



mapping the universe of
**REMOTE
WORK**

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**“IN THIRTY YEARS’ TIME, AS TECHNOLOGY MOVES EVEN FURTHER,
PEOPLE ARE GOING TO LOOK BACK AND WONDER WHY OFFICES EVER EXISTED”**

— SIR RICHARD BRANSON, BUSINESS MAGNATE

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OK

DIGITAL BY DEFAULT

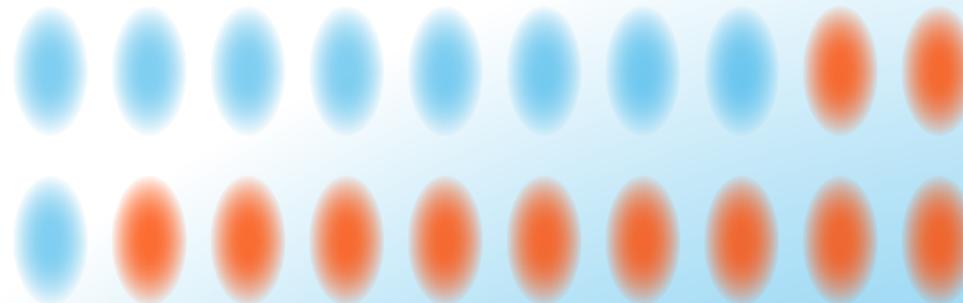
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WHATEVER HAPPENED TO OFFICE CENTRICITY?

1.1

As companies around the world navigate the special circumstances brought by COVID-19, it's clearer than ever that there is no going back to "business as usual". In the face of a pandemic that has caused unprecedented social and economic disruption, employers and employees become more aware of an important, previously under-acknowledged fact — namely, that the future of work is * remote. Indeed, thanks to the mass work-from-home (WFH) experiment, flexible forms of employment have evolved almost beyond recognition. Within a matter of weeks, billions of people realized that their jobs can be carried out efficiently and correctly via telepresence technologies. As a result, what was once a luxury reserved for just a privileged few is gradually turning into an almost unquestionable public necessity. And this is precisely why the time to adapt or die is now.

*INCREASINGLY



2 in 10
employees worked from home (average 2019)*

More than 9 in 10
employees worked from home (march 2020)*

*Raconteur, 2020

The shift in thinking about the viability of long-term remote work has shined a bright light on the fact that both the office and work life are ripe with new paradigm thinking. Prior to the pandemic, physical workspace architecture (e.g. real estate, interior design, office furniture) was at the center of attention in the global 'war for talent'. But in the grip of COVID-19, digital workplace architecture has become a key competitive differentiator due to the increase in job satisfaction while working remotely.

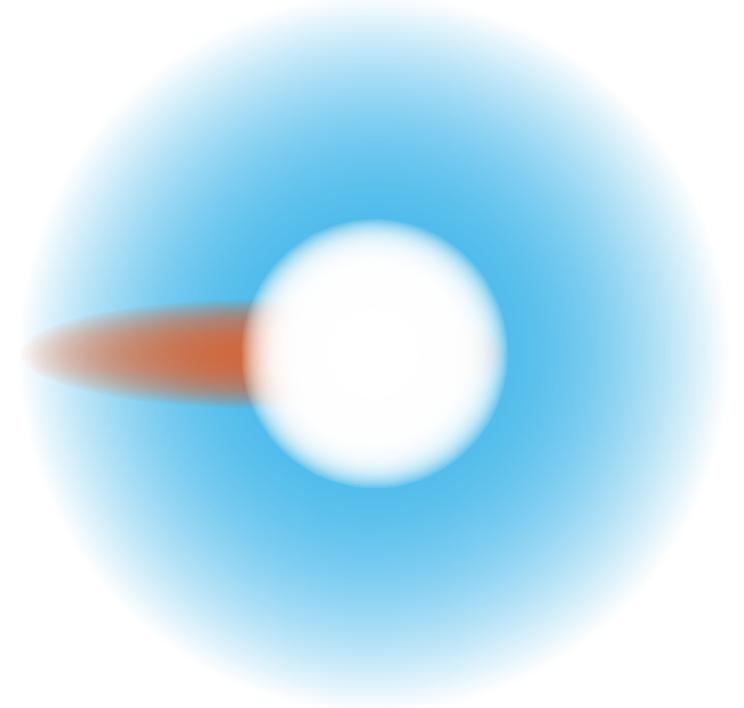
OF 40,000 REMOTE WORKERS WORLDWIDE, 73% THINK THEIR COMPANIES SHOULD EMBRACE FLEXIBLE WORKING POLICIES.

— CUSHMAN & WAKEFIELD, 2020

Would you recommend
remote work to others?*

97% ● Yes

3% ● No



*Buffer State of Remote Work Report 2020

Working from home works for most employees because escaping the 9-to-5, Monday-to-Friday grind leads to more freedom, better focus, higher-value work, less stress, improved health, and greater happiness (WeWork, 2020). Due to the strength of the connection between job satisfaction and organizational performance, many employers have likewise benefited from the massive home office boom. But what exactly makes remote work so attractive for companies? Here's an overview of the major business advantages:

PRODUCTIVITY Teleworkers are an average of 35-40% more productive than their office counterparts, and have measured an output increase of at least 4.4%.
— Forbes, 2020

PERFORMANCE With stronger autonomy via location independence, workers produce results with 40% fewer quality defects.
— Forbes, 2020

SUSTAINABILITY By reducing commuting hours and consolidating real estate through sustainable IT practices, remote work could help reduce annual CO2 emissions by 214 million tonnes.
— Cisco, 2020

