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Design for All

Guest Editor: Divya Chaurasia
Senior Industrial Designer at Spitfire Industry
Master Industrial Design (Pratt Institute, New York)
B.Tech(IIT- Bombay,India)

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Guest Editor:

Divya Chaurasia

Divya Chaurasia is an industrial designer based in NYC, with a background in engineering and user experience. An expert in user-centered research, sustainable practices and design for manufacturing, she has a Masters in Industrial Design from Pratt Institute, New York and Bachelor's in Technology from Indian Institute of Technology Bombay, India.

Currently, Divya works as a senior industrial designer and user experience lead at Spitfire Industry, a design consultancy based in Brooklyn, New York. She designs products and experiences for brands like Clorox, All Clad, Tefal, Bausch & Lomb, Cook's Direct, Hunter Douglas, GoTrax, and Nectar. Divya's work is inspired by the everyday pursuits of people. She is fascinated by the connection between humans, objects and environments, and captures this relationship in delightfully functional products.

Her work has been exhibited at NYCxDesign (New York Design Week) and NYC Media Lab Annual Summit and received recognition by Chicago Athenaeum Good Design Award in 2021 and International Design Awards 2023. Being a strong advocate for sustainable practices in design, Divya has given guest talks at the Industrial Design Society of America Technical Deep Dive and North Carolina State University on the topic. Divya also volunteers her time for supporting young designers. She serves as a mentor for Masters students at Virginia Tech University, and the Offsite program.

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Design : Beyond the pretty pictures

Divya Chaurasia

10 years ago, when I decided to be an industrial designer, my goal was to learn as many skills as I could. I took any classes, internships or workshops I could get my hands on and focused on the basics - sketching, CAD and rendering, storytelling and presentation. Over the years, I learned more skills and honed the ones I already knew. But it was not until I started working a full-time job that I realized there is a lot more to design than just producing beautiful content.

The purpose of this editorial is to shed some light on various aspects of the design process that are often overlooked. It is true that most of us spend a significant amount of time generating new ideas and bringing them to life, prototyping and rendering photo-realistic images. However, there are several unseen parts of the job.

In this issue, five designers talk about their experience in the design world, focusing on the unconventional responsibilities, tasks and challenges.

Isis Shiffer, founder and design lead at Spitfire Industry talks about engaging with clients and advocating for better design decisions. Her case-study focuses on making sustainable choices during the design process. Sustainability is one of the hardest practices to advocate for as it is often considered to be more expensive, lower in quality and difficult to produce than the alternatives. However, 80%

of decisions about sustainability are made during the design phase. As designers, we hold a crucial responsibility to reduce any product's footprint on the plant.

Whether you run your own studio, as an independent designer, or as part of a larger corporation - the role of a designer can vary significantly. Each role is accompanied by its own set of unique challenges. Daniela Macías, Global Experience Design Manager at Colgate Palmolive shares her story as an immigrant woman-of-color in NYC, as part of a global conglomerate. Her experiences provide valuable insights into the corporate world of design.

As an independent designer, Teddy Atuluku often has to wear many hats. One of those is writing design proposals. A skill often overlooked in formal design education, it is an essential part of any design practice - small or large.

When it comes to product development, sustainability often loses the battle with aesthetics and quality. Chandni Pradhan, a textile designer based in Mumbai, India with over 6 years of experience talks about the importance of aesthetics in sustainable design practices. She shares case studies about unique, innovative production methods for sustainable textiles. Recycled products have notoriously been considered as sub-par, not as good or not as beautiful.

Another part of the design process that doesn't get enough credit is research. More often than not, what we see is the end result of a long, winding road of experiments, usability tests and discarded ideas (Fig. 1). Sahil Dagli, architect and urban designer, shares a case study delving deep into the logistics of last-mile delivery.

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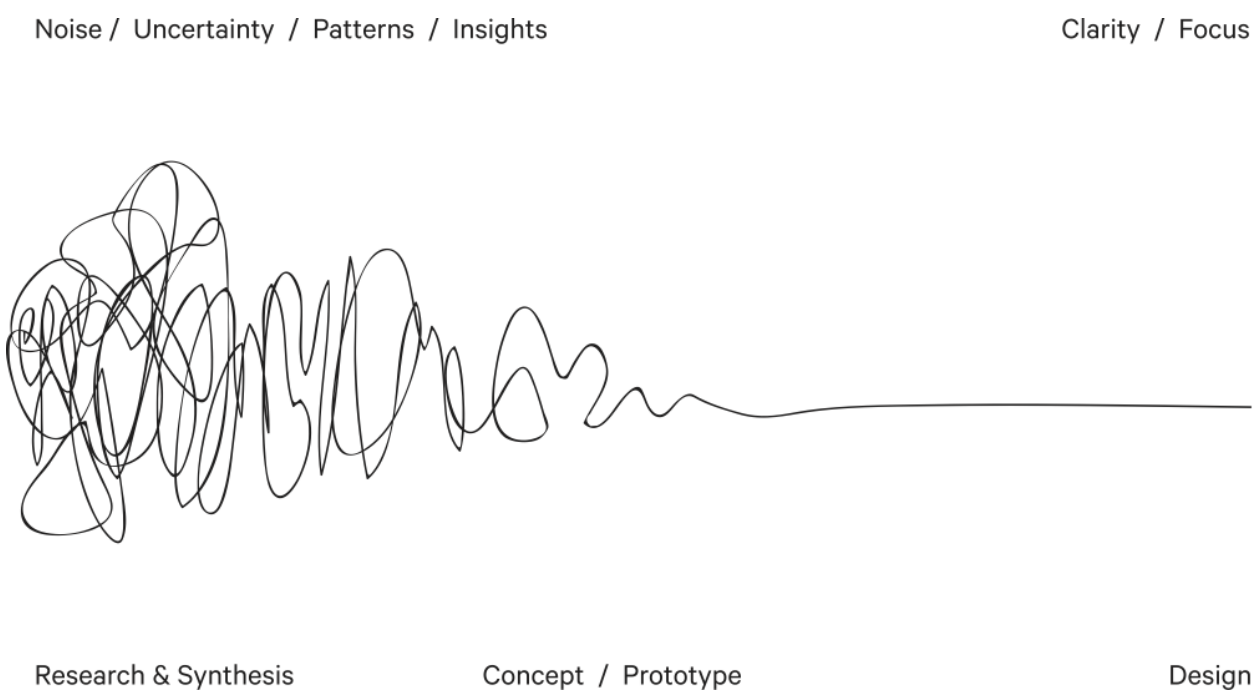

Fig. 1 - The Process of Design Squiggle by Damien Newman

Isis Shiffer

Isis Shiffer is a Brooklyn based industrial designer. She founded Spitfire Industry in 2016. After earning a BFA from the University of Pennsylvania and working as a bicycle frame builder for a few years, Isis returned to school and completed her Master's of industrial design at Pratt Institute. While there she won the international James Dyson Award for her folding paper ecohelmet.

At Spitfire, Isis and her team focus on function-forward products in the sustainability and urban-living spaces. Spitfire's clients include All-Clad, Blix Bicycles, Circadian Optics, Hunter Douglas, Gotrax, T-fal and many more. No matter the project, Isis tries to approach every design with technical rigor and humanism. She believes that it's a designer's responsibility to leave the planet better than they found it, and that designers have the best job in the world.

Isis also teaches industrial design and design business at Pratt Institute and occasionally lectures elsewhere. Outside the studio, she enjoys sailing, cycling, fine art, mountains, and underground music.

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NORMALIZING SUSTAINABILITY

Isis Shiffer

In design school you learn to study problems and conduct research. You learn CAD programs and prototyping and user testing. You hone your sense of aesthetics and fret over colors and ergonomics. Above all, you consider sustainability. It's drilled into you from day one that everything you design must be sustainable in one way or another.

It makes sense. Industrial designers are responsible for how new products are made, how long they last, and what happens to them when they are no longer needed. This is an opportunity, in a world hollowed of resources and burdened with waste, to do something good. It's also a big responsibility that weighs heavily on many of us and comes into conflict with reality the moment we graduate.

I took on a client, who we'll call Kevin*, way back when I was founding my studio and a new client meant the difference between paying rent on time or not. Kevin owned a large consumer goods company that produced everything from plastic forks to plastic furniture to plastic decorative fruit. He approached me because he wanted to create a new line of plastic toys based on a movie franchise.

Fresh out of grad school and full of idealism, my impulse was to turn him down flat. I understood myself to be part of the front line fight against climate change and pollution, and this sort of work was

antithetical to everything I considered capital-D Design. But I needed the money and I didn't hate Kevin (although he and I disagree on politics, ethics, food, philosophy and every other metric you can think of we maintain a friendly working relationship to this day) so I gritted my teeth and took it on.

For Kevin, sustainability was a distant priority after cost and marketability. These two concerns influenced every decision he made, and when I brought up making his new toy line out of recycled plastic he was first bemused and then dismissive. Sustainability was expensive. It was elitist. Sustainable products looked bad and didn't work. It was a pointless exercise by coastal liberals to make themselves feel better. Never having encountered an attitude like this so openly expressed (I am indeed a coastal liberal) I felt a bit crushed.

This isn't to say Kevin and the many, many other business owners like him are acting in poor faith. They are right that using new materials and manufacturing techniques can increase costing significantly, that new plastics are untested and that changing one product makes no appreciable difference amid the overwhelming environmental damage done by our industries. The problem, nearly always, is that sustainable products are seen as something different and unfamiliar. The real key, I believe, is to normalize sustainability so it loses its sense of otherness and becomes as simple as selecting a color or surface finish.

It is helpful to begin by understanding the destructive stereotypes around sustainable design, some of which contradict each other. For example:

1. ***Sustainable products are coarse and colorless, attracting sanctimonious hippie types;***
2. ***Sustainable products are expensive and elitist, appealing to insufferable snobs;***
3. ***Sustainable products are functionally inferior, having poorer quality, shorter lifespans, or weaker structures than 'normal' items;***
4. ***Producing sustainable products is more difficult.***

The first one is the easiest to debunk because it is the least accurate. Sure, scratchy raw cotton T shirts that double in width in the dryer may be eco friendly, but so are aluminum cans, bamboo sheets, and most glass and steel objects. Conversely, some 'all natural' products actually use more resources than their synthetic counterparts. Silk, ceramic, and many woods can be extremely resource-heavy while looking green as can be.

It's also helpful to point out that many companies with a sustainability focus lean into the look we've come to associate with that message: soft greens and terra cottas, irregular shapes and textures, hand drawn-looking graphics. These are all choices made by a designer and not driven by the actual materials used.

The second point is a little more defensible. High end brands have the money to experiment with alternative materials and production

methods and the marketing war chests to make them appealing. This is a particular concern for clients like Kevin, whose margins are low and for whom even a small cost increase would be disastrous. It's up to us then to find design changes that don't increase cost. Maybe cork costs more than plastic, but reduces the product's carbon footprint by half. Where else can you cut costs? Maybe the packaging can be replaced by a hang tag. Maybe you don't need packaging at all and you can stamp the bar code on the back. Without all that packaging, maybe the product can stack tightly and reduce the size of its shipping crate. Thinking of the product's entire journey from raw material to user as an opportunity for improvement can broaden your options considerably.

Like the first one, the third myth springs from a perception that all sustainable products are essentially 'earthy' and thus prone to crumbling. I like to explain that steel bridges, most concretes, and almost anything made before the industrial revolution is actually quite sustainable and certainly durable. It's also a good idea to point out that reusability (i.e. long life) is one of the most sustainable paths of all. Not every product can be recycled or recyclable, and when that is the case it's worth putting special effort into making sure it will be excellent quality. This often increases cost (though that isn't a given) and can be a hard sell for some clients. Showing glowing user reviews of other long life products can help, as can using the word 'heirloom' a lot. There's also something universally irresistible about a beautifully made, solid product to which even the most canny, profit-driven client can be susceptible. Paying particular attention to where parts interface, thoughtful hardware selection,

and reinforcing vulnerable areas are reinforced can increase longevity in a cost effective way.

The last myth is the most true, at least as sustainability is generally perceived. Isn't it easier to just source virgin plastic pellets rather than pull waste from the ocean, sort it, clean it and grind it up? This implies a relatively narrow view of sustainable innovation as material driven only, which is just not true. Many traditional materials have quite carbon neutral lifecycles if they are treated correctly, and, crucially, the infrastructure already exists to do so.

So far, I have focussed on convincing the skeptical Kevins of the world to take sustainability more seriously. On the other end of the spectrum are companies (nearly always startups) who focus on manufacturing purity to the point of paralysis. I had one Australian home goods company that employed rural Indonesian women to produce their products for a decent wage. The objects were gorgeous and for a few years they made a small profit. But then there was a drought and a shortage of the natural dyes they used and when the artisans suggested switching to synthetic pigment the startup was scandalized. Production ground to a halt and, by the time the natural dyes became available again they had gone under.

This is an extreme example, and there were other issues at play, but it's not a particularly uncommon attitude for companies to take. It's important to keep sight of the overall goal: in this case, providing stable incomes to people who needed them, attractive products to people who wanted them, and reduced impact on the planet that supported the lot. The environmental implications of using

functionally identical materials for a few production runs would have been minimal, and buyers could have been informed in a thoughtful way. Perfection, I tell clients while banging on the table, is the enemy of finished.

While I believe that the companies who manufacture consumer goods bear the greatest responsibility to create sustainable products, it gets us nowhere if the people who buy products are uninterested in trying anything new. Again, I believe the key is presenting recycled, recyclable, long lasting products as normal and attainable rather than as something moral or aspirational.

First however, I think it's important for designers to acknowledge how much unsustainable buying behavior is driven by income inequality. Someone struggling to make ends meet is going to reasonably go for the most convenient and cheapest option every time. A quick look at a 'best sustainable design' list shows products targeted squarely at the one percent, and while there is nothing inherently wrong with that, the products' impacts will be limited. This is one of the many reasons I think it's important for industrial designers to work in mass production, because while the products may not make any 'best of' lists they stand to actually make a difference.

I think there are three main things to keep in mind when launching a sustainable product into a normally non-eco-centric space:

1. ***It must not be significantly more expensive than traditional brands. If it is, it must have more features to justify the cost.***

2. ***It must look and feel as or more appealing as its competitors (this is the fun part)***
3. ***It must fulfill its sustainability bona fides effortlessly.***

I have addressed the first point above, but there are a few more things to keep in mind from a buyer's perspective. Is something popular because it is cheap, or because it is convenient, or both? If cost really is the most important factor, can a lateral change help, such as a material swap? Even ensuring that the cap of a bottle can be recycled in the same bin as the bottle itself can have big implications at scale and not affect costing or user experience at all.

The second point is the hardest to describe and, for many of us, the easiest to do. A surprisingly large percentage of consumer goods are designed by engineers and not industrial designers, and it only takes a little thought to adjust a curve here and a touch point there to make a usually mundane product look and feel delightful. A good designer will also keep a tight eye on the manufacturing process and make sure that the factory sample bears more than a passing resemblance to the drawings you sent out.

As I talked about designing for sustainable manufacture above, here a product must be so easy to properly dispose of that users actually do it. No one has time to seek out specialized disposal; there is a reason we all have a pile of dead batteries socked away somewhere. Some companies institute buyback programs and dispose of products themselves, which isn't a bad solution if a product absolutely must be complex. It's important to study the target buyer's environment as well- a city dweller likely won't have access

to yard compost, while a rural user will not have municipal compost pickup (and neither do many city dwellers, unfortunately). Whether you are appealing to a broad or narrow range of users, you must be sure that the product works with the resources they have.

As time goes by and sustainability becomes more mainstream I believe and hope that our product design and manufacturing ecosystem will adjust for the better. More and more, clients have been adding recyclability and other eco specific sections to their briefs, and are showing more awareness of their companies' impacts. And sometimes nature intervenes to remind us both how small and how impactful our business of making products is.

A couple of years ago a container ship carrying products from Kevin's factory rolled in a storm and lost several containers overboard. There are now about twenty thousand items, designed by my own hand, on the bottom of the Pacific. They are not biodegradable, and will lie there for centuries. Kevin wasn't overly fussed about the loss- he has good insurance- but to my surprise he was distressed by the environmental implications. We made dark jokes about the fish enjoying their new decor. A few weeks later, he suggested, unprompted, that we switch one of his new products to a biodegradable material. And we did.

***Some names and details have been changed, for obvious reasons.**

Daniela Macías

A proud native and longtime resident of Mexico City, Daniela Macias is a NYC based industrial designer with 14 years experience leading the creation of global household and consumer products for Colgate-Palmolive. In her current Industrial Design Manager role, she is responsible for the design leadership of expert cross functional teams working on packaging structures for Personal Care, Pet Nutrition and Home Care brands that hundreds of millions of people around the world love and use daily.

Throughout her career, she has overseen the design process of bottles, caps, barsoaps, dispensers, soluble pods and new experiences across a variety of categories, brands, packaging formats, scopes and markets. Her career journey — starting at one of Colgate's manufacturing facilities, moving up to regional corporate offices in Mexico City, and elevated to cross category industrial design development role at Colgate-Palmolive's global headquarters

in NYC — has forged her as a resilient industrial designer with empathy for both the business side and the people she designs for.

You'll find her work on shelves and homes all around the world, in brands such as Palmolive, Caprice, Ajax, Protex, Suavitel and Fabuloso. In her free time, you'll find her eating her way through NYC, riding her bike with her husband or taking care of her many succulents and her feisty senior chihuahua — Peppina.

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FROM DREAM TO REALITY: CREATING MY PATH AS A WOMAN INDUSTRIAL DESIGNER OF COLOR IN CORPORATE AMERICA

Daniela Macías

I have now been working as a Global Industrial Design Manager for Colgate Palmolive in NYC for almost 6 years, and I can proudly say that I love what I do. But it wasn't always like this. Given the current state of major inequalities I see in the Industrial Design profession — being dominated by an overwhelming majority of white men coming from developed countries — I believe it is very important to share my experience trailblazing my own path within a Global Consumer Packaged Goods (CPG) company, coming in as the complete opposite of what the industrial design profession standard is: a woman industrial designer of color who comes from a developing country. Throughout almost 15 years, I have slowly but surely defied conventional career roadmaps and gone to great lengths to join the Global Industrial Design team in NYC: I've expanded my skills, overcame diverse obstacles and embraced every challenge with unwavering determination to carve out a place for myself in the industry. This is my story: one of resilience, self advocacy and the transformative power of pursuing an impossible dream in a world that wasn't built for me.

After graduating from university in Mexico, I found myself with an industrial design degree and virtually no experience, looking desperately for a job in my field. It was May 2008, and the job

market was going through a major downturn due to the global financial crisis. It didn't help that in my country, industrial design is not a very well known or developed design discipline, so the odds of me finding a decent entry level job weren't good. I was very worried, and so was my engineer dad who had warned me about going into this field as opposed to the much more employable worlds of engineering or medicine.

Almost a year later, in March 2009, I came across a job posting for a Junior Packaging Engineer at a Colgate-Palmolive manufacturing facility 4 hours drive from Mexico City, where I lived with my parents. The posting didn't really call for an industrial designer, but I knew I had all the skills — knowledge of 3D modeling, rendering, 3D printing, technical drawings. Not only that - the posting offered a livable wage and came from a big name company, so I immediately applied. As it turned out, the Packaging Engineering department needed someone urgently and I checked all the boxes. Three interviews and 2 weeks later, I was hired and moved out of state that weekend, ready to show up at work the next Monday. I was now living in a small town in the middle of the Mexican semi desert. I finally had à job but I had no idea what to expect.

