

BRICKFIELDS™



Food Frontiers

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Introduction

Welcome to Food Frontiers, a critique of the most progressive innovations transforming how we access, produce and experience food in our cities. Never has there been a time where food experiences were more front of mind. Social, political and economic challenges – as well as post-pandemic desires for connection and adventure – are creating new food experiences which traverse virtue and frivolity.

On this note, join us as we explore trends spearheading local resilience in both grassroots and high-end contexts. In particular, luxury resorts and hybrid residential developments are leading the charge with food-growing at the centre of their propositions. Connected to this, cities and property owners are becoming what we call ‘density opportunists’, utilising unexpected spaces for food-based purposes.

We also review the evolving role of technology in food delivery systems. The biggest gains being made in retail contexts with ever-efficient service models, as well as in under-supported neighbourhoods with new models for equitable access to food. Finally, we explore the playful and provocative dining offerings that are emerging. Often these reimagine approaches to sustainability and deeply engage with First Nations cultures.

Common to these diverse trends and their champions, is the recognition of being part of a wider network. Nearly all exercise their potential to support systemic change and conscious choices for the betterment of people and planet.



01 Conscious Catalysts

A set of progressive property owners are
spearheading local resilience through food
experiences

01 Introduction

Transformations in the food industry have accelerated over the past two years. Supply chain fragilities, increased impacts of climate change and, now, rising inflation, continue to highlight food-related challenges. Though these issues seem overwhelming, communities, governments and hotels are responding through resilience in simple and experiential ways. This is coming in the form of city-wide growing programs, residential-agricultural developments and even high-end wellness resorts with zero-waste practices. Common to all initiatives is a desire to educate and empower people to nurture food systems.



Self-Sufficient Systems

As the world continues to flux through uncertain economic challenges, be it pandemic or war induced, governments and communities are investing in localised food systems which provide self-sufficiency against wider global events. Typically, these initiatives can span various scales and are centred on the production of food, often using or inspired by First Nations practices. Beyond providing access to food, these initiatives create wider social benefits, such as job creation, self-empowerment, connection to community and the preservation of generational wisdom.

A particular example is Malama Waimānalo, a Hawaiian-based organisation which creates and distributes 'backyard aquaponic' systems. At the size of a small bench, the systems enable the production of fresh fruits, vegetables and fish by merging modern technology with traditional native Hawaiian practices. The program offers education and culture-based activities for locals, with courses on how to maintain their aquaponic system, produce food and ultimately reconnect with their land. It presents an excellent example of what is possible in one's own home, albeit with minimal space. Demonstrating the appetite for such systems, the organisation has expanded beyond its immediate community and now delivers programs across O'ahu and other Hawaiian islands.

Beyond providing access to food, self-sufficient initiatives create wider social benefits, such as job creation, self-empowerment, connection to community and the preservation of generational wisdom.





*Hortas
Cariocas,
Brazil*



Another example geared towards local resilience is the 'Hortas Cariocas' project in Rio de Janeiro, Brazil. The government-funded initiative is set to create the 'biggest urban garden in the world' by connecting existing productive gardens which span several favelas. The project's objective is to make organic food more affordable and accessible, which is pertinent given more than 33 million Brazilians are facing hunger (according to online publication Bloomberg Citylab). To meet these goals, 50 per cent of produce will be donated to people in need, while the remaining 50 per cent will be sold to the community at affordable prices.

While produce gardens in Rio de Janeiro were operating pre-pandemic, the increased investment for expansion shows the value placed on creating localised, resilient systems. Further to this, gardens will be operated by paid workers, thereby providing a source of income and livelihood to disadvantaged families.

Eco-Anchors

Be it urban or semi-rural – farms, ‘food-forests’ and eco-based infrastructure are increasingly a standard feature of new residential developments and existing communities. The clear social benefit is that they serve as a focal point for locals to connect and learn whilst enhancing their wellbeing and sense of belonging. From a spatial perspective, this approach also shows how greenspaces of various scales can be reimagined for environmental good and in ways that reference an area’s natural heritage.

One such development with farming at its centre is Agrihood, an intergenerational community in Santa Clara, California. Key tenets of the vision are to revive the area’s agricultural heritage, whilst supporting seniors and middle-income earners with below-market rate housing – a critical issue in the San Francisco Bay Area. The site

will also be home to an agricultural research centre, as well as 6070 square metres of productive greenspace. This space and any micro-pocket of lands will be utilised for food forests, productive meadows and vertical farms to increase biodiversity and crop yield. Distinctively, the development aspires to be a nexus for education and environmental change within the community. This will be achieved by welcoming residents, locals, schools, universities and research institutions for agricultural training – ideally creating ‘the next generation of environmental stewards’. Residential developments do not typically co-exist alongside research centres, nor do they invite institutional groups in. This presents a new model for residential living, whereby food is the anchor and catalyst for community connection around our shared responsibility to the planet’s future.



Agrihood, California





Local governments are also reimagining under-utilised greenspace for eco-purposes, to serve immediate communities and wider visitors. A key example is Northern Roots, the UK's largest proposed urban farm and eco-park. The site will host a range of educational and leisure activities, from growing edible crops at scale, beekeeping and animal husbandry to mountain biking, equestrian and arts

and culture. Given its destination appeal and scale of 64 hectares, it is apparent the project has wider tourism and economic development imperatives. However, the scale also shows a conscious value placed on developments that support the education, participation and growth of local food systems. Furthermore, the project team see this as integral to enhancing local health and wellbeing.

Northern Roots, UK



Regenerative Resorts

Not just the domain of communities, luxury wellness resorts are also assuming responsibility to nurture local food systems. Operators are designing their sites in harmony with nature, utilising context-specific agricultural methods, regenerating soils and growing a significant amount of food onsite. Such attributes form a key part of the value proposition and attract customers seeking 'grounding experiences'. This driver is defined by the *Harvard Business Review*, as a consumer preference for products which reconnect one back to place, people and past – often to counterbalance fast-paced, over-connected lifestyles.

