Space Utilization & Metrics
Team Number: 25

1. Determine baseline for how space utilization and metrics today (KPI’s, benchmarking collateral)

2. Identify disruptors for future scenarios

3. Futurecast Impacts:
   - Immediate: 0-2 yrs.
   - Strategic: 2-5 yrs.
   - Vision: 5-10 yrs.

4. Finalize Presentation

Tools Implemented:

[Diagram of macro sources of disruption and impact trajectories]
**Space Utilization & Metrics**

**Team Number: 25**

<table>
<thead>
<tr>
<th>Education</th>
<th>Infrastructure</th>
<th>Government</th>
<th>Geopolitics</th>
<th>Economy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remote learning lowers the barrier of entry for college (more prolific + educated workforce)</td>
<td>G5 revolutionizes speed and access and changes data consumption</td>
<td>Chief Safety Officer / Industrial Hygienist for office environment</td>
<td>3) Increased regulations creates a nationalist approach to growth</td>
<td>Recession caused by C19 and oil crisis reduce severely operating budgets</td>
</tr>
</tbody>
</table>

**Distributed workforce**
- now located in suburban offices, closer to universities. This could drive innovation, job opportunities for college interns/grad, reduced employment costs, etc.

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<tbody>
<tr>
<td>1) Increase WFH demand more infrastructure (internet speeds, etc.) in suburban locations. Technology has to reconsider new security protocols and sol’ns.</td>
<td>Social distancing measures incorporated into Code requirements? Temporary or long term?</td>
<td>3) Global labor pool</td>
<td>1) Distributed workforce opens up tertiary markets for labor arbitrage and financial savings – with global HR implications.</td>
</tr>
</tbody>
</table>

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<tr>
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<tbody>
<tr>
<td>Data Privacy legislation develops new issues in the world</td>
<td>2) 5G allows for teleportation and enhance communications</td>
<td>2+3) Best for all is best for one, or best for one is best for all – cultural differences</td>
</tr>
</tbody>
</table>

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<thead>
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<tbody>
<tr>
<td>Infectious Disease inspectors as part of the building process – construction environment</td>
<td>2+3) Best for all is best for one, or best for one is best for all – cultural differences</td>
</tr>
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<tbody>
<tr>
<td>IP privacy concerns – how to protect in a virtual world? SEC compliance?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Space Utilization & Metrics

**Team Number: 25**

<table>
<thead>
<tr>
<th>Public Health</th>
<th>Demographics</th>
<th>Environment</th>
<th>Media / Telecom / Social</th>
<th>Wealth Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4) Pandemic mitigation considerations</strong> influence code regulation for space, operations, HR, etc.</td>
<td>Longer life spans change retirement models</td>
<td><strong>Reduced travel and manufacturing stabilizes global warming</strong></td>
<td>Peer pressure forces behaviors (masks, social distancing)</td>
<td><strong>5) Economic drivers (technology access) create 2 classes of citizens (have and have nots)</strong></td>
</tr>
<tr>
<td><strong>5) WFH requires employers to re-evaluate HSE / ergonomic set-ups and funding solutions.</strong></td>
<td>Gender specific solutions – restrooms? (India, Middle East)</td>
<td>Health cost plummet due to sustainable environmental solutions + employee effectiveness</td>
<td>Naming and shaming companies who are not doing the right thing</td>
<td></td>
</tr>
<tr>
<td>Hygiene chain of custody – use blockchain for connecters – Chinese QR code</td>
<td><strong>4) Social rating for companies practices on health and safety (Glassdoor)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Organizations gain access to but fail to get the most out of a global labor pool

No backbone to support deep connection between employees or to ensure companies get what they need to effectively use workforce

Workforce is ready to work yet they do not have the right tools to engage consequentially delivering limited results and leaving untapped potential on the table.

Employees will have low engagement, resulting in limited results and productivity

Employees need access to reliable technology and tools; the only space to attain it is in the office, thereby continuing the reliance on the workspace.