The Factory in the Middle of the Desert

Within my first week, sitting in a cubicle in the depths of Colgate's largest factory in the world, I quickly realized that my actual job – drawing and managing the technical packaging drawings system – was not very exciting and was more technical than creative. The factory, on the other hand, was fascinating. I got to work side by

side with an experienced team of Packaging Engineers, providing them with design support and learning the packaging basics first hand. This initiation into the packaging world gave me unique insight into the complex process of bringing a design to life for high speed mass-production and into people's hands.

The industrial designer in me also realized how every product we manufactured – shampoo, barsoaps, cleaners, hairspray, liquid soap, body lotion, fabric conditioner, toothpaste, mouthwash -– they all had their own, uniquely shaped container and label. I asked my manager (a non-practicing industrial designer) who was responsible for designing all these bottles and caps for the brands around us and produced daily by the millions in our facilities? I learned 3 things:

1. ***The global industrial design team was responsible for directing the creation of all our packaging structures***
2. ***There were only three global industrial design positions and they were based in NYC***
3. ***It would be super hard, if not nearly impossible for me to get there. There wasn't a career path to even attempt to get there, so no one had ever tried before***

I immediately knew THAT was what I wanted to do. I had no idea how I was going to get there, but I knew I had to hustle. I started with writing it down every year for 9 years in my personal development plan as my driving career goal: work as a member of the global industrial design team at the NYC headquarters. I was extremely driven, and with my manager's support, I made sure to pick up each and every random design project that showed up that would allow me to learn and harness my skills: benchmarking

competitors, leading creative workshops, 3D modeling, rendering pallets, prototyping concepts, photoshopping product pictures, sketching concepts, I did it all. It helped that I was the only one around with any actual design skills among my team of packaging engineers. Because the job that I was hired for (packaging drawings) needed to get done regardless of my aspirations, I also had to learn to juggle my "primary" job with the additional workload — but I was a woman on a mission and no one could stop me.

Being the first was fun but it also came with downsides. Not only did I have to become AutoCAD and SolidWorks proficient immediately, I also had to figure out 2D and 3D design software licensing, as well as maintain and operate an abandoned FDM 3D printing machine they hardly ever used. In this first stage of my career, I learned about our manufacturing processes, packaging materials, bottles and caps engineering, technicalities, specialized vendors, molds making, packaging protocols and tests, product specifications, production woes. I didn't know this at the time, but 14 years later, this knowledge still comes in handy in my current position.

Two years in, the opportunity to design my first shampoo bottle came. It was time to replace the manufacturing molds for one of our Mexican shampoo brands, and the Global Industrial Design team was too busy working on major projects. I threw myself into it and worked non-stop and after hours for about 8 weeks, to create a new design in 4 different sizes, from sketch concepts to 3D that our machines could manufacture and our local marketing team would approve. My initiation was brutal: things took me too long, I made mistakes…it was quite a bumpy ride — but with the expertise and

support of my Packaging Engineering team, we made it. This first launch brought in some savings, and a much needed brand facelift. Surprisingly, out of all my babies, these bottles have endured and been in the market the longest – 12 years and running. They're so efficient that they have proliferated across other Personal Care brands in our portfolio — I've even found a couple of copycat brands in the Mexican market! I was also granted my first ever U.S. design patent for this bottle. Today, you'll find that first framed patent proudly hanging on my dad's office wall — right next to the engineering and psychology titles of my siblings.

After that, small design projects began to sprout everywhere, and I kept saying yes, of course I can do that. I even got to travel for work for the first time with the Latin American Marketing innovation team, for a deodorant innovation project in South America. We went into people's homes, interviewed and co-created with them, got feedback on our 3D printed prototypes…I was completely hooked, and the experience only confirmed that I was on the right track.

Sometime around my third year in the job, Global Industrial Design had their eye on me, maybe because I was the eager woman making noise from her corner of the world. To my disbelief, the head of Global Industrial Design at the time assigned me a wonderful, remote mentor to guide me. As it turned out, this mentor is now my manager and I still have the privilege to work with him. He patiently taught me the ropes of the job while working together on my first high stakes project: another shampoo bottle, this time for a big hair care brand. For the first time, I had real contact with the job I aspired to do. Through this first mentoring experience, I learned

how to manage full design projects: design strategy, ergonomic principles, designing for manufacturing, materials behavior, directing creative agencies, budgets and timelines, using research to inform our work, negotiating with our partners, storytelling and presenting to stakeholders, secrets of the trade.

Back to Mexico City

Four years and a handful of industrial design projects later, in 2013, I transferred to the Mexico City regional offices so I could get closer to the strategic side of the Latin American business. The next four years of my career, I got deeper into Latin American industrial design work, and this time I was exposed to a radically different side of Colgate: our brilliant R&D scientists, marketing innovation teams, consumer insights and graphic design teams. In this phase of my career I learned about the development of our formulas, the power of our brands, the people who buy our products, the fierce competition in the hyper saturated Latin American market, pricing strategies, the artwork process, the nuances between Latin American countries' needs. And while all of this was happening, the packaging drawings system still was my responsibility. At this point though, I had done enough foundational work to improve the system and had enough Industrial Design workload that I was able to justify hiring an intern, at first half time and then full time, to help manage and roll out the system across the Latin American continent. It wasn't a perfect scenario and I had to negotiate heavily with my managers, but I knew that not having to do everything myself and getting to focus on the work I actually wanted to be doing —

managing industrial design projects — was a win for me, and a step in the right direction.

A First Taste of NYC

In 2016, several Latin American industrial design projects under my belt and countless self-advocating conversations with many managers later, the opportunity to spend 7 months in NYC learning from the Global Industrial Design team finally became a reality. GD&P (Global Design and Packaging) brought me on a Short Term Assignment, an internal company program to develop talent and address business needs. For the first time I got to see everything I had been working on and more, from a Global point of view: the complexities of governing massively large brands, all the resources that go behind strategic initiatives, key stakeholders, regional differences and their impact on our brands. I absorbed EVERYTHING I could in those 7 months, networking and learning directly from the people I looked up to become one day. Achieving my dream – to work as a member of the global industrial design team at the NYC headquarters – felt within my reach for the first time ever. At this point, all I could do was continue doing good work, advocating for myself, and patiently wait for my opportunity to come.

From Mexico to NYC, finally!

A little over a year after coming back from my brief experience in NYC, the impossible happened: one of the three global industrial design positions (the one overseeing Home Care and Pet Nutrition) unexpectedly opened up. I immediately applied, nervously went through the hiring process, and I got the job. About 4 months and a stressful working visa process later, in January 2018 my husband,

my chihuahua and I were all packed up and on a plane to NYC, where I would begin to live the dream I had been pursuing for 9 years. The feeling was familiar, just like when I started this job in the middle of the Mexican semi desert: I had no idea what to expect and was still in disbelief that this was all actually happening to me.

It has been almost 6 years since I took over my current role as Industrial Design Manager for Home Care and Pet Nutrition at our global headquarters in NYC. In these years, I have been managing global and regional industrial design developments that prioritize the people we design for, while building on brand experience and creatively solving business problems for the organization. In these years, our small team has worked hard to evolve the role of ID into becoming strategic creative partners, by expanding our skills into design research and design led innovation to feed our work and empowering teams to harness their creativity.

In a company that produces oral care, personal care, skin care, home care and pet nutrition products for all kinds of people all around the globe, our primary packaging plays a major role in the perceived value of our heritage brands and as such, has very high performance expectations placed upon it. Our packaging actually becomes how people experience our brands, and is the first physical point of contact, which continues throughout the useful life of the product in people's homes until it is disposed of. Consequently, in my world, our considerations are not limited only to the traditional aspects of good design such as form and function. We also have to consider the brand, the consumer's journey, technical constraints, production limitations, sustainability, shelf requirements, global

trends, and the burning needs of the business at the time. All of these considerations are taken into account and baked into a single design solution that satisfies everyone's needs

To help us manage the madness and sheer volume of work, we often have to rely on our secret weapons: the super talented industrial design agencies we work with, who in practice become team members and who we get to learn from every day when we co-create together to achieve a common vision. At this stage I get to learn from these world class agencies and from my ultra talented ID peers about global brand design, design strategies and frameworks, breakthrough R&D developments, early innovation research, packaging and materials innovation, global marketing and the nuances of regional needs, business cases, supply chain efficiencies, sustainability efforts, industry trends and standards and future possibilities.

The cherry on top is getting to live and experience NYC: the most diverse and creative city in the world that inspires me every day, and where there is an actual Industrial Design community of talented professionals, along with an incredible number of events, exhibitions, panels, conferences, studios, trainings, workshops — it's all beyond my wildest dreams.

On trailblazing new paths

Disclaimer: Colgate-Palmolive has been my mothership and where I've learned my trade, so I can only speak from my experience working for it as an American based CPG.

Like anything in life worth pursuing, it hasn't all been picture perfect. The path that I've created has been plagued with uncertainty every step of the way. More often than not, I am the only woman designer of color in the room coming from a developing country, which means that sometimes, my perspective is not always aligned with the general consensus. Multicultural differences pop up every day, and I've had to learn to navigate them as best I can. As part of an extremely small team, it is tricky to get everything done and career growth opportunities are limited. As I've grown into my role and interacted with more people at different levels, I've had to learn to stand my ground and speak my mind, while still being able to keep an open mind and be respectful. A lot of design projects die on the vine, and all you can do is learn from it and move on, because there's just so much to do and always something more urgent to take care of. Navigating constant and cyclical change inside and outside the company can get very challenging. Conflicts are inevitable as much as unfavorable outcomes: projects that never flourish, diverse budget ranges, differing points of view, outside world influences out of our control. Let's not forget, we all went through a global pandemic and had to figure out how to work from home and keep creating value. The process of obtaining a U.S. working visa can be complicated and a heavy burden, not only for me but also my small family. Because of my country of origin, we have to go through the process every year, and it can get very stressful. Living far away from loved ones and our countries of origin is hard, and it can get quite lonely. And then of course, building my career exclusively at Colgate means that I am ultra specialized in what I do, which is a double-edged sword. I never got

to work for an agency or do agency work — but I have become an expert who excels at translating the company's needs into an effective design strategy to develop a design solution that connects all the dots — physical brand experience, aesthetics, CMF possibilities, ergonomics and dispensing, brand and category fit, market context, manufacturing constraints — and is feasible within our capabilities.

I didn't know this when I started, but I consider two key ingredients to be extremely relevant enabling factors of my career progression. One is that Colgate-Palmolive's core values align with my own (courageous, inclusive, caring), and the second is what I consider to be Colgate's main strength: the diversity among CP people. I am fully aware that I did not get here on my own, and I am incredibly lucky to have encountered other kind and talented male designers who became my allies: whether they've hired me, advised and mentored me, believed in me, fought for me, taught me, encouraged me, elevated my work or cheered me along my path. They've stepped up and have been instrumental in clearing the path for me at different points in my career, helping me figure out how to get to a place that had no official map. This is especially relevant given the depressing current state of the ID profession: There are 15,702 employed industrial designers in America. Only 18% (2,912) are people of color (latino, black, asian) and only 18.5% (2,826) are women. Although it's hard to know the exact split of women of color in industrial design working for CPGs, it is fair to assume this number is extremely small. In contrast, CPGs own the design and production of 85% of ALL the products that we interact with daily – yogurt cups, cleaner bottles, disposable razors, barsoaps, boxed

pasta, you name it. And women make up 70–80% of purchasing decisions in the market — including the men and children in their lives, and they are all using these products. So I wonder: why shouldn't women get a say on how these products are created? How can anyone come up with a design solution for a problem they are not aware exists or can't understand? We all have biases and blindspots, that's normal. But this is exactly why giving a voice and fostering diverse talent coming from diverse backgrounds is so important, and an invaluable asset for any company whose focus is top tier innovation and creativity. By stepping up and giving a seat at the table to more women industrial designers of color in companies and agencies can drive this change, and help pave the way towards truly inclusive and universal design that is better for everyone.

Sign me up!

If after reading all of this (thank you!) you are up for the challenge of carving out a place for yourself leading a creative career path within corporate culture, here's what I've learned:

On a personal level:

1. ***Be yourself, be brave, be different****: staying authentic to yourself throughout your career gives you the confidence to make better decisions, and it will guide you like a north star. It takes a lot of courage to be authentic and work for what you want, so be prepared to stay brave through it all. It's good to be different – new perspectives are key when designing for a diverse audience, and it is easy to forget the struggles in other*

socio-economic groups and geographies. Whenever I am the only one speaking out about certain things that only I can see, it starts a conversation and gets people thinking differently and beyond their biases. This skill is a prerequisite to influencing key decisions and enriching your work with something only you can bring to the table.

2. ***Speak your mind & trust your instincts: it's easy to get discouraged from saying what you really want to say in a room full of professionals. However, trust that your perspective is unique and valuable, and there is a reason you are in that room bringing your expertise too. On the same note, only you know what you can take upon yourself and what you are capable of or not. I've been careful to not go down a path that doesn't feel right to building the future that I envisioned, even if it seemed like the easy choice, a quick win or others were pushing me to do it at the time.***
3. ***Be kind, always: It doesn't matter if you plan on staying for a short or long time, I've been shocked to find out that the design and packaging industry is extremely small and people tend to jump from one to the other constantly, so the odds of you encountering someone you worked with in the past are very high. I once read that people won't remember what you said but they will remember how you made them feel, and I consistently find this to be true.***

On an industrial designer level:

4. ***Let go of designer's ego: We designers tend to define ourselves by what we create, and we are super proud of our***

work. However, in a CPG company where so many people from different disciplines are contributing, ownership can get very blurry. Sure, your work is important and contributed to it all, but because it's a team effort, most of the time you won't get individual credit and you have to be ok with that.

5. ***Find the gaps & be proactive**: As in any company, the bottomline is profit, so there are always opportunities for improvement and we are encouraged to find them. As an industrial designer, I get a kick out of solving problems, and this mindset drives me to identify gaps and opportunities and build something to address it. This approach creates more work for me — but I've also brought added value to the company that hasn't gone unnoticed.*
6. ***Prioritize learning & wear many hats**: Knowing your strengths and investing in expanding your skillset will pay off in the long run, and it is good to keep flexing your creative muscles. Whether it's taking a design course, going to conferences, reading a book, working on a passion project, picking up a new language, or being taught by the brilliant people around you, learning comes in many forms and it all helps you become a better designer. There are many things to do in a CPG and everybody is busy, but I've found that us Industrial designers are naturally curious and can pick up just about any skill if it will help us do our best work. This tends to be a lethal combination - in a good way!*

On a career level:

7. ***Self advocate & communicate your successes:*** *I promise you, no one is going to give you anything if you don't constantly ask for it as loudly as you can. In Mexico we have this saying: "you already have the "no", what's the worst that can happen if you ask?" Of course you have to actually do the work first, but making sure to communicate your successes and being your own cheerleader can get super uncomfortable, but is extremely important. How else will leadership notice and help grow your potential?*
8. ***Cultivate mentors & allies:*** *I've been extremely lucky to have people believe in me and advocate for me throughout my career. However, connecting with people doesn't just happen on its own – I've had to work to identify, create and strategically maintain these relationships, and I have learnt to make sure to give some value back to them as well (reverse mentoring is a thing!). I usually go for senior people who I admire and feel a connection with. In the past, my mentors used to be all men, but as I network more, I find myself gravitating towards women leaders that I find authentic and deeply admire. At this stage in my career, I have also started mentoring young women designers, and I love it.*
9. ***Play the long game:*** *There will be roadblocks and people who say no, there will be delays and things out of your control, it will get uncomfortable and stressful and scary at times, you might get sidetracked for a little while. Of course, there will also be a lot of satisfaction, small and big wins, exciting opportunities, valuable friendships and joyful days. It's all part of the journey. Finally, because of their huge size, things in*

> ***CPGs feel like they happen in slow motion. If you're restless and prioritize meteoric growth, it might not be the place for you. Patience and good work can pay off, but only if you're willing to play the long game - and even then, things might not work out. Some of the best advice I've received: you're running a marathon, not a sprint.***

At this point, I realize how much hard work, skill, opportunity and luck have come together to make my dream come true. I do not know where my career will take me next, but I am excited to pay it forward by continuing to open new paths for other women who look like me, and doing what I can to push them forward. A first small win: the role I started in still exists in Mexico City, but it is now an official Packaging Industrial Design role. It is now being led by a brilliant young woman who I just agreed to mentor and that I see so much of myself in. I know that's exactly what Daniela from 14 years ago dreaming from her cubicle in a factory would have wished to have.

Teddy Atuluku

Operating remotely from Abuja, Nigeria, Teddy Atuluku is the Innovation Lead at Void Studio. A graduate of Industrial Design from the prestigious Pratt Institute School of Design, Teddy specializes in strategic innovation, assisting clients in unveiling opportunities for new products and service improvement.

With an expansive portfolio encompassing various fields from wellness devices to restaurant interiors, Teddy's approach revolves around positive futures and collaborative work. His partnerships with diverse organizations like Better Earth Compostables, Dig Inn, and Unpacked, among others, demonstrate his versatility.

Currently, Teddy is contributing to a child safety start-up while managing in-house design projects. A fan of video games, martial arts, Manga, and the intriguing world of Chinese cinema, he envisions a future where design enables personal delight and social benefit.

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WRITING PROJECT PROPOSALS

Teddy Atuluku

Introduction

Fresh out of design school, I expected to spend most of my time dreaming up new products and helping bring them to life, and this was true with some of my early jobs, however as I branched out and opened my independent practice, I needed to convince prospective clients why I was the right person for the job.

At first, I tested different payment structures, and each sales conversation was a bit awkward, with me trying to figure out how much I needed to charge to get work done, how long it would take, how much a client would be willing to pay, and what sort of design related tasks I'd be engaging in. If a call went well we'd settle on a price and a set of tasks, then I'd send them an itemized invoice. This wasn't the best way to start client relationships.

Even when I landed jobs, I'd sometimes get into relationships with clients where my expertise was undermined because I started by setting the expectation I was an order taker.

Learning to write a good proposal became key to landing good jobs, and fostering great client relationships.

In this paper, when you need one, how to write one, and what makes a good proposal different from other forms of pitching.

Context

Most designers have presented their work to their bosses, clients, teachers, and peers. The importance of being able to speak about our work to get buy-in is something we all learn early in our careers. However, we rarely learn the importance of being able to sell our processes or project outcomes before they happen.

A proposal for a designer can take many forms, but at its core, it's a way to sell design to someone who may need it, but may not understand it. A good proposal paints a picture of how the client will benefit from working with you.

While I've used proposals to pitch project ideas for licensing and grants, I mainly use proposals to start projects with clients and set the pace of working relationships.

What is a design proposal?

Google defines a proposal as a plan or suggestion, especially a formal or written one, put forward for consideration by others. By extension, a design proposal is a formal suggestion of a design project for a client's consideration. But while this is true, I think it undercuts the potential of a design proposal. So here's my definition.

A design proposal is a short document used to sell your ability to produce a positive outcome to clients.

Why write a design proposal

Clients may come to you asking for a new product idea, a logo, or a website. However, clients often seek a larger outcome they want these tasks to help achieve. A good proposal shows you are aware of

your client's desired outcome, it aligns expectations, communicates clear objectives, and positions you as an expert not just an order taker.

Before writing your proposal

It's likely that before you ever send out a proposal you'd have had at least one sales conversation with your client. The quality of the sales conversation is critical to a good proposal. So here are a few things to learn from your client before starting a design proposal.