A particular example meeting this need is global resort chain, Six Senses. All sites have extensive kitchen gardens, the produce of which feeds the guests and supports experiences through the hotel's 'Earth Lab'. Here, guests can engage in scientific discovery and playful workshops on 'zero-waste' lifestyle practices – all with a boutique pitch. For instance, guests are taught to make their own pickles, chemical-free detergent and cosmetics – all through recycled food and herbs. The programs foster a deeper appreciation for food systems and enlighten on climate-positive behaviours in memorable ways.



*Six Senses,
Kaplankaya*





In an even more progressive model, Southall in Tennessee considers itself a 'farm first and resort second'. Prior to opening, the 131-hectare property had been diligently restored using both traditional and innovative farming practices. For instance, the man-made lake utilises advanced hydroponics and aquaculture technology to conserve water and irrigate the farm's orchards and fields – whilst still being a haven for leisure. The water system is also intentionally self-sufficient and separate from the municipal supply. These regenerative practices among

others are shared with guests through the hotel's program of experiences which include foraging, beekeeping, seed-saving and field tastings.

Both Six Senses and Southall are part of a wider trend which sees larger hospitality operators becoming conscious contributors to their local contexts. In addition to this, they are also local leaders, enlightening audiences on food systems and sustainable practices that may catalyse wider change.



*Southall
Farm and Inn,
Tennessee*



Southall Farm and Inn, Tennessee





Property Implications

- When we use food-based enterprises to anchor our communities, be it for dining, growing or research, we create new connections between locals and wider organisations. By bringing diverse groups together, we also create compelling compositions of communities not seen before. This is an interesting proposition to property owners looking to create places with a point of difference, which also serve wider social and environmental resilience objectives.
- Taking the lead from Brazil's Hortas Cariocas, residential estate developers could start to look to each other as collaborators rather than competitors. In this way, opportunities to create linked networks of greenspaces and food-growing could join communities together and reduce heat island effects.
- Solutions for personal food-growing are becoming increasingly mobile, micro and often replicable within the same eco-context. For residential developers, there is an opportunity to gift new buyers with lite-format composting, garden trays or aquaponic systems – depending on the local climate. On the supplier side, this could see partnerships with technology innovators, community organisations or First Nations groups, and lead to engaging programming.





02 Tech Allies

Forerunners in technology are deploying autonomous stores, demographic pricing, and aggregated platforms to transform how we access food.

02 Introduction

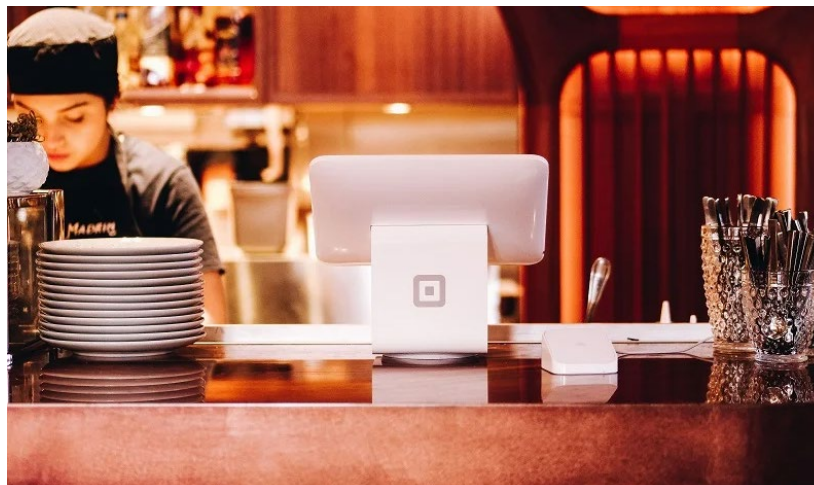
Technology continues to play a significant role in transforming the food sector, particularly for overcoming challenges as well as enabling systems to flourish. This is occurring in diverse ways. In the context of food delivery networks, new innovations are emerging which aggregate social media, smart home technology and hotel apps into a single ecosystem. The benefits see restaurateurs accessing new markets, and consumers enjoying heightened levels of convenience. Technology platforms are also emerging to overcome food security challenges and serve wider social agendas. Specifically, innovations regarding autonomous stores and demographic pricing are providing marginalised communities with equitable access to food. Finally, on a smaller scale, food innovation precincts are also capturing the investment of city governments.



These entities recognise the need to invest in the sector to de-risk against climate and supply chain fragilities. Common to these diverse innovations and their champions is the recognition of being a player in a wider network with the potential to support systemic change.



Olo, Application



Super Streamliners

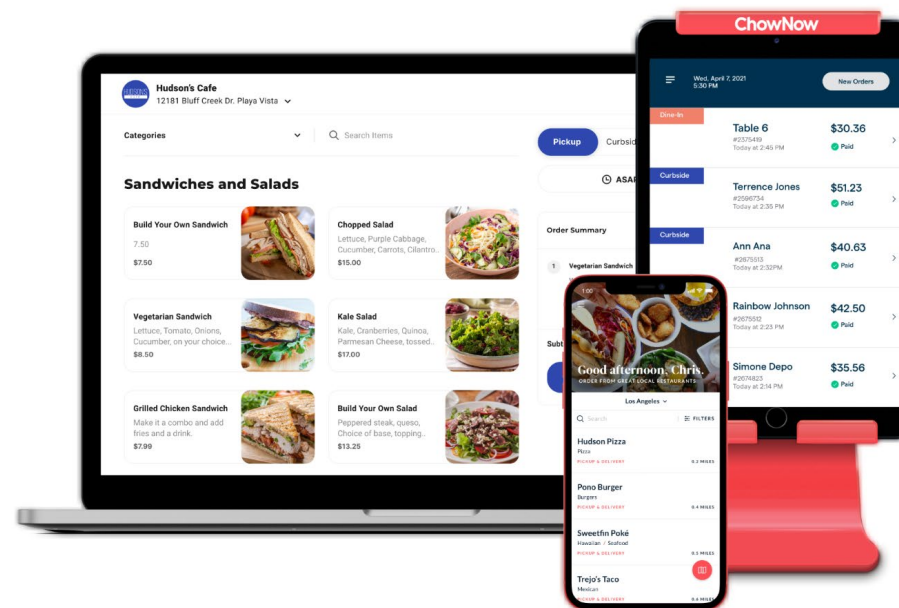
The last two years has seen the online food delivery industry boom, setting a trajectory for increased growth in years to come. According to Globe Newswire, the global online food delivery market is predicted to reach USD\$223.7 billion by 2027, representing a compound annual growth rate of over 11 per cent from 2021. This rising growth will be met by consumer expectations for service delivery that is increasing aggregated, fast and customisable. To get ahead of the curve, savvy tech companies are stepping in to help food operators get prepared.