PROFITABILITY Organizations save an average of \$11,000 per year per part-time telecommuter, or 21% higher profitability.
— Forbes, 2020

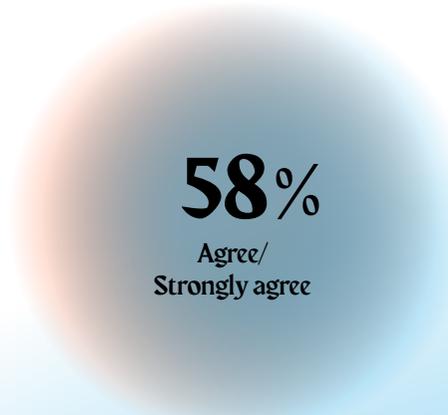
ENGAGEMENT Higher productivity and performance combine to create stronger engagement, or in other words, 41% lower absenteeism.
— Forbes, 2020

RETENTION 54% of employees say they would change jobs for one that offered them more flexibility, which results in an average of 12% turnover reduction after a remote work agreement is offered.
— Forbes, 2020

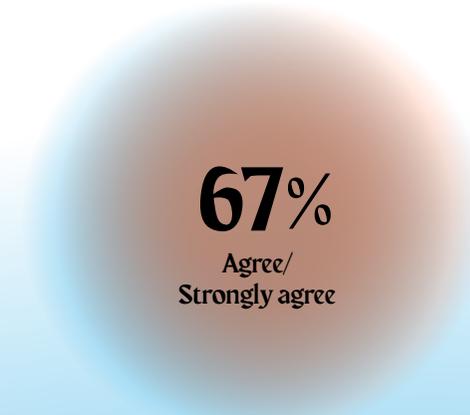
With the sudden shift to WFH, just about every company had to ramp up its digital capabilities. As a result, we vaulted five years forward in consumer and business digital adoption in a matter of around eight weeks (McKinsey, 2020). While some companies experienced a less-than-smooth transition on their transformational journey to remote work, others managed not only to steady the ship but also to seize emerging growth opportunities by becoming more digital, data-driven, and cloud-centric.

WE ARE WITNESSING WHAT WILL SURELY BE REMEMBERED AS A HISTORIC DEPLOYMENT OF REMOTE WORK AND DIGITAL ACCESS TO SERVICES ACROSS EVERY DOMAIN.

— BOB SWAN, CEO OF INTEL CORPORATION, 2020



People are actually using technology that was already available to them but previously rejected or ignored*



The pandemic has accelerated our adoption of cloud-based comms, collaboration and productivity tools*

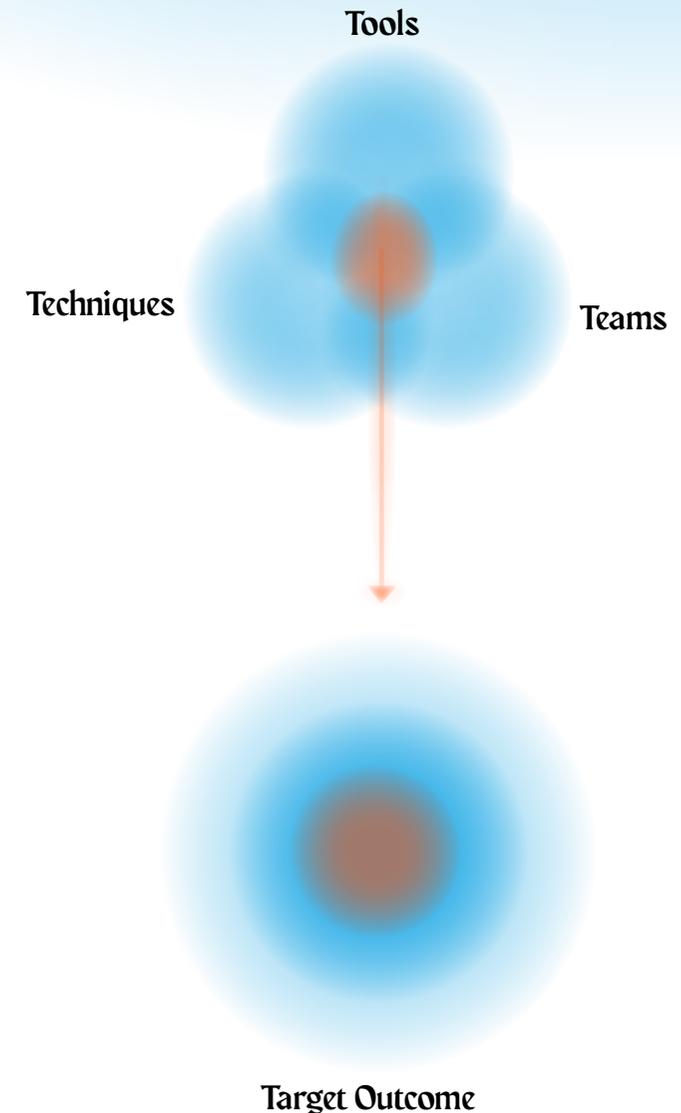
*Cisco, 2020

AGENDA-SETTING

1.2

Not surprisingly, a central question currently facing business leaders around the world is how to empower teams with the right tools for remote working. It's difficult to digitally transform teams, let alone entire companies, when there's an abundance of software and applications to choose from. But selecting the wheat from the chaff is key for achieving digital business transformation * success because the right blend of technologies will lay the digital groundwork for achieving desired target outcomes.