1. ***What they want to get done***
2. ***Why do they want to get it done***
3. ***Why do they want to get it done right now***
4. ***Any recent changes in their industry or company that have inspired the project***
5. ***When they need the project done***
6. ***How much impact or value a successful project will bring them***
7. ***How much time, money, and resources they are willing to invest to achieve that impact?***

These aren't all the questions I ask, but I find answering these 7 questions leads to a good understanding of my clients' needs, which means a good proposal, and a great working relationship.

Key Elements of a Design Proposal

Overview/ Summary:

A summary of the project, including what situation has led the client to engage in the project, and what sort of outcome they wish to

achieve. This frames the proposal for you, your client, and any other stakeholders that may not have been part of the sales conversation.

Problem Statement/Opportunity:

Clearly state the problem to be solved or the opportunity to be exploited. I generally do this as part of the summary. It's a necessary reminder for everyone why the project needs to happen.

Objectives:

State clear objectives that the client intends to achieve with the project. These should be about those larger business outcomes. Using measurable objectives here is best. Though some projects may have more abstract objectives like "improved brand perception", finding some way to measure that in the brief goes a long way.

Brief:

This is where you state task-based goals focused on how you can achieve the objectives. Using the "improved brand perception" objective, a brief item may be designing a logo, improving product material feel, implementing sustainable manufacturing, etc. These are clear, measurable, and achievable goals you can tick off during your design process.

Service offerings:

Give the clients a few ways they can engage with you with different types of service offerings. I like to take a page out of Jonathan Stark's value pricing methodology here to offer a low-cost low engagement service, a mid-cost service where I work collaboratively

with client teams, and a high-cost offer where I take on all the responsibility for project success. This presents the proposal more like a conversation than a flat rate and lets them pick an option that fits their budget. You can also play with this and make offers for royalties or equity.

Benefits:

Each brief item and service offer should come with at least one benefit to the client. For the brief items, these benefits should be aligned with how they will help the client reach their objectives. For the service offerings, the befits should be around what sort of working relationship you will have with your client.

Timeline:

Give a breakdown of the project schedule. With smaller projects, you can simply specify how long it'll take to complete and when you feel reviews need to happen. With longer projects, you may want to use a Gantt sheet to show when each deliverable and review is expected to happen.

Budget:

State the cost of the engagement for each product offer. Regardless of how you come to a fee, I'd recommend only showing the final figures for each offer, and making them round numbers (Avoid $10,746.13 how would you even get a figure like that. Turn that into $10,800, or better yet $11,000).

Risks:

List potential risks and how they will be mitigated or handled. This may include delays in timelines, parts of the project that are outside your control, late communication, and misunderstandings about deliverables. Anything that may be troublesome should go into this segment. Eg. "shipping delays may slow prototype reviews, but I'll keep you informed" or "If I ever need to reschedule a meeting, I'll notify you 24 hours ahead of time".

About:

I generally don't include an about section or a bio, but I include a link to my website. That way if any stakeholders are curious about who I am or my previous work, they have easy access to learn more about me and my practice.

Tips for an effective proposal

To have a proposal land effectively, you want to be clear and concise in your wording. Avoid spelling mistakes, and keep a structured flow. Keep it as short as possible without obscuring information. Referring back to benefits and objectives is also a big way to differentiate yourself from other designers your clients may be considering, and it helps you keep track of what's important on a project, avoiding scope creep, and misaligned expectations.

Having a few offer options also leads clients to compare your offers with each other, rather than your price with your competitors.

Case Study: Safetods

While I'm still learning and improving my proposals, here's a case study of a proposal for a children's safety brand. I mentioned before

that proposals are like conversations, and this is a perfect example. Throughout our sales conversation, the proposal developed and got more focused. The key objectives stayed the same, but the offer changed.

Our first proposal was structured with Objectives, Offer options, benefits for each option, a timeline, risks, and a price. Below are some segments pulled from the proposal.

Objectives:

1. ***Create a brand identity that Safetods' customers can build a community around.***
2. ***Build a market position for Safetods that raises her value against other child safety products and potential competitors,***
3. ***Create marketing messaging to help educate customers and build a community around the Safetods brands***

Option 1:

Deliverables

- ***Create a brand identity for Safetods to help with recognition by the public and build affiliation with customers.***
- ***Create marketing plans to promote Safetods around instructional materials like how-to pdfs, blog posts, and social media content.***

Benefits

- ***Reach ideal customers***
- ***Plans to help build affiliation with customers***

Timeline - 4 weeks

Option 2:

Deliverables

- ***Everything in Option 1***
- ***Create and implement marketing materials according to the marketing plan in Option 1 for up to 3 months.***
- ***Connect Safetods with important voices and communities for new parents to help build the Safetods community*.**

Benefits

- ***Hands-off marketing for 3 months***
- ***Improved visibility through community partnerships***

Timeline - 12 weeks

Budget:

$10,000 for option 1

$20,000 for option 2

Risk and Assumptions:

- ***The timelines presented in this proposal is with the expectation that the client review feedback will be done within 3 working days.***
- ***All internal documents for Safetods shared with VOID will be subject to non-disclosure.***
- ***In Option 1 VOID Studios is not responsible for the implementation of content and marketing materials.***

Safetods got back to us saying they liked the direction but they really couldn't afford any of our option prices and gave us a budget they would be able to work with while they grew their business.
Our follow-up proposal took a very different stance, positioning us as partners over time instead of project consultants. See below;

Objectives:

1. ***Create a brand identity that Safetods' customers can build a community around.***
2. ***Build a market position for Safetods that raises her value against other child safety products and potential competitors,***
3. ***Create marketing messaging to help educate customers and build a community around the Safetods brands***

Deliverables:

A. Brand identity advisory-

1. ***Brand positioning and storytelling.***
2. ***Brief for outside designers to execute a brand identity.***
3. ***Help select and advise on creative styling and application.***

B. Marketing and testing roadmap -

1. ***Content roadmap (content ideas, deployment times, and tactics)***
2. ***Manage outside designers/ content creators to execute a content roadmap***
3. ***Review the efficacy of marketing***

Budget:

$3,000 paid monthly for 6 months

While we ended up taking less money, we also took on less work over a longer period, and so far the partnership has been great. I believe the reason we could come to a conclusion that worked for our studio and Safetods was because we understood their need as a new company and were able to communicate that.

Common Pitfalls and How to Avoid Them

Some pitfalls I've come across in writing unsuccessful proposals are;

Forcing offerings:

Sometimes what the client needs and wants are clear, rather than forcing an offering based on deliverables, it may make more sense to offer alternative payment offers or lengths of engagement

Price mismatch:

If the client's budget and expectations clearly don't fit with your price bracket, it's best to be upfront about it with them and send them on their way rather than spend time in a negotiation. If you happen to be desperate for a job, decide what you can do for them at their budget and give them a straight offer. Don't haggle over your offer prices, it discredits you.

Engagement length:

Don't push for a long-term engagement where you can do a short one, don't give a short time frame if it's unrealistic. It'll leave everyone frustrated and unhappy.

Conclusion

A proposal can be a great way to make sure you and your clients are on the same page and emphasize your position as an expert looking out for their best interests. It may take a while to find a structure that fits with the work you do, but don't be afraid to play around and try different forms. You may even be able to bring some of the proposal methodologies into your design presentations for multidisciplinary collaborations.

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Chandni Pradhan

Her journey into the design world started with her small, family-run garment manufacturing unit. During her school days, she would go with her father for casual visits to their factory. That's where she was first introduced to the beauty and intricacy of crafting a product.

Chandni has completed her Bachelor of Technology in Textiles from Institute of Chemical Technology, Mumbai and Masters in Surface and Textile Design from Istituto Marangoni, Milan. Over the last 8 years, she has designed textiles for fashion, home décor, and surface design for wallpapers and ceramics for global companies like Loro Piana, Bisazza, House of Anita Dongre and Revival.

She is currently working with Revival as the Senior Designer and Art Direction Specialist. Her role involves design research, colour theory, material and manufacturing techniques, product innovation and storytelling. Her greatest satisfaction comes from creating beautiful and sustainable products which bring joy to people. This also aids in her role as an art director in developing and maintaining a creative vision that speaks to the audience.

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THE AESTHETICS OF SUSTAINABILITY - UNDERSTANDING TEXTILE MANUFACTURING PROCESSES TO DESIGN BETTER

Chandni Pradhan

Sustainability is undoubtedly the need of the hour. It holds immense significance in textile manufacturing as it addresses the urgency to protect the environment and promote responsible practices within the industry. The textile industry is currently included in the top 5 most polluting industries. Embracing sustainability in textile production involves rapidly expanding recyclability of existing materials, as well as developing new sustainable alternatives to existing materials. As a designer involved with textiles, I believe that by adopting such sustainable techniques, the textile industry can contribute to the preservation of natural resources and the reduction of pollution.

The aesthetics of a product play a crucial role in influencing consumers and enhancing the overall user experience. We all want beautiful products which enable us to express our own individuality. Would you buy a product made from recycled materials if it did not appeal to you visually? I don't think so!

Creating a new product in today's world is a balancing act. It needs to be sustainable as well as visually appealing to a large audience to be truly successful. You may be thinking that sustainability and recycled products do not exactly align with high-end and good quality. In this article, my aim is to show you that trash can be turned into treasure.

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RECYCLING POLYESTER

Recycling plastics like bottles, cups, bags, etc. has gained popularity as the go-to method to reuse our existing plastic and reduce its presence in our environment. Have you ever wondered how plastic bottles can be turned into yarn which is so soft?

First, the collected plastic waste is segregated based on plastic type as there are many types of plastics used across various industries. Polyethylene terephthalate, or PET, based plastic products are the easiest to sort, as almost all packaged drink bottles are made from PET. There is also a plastic number stamped on all plastic products to help identify the kind of plastic used. The plastic number for PET is #1, making it easy to double-check the segregated plastics.

These bottles are then cleaned, sanitised and cut and chopped into flakes. The flakes are melted and converted into standardised

pellets. This is done to ensure quality control in the extrusion, which converts the pellets into long strands which are finally spun into yarn. A strict control on the melting temperatures and extruding processes allows for the yarn to be impressively soft.

Conversion of PET plastic waste into recycled PET yarn

This yarn may be mixed with other materials like cotton and wool to make various products. Many well-known brands have recently been in the limelight for making eye-catching products using recycled polyester like shoes, garments, rugs, upholstery fabrics, etc.

Currently, PET is the most recycled plastic because of its thermoplastic properties. The polymer chains break down at a relatively low temperature, and so there is no degradation of the polymer chain during the recycling process. Once melted, it is very easy to mould or extrude the melt into new shapes or filaments.

While developing Revival's 'Outside-In' collection of outdoor-indoor rugs, we worked extensively with the plastic bottle recycling plant to get the appropriate texture of the recycled PET yarn. The yarn we developed was feather-soft to the touch without being shiny like plastic. A 5'x8' rug contains about 460-500 recycled plastic bottles.

The next step was creating a visually interesting weave where the colours almost 'flowed' from one another in an expanded plaid-like pattern. This visual play of colours that first attracted customers to the product, but the material is equally important. Most people could not believe that the yarns were once plastic bottles because the rug is so fuzzy and supple.

Calvin Klein sweatshirt crafted with REPREVE® recycled polyester

Revival's outdoor-indoor Bocce rug made from recycled polyester

Adidas x Parley recycled ocean plastic trainers

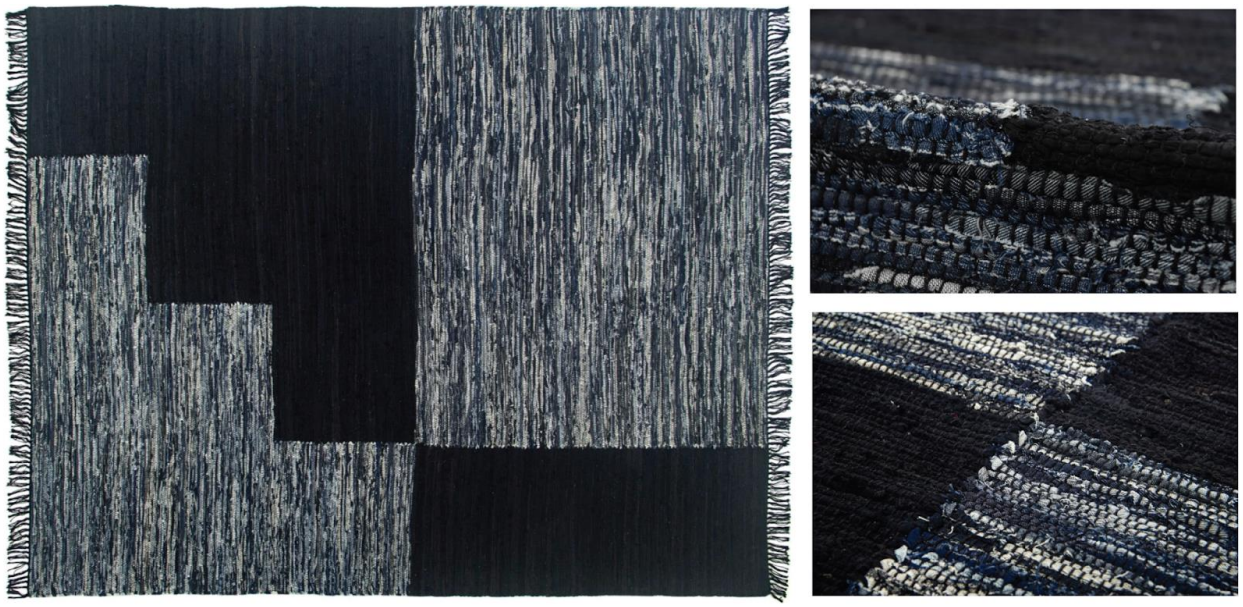
RECYCLING GARMENTS

It is no secret that thousands of tons of discarded garments end up in landfills on a regular basis. Fast fashion has cultivated the processes of quickly manufacturing trendy, inexpensive clothes in large volumes. People purchase these cheap clothes to wear a few times and then discard them when the trends change, or when they degrade in quality, which happens quickly, as they aren't built to last. We cannot make people change their lifestyle, but we can recycle these old garments into attractive new products.

India imports used garments from all over the world. According to the United Nations Comtrade database, India imported used garments worth $371 million in the year 2022. These used garments are segregated by colour and materials. The buttons, zippers, embroideries, etc. are removed and the garments are cut into small, long stripes called '*chindi*' which are then washed for sanitation.

Old, used garments and textiles are sorted by colour and materials

The next step is making a visually appealing new product with these 'chindi' fabrics. This was the challenge we faced while developing Revival's 'Denim Collection' rugs made from recycled denim. We opted to use simple, geometric shapes with some art deco influences to highlight the mélange effect created by the denim. We also had to work with the manufacturer on construction and finishing to ensure that customers receive a sturdy, high-quality product. Since denim is a very durable textile itself, these rugs are machine washable, just like your jeans!



Revival's Wrangler rug made from Recycled Denim

Frequently, the chindi is further broken down into fibres by intense shredding machinery. These fibres are spun into new yarn which are in turn used to make entirely new products. As we developed Revival's 'Chindi Cushion Collection' we not only used yarns made from recycled garments but also opted to work with small handloom weavers to weave the textile by hand - a double win for recycled materials and ethical labour practices.

Ganni's t-shirt made from yarn obtained by processing recycled garments

Revival's Chindi Mini Check cushion made from yarn obtained by recycling old textiles

Globally, mainstream fashion and textile brands have recognised the need to incorporate sustainable practices making 'recycled' the new chic. By recycling our existing resources, we are preventing new resources from being wasted. Even if we can recycle only 1% of the billions of garments which end up in a landfill, that will still be a significantly large number of garments that are given a second life. The number of recycled products will only grow from here due to the world-wide rising awareness of the sustainability crisis.

PLANT – BASED LEATHERS

The development of new technologies has enabled the textile industry to create innovative materials. One such material is plant-based leathers. Let's get one thing straight: plant-based leather is not real leather, as there is no animal skin involved in the making process. Plant-based leathers are an altogether different material which look and feel like traditional leather. The industry is currently

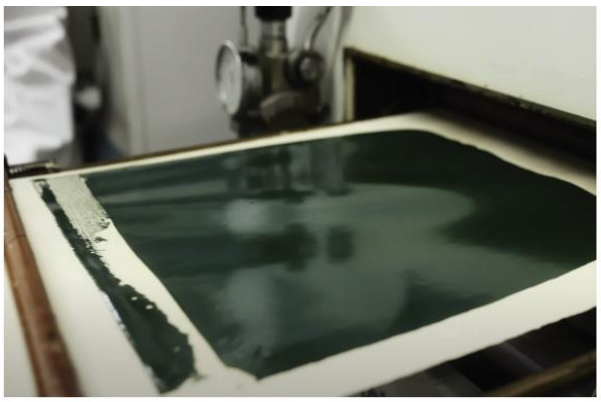
abuzz with the advent of leather lookalikes made from mushrooms, cactus and cork.

'Desserto®' is a highly sustainable plant-based material as an alternative to traditional leather. Cactus is harvested and the thorns are removed. The leaves are then chopped into small pieces and dried in the sun for 3-4 days. A chemical process is then performed on the dried pieces to extract cactus proteins and fibres in powder form. The powder is mixed with a resin to make a sticky paste-like substance. A thin layer of this paste is applied on a fabric base and dried slowly in a heating chamber to create the cracks which you see in real leather. The dried layer is then peeled off to give you Cactus leather. The same process is followed after harvesting cork bark to make cork-based leathers.

Cactus is harvested

Cactus is chopped into small pieces and dried in the sun

The dried pieces are chemically reduced to a powder



The bio-resin paste is applied on a fabric base for drying

Desserto® cactus leather

The process of making mushroom-based leathers (as developed by BOLT THREADS - MYLO™) is slightly different. Mushroom leather is actually made from mycelium. To understand what mycelium is, think of a tree with its stem and root networks in full bloom. The mushroom, which we know and love to eat, is actually the fruit of this tree. Whereas mycelium is the root system - the white thread like fibres which are seen surrounding any mushroom. The mycelium forms an interwoven network providing the nutrients required for the mushroom to grow.

A mixture of distilled water, mineral particles, starch, and hydrogen peroxide are poured into large trays and then injected with living

mushroom cells. When placed in a dark environment, the cells start to grow by consuming the starch as food. In a matter of 2-3 weeks, a fine hair-like root network is formed in the entire tray. At this stage, a plasticiser is added in the tray in order to bind all the mycelium to a base. The mycelium sheet is then dried slowly and further treated to create the leather-like surface texture.

The fine, hair-like, mycelium root network forming in the tray

The mycelium is dried slowly to form a leather-like surface texture

various textures and colours of mushroom leather

The ability to control the look, feel and colour of the final material is in itself a bio-engineering marvel. Plant-based leathers look and feel closer to real leather than PVC or PU leathers which is what makes them attractive to designers and brands. Today, these bio-leathers are being used not only to make bags but also garments, shoes, automobile seat covers and upholstery fabrics. Production of these materials can be scaled easily without being dependent on animal skins which are in relatively limited supply making them the best-available sustainable alternative to animal or plastic leathers.

The interior of the Mercedes-Benz Vision EQXX concept electric car features 'DESSERTO' cactus leather and 'MYLO' mushroom leather developed by Bolt Threads

Hermès Victoria bag made using 'Sylvania' mushroom leather by biotech company MycoWorks

Can you believe that such good-looking products are being made from recycled and sustainable materials? A recycled product is great for the Earth but as designers, we also have to ensure that the look and quality of the product is top-notch for a customer. Sustainable materials and good design are intrinsically linked. If you purchase any product made from recycled materials or sustainable alternatives, you would want it to be visually appealing and feel authentic, right? Every designer should be able to put themselves in

their customers shoes and ask, "does this product look high-end enough to compel a purchase?"