A particular example is Olo, a company that creates ever-efficient delivery pathways between restaurants and the on-demand world. In doing so, it leverages different platforms such as restaurant websites, social media, virtual home assistants (e.g., Alexa) and third-party delivery platforms to create streamlined service solutions. For instance, Olo recently partnered with Order Solutions, a company that centralises phone orders for restaurants to provide more customers with direct access to their favoured eateries. Regarding delivery – and showing Olo's industry weight – popular rideshare company Lyft was recently added to its dispatch network. The network automatically selects providers based on optimal price, timing and availability, to ensure customers receive their food as quickly as possible. In this instance we can see a platform leveraging the power of a network of complementary services to create solutions that are bigger than the sum of its parts.

Another platform using the 'aggregate power' of multiple channels, is online food ordering company ChowNow. Offering the 'Order Better Network', the platform allows restaurants to have a presence across several marketplaces and social networks, including Snapchat, Rakuten, Marriott Bonvoy and United Mileage Plus. The breadth of channels dually maximises the reach of the restaurant, whilst allowing customers to easily access dining options on their media channel of choice – in whichever context they find themselves. The fact that hotels and even airlines are part of the ecosystem, indicates the opportunity for diverse types of places and asset classes to meet the opportunity.



*ChowNow,
Application*



Re-distributed Dining

Food security is an ongoing global challenge for many members of society in both wealthy and developing nations. For instance, the United States Department of Agriculture (USDA) has found that 10.2 per cent, or 13.5 million, of US households were food insecure and had difficulty providing for their household due to lack of resources. While there are access challenges, there is also significant food wastage occurring simultaneously. According to findings by the World Wide Fund for Nature (WWF) and supermarket chain Tesco, an estimated 2.5 billion tonnes of food goes uneaten annually and generates 8 per cent of all greenhouse gas emissions. It is apparent that a rebalancing of how we distribute and manage our food systems is required to better support people and planet. Though the wider systemic challenges require government intervention, nimble start-ups are taking the lead and providing localised solutions to these issues.

An excellent example is California-based Everytable, a healthy fast-food chain on a mission to create food justice. The company uses 'demographic dynamic pricing' whereby the cost of meals is adjusted based on a customer's location and the area's median income level. Alternatively, customers can also pay what they can afford. This model enables affordability and access to a calibre of healthy meals that are often unattainable for vulnerable persons. In addition, Everytable shows how typical levers used by on-demand platforms, such as dynamic pricing and customer and locational data, can be used beyond stakeholder profit but rather for social good.



*Everytable,
Los Angeles*



Everytable, Los Angeles

Everytable shows how typical levers used by on-demand platforms, such as dynamic pricing and customer and locational data, can be used beyond stakeholder profit but rather for social good.





Boxy, Paris



Beyond financial access, physical access to food is also a challenge for some communities. This is particularly true for low-density areas, where operating a store is not economically viable due to a lack of critical mass. In response, unmanned convenience stores are emerging in rural areas to bridge this gap. A particular example is Boxy, an autonomous grocery store by French start-up Storelift. Boxy allows customers to purchase goods through an app and QR codes, negating the need for staff. Further to this, AI algorithms collect data on local spending patterns, building a picture of budgets and popular items. This information allows Boxy outlets to tailor their offering and promotions to their local communities. In doing so, it can support areas with products that are more affordable if required, thereby increasing both physical and financial access to food.

Food waste is another significant challenge that requires clever intervention. One approach sees technology platforms rescuing and redistributing food to bargain-savvy customers. An exemplar is 'Too Good To Go', which has created an online marketplace for hotels, restaurants and supermarkets to sell their surplus food. Customers can connect to locations within their area and collect a 'Surprise Bag' of food for an affordable \$USD5. In this way, customers can also delight in fare from higher end operators (such as the Radisson Hotel) which they may otherwise never access. Furthermore, with businesses becoming increasingly socially and environmentally conscious, such platforms offer a simple and easy way to attract the growing cohorts of ethically minded consumers.

Technology platforms tackling food waste are also emerging to support charities and community organisations. A leading case is Caboodle, a not-for-profit digital platform. The service enables supermarkets, cafés and restaurants to connect with volunteers and community groups to redistribute surplus food around the United Kingdom. Founded by Co-op and Microsoft, the platform is being trialled with support from environmental charity Hubbub through the Community Fridge Network. The network comprises of volunteer-led fridges in neighbourhood spaces such as schools, community centres and retailers. Their main purpose is to salvage food waste whilst being a place for locals to access and share food. The partnership with Caboodle allows community fridge volunteers to efficiently access surplus food via live notifications and booking collection slots at Co-op's supermarkets. Such efficiencies contribute to maximising the impact of reducing food waste whilst supporting local initiatives.