Offices reliant on basic utilities (power, broadband, etc.) which the landlord is contractually not obligated to guarantee

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Offices reliant on basic utilities (power, broadband, etc.) which the landlord is contractually not obligated to guarantee

Organizations benefit from larger labor pool and rapid technology advancement

Risk is distributed more evenly and org’s maintain a sustained level of business continuity

Less sqft/person but investment in tertiary markets that are more competitive and less expensive help to offset

Real estate portfolio compresses as WFH + tertiary labor pool increases

Reimaging of the workplace occurs. Workplace could now be areas of collaboration, communication, and true expression of the company’s culture

Companies find a way to express culture through technology for distributed workforces

Emerging economies (even at a local scale) will jump technology generations during development

IoT is critical as everything is interconnected. Teleportation, driverless technologies, new ways of communicating create demand for 5G+

Organizations lack workplace innovation and continue to firefight

Orgs will be very reactionary if a similar situation arises (will be like Feb of 2020).

No innovation to the workplace

No using the expanses of technology to innovate the workplace

Less diversification of risk due to local labor pools and central HQ’s.

Continued reliance on size and scope of the workplace (RE Portfolio)

Sqft per person has increased [social distancing] therefore higher real estate costs for organizations

Less efficient use of real estate compared to pre-C19 metrics

Health and Safety may continue to be a concern for employees/orgs

Working protocols will change to accommodate Health & Safety

Organizations suffer from poor ROI and high localized risks

Org are not getting the full benefit of technology development

Underutilized technology results in poor ROI

High investment and low/no adoption to tech because there is no need yet

Less diversification of risk due to local labor pools (i.e. pockets of outbreak). High pockets of risk in certain areas

Some breakout organizations using technology to its fullest results in economic winners and losers

Sqft/person goes up. Cost of real estate gets higher and cost of technology goes up as well.

Local labor force is standard

Globally distributed workforces are standard

Rapid development of infrastructure

Current infrastructure remains

Current State

Technology Infrastructure vs. a Distributed Workforce:

C19 put most organizations into unchartered water and resulted in a high degree of reactive decision structures.

Post C19, successful organizations will capitalize on the WFH learnings by compressing real estate and tapping into global, tertiary labor markets. They will put increased emphasis on the technologies that improve distributed work thereby fast-tracking innovations in technology. Company culture expression will evolve into the physical and digital workspace.
Technology vs. Cultural Influences

Technology fights culture
Current technology stays. Regionalization of technology advancements all driven by local forces – culture, identity.
Less progress in feeling the world is “one place” to live and work.
Local codes and unique issues suppress massive digitalization and global competence.
Strong cultural identity but processes not supported by advanced technologies.
Trade wars.

Technology leaves room for cultural differentiators
Organizations and businesses will demonstrate greater flexibility to support a broader range of work situations and scenarios for their employees; i.e. companies that formerly had a strict 'in-person' workplace culture might ease up on their requirements and allow employees the flexibility to work from home, when the need arises.
Likely see shifts in attitudes and workplace culture that will ultimately result in organizations being more flexible and accommodating of different work styles.

Culture rules the way world responds to changes
5G and other digital technologies drive the society into the future and connect us beyond mobile phones, driving AI to replace “mobile” devices in the next 5 years. Everyone can be everywhere at the same time. Sex, gender, religion, national origin or geo place on globe would not matter. Physical presence not required for most jobs. AI brings backroom automation and sophistication. More gadgets.
Universal competence and knowledge. Virtual prayer rooms or any other unique personal requirements.

5G/ Teleportation and cultural influences
The COVID-19 pandemic has forced people and businesses to adapt to remote working and related technology regardless of the level of their preparedness. While we might have expected our working environments, processes, and routines to evolve over time, we’ve been thrown directly in the deep end. Companies will be forced to make enhancements in their technology platforms including 5G, virtual calls, and Teleportation. Cultural differences might be gradually removed with the technology acceleration and adaptation; or, because of cultural uniqueness, technology won’t be implemented at the same level throughout the world.

Sweeping digitalization across globe
Current state of Technology
Technology adaptation is delayed due to cultural difference locally or globally
Societies where remote work is not allowed or supported make small changes towards acceptance. Policies dictating Who What When and Where are a must. Increased regulation and costs associated with new positions managing this process.
Some companies could be scrambling to solve urgent security, data, and collaboration issues related to remote work without much preparation leaving them vulnerable to security risks as well as unnecessary inefficiencies in the companies workflow.