Long-lasting change is possible only when mainstream retail products can be made from recycled and sustainable materials on a large scale. Designers can—in fact, must—play a crucial role in convincing executives to incorporate sustainable alternatives by showcasing the luxury products which can be made from such materials.

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Sahil Dagli

Sahil Dagli is an Architect and an Urban Designer based in New York. Sahil completed his undergraduate studies in Architecture from Mumbai University in 2013 and finished his post-graduation in Architecture and Urban Design from Pratt Institute, New York in 2017. Having keen interests in site documentation, history, contemporary planning strategies and technical detailing, he holds a professional experience of three years. Sahil currently works as an Architectural Designer with J Goldman Design, New York. He has worked on strategy implementation, planning and design at various architectural and urban scale projects with Paradigm LLC, Philadelphia and Design Variable, India.

Along with industry experience, Sahil has keen interests in architectural academics, urban research and education. Sahil has been a visiting lecturer at Rizvi College of Architecture, Mumbai, Graphiques, Mumbai and The Institute of Career Advancement, New York. He has taken lectures, workshops and design studio projects in subjects of culture and built form, Architectural Design and Basic Design. Sahil also engagingly participates in various activities under The American Cancer Society in his available time.

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THE FUTURE OF LAST MILE DELIVERY TECHNOLOGY IN URBAN ENVIRONMENTS

Sahil Dagli

A. Abstract:

The goal of this paper is to decipher trends in last mile delivery that is defining the urban landscape of big urban cities and retail establishments. We are at a precipice where the need for fast deliveries to our homes has surpassed our need to shop in retail stores and big box retailers are now switching to a more streamlined process in making sure that goods are well bought, sought after and distributed. Multiple sources show a growing need for faster and cheaper online deliveries and shifting consumer behaviors: those who used to shop in-person at a physical location are now wanting to browse products using online platforms to have their purchases delivered at their front door, or easily picked up from a nearby area. This has only intensified in the last three years especially after the world event of Covid-19. We have witnessed in the past two years growing numbers in online retail orders in the U.S. with a near spike in ecommerce in 2020, compared to 2019 (Fig. 1) (Digital Commerce 360, Jan. 29, 2021).

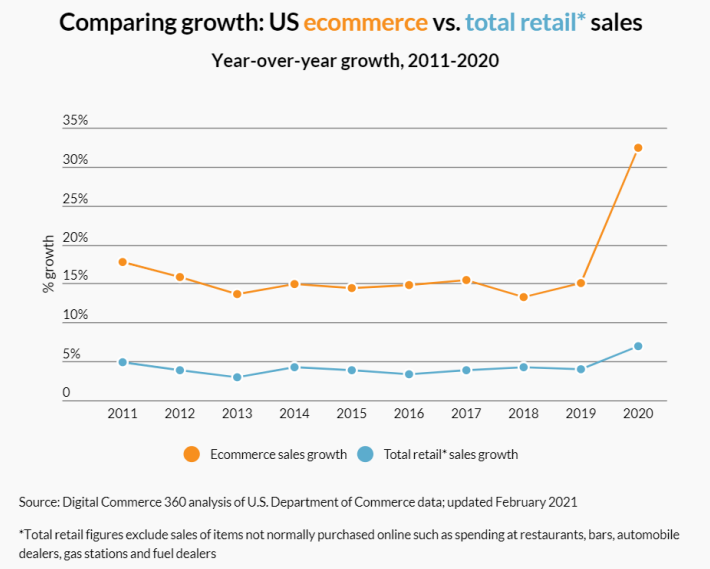


Fig. 1 – Growing e-commerce trend in the U.S. (Source: https://www.digitalcommerce360.com/article/us-ecommerce-sales/)

Advances in software engineering for online delivery platforms, as well as in urban infrastructure and logistics, increased the efficiency and speed of deliveries. Technologies of various types and scales, ranging from small circulating droids to flying drones and largely automated distribution centers, have allowed for retailers to produce, organize, and ship products with less time and fewer costs.

This paper briefly touches upon different types of retailer groups and speculate on how retailers may need to adapt their physical store designs and delivery processes to remain competitive in the e-commerce market. This report also lays importance on brick-and-mortar retailers, as these are likely to be most highly impacted by the shifting trend from in-person to online shopping. The paper also holistically looks at technologies that are likely to dominate in the next five to ten years based on statistics, and how these are utilized within distribution centers, called "micro-fulfillment centers" or MFCs.

Overall, this is a topic that is at the confluence of three realms: the urban environment, retail design and logistics of e-commerce (Fig. 2).

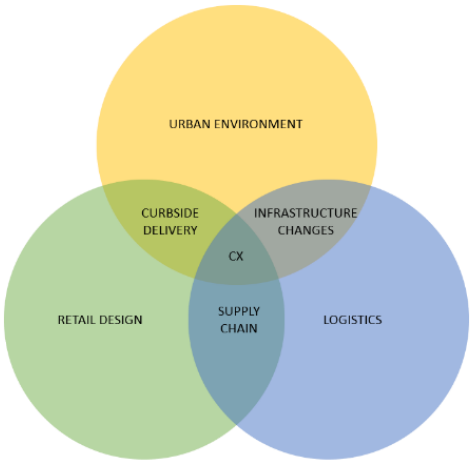


Fig. 2- Premise of the research (created by: author Sahil Dagli)

B. Context:

a) Growing Urban Population

It is estimated that about 1/3rd of the human population is going to reside in urban centers and cities. Along with the influx of people in the cities as seen over the last few decades, there has been an increase in demand and growth in e-commerce and consumer goods. Companies like Amazon and Alibaba have changed the way we humans consume goods and interact with shopping online. In the past decade, e-commerce sales have almost tripled; and the pandemic has resulted in an aggressive change in the relationship between retail and the average urban consumer (Fig. 3).

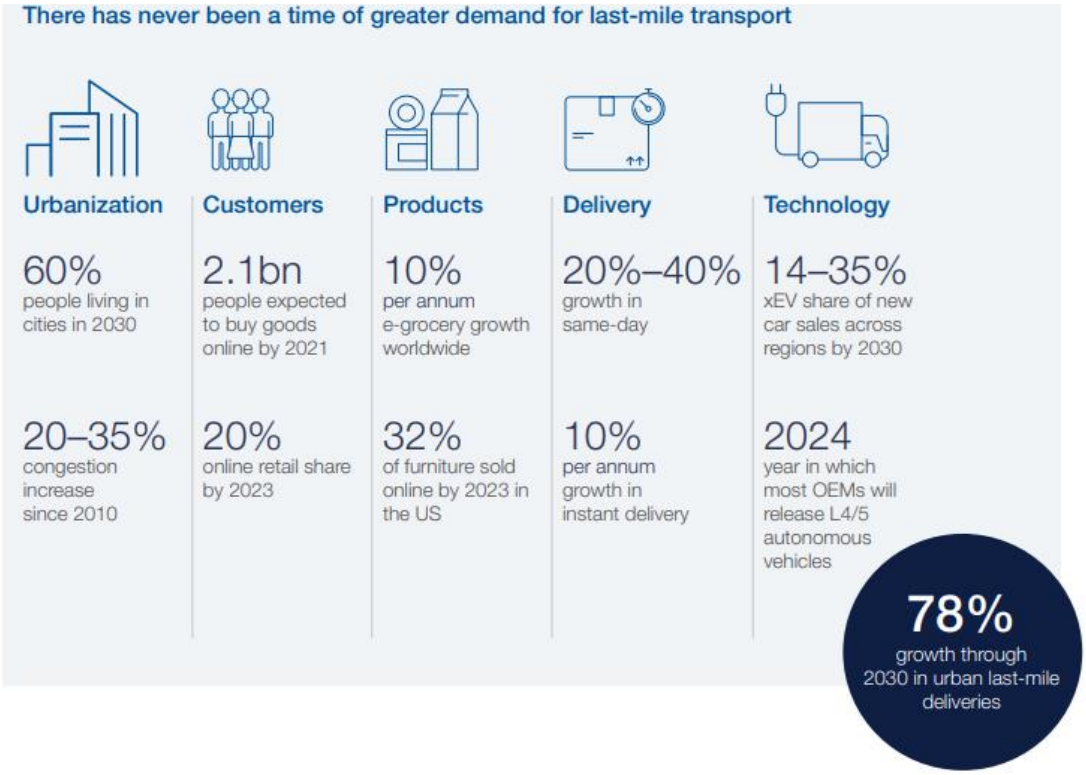


Fig. 3 - Project Futures and their use. Courtesy: World Economic Forum

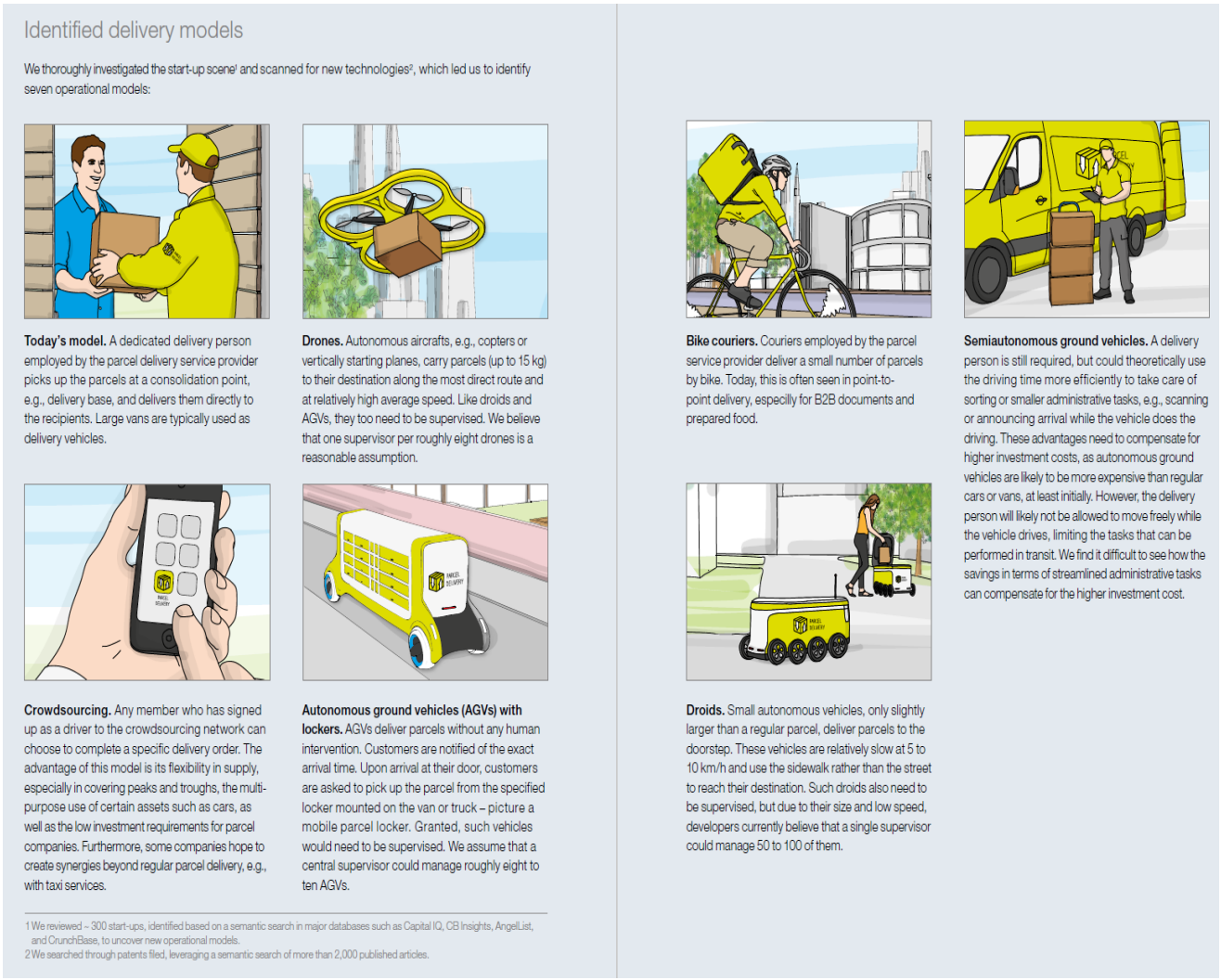
The growing population along with the pandemic and the growing purchasing power of the people is projected to increase the number of delivery vehicles by a whopping 36% in the next decade alone. With this there is a growing need for faster and cheaper delivery services or systems, and thus a need to automate last mile delivery as it is the most expensive step of the supply delivery chain, amounting to almost 50% of the overall cost of delivery.

b) What is "last-mile"?

The last mile refers to "the very last step of the delivery process when a parcel is moved from a transportation hub to its final destination—which, usually, is a personal residence or retail store."

(onfleet.com, May 18, 2021). It is usually the most complex and costly step in the delivery chain.

c) What are the existing last-mile delivery options?



Identified delivery models

We thoroughly investigated the start-up scene[1] and scanned for new technologies[2], which led us to identify seven operational models:

Today's model. A dedicated delivery person employed by the parcel delivery service provider picks up the parcels at a consolidation point, e.g., delivery base, and delivers them directly to the recipients. Large vans are typically used as delivery vehicles.

Drones. Autonomous aircrafts, e.g., copters or vertically starting planes, carry parcels (up to 15 kg) to their destination along the most direct route and at relatively high average speed. Like droids and AGVs, they too need to be supervised. We believe that one supervisor per roughly eight drones is a reasonable assumption.

Bike couriers. Couriers employed by the parcel service provider deliver a small number of parcels by bike. Today, this is often seen in point-to-point delivery, especilly for B2B documents and prepared food.

Semiautonomous ground vehicles. A delivery person is still required, but could theoretically use the driving time more efficiently to take care of sorting or smaller administrative tasks, e.g., scanning or announcing arrival while the vehicle does the driving. These advantages need to compensate for higher investment costs, as autonomous ground vehicles are likely to be more expensive than regular cars or vans, at least initially. However, the delivery person will likely not be allowed to move freely while the vehicle drives, limiting the tasks that can be performed in transit. We find it difficult to see how the savings in terms of streamlined administrative tasks can compensate for the higher investment cost.

Crowdsourcing. Any member who has signed up as a driver to the crowdsourcing network can choose to complete a specific delivery order. The advantage of this model is its flexibility in supply, especially in covering peaks and troughs, the multi-purpose use of certain assets such as cars, as well as the low investment requirements for parcel companies. Furthermore, some companies hope to create synergies beyond regular parcel delivery, e.g., with taxi services.

Autonomous ground vehicles (AGVs) with lockers. AGVs deliver parcels without any human intervention. Customers are notified of the exact arrival time. Upon arrival at their door, customers are asked to pick up the parcel from the specified locker mounted on the van or truck – picture a mobile parcel locker. Granted, such vehicles would need to be supervised. We assume that a central supervisor could manage roughly eight to ten AGVs.

Droids. Small autonomous vehicles, only slightly larger than a regular parcel, deliver parcels to the doorstep. These vehicles are relatively slow at 5 to 10 km/h and use the sidewalk rather than the street to reach their destination. Such droids also need to be supervised, but due to their size and low speed, developers currently believe that a single supervisor could manage 50 to 100 of them.

1 We reviewed ~ 300 start-ups, identified based on a semantic search in major databases such as Capital IQ, CB Insights, AngelList, and CrunchBase, to uncover new operational models.
2 We searched through patents filed, leveraging a semantic search of more than 2,000 published articles.

Source: McKinsey&Company (Joerss, Joerss, et.al.), "Parcel delivery. The future of last mile." Travel, Transport and Logistics. September 2016

d) Which last-mile technologies are likely to dominate in the future?

Automated Guided Vehicles (AGV) with parcel lockers are expected to dominate in the next ten years and are estimated to make 80-100% of deliveries in urban areas.

Bike couriers/droids are likely to be used in cities but at a much lower rate

Drones are likely to be used in rural areas.

Source - McKinsey&Company (Joerss, Joerss, et.al.), "How customer demands are reshaping last-mile delivery" Travel, Transport and Logistics. October 2016

C. Approach:

To understand the trends and context, we adopted a secondary research methodology and analyzed existing concepts, current and future trends and online articles about how Last Mile delivery and supply chain logistics are shaping the user experience. With a stronghold and understanding of the retail industry, we interviewed leaders from the retail, planning and urban design and customer experience sector to get insight into what are the ways in which retailers are adapting to the new dynamics of post pandemic strategizing and potential of upcoming technologies.

D. Findings:

α) Future Expected Trends:

With the advent of drones, robots, and autonomous ground vehicles, we are going to see an uptrend in faster deliveries and smart tracking. The use of robotics not only makes the deliveries faster, but smart integrated systems can allow for more flexibility and reliability in how goods are delivered.

Last mile deliveries account for 60% of the entire cost for delivering goods including the price for labor. Implementing robotic and drone deliveries, companies will become more cost effective. Having more automatic processes will keep their workers safer. For example, Amazon has invested in Aurora and Rivian, all of which are using lidar technology for road mapping.

Based on our research, we found the target retailers that are going to be affected by these changes and what their operations pertain. We analyzed the following types of retailers for the study:

E-Commerce only Retailers

Brick and Mortar Retailers

Manufacturers (B2B + B2C)

E-COMMERCE ONLY RETAILERS	BRICK AND MORTAR RETAILERS	MANUFACTURERS (B2B + B2C)	MANUFACTURERS AND INDUSTRIAL (B2B)
• Fulfilment centers are tailored for filling e commerce orders. • But they end up using couriers and local post services to fulfil orders. • They are less adept with meeting timelines. • Usually the company gets blamed for delays and not the delivery partner.	• Growing online retail has become a major threat to brick and mortar stores. • Space is their major advantage. With growing online order, they can convert their spaces to delivery areas and warehouses.	• Have the ability to create their own fleet as they have a varied operative scope • They cater as wholesalers for retailers and also can make direct contacts with the end buyer and businesses. • Despite being large organisations, they still fall short of delivery capacity specially in cities. • As their fleets depend on road sizes, traffic rules etc for delivery.	

Manufacturers and Industrial (B2B)

Author of image: Sahil Dagli

b) **Existing case studies on the implementation of last-mile delivery in different sectors**

We looked at different companies and organisations that are addressing some of the logistics issues specially in retail and creating impacts on urban infrastructure.

Nuro and Kiwibot: Companies like Nuro are trying their pilot tests in smaller towns and cities with a promise of serving autonomous delivery services for bringing groceries, prescription drugs, hot food, and other locally sourced goods to underserved areas (Fig. 4).

Fig. 4: Nuro neighborhood mini vehicle.

Tranzito: Curbside delivery Manager: With the rising demands of curbside deliveries, Tranzito plans to install new age street furniture, called Mobi, which claims to transform any space into a new mobility transit stop, helping neighborhoods and towns with management of curbside pickups, parking and drop-off, thus creating a new customer experience and interfacing between the retail store and the street.