Left to right: Community Fridge Network, Hubbub, Caboodle Application



“The community fridge has been the seed that has grown into a community hub. Our initial model has expanded with locals going in leaps and bounds to create their own cafes, supermarkets and cooking sessions around surplus food. Loneliness has been reduced and new skills have been created.”

Liam Sweeney, Senior Creative Partner, Hubbub, 2023

Supportive Networks

While food insecurity is being tackled through localised approaches, wider networked solutions are also being deployed. This is coming in the form of retail brands innovating within their own supply chains, all the way to village-scale food-tech precincts with multinational collaborations. In both instances access to human capital and knowledge sharing is the cornerstone of these initiatives.

A significant example is Dubai's proposed Food Tech Valley, a mini-city tasked with transforming the Emirate's dependency on food imports. At nearly

167 hectares, the site will integrate residential alongside clean-tech and agricultural businesses, innovation and development facilities, and a smart food logistics hub. Recognising its role in the region, the valley is also committed to working with neighbouring countries to knowledge-share and solve wider challenges. While Dubai has never scrimped on urban development, the investment in a food-specific 'city' alongside food sector collaborations with the World Economic Forum shows the magnitude of food security as a global priority.



On a smaller scale, accelerator programs are also functioning as supportive networks to solve food system related challenges. An excellent example is supermarket chain Tesco's Innovation Connections program in the UK. The program pairs start-ups with its suppliers to fund and fast-track food-based innovations. Many sustainable ventures have been born from the program, such as InsPro, turning food waste into chicken feed, and AgriSound, tracking pollination and pests.

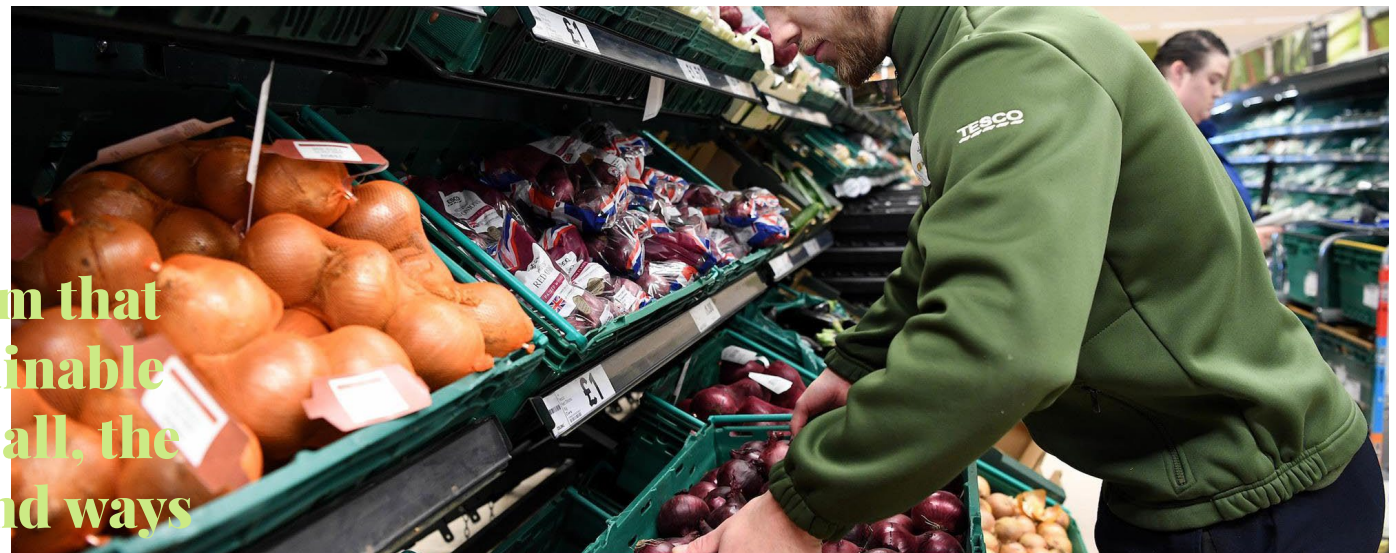
While a seemingly ad-hoc approach, the breadth of start-ups allows for the food system to be supported in an overall more holistic way. Of note is the fact that the retailer is stepping out of their typical remit and proactively expanding their sense of responsibility to the wider food industry – as well as fledgling businesses. This may also be a response to consumers' increasing prioritisation of brands that use their resources to support wider environmental agendas.



AgriSound
Sensor

“To create a food system that provides healthy, sustainable and affordable food for all, the whole sector needs to find ways to innovate fast.”