*** THE CREATION AND CAPTURING OF
VALUE IN THE DIGITAL SUPERSTRUCTURE**
(PARALLELWELTEN, 2020)



Mural, 2020

To help companies gain a foothold in the digital world of tomorrow, we've created a guide that shows how, with forethought, a successful remote work strategy can be architected. At large, digital business transformation requires rebuilding or reinventing working life, systematically, to reorient each element toward the right tools and techniques for increasing efficiency and maximizing profits. The good news is that, done right, five key imperatives can set you on the path to digital business transformation:

- KNOWLEDGE BASE 1.**
 - PROJECT MANAGEMENT 2.**
 - COMMUNICATION 3.**
 - COLLABORATION 4.**
 - TEAM BUILDING 5.**
-

Whether you're a veteran or a newbie, finding the right technology for working remotely will make all the difference because the ability to get things done effectively hinges on the tools that are being used. Remember: Just because it's in the toolbox, doesn't mean it's useful for every purpose or situation. In fact, oversubscription for the sake of broad coverage will result in reduced productivity, more siloed cultures, and more frequent data breach and security issues (DXC Technology, 2019). That's why companies must add or subtract resources in a manner that provides added value to employees and creates advantages over competitors.

“Question everything”, Albert Einstein famously said. Of course, framing matters, but the father of modern physics certainly hit the nail on the head regarding the validity of questioning because most good answers come from asking, not telling. By being more curious, playful, and inquisitive about the world around us, we can stimulate interest and strengthen learning via experimentation. Keeping pace with the rapidly evolving workplace environment means our attention must not only be focused on confirming the known, but also, and more importantly, on exploring the unknown.

WHAT IF ...

- ... we dive headfirst into the ‘new normal’?
- ... a new wave of digital leaders accelerate business transformation?
- ... the gig economy is here to stay?
- ... there are both right and wrong ways to implement remote work?
- ... digital technologies effectively augment humans with intelligent helpers?
- ... the new user interface is not on a screen but on the world?
- ... location is no longer a barrier to securing the best people for a project?
- ... productivity can occur anywhere, not just at the office?
- ... the outlet is way more than just a passive channel of information?
- ... we upskill entire organizations to be digitally literate?
- ... data is worth more than you think?
- ... we place cybersecurity on top of the business-risk agenda?
- ... we bring analog and virtual worlds together in productive and pleasurable ways?
- ... industry 4.0 ushers in new design thinking?
- ... we deconstruct old notions about the office?

- ... the individual cube of yesterday is today's home office?
- ... we de-densify offices without expanding corporate footprints?
- ... digital technologies free the employee to focus on work of higher value?
- ... we create attractive workspaces that move people?
- ... we reimagine the way work should be?
- ... team building is now more important than ever?
- ... we instill a culture of questioning?
- ... we change the mindset, not just the toolset?
- ... disconnecting is the new luxury?
- ... digitization brings about the end of city monopoly?
- ... we incentivize local innovation and entrepreneurship?
- ... we ensure global access to modern information and affordable communications technology?
- ... we look backward to share experiences and lessons?
- ... we look forward to reinvent?
- ... we're all in this together?

OR

THE ARCHITECTURE OF REMOTE WORK

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"THE MEDIUM IS THE MESSAGE"

– MARSHALL MCLUHAN, MEDIA THEORIST

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ONE-STOP-SHOP PLATFORMS

2.1

One-stop-shop platforms for remote work are virtual hubs that bring chats, tasks, projects, and teams together in one shared workspace. The most established leaders in the unified solution environment are Microsoft Teams and Cisco Webex Teams because they successfully provide an end-to-end user, team, customer, and business experience.

MICROSOFT TEAMS HAS 44 MILLION DAILY ACTIVE USERS.

— UC TODAY, 2020

CISCO OWNS MORE THAN 50% OF THE UNIFIED COMMUNICATIONS (UC) AND MEETINGS MARKET.

— UC TODAY, 2020

- Consistent one-on-one team chats with unique channels and groups for each department in your organization.*
- Visual collaboration with real-time file sharing and editing opportunities, along with digital whiteboarding.*
- File sharing via integrated storage options, like Microsoft OneDrive and Sharepoint.*
- Bots for meeting assistance, collaboration planning, and even meeting recording or transcription.*
- VoIP calling through Webex Calling and Microsoft Teams Calling.*
- Video conversations available at the click of a button without the need for extra apps and access codes.*
- Meeting scheduling and organization without having to flip between calendars.*
- A wide range of integrated video endpoints, room kits and interactive whiteboards.*

*UC Today, 2020

Going against the industry norm, Microsoft Teams and Cisco Webex Teams drive both hardware and software innovation rather than relying on sequential development. While Cisco offers native devices only, Microsoft turns to third-party vendors (e.g. Yealink, Poly, Lenovo, Logitech, Sennheiser) to deliver effective teamwork tools such as noise-canceling, concentration-boosting headsets, AI-powered bots for improved scheduling, and interactive whiteboards with embedded operating systems.