Fig 5: Mobi: Curbside Mobility Hub

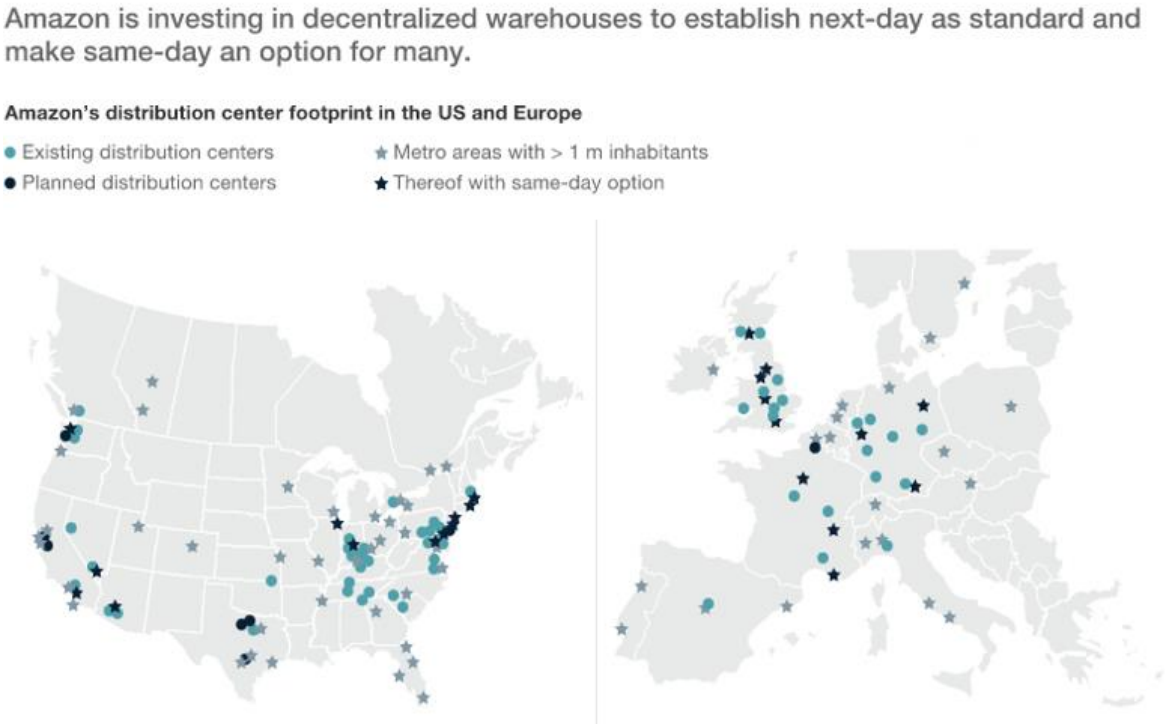
Uber Eats: To cater to rising demands of food pick up and deliveries, giants like Uber are venturing into the food delivery space and are testing out drone technology for deliveries. These might be a key insight into how the building facilities of the future may need to adapt to cater to new methods of service technologies.

Fig 6: Uber Eats technician testing with droid deliveries for 2023.

Canoo: Automobile maker Canoo, is adding autonomous pickup and delivery trucks to their fleet that may define a new category of mobile distribution centers in and around small cities.

Fig 7: Canoo's MPDV II fleet for mobile delivery services

c) **Micro-Fulfillment Centers (MFCs): The uprising e-commerce trend has urged retailers to upkeep with advances in technology that allow for faster and cheaper deliveries to retain their customers. While retail giants such as Amazon and Walmart are developing their logistics infrastructure and investing in local and worldwide automated fulfillment centers**



(Fig. 8), smaller retailers are turning to micro-fulfillment strategies.

Fig. 8 - Amazon's growing footprint with localized warehouses and distribution centers.

"Micro-fulfillment involves using small, highly-automated storage facilities near the end customer to bring down the cost and time of delivering goods. MFCs have 2 main components: software management systems, that process online orders, and the physical infrastructure, including robots that pick out items from storage

aisles and shuttle them to packing staff (CB Insights, 2020)" (Fig. 9). Placing micro-fulfillment centers (MFCs) within walkable distances from homes is one approach that allows for quicker and cheaper last-mile delivery. Moreover, retailers can manage deliveries from and to their small distribution centers using online platforms such as Bond. Bond is a New York based startup that offers last-mile delivery services and direct-to-consumer brands at its MFCs. The service can provide cost-effective and same day delivery using low-emission electric vehicles (fig.10). After completing their order, consumers can schedule the exact delivery time and get real time delivery updates while chatting with the delivery team at any time. In addition, retailers can track all their deliveries using the tech (withbond.com website: https://www.withbond.com/see-how-it-works/).

Fig. 9 - Nordstrom; Tompkins Robotics in Newark, California

Fig. 10 – Bond cargo trike

Source:

https://www.fastcompany.com/90456321/this-startup-wants-to-replace-traditional-package-delivery-with-hyperlocal-electric-trike-driving-couriers)

d) Physical Retail Store Changes

Brick-and-Mortar retailers have several options to adapt to the growing online shopping trend. They can build Micro Fulfillment Centers in two ways: Either within existing stores, or as stand-alone facilities to service a cluster of locations (CB Insights, 2020). In the first model, the center is operated directly by the retailer, and in the second model, the center is operated by the company that sets it up. Since MFCs have compact designs, they can be integrated within existing spaces in high-density, urban areas like the back of existing supermarkets, in garages or parking lots, and in basements.

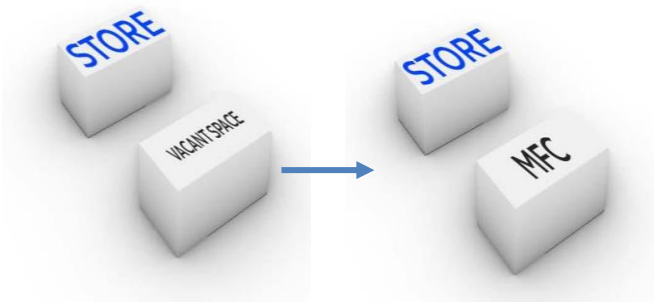


Fig. 11 - Store/Vacant Space repurposing: a portion of the store or vacant spaces with small footprints in the city would be used as distribution centers. (created by author: Christine Ghossoub)

Another way would be to automate services like counting, organizing and sorting inventory directly within their existing store footprint by increasing their back-of-house area to fit in the automated process and reducing their storefront or sales area. That would allow them to fulfill a large portion of the deliveries from their existing stores without having to utilize additional real estate (CB Insights, 2020).

Note: In the store configuration, it is important to separate between spaces dedicated for machines to operate and areas used by humans to avoid any circulation incidents or safety issues (Source: Mario Sanchez, Associate Principal at CRTKL).

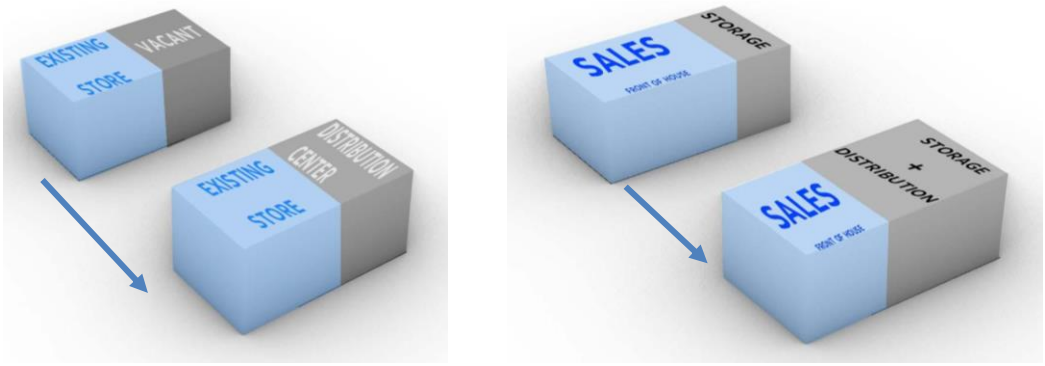


Fig. 12 - Floor space segmentation: reduced front-of-house and increased back-of-house to fit in the automated process (created by author: Christine Ghossoub).

Retailers might also need to share spaces for maintaining and storing the technology and plan for shared pick-up and drop-off areas that are conveniently distanced from multiple stores when they consider expanding their online delivery infrastructure.

Fig. 13 - Dedicated facilities for charging, storing and maintaining last-mile technology either in parking spots located close to retail stores, or in places conveniently distanced from multiple stores
(created by author: Christine Ghossoub)

e) Impacts on Consumers

Adjustments in retail store designs and delivery systems that support digital demand offer numerous advantages to consumers in the way they experience physical stores.

Firstly, more companies are transforming their front-of-house spaces into "enhanced fitting rooms" using technology and data from online orders. By incorporating automated systems into their back-of-house area, retailers provide their salespersons the opportunity to spend more time with customers visiting the store. Secondly, retailers are disposing of a more compacted and customer-tailored inventory based on online shopping trends, and thirdly, pick-ups and drop-offs are becoming easier and faster through micro-fulfillment centers. As mentioned in section 'c', MFCs are located within cities which reduces the distance between an ordered product and a customer, making last-mile delivery cheaper and quicker (Source: CBS Insights, 2020).

All three of these consumer benefits can be found at Nike's "House of Innovation 000" in NYC. The store offers a futuristic shopping experience for customers through highly immersive and customizable services that combine traditional shopping with the company's digital app. In the Nike Speed Shop, products that are based on local data are displayed in an entire floor space. Some members can reserve items on their phones and have them held in in-store lockers. Other personal services include one-on-one

bookings with Nike experts and scanning a code for items displayed on a mannequin that can be purchased immediately through Instant Checkout.

(Nike News, 2018. https://news.nike.com/news/nike-nyc-house-of-innovation-000)

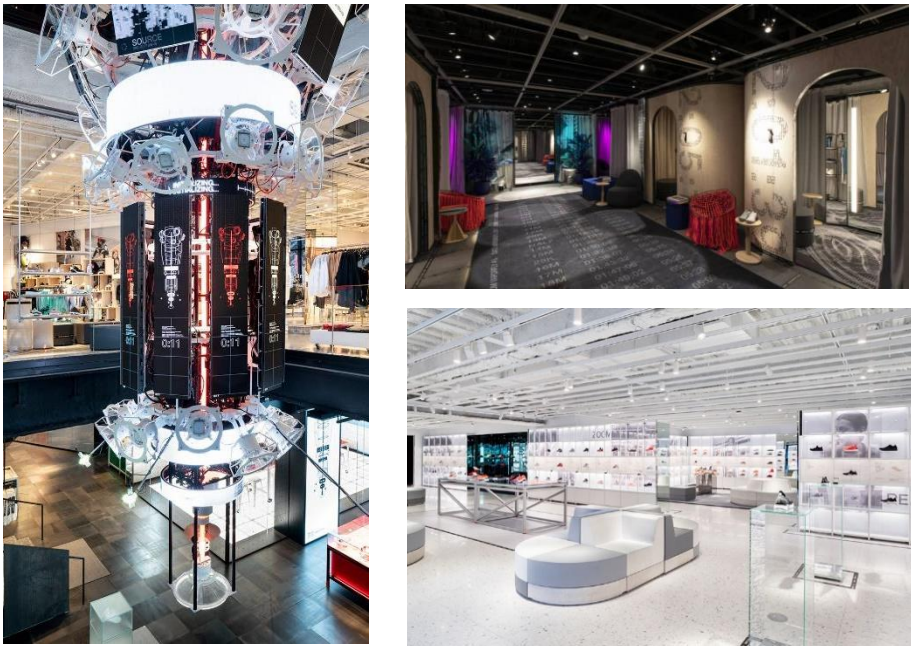


Fig. 14 - Sneaker Lab; Inside Nike's House of Innovation in New York; Arena (Sources: Nike; Nicholas Calcott)

f) Impacts on Retailers

MFCs allow retailers to save on costs for several reasons. MFCs have a much smaller footprint than traditional fulfillment centers. While normal warehouses can take up to 300,000 sq.ft of space, MFCs are typically between 3,000 and 10,000 square feet (Fig.15). Their compact design can be integrated within existing spaces in high-density, urban areas, in locations "like the back of existing supermarkets, in garages or parking lots, and in basements" (CB

Insights, 2020). This allows retailers to save on leasing and operating costs for large centers that would need to be located at the outskirts of cities due to their space requirements. Retailers also save on transporting goods to customers because of the reduced distance between MFCs and consumers, as well as operational costs due to automation: "Micro-fulfillment is estimated to reduce costs associated with an order by 75% when compared with manual picking of the order, according to an analysis by financial services company Jefferies" (Fig.16) (CB Insights, 2020). For example, Nordstrom is the first retailer to bring together both Attabotics' and Tompkins Robotics' technology into a single distribution center, in Newark, California (Fig.17) (CNBC, 2019). Attabotics is a 3-D robotics provider that utilizes the structure of ant colonies to handle goods more efficiently by storing them vertically, rather than in a horizontal row-and-aisle configuration, in fulfillment centers. Tompkins Robotics has developed "a parcel-sorting solution it calls t-Sort Plus, which uses autonomous robots that travel the shortest route possible to grab boxes and deliver them to their appropriate destination" (CNBC, 2019).The combination of the two systems uses 90% less space than other alternatives: Nordstrom's distribution center is about 340,000 square feet, much smaller than a traditional warehouse that can measure up to 1.5 million square feet. The company plans to install a similar system in its facility in Torrance, California, to process orders for its Nordstrom Local shops in Los Angeles (CNBC, 2019).

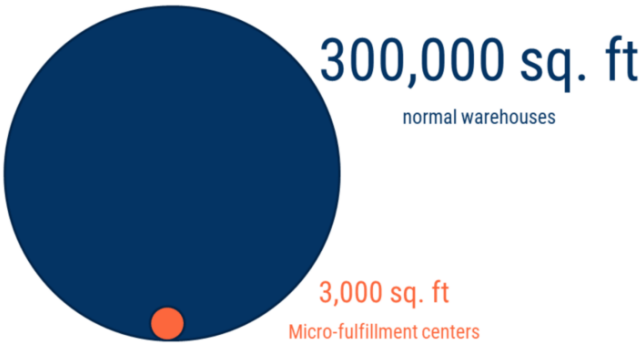


Fig.15 – Typical Area of Micro-Fulfillment Centers vs Normal Warehouses (CB Insights, 2020).

Fig.16 - MFCs combine robots with human labor to speed up delivery at a reduced cost. Source: MMH (CB Insights, 2020)

Fig.17 – Nordstrom's distribution center combining Attabotics' and Tomkins Robotics' technology in Newark, California

Reduction in losses due to low inventory: "Retailers lose $144B annually due to out-of-stock inventory, according to a Deloitte report. MFCs are well-suited for the deployment of predictive technology that can help keep in-demand items stocked up — limiting losses." (CB Insights, 2020). Retailers can use this kind of data to stock up on high-demand products and allocate storage appropriately.

Better fulfillment of customer needs: "MFCs allowing retailers to retain data related to online purchases that they generate and making it easier to expand storage space in a low-cost manner." "A larger variety of products stored in a smaller footprint closer to customers. Since micro-fulfillment centers deploy both automation and human workforces, they can reduce the time taken to gather and pack an order, which increases overall productivity (CB Insights, 2020)."

g) Retail Case Studies

Target: Target is now using its stores as MFC hubs to offer multiple shopping options such as click-and-collect, curbside delivery, and same-day home delivery" (CB Insights, 2020).

Walmart: In the first, the center is placed at the back of an existing store and is operated directly by the retailer. This is especially relevant to grocery stores. An example of this is Walmart setting up an MFC in its store in Salem, New Hampshire to offer quicker delivery of online orders placed nearby.

Walmart, the largest US grocery retailer by revenue, set up an in-house micro-fulfillment center in its store in Salem, New Hampshire

in 2019. The company is setting up these centers in partnership with startup Alert Innovation, which focuses on setting up MFCs for grocery retailers. The automated system designed for Walmart, called Alphabot, is designed to collect 10x more products than a human could in a traditional warehouse. The micro-fulfillment center is stocked with products that are most popular for online ordering among Walmart customers, including frozen and packaged foods.

Nordstrom compact distribution center and Nordstrom Local:

https://www.cnbc.com/2019/12/05/nordstrom-partners-with-attabotics-and-tompkins-robotics-for-faster-delivery.html

"When customers visit a Nordstrom Local, they aren't actually taking the merchandise they buy home with them. Instead, the stores are inventory-free locations for fittings and other services like manicures, pedicures and stroller cleanings. When placing an online order from home, customers can also select a Nordstrom Local as a spot for curbside pickup."

"With the two technologies, Nordstrom can store thousands of items in crates in one of Attabotics' so-called matrices, which tower more than 20 feet high. When items are needed, they're electronically picked and pushed toward Tompkins' conveyor belt, where more robots help Nordstrom workers sort the merchandise.

Phan said the combo — a first in the retail industry — is saving workers from walking miles and miles each day."

"Going inventory free: Los Angeles was the first city to see an inventory-free Nordstrom Local store. It opened in October 2017."

Conclusions

The pandemic has resulted in a paradigm shift in how we consume retail. With the growth of population and technology advances in the last mile delivery, and supply chain overhaul over the last year, there is a growing need for automation of the last mile delivery processes. In terms of the effect on architecture, new customer experiences for curbside delivery and using automated systems are going to lead to changes in the way physical spaces, especially in retail are consumed.

The conclusive evidence from different case studies in the retail sector suggests a reconfiguration of physical spaces to incorporate a new customer experience. In terms of logistics, the physical spaces require to make their distribution centers and warehouses more local and occupy more space in the Front of House. The growing trends in autonomous vehicles and droid technology, also calls for a revisioning of existing infrastructure and urban interfaces between parking garages, pedestrian walkways, existing roads and streets in cities, urban districts to accommodate newer methods of experience.

Next Steps

At this point, we know information on how retail stores and urban facilities may be adapted to future trends and we learned about how experience-based retail strategies may help to preserve the physical shopping experience of the stores. There are certainly many more complex matters that we need to think about when it comes to incorporating last-mile technology in our streets like infrastructural considerations that include potentially dedicated lanes and safety equipment, curbside and sidewalk utilization for circulation and

potential loading/unloading zones either as part of the sidewalk or within dedicated facilities, and how other retail store types that were mentioned in the beginning of this presentation may adapt to future trends.

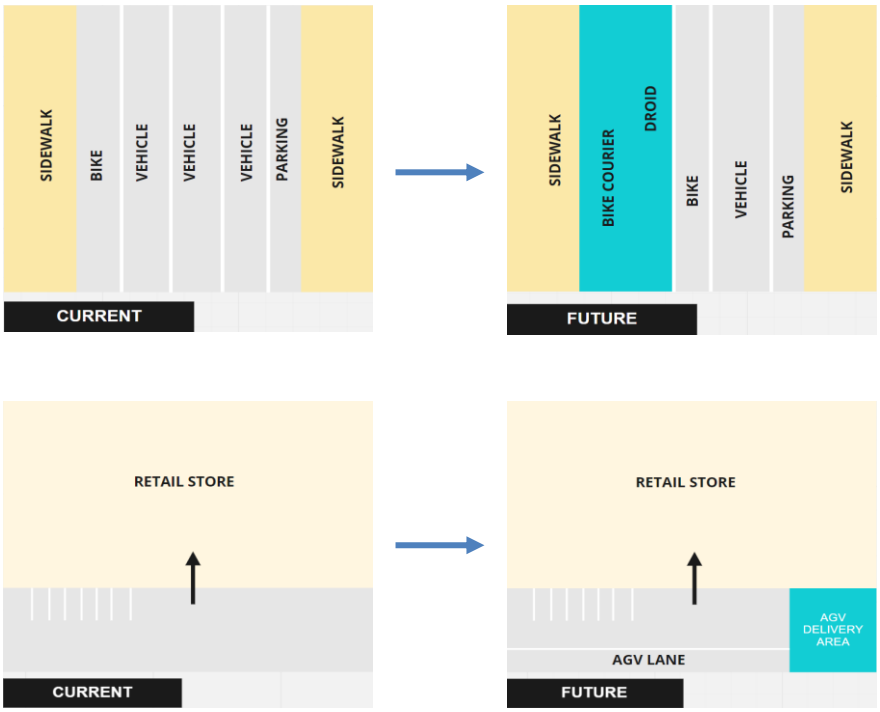


Fig. 18 – Future Considerations for Urban Infrastructure and Parking Logistics (Diagrams created by Author: Christine Ghossoub)

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Interviews and Conversations

Renee Schoonbeek, Associate Principal at CRTKL

Mario Sanchez, Associate Principal at CRTKL

Kutan Ayata, Associate Professor at Pratt Institute

Ferda Kolatan, Professor at Pratt Institute

Hart Marlow, Asst. Lecturer at Pratt Institute

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Letter from the Chairman's Desk By Sunil Bhatia PhD

I am a great admirer of ancient wisdom and the way they designed the products where the product itself guides its users for functioning for achieving the desired goal. Our primitive people were aware of what product was guiding and they followed the same with their exisiting knowledge . The fire exists and has the inherent property of heat and light. They learn the art of management of fire by following the hidden instructions about what fire has. Ultimately that helped in learning the art of fire management. This single factor of fire management made humans supreme against the rest of the living beings. Plants or trees are helpless against meeting challenges of fire and animals are scared of fire because they feel their existence in danger because of heat in it. They won the battle of darkness with fire mangment for light.