Giles Bolton, Responsible Sourcing Director at Tesco, 2022



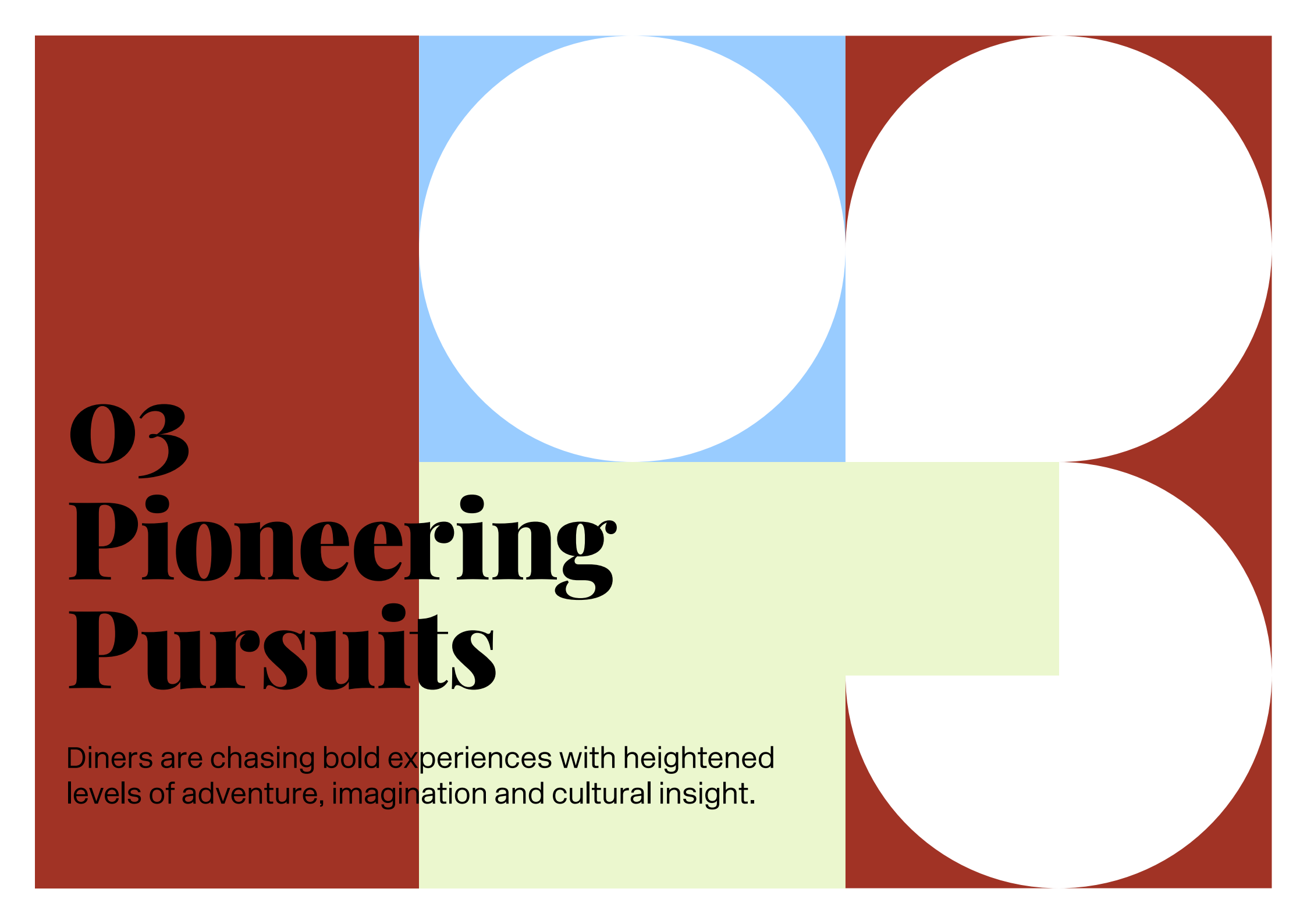
Tesco



Property Implications

- Autonomous grocery stores and dining outlets are becoming more sophisticated and easily deployed. For developers of greenfield estates, unmanned outlets represent an interim solution for providing amenity until permanent offerings come online. Where this format could be pushed is by integrating a human touch. This could come in the form of a free gift or personalised thank-you note, showing care for regular customers.
- Developments in food delivery technology are enabling nearly all asset classes to integrate food experiences into their value propositions. Property owners would be wise to review how their customers wish to access food and consider memorable ways to delight them, be it via convenience, choice or rewards, among other value-adds.
- There is an opportunity for property owners to take a leadership role and be a convenor of innovative dining or food production initiatives. These can support wider industry challenges and internal Environmental Social and Governance (ESG) commitments. Learning from Tesco's Innovation Connections program, the key is to create partnerships of mutual benefit between immediate stakeholders, customers and players in the broader industry. Whether it is regular diners, hospitality operators, local start-ups, First Nations or community groups, engagement will enable deeper insight into their needs and aspirations. Innovation will spring from a keen eye on the gaps and connections discovered in these discussions.



The background is a composition of geometric shapes. A large red rectangle occupies the left third of the image. The right two-thirds are divided into a light blue square (top-left) and a light green square (bottom-left), both of which contain a large white circle. The remaining areas on the right are red, forming a large white circle in the top-right and another in the bottom-right.

03 Pioneering Pursuits

Diners are chasing bold experiences with heightened levels of adventure, imagination and cultural insight.

03 Introduction



A cohort of hospitality operators are charting new culinary territory, creating food and experiences with heightened levels of adventure, imagination and insight. This wave is being influenced by post-pandemic consumers who still wish to escape the mundane and be stimulated in new ways – through nature, travel to new destinations or deep learning. In addition, social and environmental issues are also contributing to this shift. In particular, the reparation of First Nations cultures and impacts of climate change are front of mind for consumers. As such, chefs are drawing inspiration and purpose from their own cultural heritage or local environment, creating new dining offerings which combine art, theatre and education.

Sensory Storytelling

Experiential dining was a pre-pandemic trend that is now reaching new heights as diners seek unprecedented levels of fanciful and remarkable experiences. According to a study by Eventbrite of consumers that consider themselves 'experiential diners', 76 per cent want to dine in a more memorable location, 84 per cent want a surprising menu or theme, and 74 per cent seek a one-of-a-kind experience. In response, the most adventurous hospitality venues, chefs and event companies are using food to craft imaginative and sensory stories.

A global leader in this space is London's Bompas & Parr, offering consumers extraordinary culinary journeys. A notable example was the 'Forces of Nature' banquet which was held at the UNESCO heritage-listed volcanic landscape at AlUla in Saudi Arabia and served dishes cooked over molten lava. Diners could truly experience the power of nature and art of cuisine, with pit experts putting on a theatrical display in the cooking of food. Such formats open the potential

to expand menus and food into a more theatrical experience, making the most of more unique locations. Afterwards, diners embark on an educational torchlight tour of the landscape through a sound and light installation. Almost a travel experience, such events mark a shift to encounters that pair adventure, narrative, theatre and learning to fully enrich their patrons.





“This project was made for the professional chefs-organisation in Hong Kong. A sky-scraper city where it’s not easy to feel connection to the source of food. Focussing on the senses within the urban context reframes and ritualises the eating experience for a closer connection with their daily material: food.”