Cultural issues stay as is

Team Number: 25

Space Utilization & Metrics
Space Utilization & Metrics
Team Number: 25

Technology vs. Cultural Influences

<table>
<thead>
<tr>
<th>Pre Covid 19 Metrics</th>
<th>Post Covid 19 Metrics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology supportive of ad-hoc mobility</td>
<td>Robust technology infrastructure to provide widespread mobility</td>
</tr>
<tr>
<td></td>
<td>• Staff, brand, talent (KPI: satisfaction metrics?, “downtime” metrics?)</td>
</tr>
<tr>
<td></td>
<td>• KPI: Digital meeting data. I.e. average number of meetings per person, average</td>
</tr>
<tr>
<td></td>
<td>number of ppl invited/joining per meeting, tools used in meeting (digital whiteboard,</td>
</tr>
<tr>
<td></td>
<td>PowerPoint, etc.)</td>
</tr>
<tr>
<td>Digital tools developed</td>
<td>Digital collaboration tools enhanced – DocuSign and other digital authority and approval tools</td>
</tr>
<tr>
<td>Office provides a place to create culture, work</td>
<td>Tools to develop culture and trust need to be re-evaluated for a predominantly virtual work environment (KPI: Work survey?)</td>
</tr>
<tr>
<td>relationships and trust – HR</td>
<td>KPI: Utilization based on community. Challenge is how we get together without being together.</td>
</tr>
<tr>
<td>Productivity metrics a mixture of performance and</td>
<td>Productivity metrics based on digital connectivity (Wi-Fi, home office set up) and performance, and impact</td>
</tr>
<tr>
<td>presenteeism</td>
<td>on team and culture</td>
</tr>
<tr>
<td>Global Workforce with poor technology infrastructure</td>
<td>Poor infrastructure will leave some markets less developed with lower economic opportunity; strong influence</td>
</tr>
<tr>
<td></td>
<td>on building up these markets to tap cheap and smart workforce</td>
</tr>
<tr>
<td>Technology that supports the physical space – utilization,</td>
<td>Enhanced Technology that supports the virtual space – teleporting, virtual reality, AI for</td>
</tr>
<tr>
<td>dashboards</td>
<td>capacity analysis and exposure tracking; AI for back office operations (KPI: % meetings in person vs digital (# of meeting room seats occupied)</td>
</tr>
<tr>
<td>Employee Handbook</td>
<td>“Cultural Ambassadors” positions and virtual playbooks</td>
</tr>
<tr>
<td>Communications</td>
<td>“Siri” translators in all languages</td>
</tr>
</tbody>
</table>
Pandemic Considerations vs. Social Ratings

Since the pandemic, both governments and civil society have been trying to grapple with who should be responsible for responding to the pandemic. Companies will demand flexibility and recommendations rather than risk legal liability and burdensome requirements. Activists will be trying to determine whether to focus on government targets for social and economic policies, or whether to pressure corporations to act. We believe both groups will take a mixed approach but that which group is given responsibility will shape (a) the cost and (b) uniformity of responses.

Directed Uniformity
- Offices uniformly adjust to OSHA and legal requirements on healthy workplaces, leading to across-the-board, “sticky” changes to office design
- Regulatory reporting and spacing requirements drive up office costs and space
- Smaller companies may struggle with meeting standards
- Activists push for more extensive regulation coupled with social policy, leading to higher taxes

Extensive Adjustment
- State sets minimal, “sticky” standards w/ higher costs and reporting, but less onerous than Quadrant 1
- Activist pressure pushes high-profile companies above-and-beyond as a brand differentiator
- Growth of wellness certification schemes

Society looks to Govt
- Companies meet minimal guidelines, with uneven efforts to maintain social distancing or other redesigns over time; large-scale reversion to business-as-usual
- Governments pass on cost of social regulation through higher taxes but will leave office regulation as-is, esp. in conservative states

Society looks to Business
- Larger, consumer-facing companies targeted by activists, experiment with solutions
- Growth of wellness certification schemes
- Smaller businesses face uneven pressure for change and exemption from most guidelines, but may act based on social pressure
- Generic or less visible businesses may make minimal changes based on guidelines
- New NGOs or expanded NGO mandates to focus on health as part of CSR