The creeper plant made primitive people grow for optimum output by providing strong support where it can rest and grow vertically help in growing the optimum number of bearing fruit like the gourd plant. Another side creeper plant prevents any external support like in watermelon where the fruit is heavy and needs the support of ground for better output.

Doors and windows are a marvelous example of where users know how to close and open. The physical effort of pull and push are responsible and hinges are designed to either help in opening and closing the panel by pulling and pushing if space permits for inside arrangement or some places opening is outside by pushing and closing by pulling when space problem is faced by panel of door or window for inside. In public places introduction of two hinges with spring-loaded mechanisms for no need for pull/ push for closing. Double-action hinges are designed to allow the doors to swing in both directions. The spring hinges act to return the door to the closed position. These hinges are great for any door that wants to walk through in both directions and have the door come back to center automatically. Where the fall of footsteps is high generally public places introduced the idea of two hinges with spring mechanisms for no need of pull for closing.

The same mechanism was introduced in the domestic fridge's door that closes in its way by adjusting the floor screw that shifts the weight of the door backward. In case the user forgets to close the door it moves with its weight toward closing back and reaches the range of the magnetic lock that helps it properly close the door. This way not only saves energy and keeps the chamber cool but also uses the concept of the user of forgetfulness as a common phenomenon in the household. The industrial fridge has a manual locking system where a chance of forgetfulness is considered a lack in performing the job so the door is designed with proper manual attention.

In my last month's editorial, I elaborated on the concept of product guiding the user for 'how to use it'.This editorial is an attempt to

continuation of my last editorial taking to the next level of my previous editorial where I cited various examples of how products designed by ancestors guide the users.

One day I was watching a famous movie 'Blue Lagoon' starring Brooke Shields. In this story, two children were the victim of a shipwreck and somehow they reached safely in the unconscious state on the island where there was no inhabitants. One was a girl child and the other was a boy. They grow without the guidance of seniors and are unaware of the situation about capable of producing offspring. Nature's job is to guide everyone and so is the potential for producing offspring for future needs. Nature cares for as long as people are capable of fulfilling her needs. As someone becomes incapable of producing offspring nature does not care for them and treats them as useless and irrelevant entities. Nature does not bother whether living beings exist or not afterward her demands are fulfilled by the purpose of potential living beings.

This young girl and boy live in isolated islands and grow into adults and she encounters a very unusual experience first time the mensuration while swimming with him in the sea. The boy is astonished and the girl is scared to see the blood oozing out of her private part. The product (girl child) is capable and the beauty is that it is product as well attracts the user (boy child) that is another product as well user for girl child) and vice versa. She feels an unusual feeling to be a mother and the boy experiences something in his body while watching her grow. Both have no interaction with the world despite that they experience curiosity of exploring other's bodies. One day she found herself pregnant. This is the best example

where there is no knowledge of such action but the body guides the user to follow what it demands from the other product as well user The user is a product but guided by his inner intuitively and acts what other product is expecting by her behavior. There is no grammar yet they succeed in what nature wishes for the outcome from both.

Many educational toys for children are designed to be self-explanatory for improving logical minds, encouraging exploration and learning through play without the need for a manual.

One day I was traveling in metro rail services and realized that passengers traveling standing have more risk of pickpocketing compared to those sitting. The reason is that a standing passenger's body is completely exposed to a pickpocketer and proves an easy and soft target. On the other hand, sitting passenger bodies are less exposed and the chances of pickpockter getting caught red-handed are high. It is the product that keeps alerting the users for whom they should pickpocket that is a soft target.

Our ancestors traveled and followed the same path repetitively and every attempt was better than the previous. Sometimes they select the area of path that saves time and should be risk-free from accidents. The footpath of the jungle of mountains that is in a zigzag shape out of this philosophy and it reminds me that people were technically advanced in standing on their two feet. The zigzag shape surfaced because of various types of terrain making life risk-free and wherever possible saving time by travelling in the straight path by rooting out possible risks. The philosophy of attaining vertical height

without any risk ultimately helped in designing the steps of the staircase for climbing placed in a zigzag way. While walking on rough terrain they thought of the design of shoes to avoid any possible hurt from rough terrain. I have noticed that toddlers offering shoes to wear. They generally try to wear them on their feet and will not try for other parts of the body. His struggle for wearing the shoe reflects that the shoe is guiding him to properly wear in his feet. It may be possible in the initial days he will insert his feet into the wrong shoe but the design of the shoe creates difficulty in walking for the user and forces alternative attempts every time he encounters discomfort in walking and the reason of every time of his trip. The user succeeded in inserting the right foot into the right side of the shoe is the success story of the design of the shoe.

A product that guides the user without any manual is often referred to as an "intuitive" or "user-friendly" product. Such products are designed to be so easy to use that users can figure out how to operate them without the need for a traditional instruction manual. When someone has common sense and is not enough qualified to read the instructions but still these people are comfortable using their modern devices communication of smart phone is possible because products keep guiding them for proper use of devices. It operates and moves to the next step for continuation if the user follows his intuition and what the product is guiding. Once typing with the manual typewriter was exclusive for specific people by acquiring talents with rigorous training. That specific talent of typing is rampant and whoever is the owner of the smartphone learns typing without any assistance. Still, photography or making of movies was reserved for certain trained people but the design of a

smartphone with an inbuilt high-resolution camera with special features of AI made everyone a photographer and movie maker without going under any training. Address book and wristwatches have vanished from the common man's life because it has an inbuilt feature in the smartphone. Wearing wrist watch is no more a style statement or status symbol.

However, the product fails to guide and has the inbuilt character of risking life or chances of hurting the users, that point safety elements surfaces not to harm the users. For example knife or sword has a handle but sometimes due to carelessness part in users gets hurt of use from dangerous part of the product so either use of strong handle or when it is not in use case by put it inside for safety. Road accident is universal phenomena where vehicles are moving in fast speed and rod is stationary. The dynamic vehicle can not be protected under the cover or case but designers have designed the safety measures for the vehicle to counter the impact of accidents for users lowering the hurt or life in danger. The simplest design of a yellow line on the surface of the road has tremendously lowered the chances of accidents to 40%. A solid yellow line means overtaking or crossing the line is not allowed. These lines are laid down keeping into consideration the flow of traffic and visibility available to safely make overtakes.

There are many products and technologies designed to minimize or eliminate the need for manual user intervention. These products are often categorized as autonomous or automated systems for example. The battery charge cordless vacuum mopper(floor cleaner) has an inbuilt system as the device senses low charging, it

moves toward the fixed charging station, and without manual intervention, it fixes in the socket and as charges are full it again comes out of the charging station and resumes the job from it left.

Our ancestors designed the knot which was the first attempt to eliminate the role of man. Imagine a world without a knot. You will find the man standing everywhere to hold the item in its place Tools are designed for increasing the output of the man. The journey from knot to Self-Driving Cars is an attempt to eliminate the manpower or in other words no need for human intervention so no need for user manuals. CCTV camera placed in the entire city has changed the role of investigation and proven a greater role for every moment of recording and ensuring the vigilance of police. Traffic is controlled by installing CCTV cameras which proved a better deterrent for drivers for violating traffic rules. Imagine a world where a CCTV camera is installed and is replaced with three police for eight hours three shifts for day and night vigilance. The world will appear as nothing else but a police state and it will be a very scary situation for the citizens to find everywhere police watching and make them realize their liberty and freedom is compromised.

GPS has revolutionized the concept of travelers or handy translators of different languages instantly is a great help for travelers.. No need to ask for the location. The majority of the time travelers are fooled and misguided by local people by giving the wrong direction for reaching their desired destinations.

I was a little apprehensive about extending the invitation of Guest Editor to Ms. Divya Charosia after reading her biodata. I thought she

was interested and excited to be a Guest Editor and it is our moral duty to give her a chance to prove herself. She did an extremely good job in her role as Guest Editor. Thanks, Divya, you saved our reputation.

Lambert Academic publication for celebration of the 150th special issue by publishing a book by compiling editorials "Design For All, Drivers of Design" was translated into eight different languages from ENGLISH to French, German, Italian, Russian, Dutch, and Portuguese. Kindly click the following link for the book. "Morebooks", one of the largest online bookstores. Here's the link to it:
https://www.morebooks.de/store/gb/book/design-forall/isbn/978-613-9-83306-1

Enjoy reading, be happy, and work for the betterment of society.

With Regards
Dr. Sunil Bhatia
Design For All Institute of India
www.designforall.in
dr_subha@yahoo.com
Tel 91-11-27853470®

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Forthcoming Issues

October 2023 Vol-18 No-10

Dr Dolly Daou ***has 23 years of academic and industry experience leading global academic programs and non-profit associations and initiating practice-based research projects for medium-large organisations in Australasia, Europe and the Middle East. Dr Daou's professional background is in interior architecture and urban design research, her career path led her to France where she became the Director of Food Design Lab at l'École de design, Nantes Atlantique. During her leadership to the lab Dr Daou developed and implemented system-based and food entrepreneurship education strategies. Combining her***

multidisciplinary and my international industry and academic experience Dr Daou developed workshops that transform theoretical research into impactful commercial outcomes and strategies with ecological benefits particularly in the food sector. Dr Daou is currently the co-founder and co-chair of Food Think Tank Research Working Group at Cumulus Association. Dr Daou established the Interior Architecture Program at Swinburne University of Technology and implemented its transition and rebranding, was the Director of the non-profit Association of Professional Interior designers/Architecture (MENA) in the Middle

East and North Africa, where Dr Daou was awarded the title AlSafeer Congress Ambassador by Dubai Business Events, a Community Manager for a team of start-ups at the European Innovation Council (EIC), European Commission and invited Quality Assurance reviewer for TEQSA and for international quality assurance agencies for higher education in Australia and in Bahrain.

November 2023 Vol-18 No-11

Dr. Soumyajit Bhar is currently an Assistant professor of environmental studies at Krea University, India, where he offers and coordinates a course on Design Thinking. Soumyajit

straddles action and academic research with more than 14 years of experience (both volunteering and full-time) working with various environmental and sustainability issues. He holds a Ph.D. in Sustainability Studies (with a specialization in ecological economics) from Ashoka Trust for Research in Ecology and the Environment (ATREE) as part of a unique interdisciplinary Ph.D. program. His dissertation attempts to understand socio-psychological drivers and local and regional scale environmental impacts of conspicuous/luxury consumption basket in India. Soumyajit is furthering postdoctoral research at the intersection of rising consumerism, sustainability concerns, and inequality levels in the context of the Global South. He is also keen to explore how design education can broaden students' perspectives and help them delineate pathways to a better world. He has published in international journals and popular media. He is also interested in larger questions of philosophy and ethics, particularly pertaining to environmental issues.

December 2023 Vol-18 No-12

Prof Manoj Majhi

With a Bachelor's Degree in Industrial and Production Engineering, a Master's Degree in Visual Communication along with a Doctoral Degree in Design added with 8 years of using it in the Broadcast medium of Satellite Television, with at least 15 multimedia promotional, published every week a probing question kept nagging the creative mind, why am I doing this, who benefits from this etc. and around over a decade in design education. A decision to impart the knowledge I had acquired from my professional career to equip the education system to bridge the lacuna .The feel we have not yet explored the Iceberg of the information that is available in the Media, we seem to be at the beginning tip of the iceberg . This does inspire a creative person to try out things that have not been explored yet. Instead of re-inventing the wheel, we designers should be inventing innovative utility of the wheel for today's context. The research areas are primarily in Communication Design area (Graphic Design such as Animation), Interaction design and Product design.

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Januvary 2024 Vol-19 No-1

Dr Farnaz Nickpour

Dr Farnaz Nickpour is an inclusive and human-centred design researcher and educator. She is a Reader in Inclusive Design and Human-Centred Innovation and director of The Inclusionaries Lab at The University of Liverpool. Farnaz has a track record of excellence in design research, teaching and pedagogy, with 40+ peer-reviewed publications and awards.She is the External Examiner to the joint MA/MSc Global Innovation Design (GID) programme at the Royal College of Art and Imperial College London, and University of Brighton BSc and BA Design programmes. She is a reviewer for the Journal of Engineering Design, Journal of Design Research, Strategic Design Research Journal, and Building and Environment Journal; Scientific committee of Design for Inclusion (AHFE) Conference; Fellow of the Royal Society of Arts (FRSA); Fellow of Higher Education Academy (FHEA); Member of Institute of Engineering Designers (MIED); and Professional member of British Industrial Design Association (ProBIDA). Farnaz's research explores critical and contemporary dimensions of

design for inclusion and human-centred innovation across healthcare and mobility sectors, with a core focus on advancing four strategic research themes.

March 2024 Vol-19 No-3

Prof Dr. Ketna Mehta

She is Founder Trustee & Editor (One World), Nina Foundation, a 22 years young NGO for rehabilitation of people with spinal cord injuries in India. She is an Author of two books; 'Nano Thoughts on Management' & 'Narratives of Courage, Lives of Spinal cord injury survivors in India'.

As editor, 36 issues of 'One World - Voice of people with spinal cord injury' has published since 2001 (www.nina foundation.org)

She is a thought leader on social and inclusive development of persons with disabilities, transformational change and leadership. She was invited to contribute a chapter in the popular book 'Chicken Soup For the Indian Spiritual Soul' ! India's very first literary festival by the highest circulated newspaper group The Times of India on

'Disability is a state of Mind.' Her action oriented, innovative and bold opinions on disability has been published in over 100 research papers, articles, book chapters, columns, blogs and interviews in the media. She has been invited as a Guest Editor for Success& Ability's first and only thematic issue on Spinal Cord Injury in 2012, two issues of 'DesignForAll' international publication focusing on 'Improving Quality of life of people with spinal cord injuries' & 'FutureSpeak SCI Rehabilitation' in 2021 & 2019.

She has been a Regional Consultant for WHO's first Research Report IPSCI (International Perspective on Spinal Cord Injury'. For the very first Rehab Exhibition, Nina Foundation was invited as the NGO Partner where a demo workshop of how Scoop Stretchers during the Golden Hour prevents a devastating spinal cord injury. Several Public Forums on spinal cord injury have been curated by her for spreading awareness.Since 25th June 2009 Nina Foundation has initiated a spinal cord injury awareness day. Their grassroots free SCI OPD & multi disciplinary camps have successfully gifted equipments, medicines, hope and solutions for living a life of dignity. In April 2017 was invited by UC Berkeley, California as a faculty jury to evaluate international live student projects on Universal ReDesign from various countries. She was invited as an Expert Speaker for CIVIL20 (G20) by Rising Flame for 'Women with Disabilities' Panel on 17th June 2023, American Consulate, Mumbai. Nina Foundation is also a PAB Member for SPINE20 (G20) as Speaker & Observer 10-11 Aug 2023.

Ketna is a spinal cord injury survivor since 27 years and lives in Mumbai India.

New Books

it is available on www.morebooks.de one of the largest online bookstores. Here's the link to it: https://www.morebooks.de/store/gb/book/design-for-all/isbn/978-613-9-83306-1

ISSN: 2582-8304

The Ultimate Resource for Aging in Place With Dignity and Grace!

Are you looking for housing options that are safer and more accommodating for independently aging in place? Do you want to enjoy comfort, accessibility, safety and peace of mind – despite your disabilities, limitations and health challenges? The help you need is available in the Universal Design Toolkit: Time-saving ideas, resources, solutions, and guidance for making homes accessible.

This is the ultimate resource for individuals and professionals who want to save time, money and energy when designing, building, remodeling or downsizing a home. The Universal Design Toolkit will help you take the steps to design homes for your clients or yourself while eliminating the costly trial and error challenges you'd inevitably encounter if faced with this learning curve on your own.

Rosemarie Rossetti, Ph.D., teamed with her husband Mark Leder in creating this unique Toolkit. They bring ten years of research, design and building expertise by serving as the general contractors for their home, the Universal Design Living Laboratory– which is the highest rated universal design home in North America.

Within the Toolkit's 200 richly illustrated pages, you'll find: Insights that distinguish *essential* products, services and resources from the *unnecessary*.

Proven, realistic tips for finding the right home.

Home features you need to look for. Nothing is assumed or left out.

Handy home checklists and assessments.

Interview questions to help you hire industry professionals with knowledge and experience. Photographs that provide a frame of reference to inspire, clarify and illuminate features andbenefits.

Valuable resources to save you time, money and energy.

Helpful sources of funding.

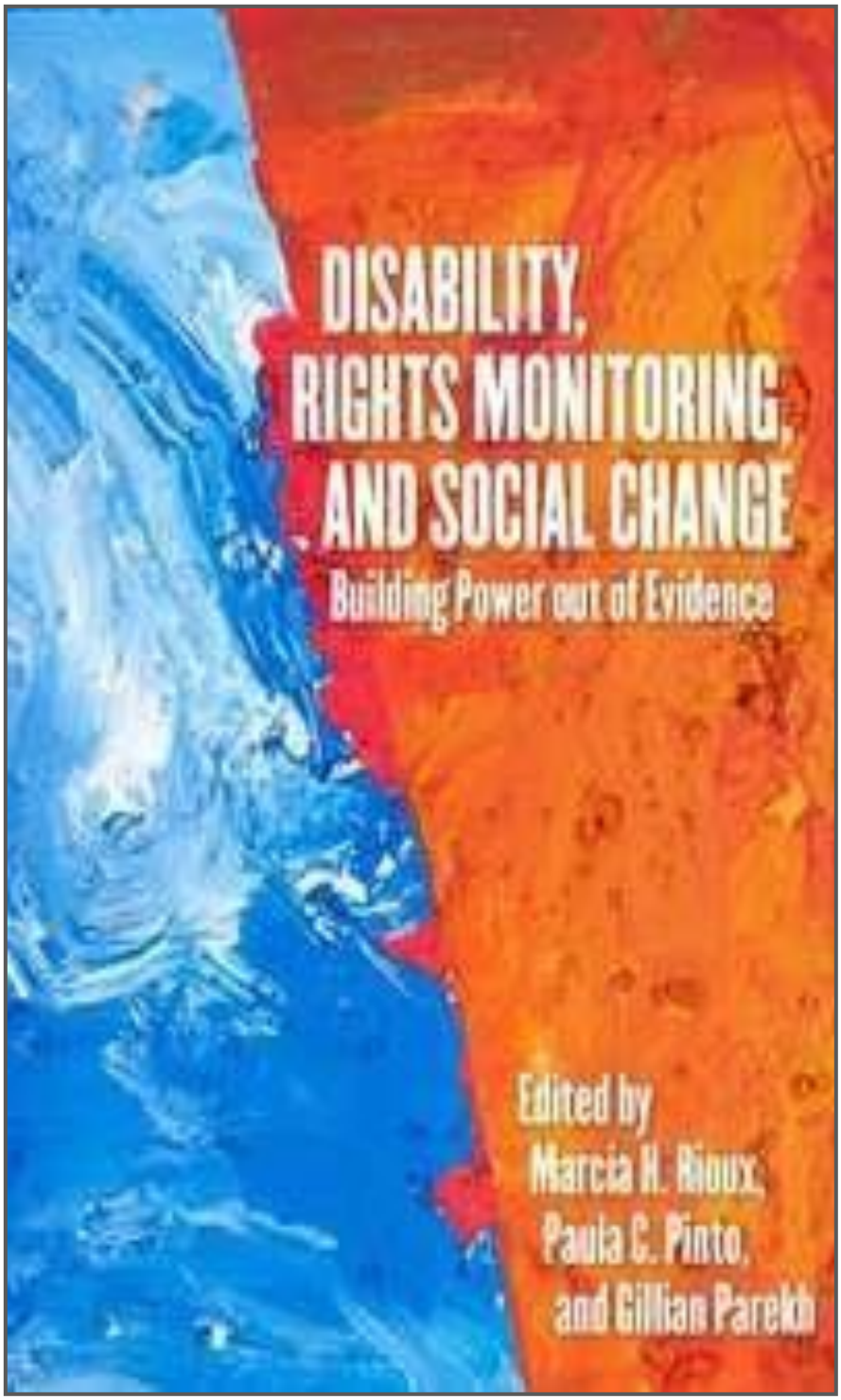
Space planning dimensions for access using assistive devices such as wheelchairs andwalkers.