Marije Vogelzang, Director at The Dutch Institute of Food, 2017

Another dimension of this trend sees diners as active participants in carefully orchestrated food experiences. These events are often staged with the intent to provoke thought on social, cultural or political issues – albeit in a playful setting. One such example is ‘Grazing City Scapes’, made for the professional chefs-organisation in Hong Kong by eating designer Marije Vogelzang. The event was a comment on the tendency for urban societies to be disconnected from the origins of their food and sought to re-create this on a

deeper sensory level. To achieve this, guests were seated closely on a long narrow table, with food presented on glassware at various heights – and set close to the chin, nose and mouth. Hands were not allowed to be used, rather guests were to cheekily graze, with their lips and mouth only, which amplified the five senses. The table itself was designed to resemble a city skyline drawing on the context at hand. In this instance we see dining transcending the purpose of eating – and becoming a form of participatory art and tool for cultural inquiry.



Cultural Enlightenment

Decolonised restaurants and educational experiences are emerging to re-establish First Nations foods and practices in innovative ways. Doing so educates audiences on the local context's original heritage as well as challenges of food sovereignty, i.e., the autonomy for local producers to control food production and distribution mechanisms. While these issues are not new, the recent Black Lives Matter movement and Indigenous perspectives regarding the passing of Queen Elizabeth II have brought awareness of decolonisation more strongly into consumer consciousness. As such, consumers want to increasingly engage to deepen their understanding, and food provides a platform to do this.

A key example is Owamni by The Sioux Chef by Dana Thompson and Sean Sherman. Located in Minneapolis, it is one of the country's first decolonised restaurants, with every dish made from pre-settlement ingredients (thereby excluding wheat flour, dairy, cane sugar and black pepper). The goal is to revitalise Native American cuisine and food systems, whilst getting diners excited about ancestral ingredients.

Owamni,
Minneapolis

“The mission of our work, at the root, is education and health. People are realizing that the removal of the food systems of the US and Canada created major negative impacts on our species, especially for the Indigenous communities. The awareness of this has been a wake up call about colonialism.

Dana Thompson, Owner and Chief Operating Officer, The Sioux Chef and Founder, NATIFS, 2023





Concurrent to this is Thompson and Sherman's Indigenous Food Lab and non-profit NATIFS (North American Traditional Indigenous Food Systems). According to Thompson, the lab is a culinary training centre for Indigenous food systems as well as a place which reinstates ancestral education that was systematically removed by settler colonialists. Connecting with the community, pop-up dinners are occasionally hosted for both education and fundraising purposes. These holistic efforts preserve cultural wisdom and build awareness with new audiences through contemporary gastronomy.

“Access to healthy food is justice. It’s an act of peace. Throughout the last decade of our work we have seen land acknowledgments become normalized. We have seen discussions about how easily the supply chain broke down during the pandemic, and why that happened. People want a localized food system, and Indigenous food is the blueprint for that”

– Dana Thompson, Owner and Chief Operating Officer, The Sioux Chef and Founder, NATIFS, 2023



*Fatmata Binta,
Fulani Kitchen*



Similar movements are occurring in Africa. A key leader in this field is Fatmata Binta, who owns the nomadic restaurant and foundation, Fulani Kitchen. The enterprise is eponymously named after Africa's largest nomadic tribe, whose cuisine is influenced by their lifestyle. Binta's pop-up dinners enlighten diners on Africa's native ingredients as being intertwined with the Fulani tribe's sustainable food practices. For instance, dried meat may be served with an explanation that the Fulani slaughter animals, sell the flesh, eat the offal and dry the remains – making it light enough to carry on to their next destination.

Binta also helps her guests learn through sensory immersion, and creates events in traditional settings, open-air upon mats, and ensures they are highly interactive, full of taste, touch and smell.

Similar to Sherman, Binta has established a foundation to give space for women to grow crops, increase their skills and gain recognition for their labour. Again, we see food experiences as a vehicle to not only build cultural awareness, but as a complement to a broader mission.



“On average, three in five consumers worldwide say they prefer purchasing food from their own country (60%). Across most markets, consumers who express concern about climate change are more likely than those who aren’t concerned to prefer food produced in their own country.”

— YouGov, June 2022

Fine Natured

Foraged ingredients are the focus of a new wave of inventive dishes, cocktails and experiences. This represents the convergence of numerous trends: a desire for ‘grounding’ experiences (as explored in Trend 1, Conscious Catalysts), the rewilding of urban areas, and growing consumer preferences for sustainability and locally produced food. This intertwining of local and environmental preferences is

supported by findings from YouGov which reveal across most global markets, consumers who express concern about climate change are more likely than those who are not concerned, to prefer food produced in their own country. As a result, restaurateurs and mixologists are looking to their local areas to deliver imaginative and sustainable experiences.



*Penicillin,
Hong Kong*



A key example is 'Wild Up your Drinks', a program during London Cocktail Week which engaged participants in 'rewilding' and commercial foraging. Led by famed mixologist Marcis Dzelzainis, the excursion took guests to a variety of parks across London and offered hands-on experience foraging for wild cocktail ingredients. The tour revealed the invisible food that exists all around us, as well as legalities regarding 'responsible foraging'. While such events are imaginative and delightful, they also have the power to instil a sense of responsibility and care for one's neighbourhood and its natural systems. Such programs also provide inspiration for property owners of retail centres and mixed-used developments looking to inspire their customers in new ways.

Beyond one-off programs, bars are integrating foraging and sustainable practices into their propositions. A particular case is Penicillin, a zero-waste bar in Hong Kong operating on a closed-loop production system. It does this by sourcing locally foraged ingredients and upcycling all kitchen and bar off-cuts – either as garnishes or for fermentation. Penicillin also educates its patrons through its Fermentation Masterclasses, sharing guidance of five different techniques to reutilise food waste. In doing so, the company inspires patrons to incorporate more sustainable practices in their everyday lives, as well as set the baseline for other vendors in the area.