FUNCTIONALITY

- High-quality video conferencing
- Messaging and file-sharing from any device
- Cloud calling
- Easy meeting controls, including web browser support

ECOSYSTEM

- Customer support
- Content sharing
- Training
- Event coordination

HOSTING

- Cloud/on-premise infrastructure
- Deployment
- Workflow & delivery
- Energy savings
- Access control

SECURITY

- State-of-the-art standards
- Advanced administrator options
- End-to-end encryption

USABILITY

- Ease of learning
- Error tolerance
- Search functionality
- Purpose-built user experience

PRICING

- Subscription flexibility for freemium pricing and free/paid trials

**ON MARCH 10TH 2020, SLACK SAW CONCURRENT USERS PASS \$10 MILLION,
WHICH THEN JUMPED TO \$10.5 MILLION SIX DAYS LATER BEFORE
REACHING \$12.5 MILLION ON MARCH 25TH.**

— THE VERGE, 2020

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Compared to Microsoft Teams and Cisco Webex Teams, Slack doesn't tick all the boxes because it lags security, administration, and productivity tools. Despite its shortcomings, the one-stop-shop application has nevertheless been on top of the workspace market for many years now because there's plenty to love about it:



COMMUNICATION

Slack makes it easy to readily access information from anywhere at anytime because channels can be organized around anything (e.g. public, private, shared). A centralized, fully-searchable place, it enables users to quickly get to where they need to be.

INTEGRATIONS

Slack boosts efficiency because it works seamlessly with more than 1.500 apps, including MailChimp, Google Drive, Zendesk, Dropbox, GitHub, and other major social channels.

TEAM SPIRIT

Thanks to its rich, interactive, and intuitive user interface (UI), Slack creates an engaging remote work experience that builds corporate culture by fostering a sense of community, inclusion, and belonging.

PRICING

Slack offers different pricing options, including a free plan with unlimited private & public channels, 1:1 voice & video calls, file sharing, 10.000 searchable messages, up to 10 integrations, and personalized notifications.

FEATURES

Advanced search modifiers, document tracking, task automation, and sidebar customization are just a few of the extras that come with Slack.

PLATFORM SUPPORT

There's never a need for complicated installations, maintenance, or training because Slack is hosted on the cloud and supported by iOS, Android, Linux, and web.



KNOWLEDGE BASE

2.2a

If a team is working remotely, engaging with corporate knowledge should be made easy because transparency and free flow of information improve employee communication, collaboration, and productivity. That's why business leaders must think about knowledge management not just in terms of structure (e.g. centralized versus dispersed) but also with regard to access, restrictions, and relevance. To boost operational efficiency, they must establish a sound knowledge base that builds upon itself to coalesce into an archive that's accessible and practical.

IN A GLOBAL OFFICE SURVEY, 91% OF EMPLOYEES HAVE IDENTIFIED KNOWLEDGE SHARING AS ESSENTIAL OR IMPORTANT TO LEARNING IN THE WORKPLACE.

— MODERN WORKPLACE LEARNING, 2020

Each application listed here has one or multiple of the following quality attributes:

- FILE SHARING AND (RE-)VIEWING 1.**
- TEXT ANNOTATION AND IMAGE MARKUP 2.**
- AUTOMATIC FILE BACKUP, STORAGE & SYNCHRONIZATION 3.**

Key considerations:

- EASE OF USAGE 1.**
- FAST SYNCHING 2.**
- GENEROUS FILE SIZE 3.**
- TRANSFER SIZE LIMITS 4.**
- SECURITY AND FILE ACCESS CONTROL 5.**
- INTEGRATIONS WITH THIRD-PARTY APPS AND CRM/ITSEM TOOLS 6.**
(E.G. SALESFORCE, ZENDESK, SERVICENOW)
- PRICING 7.**
- AVAILABILITY 8.**
(IOS, ANDROID, WINDOWS, LINUX, WEB)



OneDrive



Google Drive



Dropbox



iCloud Drive



Citrix ShareFile



WeTransfer

PROJECT MANAGEMENT

2.2b

To make sure that remote projects are progressing at the right pace, companies must facilitate the breakdown, allocation and supervision of workloads. This is why project management applications are such essential tools, as they provide employees with a detailed overview of what's being worked on, who's working on what, and where something is in a process. Being transparent about the avenues through which a particular course of action is being pursued will not only get the workforce on the same page but also create a little healthy competition that boosts productivity.

ORGANIZATIONS THAT USE PROVEN PROJECT MANAGEMENT PRACTICES WASTE 28X LESS MONEY THAN THEIR COUNTERPARTS.

— CIO, 2019

Each application listed here has one or multiple of the following quality attributes:

- WORKFLOW CREATION 1.**
- TIME TRACKING 2.**
- EXTRA FEATURES 3.**
(E.G. MILESTONES, GANTT CHARTS, KANBAN BOARDS,
STATUS UPDATES, INVOICING, BUDGETING, REPORTS)

Key considerations:

- USER-CENTRIC DASHBOARD 1.**
- TASK MANAGEMENT TOOLS 2.**
- REAL-TIME REPORTING 3.**
- CUSTOMIZATION 4.**
- FILE SHARING 5.**
- INTEGRATIONS WITH THIRD-PARTY APPS 6.**
- PRICING 7.**
- AVAILABILITY 8.**
(IOS, ANDROID, WINDOWS, LINUX, WEB)



Asana



Monday



Wrike



Smartsheet



Jira



Trello

No matter the company size, communication is at the heart of a team's culture — especially when remote. That's why companies must use methods of transmission that are reliable, rapid, and simple to use. Besides conference calls, e-mails, and text messages, they need to implement team chat applications because virtual forms of interaction (e.g. "water cooler" chat rooms) help overcome common challenges like information silos, thus boosting organizational performance. To set a tone of productivity and accountability, employers have to find effective ways of bridging the communication gap with remote workers.

4 IN 5 EMPLOYEES BELIEVE THAT EFFECTIVE INTERNAL BUSINESS COMMUNICATIONS HELPS THEIR JOB PERFORMANCE. HOWEVER, AN AVERAGE EMPLOYEE SPENDS 2.5 HOURS EVERY DAY SEARCHING FOR INFORMATION NEEDED.