Tiered Response with Experimentation

“Pandemic-Proofing” Requirements

Ad hoc

Recommendations, not Regulations
# Space Utilization & Metrics

## Team Number: 25

## Pandemic Considerations vs. Social Ratings

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<tr>
<th>Pre Covid 19 Metrics</th>
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<tbody>
<tr>
<td>Health and Wellness Certification is starting to catch on in big companies to attract talent, but strictly optional</td>
<td>Health and Wellness Certification gains added weight, may add more categories/ measures (e.g. optimal humidity and temp. to reduce viral transmission, space between persons), may become more important than other certifications</td>
</tr>
<tr>
<td>Health and safety regulation does not center space per person</td>
<td>Regulatory definitions expand and regulatory authority may extend to new agencies</td>
</tr>
<tr>
<td>Emergency response systems not primarily concerned with viral transmission</td>
<td>Viral training and response systems implemented, new capabilities for contact tracing rolled out</td>
</tr>
<tr>
<td>Employee satisfaction surveys ask general questions about wellness programs</td>
<td>More pointed questions about health in surveys; possible expansion to annual reporting</td>
</tr>
<tr>
<td>Employees felt safe coming to the office – no metric needed</td>
<td>Public sentiment will need thresholds to define psychological comfort with coming back to the office (Transit solutions, policies to contain transmission, PPE, Vaccine, etc.) KPI: Environmental Metrics: Temp, Co2, IAQ, Humidity, etc.</td>
</tr>
<tr>
<td>Space Syntax (“Urban planning” metrics). Metrics that score safety like “Walkability”, average distance between sanitation zones, “number of hand sanitinations by location” (like water bottles saved from fountains),</td>
<td>KPI: Environmental Metrics: Temp, Co2, IAQ, Humidity, etc. Space Syntax (“Urban planning” metrics). Metrics that score safety like “Walkability”, average distance between sanitation zones, “number of hand sanitinations by location” (like water bottles saved from fountains),</td>
</tr>
<tr>
<td>Facility Managers focused on standard office provisions</td>
<td>New parameters inclusive of building policy, social distancing enforcement, business continuity</td>
</tr>
<tr>
<td>Architectural planning models with high density</td>
<td>New metrics and planning focus on communal space vs. individual space</td>
</tr>
</tbody>
</table>
Public Health Impacts vs. Wealth Disparity

The wealth disparity is currently very great. The country’s wealth divide also impacts how it can provide infrastructure and tools to work remotely, which in turn impacts companies ability to harness technology and new work solutions. As we move forward, we believe the focus will be on more WFH / Remote solutions, but how far down the rabbit hole will this go? Will we start looking at a remote worker with global considerations like India or Bali? Or a more Regional approach like Austin?

High Wealth Disparity: Have vs. Have Nots
- Political instability
- Increased health risk + poor work / life integration
- WFH – eliminated from a significant portion of the labor pool
- Increase wealth distribution extremes

Targeted Growth + Development
- Better public health and work / life integration
- Targeted company infrastructure
- Supply Chain Regionalizes

Low Wealth Disparity: Blended Citizens
- Higher exposure / risks for 2nd wave
- Less progress in growth / innovation
- Increased health risk + poor work / life integration
- Slower Growth and Development

Current State
- More competitive global landscape
  - Diverse supply chain
  - Better public health and work / life integration
  - Targeted Country infrastructure
  - Widespread Growth + Development

Space Utilization & Metrics
Team Number: 25

Public Health Impacts vs. Wealth Disparity
### Pre Covid 19 Metrics vs. Post Covid 19 Metrics

| Traditional office infrastructure | % of organization / employees who have remote tools and satisfaction rates for:  
|                                 | • HR policies  
|                                 | • Internet solutions  
|                                 | • Office Setups + reimbursement policies  
|                                 | • Software that supports remote work  
| Productivity measurement based on presenteeism | Productivity measurement based on digital footprint (MS Analytics), performance based  
| Cultural Metrics (Best Places to Work or other HR surveys) | Cultural Metrics do not change, but which areas of focus in the questionnaire will be revised / evaluated (Best Places to Work or other HR surveys)  
| CRE Economic Indicators (Sq. Ft., Rent costs per person or per seat) | CRE Economic Indicators (Sq. Ft., Rent costs per person or per seat), however less focus than previously because it will be much smaller  
| No tracking of ESG metrics | ESG rating by Bloomberg or Dow Jones Index  
| Personal information protected by HIPPA Regulations | Personal data potentially shared for exposure tracking, liability for exposure to virus?  