Property Implications

- The most socially conscious restaurants are evolving beyond standalone outfits. Rather they are a complement to a not-for-profit innovation lab or other relevant cause. For property owners of shopping centres and mixed-use sites, there is an opportunity to engage with food and beverage tenants and explore ways to support their wider mission be it through programs, new partnerships or the activation of vacant tenancies.
- Rising trends in sensory dining could also support energy-saving missions, particularly in the context of soaring power prices. Candle-lit settings, raw food menus and wi-fi-free sessions are just some ways this could be achieved.
- As wider retail and product trends shift to being inclusive of physically and neurodiverse groups, so too should dining experiences. This is particularly true regarding trends in sensory dining as their sensitivities offer much to be learned from, the opportunity being to create tailored experience for these groups, or ones which raise awareness among mainstream audiences.



*Tetchan Yakitori Bar by Kengo
Kuma and Associates, Tokyo*



04 Density Opportunists

From power plants to store cabinets –
unconventional assets are being reimagined
for food production and delivery.

04 Introduction



According to the World Economic Forum, more than 55 per cent of the world's population currently live in urban settings, and this is expected to rise to 80 per cent by 2050. Alongside this, cities only cover 2 per cent of the world's land surface, but activities within their boundaries consume over 75 per cent of the planet's material resources. From this standpoint – and particularly where food is concerned – there is an imperative for cities to be more resource efficient to better support their growing populations. In response, unconventional assets are being reimagined for food production and delivery. From office cabinets and city-fringe warehouses to decommissioned power plants, these initiatives show the potential nearly any space holds for creating faster, scalable and regenerative food systems.

Urban Assets

Cities and placemakers have long been creative in repurposing under-utilised spaces for new uses, be it a car park-come-event space, a micro-museum in an elevator or a rooftop for 'glamping'. Ways for re-utilising urban assets have abounded and are now increasingly being used for food production. Similar to the innovations presented in Trend 1, the drivers are to create local resilient supply chains, as well as support a climate-positive future.

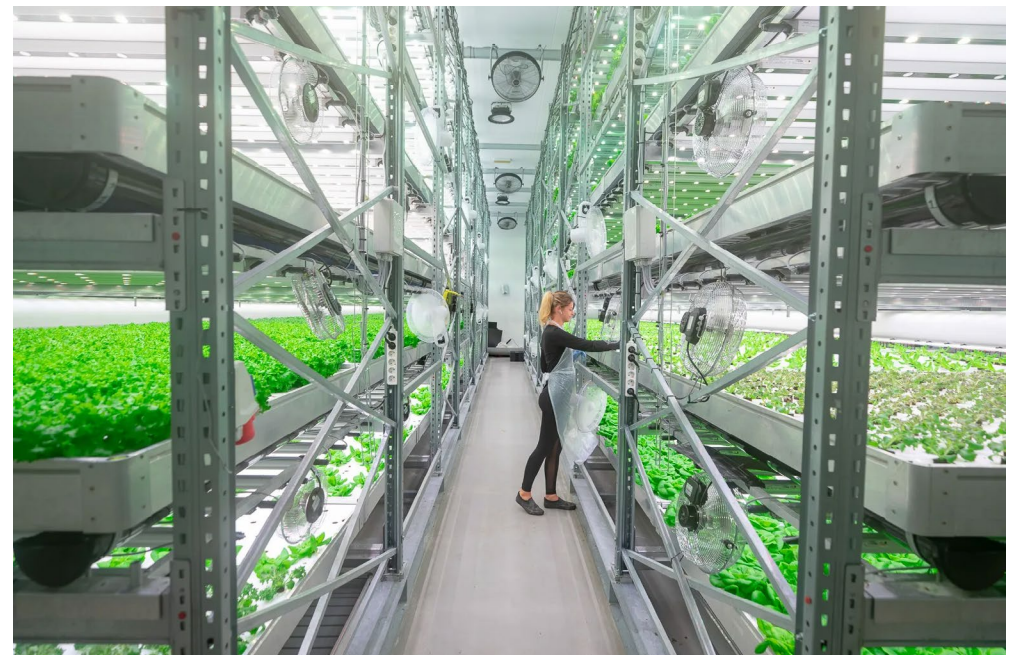
In the plight for urban agriculture and mitigating urban heat-island effects, rooftops are a key piece of real estate capturing the attention of food innovators and property owners. An inspired example is Nature Urbaine, Europe's largest urban farm situated atop the Parc des Expositions centre in Paris. At 14,000 square metres, much of the farm relies on aeroponic growing towers and 'culture gutters'. This technology mitigates the need for soil-heavy infrastructure which is often a barrier to urban farming. These structures not only save space in dense areas, but by completion the aspired production area is set to be

equivalent to 80,000 square metres. This sheer scale shows what is possible in dense areas when spatially efficient systems are deployed.

City-fringe warehouses are also being repurposed for urban agriculture. Such spaces utilise 'soil-free' growing techniques, and optimise resource use between available floor area, energy and water consumption. A particular 'warehouse farm' operating in this way is VAXA, located ten minutes from central Reykjavík in Iceland. Though only 600 square metres, the site has double the growing capacity at 1500 square metres. This is achieved through layered vertical structures, whereby plants are grown on multiple 'floors' supplied with recycled water and LED lights to replace sunlight. While VAXA is not a place for community participation, the produce still serves the city. For instance, the greens are used in many of Iceland's top restaurants, sold in major food stores, and form weekly farm boxes for local subscribers.



VAXA, Iceland



*Nature Urbaine,
Paris*



“Nature Urbaine is also part of the City of Paris’ wider Les Parisculteurs programme which aims to see 30 hectares of Paris’ rooftops producing fruit and vegetables, and 100 hectares covered with greenery.”