— SMARP, 2020

TIPS:

1. SEGMENT COMMUNICATION WITH DEFAULT CHANNELS
2. TOUCH BASE REGULARLY
3. CREATE AN AGENDA FOR EVERY MEETING
4. CLUMP TOGETHER INFORMATION
5. SET EXPECTATIONS THAT IT'S OK TO BE UNAVAILABLE

Each application listed here has one or multiple of the following quality attributes:

- STORAGE SPACE FOR FILE SHARING 1.**
- INDIVIDUAL, GROUP & COMPANY-WIDE CHAT STREAMS 2.**
- SCOREBOARDS & REPORT CREATION 3.**

Key considerations:

- EASY ACCESS 1.**
- FILTERING FEATURES 2.**
- HIGH-QUALITY AUDIO AND VIDEO 3.**
- SCREEN SHARING 4.**
- COLLABORATION FEATURES 5.**
- INTEGRATIONS WITH THIRD-PARTY APPS 6.**
- PRICING 7.**
- AVAILABILITY 8.**
(IOS, ANDROID, WINDOWS, LINUX, WEB)

ASYNCHRONOUS (FLEXIBLE ACROSS TIME)



Twist



Basecamp



Mattermost

SYNCHRONOUS (REAL-TIME)



Zoom



Telegram



Google Hangouts



Skype

COLLABORATION

2.2d

With remote teams, traditional in-person collaboration activities like brainstorming, mind mapping, and problem-solving using whiteboards, sticky notes, and mockups are not available. But having a dedicated place to scribble ideas and jot down thoughts is crucial for business success because it fosters creative thinking, thus helping teams land on the perfect idea. To invest a project with the passion necessary to bring it to fruition, companies should make use of virtual collaboration tools that mimic in-office interaction from ideas to outlines. Using whiteboards, content maps, and sketchboards, employees can, for example, organize ideas, visualize workflows, and map customer experiences. Such collective practices will make the remote working experience more engaging, enjoyable, and productive.

**THE ONLINE COLLABORATION MARKET IS SET TO GROW TO
\$50.86 BILLION BY 2023.**

— MARKETS & MARKETS, 2020

Each application listed here has one or multiple of the following quality attributes:

- UNLIMITED CANVAS 1.**
- REAL-TIME SCREEN SHARING 2.**
- FILE SHARING AND TRANSFER 3.**
- ANNOTATION FEATURES 4.**

Key considerations:

- SIMPLE USER INTERFACE (UI) 1.**
- VISUAL SEARCH FEATURES 2.**
- EASY ONBOARDING 3.**
- DESIGN COLLABORATION 4.**
- CUSTOMIZATION 5.**
- INTEGRATIONS WITH THIRD-PARTY APPS 6.**
- PRICING 7.**
- AVAILABILITY 8.**
(IOS, ANDROID, WINDOWS, LINUX, WEB)



Mural



Miro



Limnu



Mindmeister



Conceptboard

Keeping remote employees together in spite of distance requires fostering a sense of belonging from afar. To overcome physical distance and the resulting gaps in values and trust, companies must create a supportive virtual environment that makes employees feel less isolated and more valued. A great way to do so is by building an events calendar with virtual games and activities (e.g. icebreakers, book club, trivia, scavenger hunt, happy hour) because “water coolers” and serious play help break down barriers, enabling teams to open up and speak more freely. Thanks to VR, employees can even attend meet-ups, live shows, and other social events together with real people in immersive reality. Other digital options for improving work relationships and organizational engagement include all-in-one employee apps and peer-to-peer recognition hubs that feed rapport.

LONELINESS AND A BAD WORK-LIFE BALANCE ARE REPORTED AS THE TOP ISSUE FOR 38% BY THE REMOTE WORKFORCE.

— STATE OF REMOTE WORK, 2020

Each application listed here has one or multiple of the following functionalities:

- TEAM-BUILDING ACTIVITIES 1.**
- FEEDBACK MANAGEMENT AND REWARDS 2.**
- MULTI-USER 3D SPACES 3.**

Key considerations:

- FOOLPROOF 1.**
- CUSTOMIZATION 2.**
- FUN LEVEL 3.**
- INTERACTIVITY 4.**
- ADDITIONAL FEATURES 5.**
- INTEGRATIONS WITH THIRD-PARTY APPS 6.**
- PRICING 7.**
- AVAILABILITY 8.**
(IOS, ANDROID, WINDOWS, LINUX, WEB)

