CoreNet Global | HACKATHON

CONNECT — IDEA — SOLVE — PRESENT

A COVID-19 Virtual Ideation Experience

Team Topic and Number: The Autonomous Workplace, team 1

Team sponsor/chapter (if applicable): N/A

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Input your submission below. Please remember that you have 1500 words to share your insights.

Team 1 considered how technology will both supports required short term change and drives change in the workplace over time.

In the short term, the emphasis will very much be on hygiene, health, safety, and adhering to social distancing requirements as we gradually return to office life.

Over time, the focus will shift to genuinely integrated smart building systems that allow flexibility and change over time, depending on conditions. We might develop a vaccine for Covid-19 in the next two years, but what about Covid-20 and 21? If this pandemic does indeed have a sustained and permanent impact on how we design and occupy buildings, we have outlined what the autonomous workplace might look like in 2022 and beyond.

SHORT TERM (next 6 months)

Touchless working and social distancing will help in the short-term wellbeing and safety of employees.

There are some opportunities for technology implementation within short time spans, and we'll discuss these as we consider the journey of employees as they reach and navigate the workplace.

The first touchpoint as employees arrive at work is the entrance lobby. To ensure health **digital thermal scanners** can play a major role. The thermal scanners are connected to monitoring software that play a role in **monitoring mass movement** of employees, especially during busier times, say morning and evening.

UV fitted baggage scanners will eliminate potential viruses from bags. As employees pass through turnstiles to access controlled areas, **technology can restrict entry**, thus controlling the overall number of occupants in line with density and social distancing norms. We'll see an increase in **QR code/facial scanning** etc., touchless tools are a safer bet than card swipes. **App based elevator buttons** may add to your **touchless experience**.

These are all easy to adopt technologies that are almost immediately available in the marketplace.

As employees go about their working day, **sensor equipped touchless doors, IoT enabled water dispensers, and touchless vending machines** will enhance their hygiene and safety. Food ordering **apps** will help de-congest cafeterias, and washrooms equipped with **touchless taps**, **soap dispensers and hand sanitizers** are easy to install products available.

Gadgets are already available that can **beep or change color** when there is a compromise in social distancing norms. These will be very useful in areas like receptions, libraries, locker areas, tuck shops and high traffic areas.

Collaborations using technology will remain a short-term norm and physical distancing will remain a respectable social culture.

Technology will also play an immediate role in **keeping people informed**: various digital displays will run content with information on the pandemic. The content will constantly change to stay relevant and keep building users abreast of the latest information.

MEDIUM TERM (6-12 months)

This stage is aimed at establishing refined baselines that act as a bridge between the short-term immediate response and long-term sophisticated solutions.

1. Further modifying existing building operational processes to form robust medium-term baseline for a workplace design that holds **health & safety** as a key decision criterion.

2. Immediate response strategies maintain **productivity and reinforce a sense of connectivity** within a dispersed workforce (breaking down the perception barrier against the 'new normal')
3. Current workplace technologies will inform the **development of more optimised technologies** that will present long-term solutions.

1   Health and safety:
We anticipate an increased market shift towards **BIM documentation for architectural and services drawings that increase the accuracy of existing BMS controls within buildings**. This increased sophistication of zoning will allow us to isolate zones that have high unplanned densities. These strategies may include the following:

- **Variable maximum weight alerts in lifts** that change according to 'person/sqft' guidelines that increase during high flu-seasons (focus on health & safety limits versus traditional structural load limits)
- **Shift away from physical access cards towards app-based solutions** that reduces the amount of contact points. This may even shift further into robust facial recognition technology that is now more commonplace and integral in most smartphones post 2016.
- **Gesture based controls** for AV, lighting, HVAC through end-users' smartphones or through a wall sensor.

