing for the same wallet spend of a consumer but if there is a way to view all opportunities in a unified manner and stack rank these requirements on a **cost, benefit, value & experience scale**, it will help **drive trusted relationships**.

## Targeting the desired end state as an Experience:

### Declutter & Organize

**Inflationary effects** in terms of rent, higher services costs, increased costs of a mortgage, and financing costs for all furnishings have increased the need to organize, declutter home and office environments, and drive the greater value of current investments with incremental better forms of organization. Solutions that create multiple pathways of an organized end state in terms of consumer experiences with incremental hybrid solutions - leveraging existing materials at consumers along with recommending additional products and services to co-exist



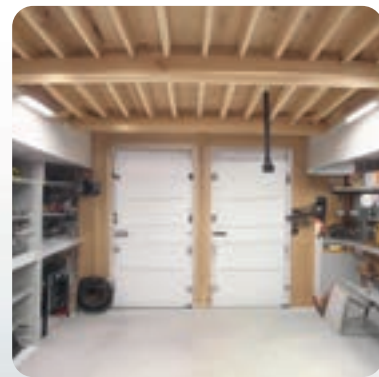
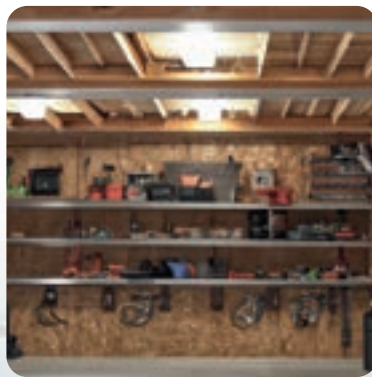


# Home improvement and Enrichment Retailers

have tremendous opportunities with the theme of decluttering internal environments with a focus on simplicity, function, elegance, and most importantly personal preferences. There is nothing called a **standard in-home improvement**. Any home improvement project is beautiful and relevant for the customer in ways that respect and enable the personal preferences and needs of the consumer.

**Example - significant consumer experience transformation awaits in Garages.**

“The American Housing survey shows that **80% of owned houses and condos in the U.S. have a carport or garage**”. “25% of people with 2-car garages don’t park in them at all. A third can only park one car, largely due to garage clutter.” (**U.S. Dept. of Energy study**). The benefits of parking vehicles inside a garage both from an experience as well as a value perspective are already known. Customers need active solutions and help through **imagination, enablement, and intervention**. Rather than buying discrete garage organization products, imagine a continuous solution for managing garage clutter.



Images Credit to Open AI DALL.E 2





# Pushing the boundaries of Consumer experience transformation with crowdsourcing on experience expectations, requirements & Technology Innovation

**Automotive service companies** offer different types of auto inspection, profiling of the vehicle, and tailored services. Home inspections on the other hand are performed only at the time of purchase and most of the data is primarily used for pricing negotiation the entire intelligence collected during a home inspection is lost and updates that are performed at the house through incremental home improvement projects or through repairs, until the home, is listed again.

The birth of the **iPhone in 2007** led to a major consumer experience transformation across all industries. The promise of the Metaverse, the continuous upcoming innovations in the **Apple AR/VR devices** and **software, Meta, Microsoft** and use cases with the **convergence of innovative technologies** currently available and being invented will lead to a new era of sustainability, cost optimization, new echelons of consumer experience, and managing frustration and friction with more precise address of consumer feedback on the experience.

Here are the **Top 10 opportunities** for transforming **consumer experiences** in **Home & office ecosystems**

**1** **Home 360-degree Profile:** Home Infrastructure profiling with maximum attention to privacy and trust (with strict “don’t sell my information rules) and generating a complete dashboard of **Home Experience Environment Profile** at each individual consumer + home level. **Web3 technologies** especially with Blockchain’s promise of decentralization will allow consumers to easily share or unshare their home profiles with Home Improvement ecosystems. This could be leveraged for aggregation by a marketplace player or by each home improvement or specialty store while allowing consumers to monetize their own data. Data Exchange with consumer approval is also an opportunity for interoperability between retailers to maximize the consumer experience and reduce friction. **“Zero Party Data with Customers willingly sharing data”** and Customer data subscriptions with Customers getting paid by the home improvement ecosystem for a particular value (as determined by market economics) for subscribing to **Home 360** of a Consumer and continuously cross-selling and up-selling experiences to Consumers

Establishing a vibrant & engaging **crowdsourcing approach** towards driving product management in collaboration with internal customer experience teams at enterprises. Identification of individuals and industry groups across different departments and categories will enable planning and execution for a diverse set of requirements across the **product roadmap** with greater certainty in meeting consumer experience requirements

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**Human-centric feedback infused with technology innovations:** Unified Ux in Omni channel has served the purpose of smooth e-commerce transactions but in order to deliver hyper mass personalization and to set a new bar for consumer experience, the current way of having a “one mobile app fits all” has to change. Apps that are fluid and have embedded machine learning with intelligence to navigate into different realms based on experience needs and not being a search-driven app alone.