VIRTUAL



Kudos



Connecteam



Let's Room

IMMERSIVE



Yoop eSpace



MozillaHubs



AltspaceVR

PRODUCTIVITY



Loop



Focus@Will



Noisli

TIME MANAGEMENT



Rescue Time



Focus Booster



Toggl

NOTE-TAKING



Todoist



Remember the Milk



Evernote

WORKFLOW AUTOMATION



Zapier

PASSWORD MANAGEMENT



1Password

BUSINESS SPEND



Coupa

EXTENDED REALITY: A SNAPSHOT

2.3

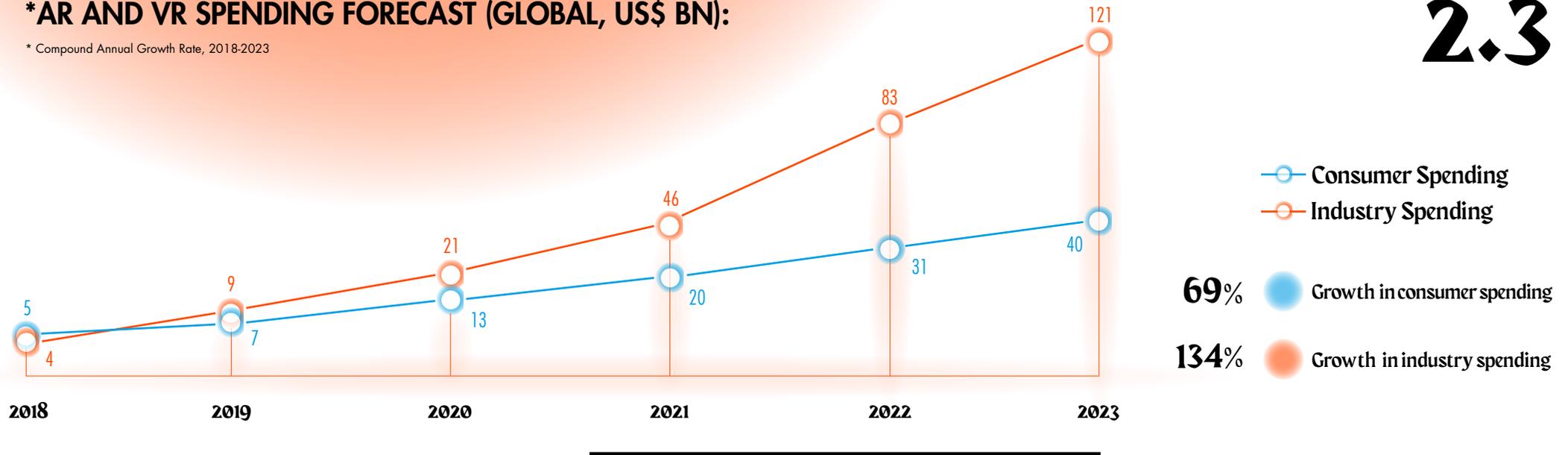
Exponential technologies, also known as extended reality (XR), are fast transforming the way we work, learn, and play. Indeed, the not-so-quiet tech revolution is already happening all around us, with uses of augmented reality (AR) and virtual reality (VR) broadening and deepening as companies begin to realize their full potential (Accenture, 2019). As such, not just tech giants and large corporations but also start-ups (e.g. Magic Leap) now have the opportunity to become some of the most valuable business players in the world. And let's not forget China, once the sleeping giant, now a leader in global innovation, boasting 940 million Internet users, while the US *only* counts 331 million citizens (Statistica, 2020). Besides 5G, key factors that will inhibit or accelerate XR technology-enabled lifestyles include population size and distribution, physical geographic constraints, and affordability (Accenture, 2019).

THE GLOBAL AUGMENTED AND VIRTUAL REALITY MARKET WAS VALUED AT AROUND US\$26.7 BILLION IN 2018 AND IS EXPECTED TO REACH US\$814.7 BILLION BY 2025.

— ZION MARKET RESEARCH, 2019

*AR AND VR SPENDING FORECAST (GLOBAL, US\$ BN):

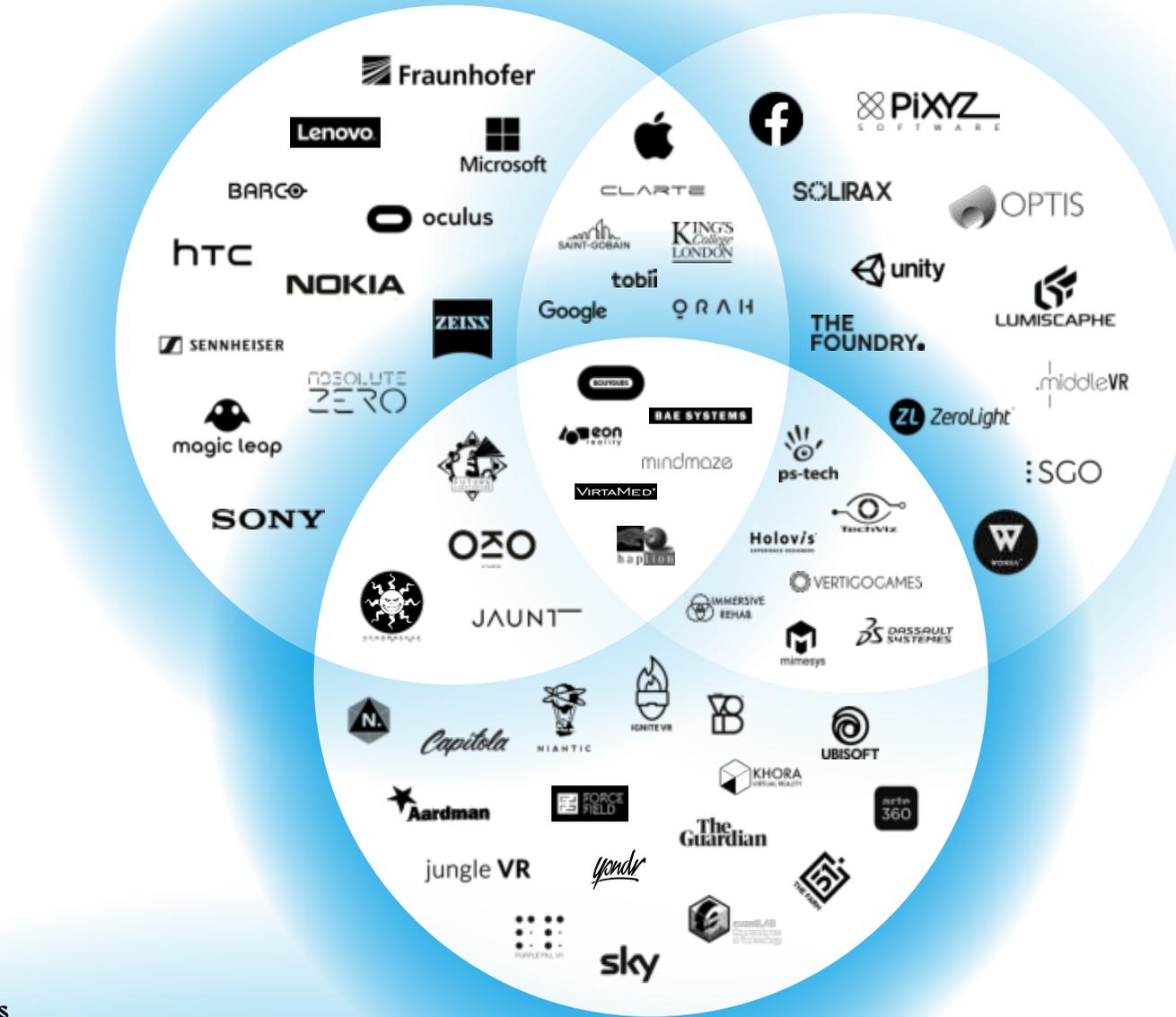
* Compound Annual Growth Rate, 2018-2023