And so much more!

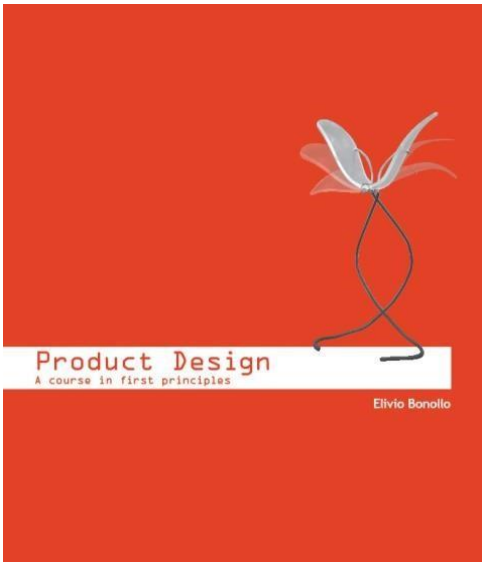
If you want useful, dependable advice and easy to implement ideas from respected experts who know the ropes, you'll love Rossetti and Leder's perspective. As a speaker, author and consultant who uses a wheelchair, Rossetti has helped hundreds of people design their ideal homes. Now her comprehensive Toolkit is available to help and support you! Get the Universal Design Toolkit now to start your project!

ISSN: 2582-8304

Disability, Rights Monitoring and Social Change:



New Update: ELIVIO BONOLLO (2015/16) PRODUCT DESIGN: A COURSE IN FIRST PRINCIPLES



Available as a paperback (320 pages), in black and white and full colour versions (book reviewed in Design and Technology Education: An International Journal 17.3, and on amazon.com).
The 2018, eBook edition is available in mobi (Kindle) and ePub (iBook) file versions on the amazonand other worldwide networks; includingon the following websites:
ePubversion:www.booktopia.com.au
https://www.booktopia.com.au/ebooks/product-design-elivio-bonollo/prod9781784562946.html mobi (Kindle versions):www.amazon.in
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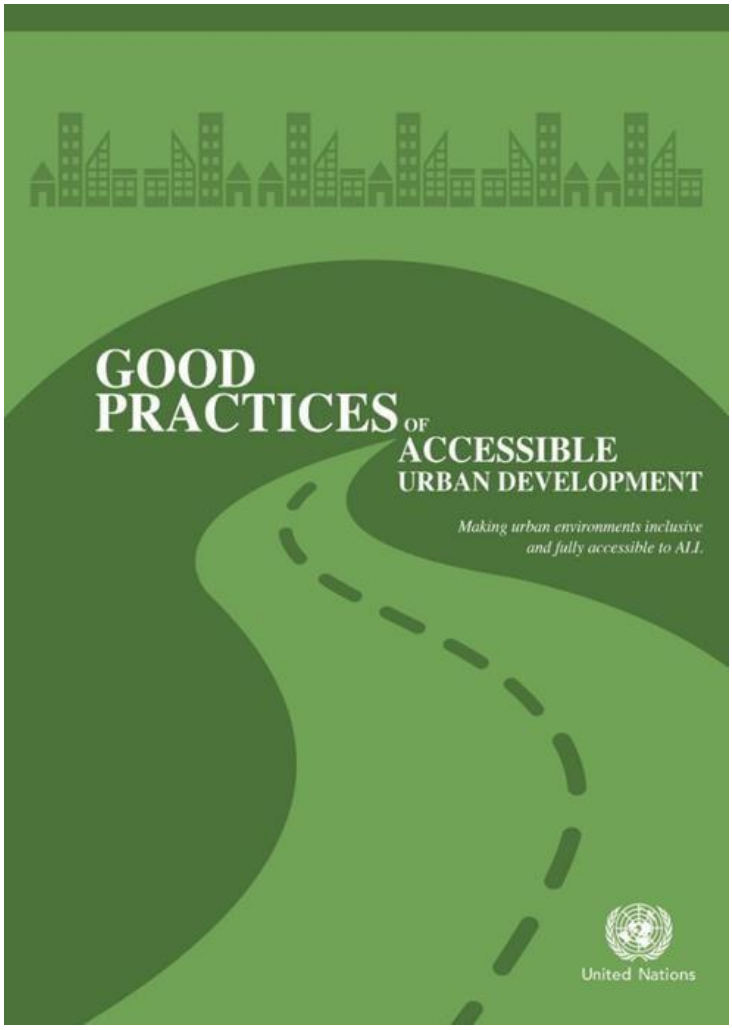
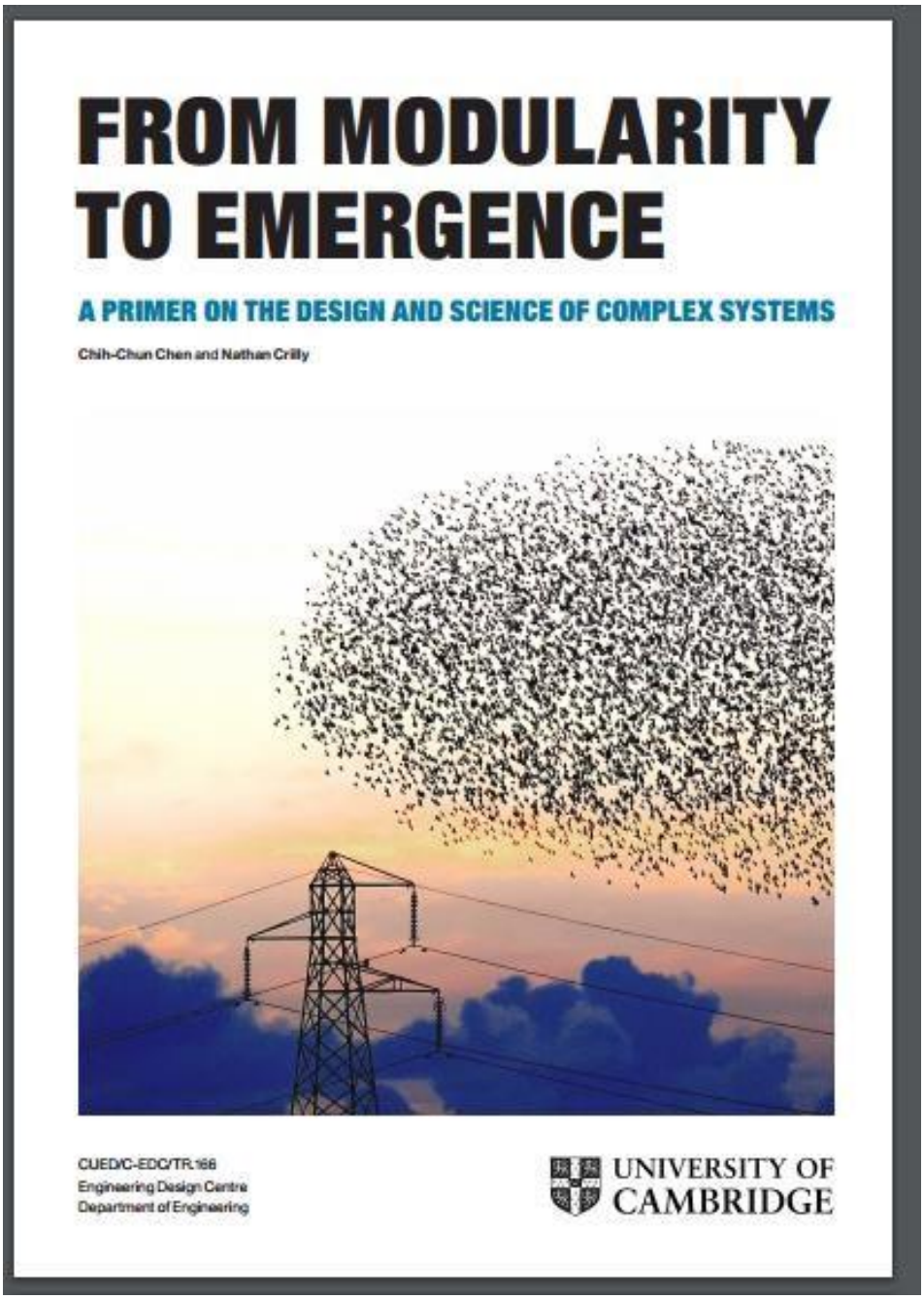


In light of the forthcoming United Nations Conference on Housing and Sustainable Urban Development (HABITAT III) and the imminent launch of the New Urban Agenda, DESA in collaboration with the Essl Foundation (Zero Project) and others have prepared a new publication entitled: "Good practices of accessible urban development".

The publication provides case studies of innovative practices and policies in housing and built environments, as well as transportation, public spaces and public services, including information and communication technology (ICT) based services.

The publication concludes with strategies and innovations for promoting accessible urban development. The advance unedited text is available at:http://www.un.org/disabilities/documents/desa/good_practices_urban_dev.pdf



Dr Chih-Chun Chen and Dr Nathan Crilly of the Cambridge University Engineering Design Centre Design Practice Group have released a free, downloadable book, _A Primer on the Design and Science of Complex Systems_.

This project is funded by the UK Engineering and Physical Sciences Research Council (EP/K008196/1).

The book is available at URL: http://complexityprimer.eng.cam.ac.uk

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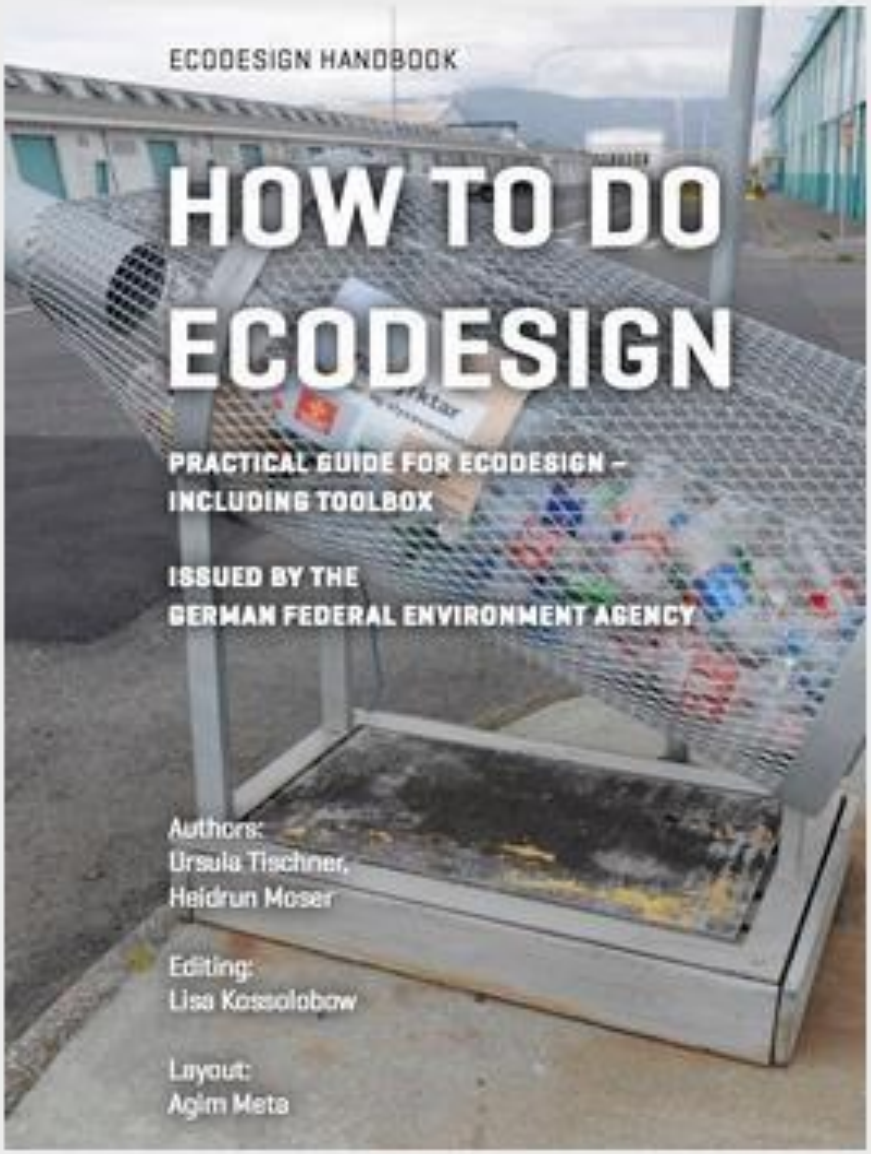
Changing Paradigms: Designing for a Sustainable Future

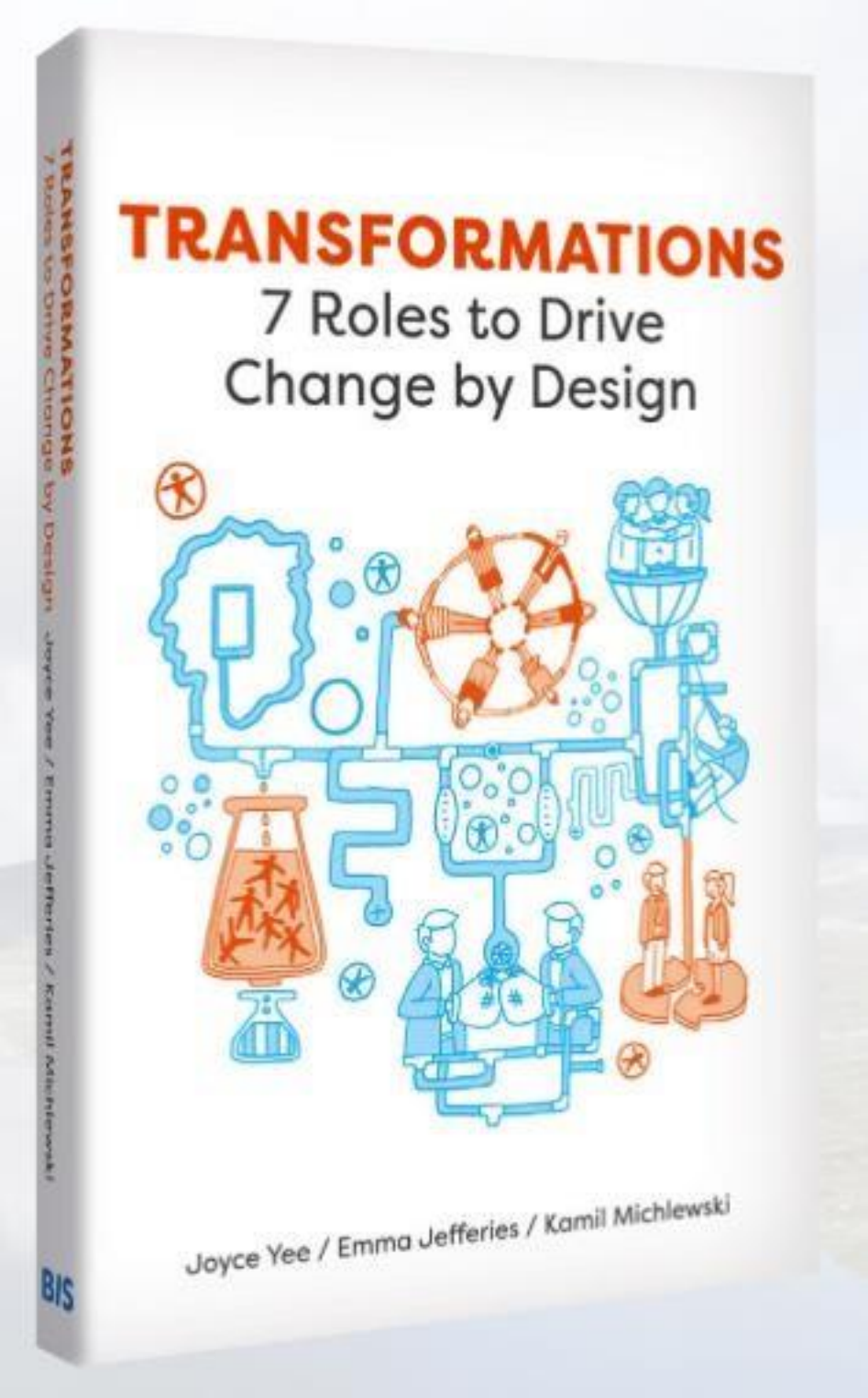
ISSN: 2582-8304

New iBook / ebook:
HOW TO DO ECODESIGN



Practical Guide for Ecodesign – Including a Toolbox
Author: Ursula Tischner

ISSN: 2582-8304



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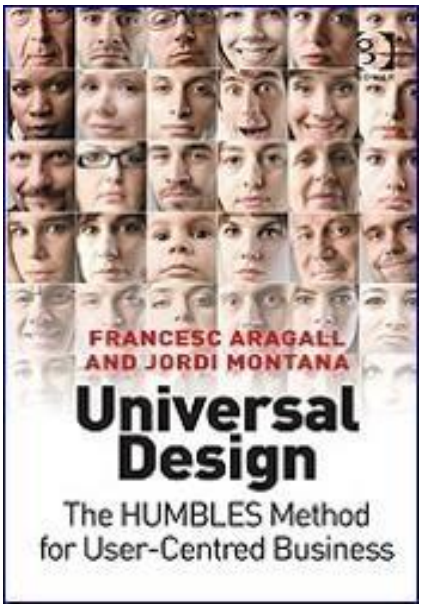
Universal Design: The HUMBLES Method for User-Centred Business



"Universal Design: The HUMBLES Method for User-Centred Business", written by Francesc Aragall and Jordi Montaña and published by Gower, provides an innovative method to support businesses wishing to increase the number of satisfied users and clients and enhance their reputation by adapting their products and services to the diversity of their actual and potential customers, taking into account their needs, wishes and expectations.