“**One Mobile App for every consumer**” is ripe for disruption. The arrival of the iPhone changed the game and ushered in the arrival of multiple players with the ability to provide experiences with the combination of key components of mobile application on device + geo location. Similarly, in 2023, Apple’s AR/VR headset will drive significant last-mile adoption of **experience transformation** with the **combination of Data + Machine learning + AR/VR + Cloud** along with the early mover innovations at Meta & Microsoft

The **Home Improvement ecosystem** players will be able to drive experience transformation by leveraging something equivalent to Web2.5(it doesn’t exist). The established **web2.0 technologies** and **web3.0 initial innovations** can co-exist to provide a continuum to enable experience transformation. For e.g., Home 360 profiles can be developed technically as Knowledge graphs weaved with Blockchain for decentralization and privacy.

## **Home Projects & portfolio integrated experience & integrated pricing planner:**

Home enrichment & improvement retailers and ecosystems need to realize that they have the genuine share of a specific portion of every consumer’s total monthly wallet spend. Hence, there is an opportunity to shape a funnel-based approach to provide scenario options with cost, benefit, value, and **experience (CBVE)** to consumers. This will drive their experience journeys in a more trusted manner to help plan and navigate **home projects** and allow the consumer to make informed sequencing and thus providing cushion to the **supply chain planning & fulfillment process**. Rendering experience options with a combination of products and services based on a specific customer budget, allowing stack ranking of projects in terms of **security, value, cost, and other attributes of consumer home experience** to allow for continued dialogue and repeat engagement between the home improvement ecosystem and the consumer on one platform


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Unified multimodal inputs and requirements in terms of speech, text, video, images, and unstructured text **to generate potential/brand new experience possibilities** initially with images & eventually with videos using Artificial Intelligence including home improvement retailer’s products and complementary products from Ecosystems. Innovations in Generative design powered by AI technologies will allow for continuously imagining new experience possibilities by combining **existing ecosystems’**

products, experiences, and attributes data and creating new experience simulations through algorithms.





Example: **AI-generated images from textual input with software like Open AI DALL.E 2 software equivalent frameworks** have the potential for searching, connecting, and imagining new experiences by training upon existing product text + image data and existing experiences to create new custom-tailored new experiences, as the next evolution of innovations in imagining living spaces through profiling and scanning and virtual product placement from product catalog like **IKEA Kreativ**.

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**Unified Experience Search and products/services search:** Rethink the current Omni channel approaches which are resulting in disconnected experiences and percolating the consumer online behavior of looking for home improvement and decor ideas in separate digital locations and channels and then consumers making purchase decisions by aggregating and interpreting all information.

**Transform Omni-Channel** mobile engagement app to seamlessly include **e-commerce – product + service search** and, **exploring, connecting, transacting,** and **realizing experiences** and engaging with the larger ecosystem and social within the next generation experience app.

**Evaluation of current product management** and **Agile** is not dead, it is still very relevant. But being compliant with Agile processes shouldn't be equated to being relevant from **“moving the needle on Consumer Experience”**. But focusing only on agile might make the whole current **CX processes razor sharp** and unintendedly restrict the flexibility to wade into the ambiguous evolving areas of Experience Transformation. Rethink current agile and SecDevOps processes. They have served well for **CX 1.0**. To move on to **Customer Experience 2.0**, a much more ecosystem-based approach including external influencers, social, product management, engineering, and consumer teams need to collaborate on the customized agile processes required for integrating Experience use case imagination, planning & realization processes and technologies like **AR/VR/MR, Web 3.0** into a cohesive **SecDevOps** for Experience transformation. **Web 2.0 & Web 3.0** technologies must be harnessed jointly for realizing the value of Metaverse for Experience Transformation in the world of reimagining our living spaces