In developing research, decommissioned urban infrastructure and abandoned coal mines are also being eyed for food production. With plans in both the UK and China, research has found that repurposing these spaces can create the perfect environment for food production – being more cost-effective and yielding up to ten times as much as traditional farms. Such formats open the potential

to revive these spaces, reintegrating them into the community and reducing building, production and transport costs.

Whether it’s rooftops, warehouses or power plant relics, the potential is huge for creating spatially and environmentally efficient urban farms paired with the right technology.



Micro Modules

Taking lessons learned from industrial-scale vertical agriculture, retailers, transport hubs and workplaces are also integrating similar food-growing structures, albeit on a more micro scale. Such structures are designed to be flexible and deployed in different contexts, thereby broadening their impact. In addition, these spaces also hope to build awareness around food systems and connect communities over shared experiences.

A place raising much awareness is Metro Farm in Sangdo Station, Seoul. The robot-managed 'Auto Farm' has been created by agriculture company Farm8 and is subsidised by the Seoul Metropolitan Government and Seoul Metro. The concept supports the city's sustainability agenda, local employment, and enlightens Seoul's residents on the value of growing local food. In doing so, it welcomes

commuters to dine in at the 'Farm Cafe' which sells the farm's produce – a bounty of 30 kilograms of fresh vegetables daily. In addition, school groups can learn about the future of agriculture at 'FarmX', a space dedicated to immersive workshops. Much to its success, the farm will be replicated across other stations, a job made easy by Farm8's modular vertical system. As retail vacancies emerge post-COVID, Metro Farm sets an interesting precedent for how spaces can be utilised for outlets which support the environment and build education, whilst being complemented by a commercial enterprise.



“We tried our best to make Metro Farms a lively experience, where visitors can get a grasp of its possibilities and to be recognized [as] a place where technology meets nature.”

Yeo Chan-dong, Senior Manager of Farm8, The Korea Herald, 2019



*Metro Farm,
Korea*



*Family Farm,
Urban Plant
Growers*



*Microfarm
Cabinet,
Grimshaw*

Other micro solutions are emerging. This is coming in the form of cabinetry which can be easily integrated in diverse spaces from homes, workplaces and schools to department stores. An exemplar is the Microfarm Cabinet Range designed by Grimshaw Architects in Sydney. The vertical farms use a sustainable closed-loop system that enables fresh produce to be grown in a self-contained format. Keeping food miles down, the produce is initially stocked and replenished by a large-scale local grower within 2 kilometres of the CBD. While the environmental benefits are

clear, such initiatives have incidental wellbeing and social benefits. For instance, anecdotally, the presence of edible greens at Grimshaw's Sydney offices has been a connector between colleagues, who share the upkeep, deepen their knowledge about food, and also create shared lunches together. Ultimately, the cabinets have brought new positive dimension to workplace culture and wellbeing.

Ghost Kitchens 2.0

In recent years, the food delivery sector has been influencing the repurposing of urban spaces for food production, particularly in the way of 'ghost kitchens'. These spaces are optimised for food preparation and delivery, without on-premises dining. According to market research company Euromonitor, ghost kitchens are set to be a \$1 trillion business by 2030. While inner-city warehouses have typically dominated this use, a new wave of asset classes is starting to leverage the opportunity. This is being facilitated by partnerships with savvy technology and delivery platforms who want to bring new levels of convenience to audiences who value variety and customisation.

One leader in the sector is Kitchen United, a delivery platform and ghost kitchen operator based in California. Taking their concept beyond the warehouse, the company has recently integrated a ghost kitchen into the Westfield Valley Fair mall in California. The system allows shoppers, the general public and local employees to order food from multiple restaurants at once and collect it via automated

lockers. The benefits of this are manyfold and help overcome the access challenges posed by large, insular malls. For instance, the system provides quick ground-floor access for delivery drivers, saving them 20 minutes by bypassing the car park and food court. Onsite employees can save time on their lunch break by pre-ordering and collecting at their nearest locker – as opposed to traversing the 20-hectare site. Furthermore, the technology allows food court restaurants to tap into more off-premise customers. In a climate where shopping centres are working hard to retain customers, such initiatives offer a way to keep pace with shifting audience preferences.



*Kitchen United,
Westfield Valley Fair
California*

While inner-city warehouses have typically been the venue of choice for ghost kitchens, a new wave of asset classes is starting to leverage the opportunity.



“Post-pandemic, the food delivery sector has swelled to over \$150 billion globally, tripling since 2017.”

McKinsey, March 2022

University campuses are also integrating ghost kitchens. These offer an alternative use for vacant retail tenancies which are struggling to attract operators, particularly in the context of hybrid learning and reduced students onsite. A key example is North Carolina A&T State University’s 1891 Revolution ghost kitchen, which occupies a former retail outlet. To attract operators and manage risk, the kitchen rotates between different dining concepts every few months. This rotation also serves to entice staff and students with ‘what’s new’. To keep labour costs down, the kitchen also delivers the orders campus-wide

using autonomous robot delivery services from Starship Technologies. The program has proved popular with the delivery fleet growing, and proposed plans to extend the service to on-campus grocery delivery. While this depicts growing trends in food-based robotics, it also points to a new cohort of students whose lifestyles are more fragmented than previous generations, and who typically spend less time on campus by virtue of juggling multiple commitments. As such, they expect lifestyle conveniences to keep meeting them in whichever contexts they find themselves.





Property Implications

- Growing food reaps benefits of wellbeing, social connectedness and a contribution to the planet. Better still, the case studies herein prove it is possible in almost every asset class, even at the most micro, low-risk scales. Workplaces, retail centres and universities should be encouraged to trial and test the smallest of initiatives as it can also contribute to ESG commitments.
- Though food delivery has become a prevalent part of urban living, the built environment is often at odds with the nimble needs of delivery drivers and their customers. In response, workplaces and retail centres could review journey pain-points, under-utilised spaces and innovations in technology, with the goal being to create efficiencies through value-add services.

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Trend 03

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