The HUMBLES method (© Aragall) consists of a progressive, seven-phase approach for implementing Design for All within a business. By incorporating the user's point of view, it enables companies to evaluate their business strategies in order to improve provide an improved, more customer-oriented experience, and there by gain a competitive advantage in the marketplace. As well as a comprehensive guide to the method, the book provides case studies of multinational business which have successfully incorporated Design for All into their working practices.

According to Sandro Rossell, President of FC Barcelona, who in company with other leading business professionals endorsed the publication, it is "required reading for those who wish to understand how universal design is the only way to connect a brand to the widest possible public, increasing client loyalty and enhancing company prestige". To purchase the book, visit either the Design for All Foundation website

Nina Foundation's latest E Book has been Published on following online platforms. Now you have more options to download and read

Amazon's Kindle;

AMAZON INTERNATIONAL EDITION
https://www.amazon.com/dp/B09WR78DN7

AMAZON INDIAN EDITION
https://www.amazon.in/dp/B09WR78DN7

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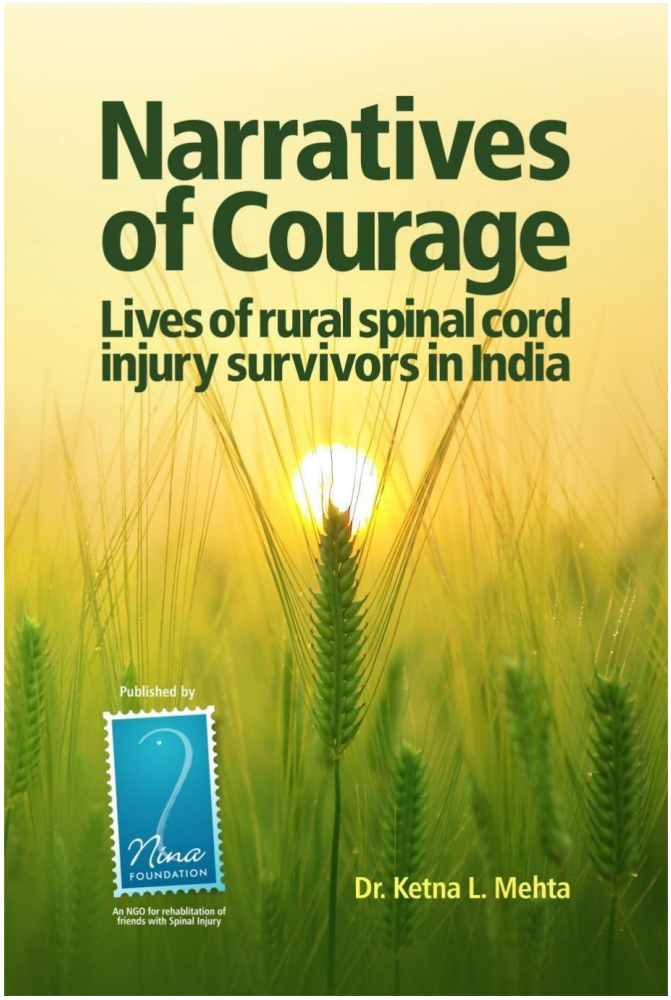
Scribd, Hoopla, Barnes& Noble, Tolino, Vivlio, Borrow Box, Apple, Kobo, Baker & Taylor, Bibliotheca, OverDrive.



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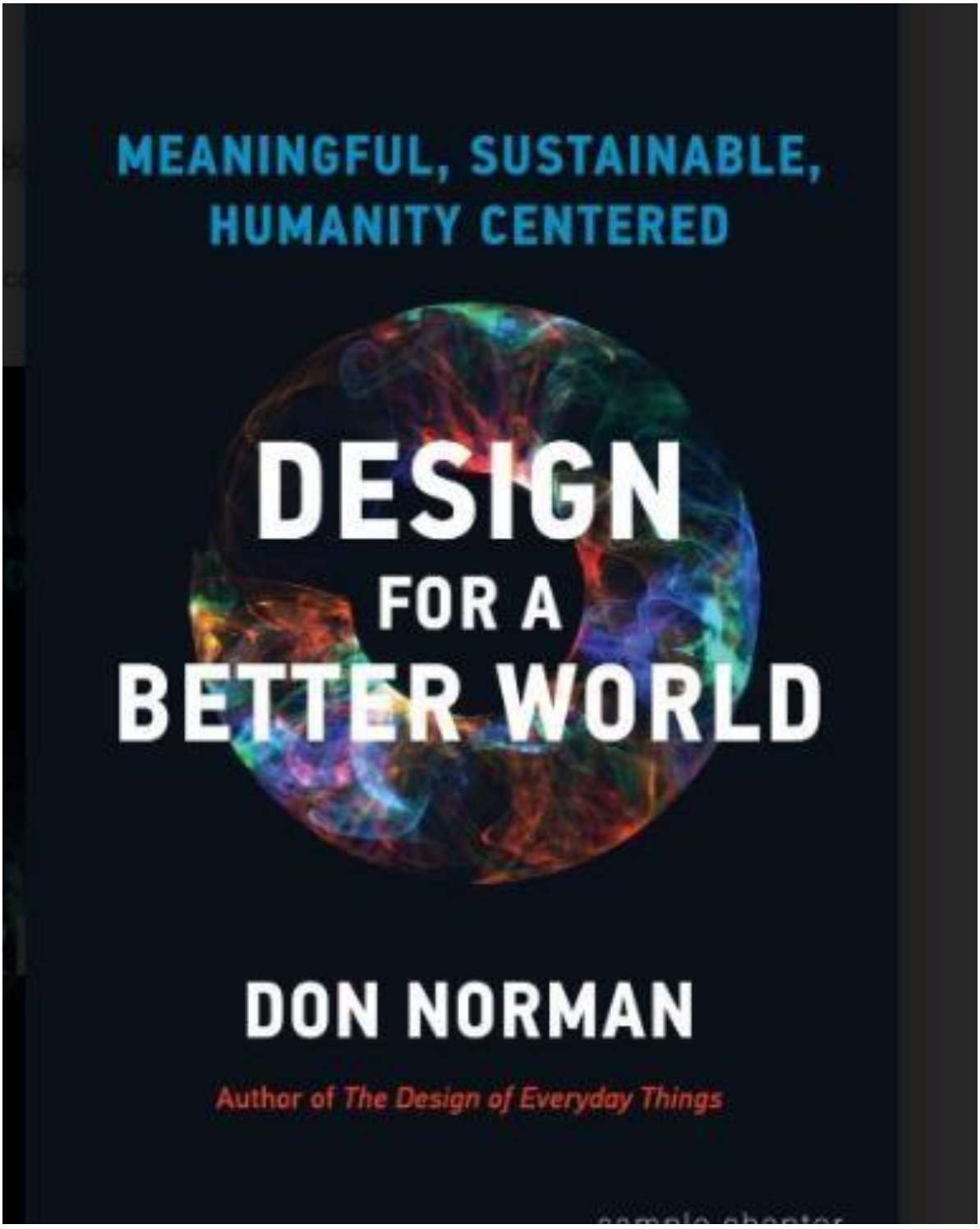

ISSN: 2582-8304

News

1. Celebrating Design Excellence, The Award Ceremony for the Eight Finalists of the 2023 DesignEuropa Awards to Take Place in Berlin

An international event that sets the course for the future of design and ambitiously aims to establish new standards of excellence within this sector. This is how the prestigious DesignEuropa Awards, created by the European Union Intellectual Property Office (EUIPO), can be summed up.

The upcoming award ceremony, scheduled for Tuesday, September 5th at 11:30, at the Museum of Communication in Berlin, will cast its spotlight on eight finalists hailing from seven European nations: Austria, Croatia, Estonia, Hungary, Italy, Poland, and Slovenia. The gamut of finalist creations spans across diverse sectors, encompassing coffee culture, appliances, office furnishings, retail logistics, culinary arts, mobility solutions, sporting innovations, all sharing an emphasis on sustainability and social impact.

The event will also feature the presentation of the lifetime achievement award to Maria Benktzon, a prominent Swedish designer renowned across Europe and the world for her innovative, ergonomic, and user-friendly designs of household objects. Many of her creations have become symbols of inclusive design, including tools designed to assist disabled individuals in independent living, such as crutches, walking sticks, personal hygiene aids, and a set of knives designed for arthritic hands.

Once again this year, the awards have been categorized into two distinct groups. The Small and Emerging Companies category, which commends exceptional projects from small and newly established companies regardless of their size, has selected the

following finalist projects: Jarsty (Italy), an all-in-one microwavable cooking system; Mindful Design Coffee Brewer (Austria), a pour-over filter coffee set; RemigoOne (Slovenia), an integrated electric outboard motor; and ZigZag Boulder (Hungary), a modular outdoor climbing wall system. In the Industry category, which acknowledges proposals from large and medium-sized companies, the finalists are: Cleveron 402 (Estonia), an automated self-service pick-up point for click-and-collect orders; Full Automatic Espresso Coffee Machine (Italy), a coffee machine capable of grinding coffee beans and preparing up to seven different types of coffee; The Performer MOVO (Croatia), a compact workspace for remote working; and WithME (Poland), a collaborative office chair offering advanced ergonomics with minimal adjustments.

Christian Archambeau, the Executive Director of EUIPO, emphasized, "The DesignEuropa Awards highlight the effective use of design and how its protection can help drive economic, social, cultural and environmental development. Furthermore, we have the opportunity to acknowledge eight impressive finalists from the Industry and Small and Emerging Companies sector as well as the work of Maria Benktzon through the Lifetime Achievement Award. Maria's innovative, ergonomic and consumer-friendly designs of household objects have been essential in demonstrating that design for all and universal design creates improved environments that benefit everyone."

The jury for the DesignEuropa Awards, chaired by Isabelle Vérilhac, former President of the Bureau of European Design Associations (BEDA) and Director of Innovation and International Affairs for the UNESCO City of Saint-Étienne, comprises entirely of design professionals, academics, entrepreneurs, former laureates, and intellectual property experts. This esteemed panel elevates the award's prestige, solidifying its place in the international industrial design calendar.

More information on http://designeuropaawards.eu/

(Courtsey: GlobeNewswire)

2. IIT Delhi Opens Application For New Design Thinking And Innovation Certificate Course

The Indian Institute of Technology (IIT) Delhi's Continuing Education Programme (CEP) has introduced and started accepting applications for the sixth certificate programme in Design Thinking and Innovation. Candidates can apply for the course at IIT Delhi's official website, iitd.emeritus.org. The application deadline is set for September 13. This is a 20-week online course which will begin on December 28 and the overall course fee is Rs 1 lakh excluding GST.

How To Apply:

Step 1. Log on the IIT Delhi's official website- home.iitd.ac.in

Step 2. Click on the CEP column under Academics from the menu bar.

Step 3. It will redirect you to the CEP website.

Step 4. Click on Apply Now on the Design Thinking and Innovation course from the upcoming courses section.

Step 5. The candidate will be taken to iitd.emeritus.org.

Step 6. Log in and submit your application.

Candidates must hold a graduate degree (10+2+3) or a diploma from an accredited university in any discipline in order to apply. They must have at least a 50% grade point average and one year of job experience.

The students who receive at least 60% in all evaluation components and complete the final project will be awarded a completion certificate from IIT Delhi. Participants who get less than 60% or are unable to complete the project will receive just a participation certificate.

The curriculum will allow applicants to work on real-world projects with industry partners through over 150 recorded video lectures, assignments, brief quizzes, two weekly office hours with professors, live webinars, and one final project. As per the course brochure, designers and design engineers, creative managers, art directors, UX designers, entrepreneurs, innovation and growth consultants, product managers, marketing managers, branding managers, growth managers, R and D managers, rural entrepreneurs, small and medium enterprises, and professionals are among those who will benefit from the programme.

The programme consists of 14 modules, including an introduction to human-centred design (HCD), HCD and innovation, context, environment, and users; identifying user needs, ideation, and immersion, storytelling, and visualisation. Other modules include iterative design and sustainability, MVP and NPD, agile design, and data-driven innovation.

Through the elaborate course structure and learning tools, the institute is aiming to develop a human-centred approach as one makes and tests new products and services. It also looks at building customer-centric and innovative prototypes. Further, the candidate can learn about the role of innovation in the digital age and how to promote disruptive innovation. Lastly, the candidate will be capable of creating unique ideas to maximise business effects.

(Courtsey: Campus Updates)

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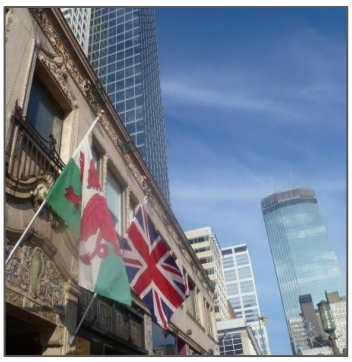
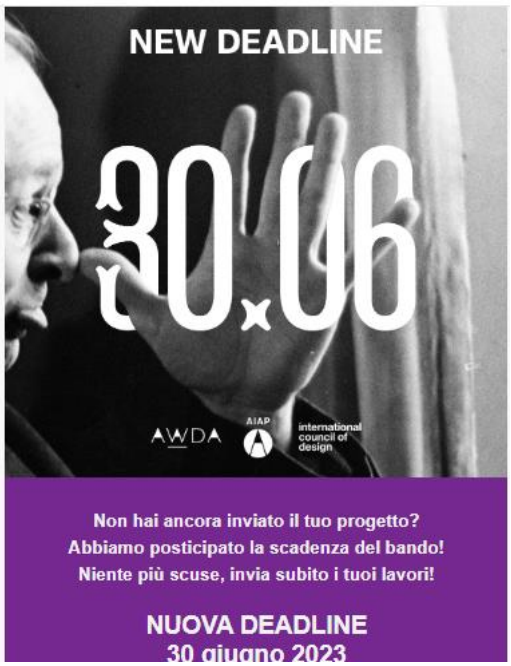


Programme and Events


NEW DEADLINE
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Non hai ancora inviato il tuo progetto?
Abbiamo posticipato la scadenza del bando!
Niente più scuse, invia subito i tuoi lavori!
NUOVA DEADLINE
30 giugno 2023


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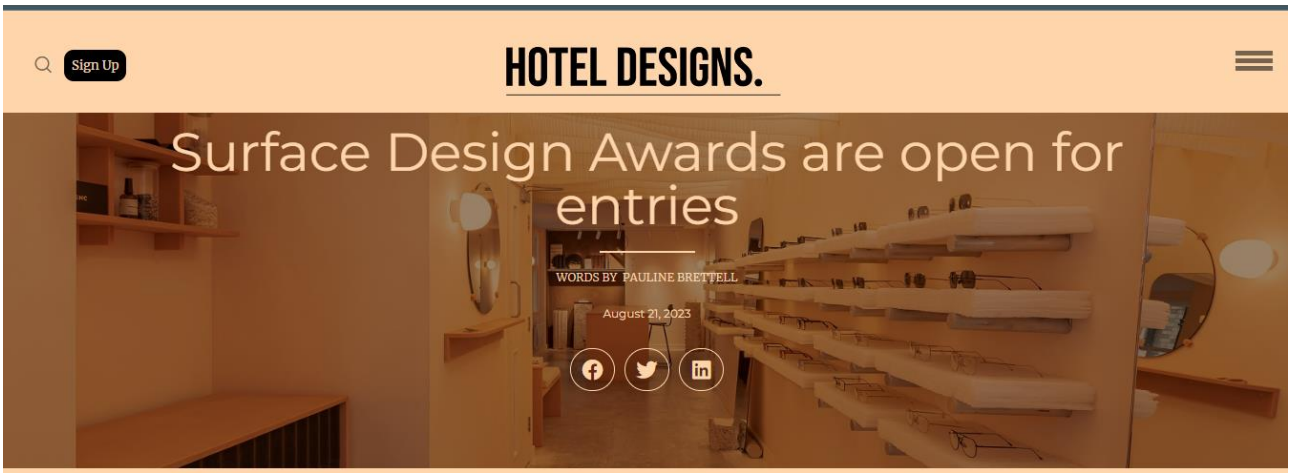
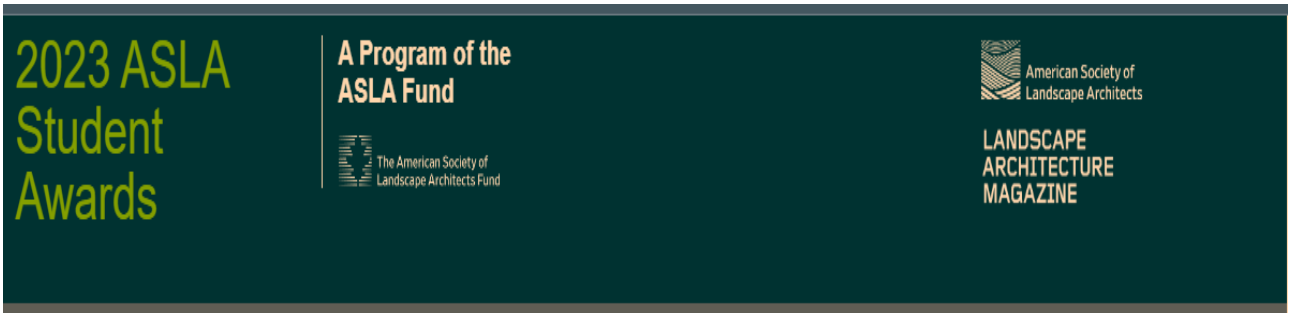
Il bando è aperto dal 25 febbraio **fino al 30 giugno 2023**.
AWDA, Aiap Women in Design Award il premio internazionale dedicato alle designer della comunicazione visiva, ha il piacere di presentare **la composizione delle giurie** per la quinta edizione!





Lasr Date 27-30 October 2023.

Last date 1st October 2023

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TypoDay 2023

26th, 27th & 28th October 2023
Department of Applied Arts, FoVA, BHU, Banaras
www.typoday.in

Typography Day will be held for the sixteenth time on **26th, 27th and 28th of October 2023** hosted by Department of Applied Arts, Faculty of Visual Arts Banaras Hindu University, Varanasi (BHU Varanasi) in collaboration with the IDC School of Design (IDC), Indian Institute of Technology Bombay (IIT Bombay) with support from India Design Association (InDeAs) and Aksharaya.

The theme for this year's event is **'The Sacred and Typography'**

The event will feature workshops on Typography and Calligraphy followed by conference dedicated to 'Sacred and Typography'. The international conference will be devoted to addressing issues faced by type designers, type users and type educators. The conference includes presentations by invited keynote speakers, eminent academicians, industry professionals, research scholars and students. The event will also host an exhibition of selected posters from the Poster Design Competition.

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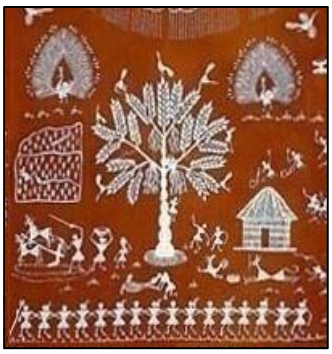

Job Openings

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Editor@designforall.in
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Prof Dr. Sugandh Malhotra, Indian Institute of Technolgy, Mumbai, India
Email: sugandh@iitb.ac.in

Prof Dr Ravindra Singh, Delhi Technological University, India
Email: ravindra@dtu.ac.in

Special Correspondent:
Ms. Nemisha Sharma,
Mumbai, India
Nemisha98@gmail.com
Address for Correspondence:
13, Lodhi Institutional Area,
Lodhi Road, New Delhi-110 003India.

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Special request should be addressed to
Dr_subha@yahoo.com

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