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**Harnessing the experience and business value in State building codes and**

**delivering Trust** The interpretation of State building codes by professionals has been a part of inspections, and especially new housing construction, and only major home remodeling projects. With the availability of machine learning capabilities to analyze, interpret and classify unstructured data and semi-structured data in building codes,

it is a significant opportunity for connecting building codes, with experience and products and services in the home improvement ecosystem. Just like Utility companies have continuously hardened their infrastructure to withstand major weather disruptions, imagine the opportunities to uplift the resiliency and hardening homes with sequenced project planning based on the interpretation of the State building codes. **Home 360 Profile vs. State building code** consumer experience map will lead to many potential areas of engagement between consumers and the home **improvement ecosystem** in a sustained way over a duration of time in alignment with **purchasing power** and **budget planning of consumers**.

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## **Greater Vertical integration with Services for Customer Experience Journeys:**

Unpredictability in customers' custom requirements for fixed price projects and execution through professional services (**in-house or partner outsourced**) has always discouraged Retailers to own a greater share of services in home improvement projects. The risks in this space can be remediated to some extent with **Home 360** planning and continuous advisory about home upkeep, maintenance, and bundled as-a-service programs which overlap with **Home Protection plans**. Legal frameworks also need to evolve to balance flexibility, and experience along with home improvement provider & consumer legal rights.

**Sustainability:** Experience transformation can have a flywheel effect on sustainability. One of the big impacts on **sustainability goals** is the extent of home equipment disposal done because of higher expenses on parts and services. It is counterintuitive but here is how it can be really a win-win. As a service bundling of multiple products + service under an experience theme like "**Stress-free Kitchen Operations**" with bundled service on all equipment related to cooking operations - e.g., Kitchen appliances like stoves, dishwashers, microwaves, etc. will lead to a greater length of equipment used rather than the frequent replacement of devices. **Pro-active Ecosystem** plays on revenue + cost sharing and contracts between appliance manufacturers and retailers and home appliance insurance companies will transform this space.

**Searching, connecting, and realizing experiences** means there is lesser dissonance in the customer buying process leading to lower returns of products, thus saving significant supply chain and human costs.

# 10





## Spandan Mahapatra is the CTO at STL Digital,

an exciting global consulting, software & services company focused on “**engineering for experiences**”. Spandan has business consulting and technology experience in the Consumer & High-Tech sector and has consulted for leading Technology companies in Business model advisory, cloud, software, computer platforms, and mobile devices companies, e-tailers, CPG, Travel, Transportation & Hospitality, and Banking & Financial Services clients.

Spandan leads the integrated team and function of the CTO, Services, Alliances, and Ecosystems charter comprising of Business Consulting & Advisory Technology, Products & Platforms, Services & Alliances at STL Digital and has built a strong multi-industry and cross-functional Domain, technology & alliance team focusing on Consumer Experience, Supply Chain, Financial, Sustainability, Data & Analytics, Cyber Security, SaaS, Cloud & Product Engineering for driving overall strategy and growth for STL Digital.

Spandan understands the business and the technological evolution in the retail industry, especially the Home Improvement sector, where he has consulted with leading home improvement retailers. He is also a DIY home project enthusiast. Spandan has the ability to draw evolutionary consumer experience journeys and develop strategies to continuously scale higher on delivering transformative experiences based on his combined experience of the Consumer & Technology sector.

Spandan’s experience over 23+ years spans several leadership roles across functions, industries, and geographies. He has created pipelines for building technology capabilities at scale, by anticipating the convergence of Business trends, technology evolution, partner and customer ecosystems and created several labs dedicated to Customer centric collaborative innovation and creating new business models for Customers to drive revenue growth and continuously brainstorm new ideas based on data. In his past stint at TCS, Spandan headed many business and technology functions and incubated several innovative PoCs and new business model engagements at the TCS Business Solutions labs units’ labs where interoperable technologies were leveraged for Customer use cases. Spandan is an Enterprise Architect with poly cloud, data, and machine learning expertise and is an AWS Certified Professional Solutions Architect and Google Cloud Certified Professional Architect with strong expertise in Azure and several interoperable data platform architectures.

Spandan loves to reimagine spaces and has participated in designing Customer experience centers, Office spaces from a stakeholders’ engagement experience, and home projects, especially in lawns and gardens. Spandan lives in the Greater Atlanta Area with his family.