2   Productivity and connection

Immediate response strategies will flag the critical importance of operating within a **paperless organisation**, reiterating digital storage of documents as a norm. This will maintain connectivity from a work perspective, and but the human experience may be increasingly tackled through:

- Increased implementation of **task applications** as a staple to provide all team members with visibility of work schedules, deadlines and activities.
- Shift towards **web-based weekly team scrum meetings** that currently sees more attendance as traditionally some employees may not be in the office at scheduled times.

3   Optimised technologies

Many vendors, tenants and landlords have a plethora of technology tools currently used for **utilization analytics** that are used in planning stages of workplace design. These tools have been developed to monitor usage of furniture or spaces which help decision making on the overall space allocation and appropriate space types. This technology would become more integral throughout the lifetime of spaces and furniture – manufacturers implementing these sensors within commercial furniture as a non-optional component. This data collection may be increasingly fed to planning tools in real time to enable additional features such as:

- Live **social distancing alerts** to end users of high-density spaces
- Potential adoption of **government introduced COVID tracking apps that tie in with workplace sensors**. Once an employee lodges a notice for medical leave with HR, a confidential historical log of furniture usage for the past 7 days can be shared with cleaning teams to ensure detailed cleans of spaces and equipment.
- **Live viewable space maps** of the existing spaces with an in-app recommendation of workspaces that have low-density usage.

LONG TERM (beyond 18 months)

Looking at the period beyond 18 months (when a vaccine or treatments have ended the health risk of COVID-19), we have identified three key themes that will prevail:

1. **Embedded health & safety** protocols in workplace design and building operations.
2. A **continuation of the dispersed workforce in some form** and focus on enhancing the remote working experience and productivity of employees.
3. Currently available technologies will be augmented and supplemented by **new technologies**

Live space planning:

Technology will apply workplace design standards (e.g. density, space types, etc.) to floorplans to generate space plans. Digitally testing various densities to determine office environments, furniture and room configurations that will work within the available space. Layouts can be explored virtually in 3D to get a feel for environment to guide the occupant's future experience after construction. The key is flexibility, being able to change the density criteria quickly to understand the impact on workplace planning.

Building services:

Autonomous Technology in the implementation of:

- **Transportation**

For building transportation, we would see an **ongoing focus on contactless operation** for doors & lifts such as via gesture or holographic interfaces. Where contact cannot be avoided (such as on escalator hand rails) we would see active and constant sanitation via UV-light disinfection.

- **Sanitation & Janitorial**

Active monitoring of indoor air quality to ensure adequate airflow & ventilation to prevent germs remaining present in the air for long periods. Active hygiene defense e.g. air treatment with disinfectant which may be delivered by **service robots**. Robots could also facilitate deep cleaning to remove organisms as well as UV-light or chemical disinfection of high-traffic areas.

- **Human Services & Experience**

Rapid evolution in interactive technology (such as mobile apps, consoles, IoT sensors) to ensure health and safety whilst also enhancing wellness and productivity. Companies and building managers would deploy technology services for individuals in key areas as:

  o **Space and services, wayfinding & consumption**- ensuring that occupants are informed and guided around buildings whilst maintaining social distancing (if needed). On-demand services such as food & beverage or dry cleaning delivered to designated 'no contact' pickup areas or secure lockers.
  o **Seat and space booking**- ensuring productivity, comfort in workspace configuration and ability to interact with colleagues whilst maintaining social distancing (if needed).

- **Virtual working and communication**- enabling effective home-working, dispersed group working, town-hall style interaction, and social media style interaction across the wider organisation for information and knowledge sharing.
- **Access Control**- building access facilitated via NFC or other technologies using biometrics to verify individuals.
- **Contact Tracing**- working in partnership with health authorities to effectively and anonymously track contact with individuals that may require isolation or home working during a pandemic or flu season.

- **Engineering & Maintenance**

Building operators would ensure health of occupants by utilizing predictive & proactive maintenance of building services equipment. An example would be increasing HVAC maintenance in areas of higher foot traffic or office working within the building determined via smart building platform utilizing inputs from motion & environmental sensors, handshakes from mobile devices to Wi-Fi networks and machine learning applied against reactive maintenance requests data.