2.3

Companies that fail to adopt XR in the coming years will be significantly disadvantaged in the long-run because AR/VR technologies are becoming an expansive force recasting long-standing value disciplines (e.g. operational excellence, product leadership, customer intimacy). By opening the door to entirely new user and business experiences, they will inspire the next generation of thinkers, creators, and dreamers to innovate and change the world. As such, business leaders looking to be globally competitive must ask themselves: How can XR boost employee productivity, create paths of continuous learning, and revive employment opportunities across a more diverse set of occupations?

- Software
- Hardware
- Content & Applications

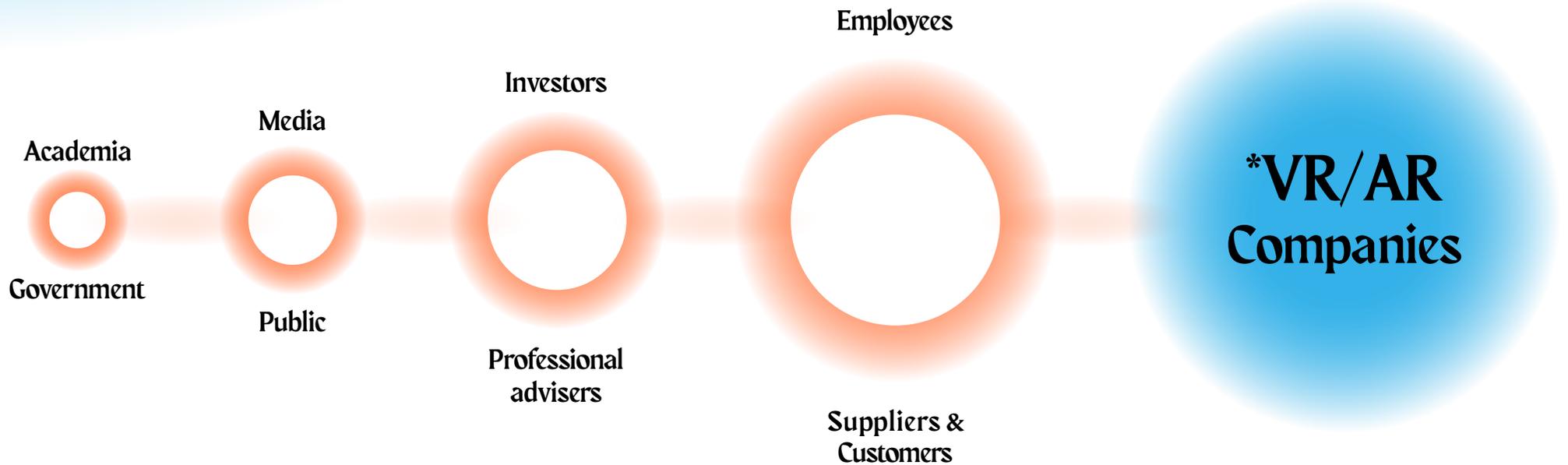


* The entities presented in this scheme are randomly selected examples only. Adapted from Ecorys, 2017

STAKEHOLDERS

2.3a

XR, unlike many other industries, has a large and diverse set of stakeholders: Customers, suppliers, employees, investors, and professional advisers, as well as the media, the public, academic institutions, researchers and the government all have varying degrees of influence over the future of VR/AR technology.



*PwC, 2018

COMMUNICATION & COLLABORATION 1.

VR applications like Spatial, MeetinVR, and Glue provide companies with a virtual human-to-human interface in a pseudo-office environment. The tangible sense of presence inherent to these travel-free 3D meeting rooms brings massive benefits in effective collaboration because employee interaction is made more intuitive. An additional advantage of simulated multi-user environments is that the efficacy of messages is enhanced through nonverbal communication cues (e.g. eye contact, facial expressions, body movements) which are transmitted through customizable, computer-generated avatars. The vivid experience of these seemingly physical digitized spaces empowers teams to work together effortlessly from anywhere.

DIGITAL ASSISTANCE 2.

Virtual personal assistants (VPAs), virtual customer assistants (VCAs), and virtual executive assistants (VEAs) increase employee engagement and intention by finding answers, solving tasks, and diagnosing problems. The best voice-activated assistants (e.g. Siri, Cortana, Google Assistant, Alexa for Business), chatbots (e.g. Aivo, BotXO, Watson Assistant, LivePerson), and AI-driven tools for interviewing (e.g. Montage, Beamery, Pomato, Hirevue) enable companies to accomplish seven key business goals: One-to-one conversation at scale; personalization; heightened engagement via push notifications; a cure for the brand app blues; revenue; efficiency and productivity; and ambient chat (Gregorian Partners, 2020). Whether companies manage Intranets, want to provide smart AI chatbots to their teams, or implement responsive apps — digital assistants improve productivity by simplifying everyday business tasks.

DESIGN & MANUFACTURING 3.

2.3b

By reducing error rates, simplifying processes, and enabling new techniques, XR can make a significant difference in terms of work speed and quality. For example, maintenance software allows engineers and technicians to access information in real-time, thus helping to quickly identify and solve problems on the factory floor (e.g. Boeing & Skylight). Additionally, augmented reality smart glasses have been identified as vital technology supporting shop-floor operations because they improve logistics through product detail display (e.g. DHL & Vuzix). As for design, emphasis is on cutting development time, reducing costs, and yielding better products with 3D reconstruction, data visualizations, and rapid prototyping. Here, some popular tools include Gravity Sketch, Mindesk, SketchUp, Unbound Alpha, MasterpieceVR, and SYMMETRY.

TRAINING & SIMULATION 4.

XR allows companies to multiply rather than waste financial resources because most employees learn more effectively when faced with simulated hands-on situations. That's why industries from retail (e.g. Walmart & STRIVR) to oil (e.g. BP & Igloo Vision), health care (e.g. Brown University & Osso VR), and manufacturing (e.g. PWO & xAssist) are using immersive tools to streamline training processes. The great thing is that employees can not only safely take part in a host of critical, stressful or hazardous training scenarios, from hard to soft skills, they can also acquire social skills and behaviors by partaking in meaningful virtual meetups. As the pace of digitization and automation accelerates the shift in required workforce skills, companies need to develop a more active, appealing, and accessible approach to training.

CUSTOMER EXPERIENCE & INTERACTIVE MARKETING 5.

2.3b

In today's marketplace, there seem to be no limits to where one can go when using XR. Already, travel, hospitality, leisure, and e-commerce companies are pushing imaginative boundaries through interactive samplings of products, services, and experiences. By immersing users in 360-degree environments as either witness or participant, they can not only tell engaging stories that reinforce corporate narratives but also improve customer engagement and breed brand loyalty. In the B2C world, use cases include product visualization (IKEA Place), product customization (The Nike Maker Experience), and customer service (Nespresso).

PROVIDING HEALTH & SAFETY 6.

Amid the current health crisis, XR enables companies to safely transition back to on-site work thanks to monitoring and tracking devices (e.g. Rombit, Estimote Inc, Outsight). Moreover, it has also proven beneficial for therapeutic purposes, particularly with regard to conditions such as anxiety, pain, and depression. The reason for this is that telehealth services (e.g. XRHealth), products (e.g. Cynergi VR), and programs (e.g. BehaVR) provide a richer quality of life than is otherwise available. What's more is that XR helps save lives by advancing medical efforts (e.g. SurgicalTheatre), surgery (Proximie), training (e.g. ARnatomy), physical therapy (e.g. Microsoft Kinex), and diagnosis (e.g. EyeDecide). From studying cancer in 3D to treatment for phobias and aiding recovery from injuries — the potential of immersive tools in healthcare is incredibly exciting.

6 RISKS TO GRAPPLE WITH

2.3c

DATA MISUSE 1.

XR relies on the collection of both personal data (e.g. location, social ties, verbal communication) and nonverbal behavior clues (e.g. posture, eye gaze, gestures, facial expressions, interpersonal distance) as a way to customize content. But, although immensely engaging, the highly targeted, hyper-personalized experiences come at a cost — the right of access and/or use to personal data. To mitigate risks, robust security measures as well as ongoing monitoring and compliance programs must be implemented.

[ADVERTISING, MARKETING, SALES, NEWS, ENTERTAINMENT, POLITICAL CAMPAIGNING, ETC.] COMPANIES TEST DIFFERENT FEATURES OF A PRODUCT AND ITERATE TO THE POINT THAT IS MAXIMALLY DIFFICULT TO AVOID.

— CUSHMAN & WAKEFIELD, 2020

WHO DOES *WHAT* WITH OUR DATA?

FAKE EXPERIENCES 2.

2.3c

As XR is increasingly coming to resemble natural reality on a sensory and visual level, the virtual and the analog world might one day become indistinguishable. In the age of filter bubbles, deep fakes, and alternative facts, the possible implications could be tragic because a decreased ability to discern true from false goes hand in hand with increased levels of bias and polarization. If AR/VR worlds succeed in undermining reality, this will have devastating, corrosive effects upon personal freedom and democracy.

**“THERE’S SO MANY DIFFERENT WORLDS SO MANY DIFFERENT
SUNS AND WE HAVE JUST ONE WORLD BUT WE LIVE IN
DIFFERENT ONES”**

— MARK KNOPFLER, BROTHERS IN ARMS (1985)

**HOW HIGH IS THE SOCIAL COST OF TOO MUCH INFORMATION VERSUS
NOT ENOUGH KNOWLEDGE?**

CYBERSECURITY 3.

From encryption to access controls and asset management: XR provides cybercriminals with a myriad of new ways to access private information. Given the breadth of biometric data (e.g. iris scans, hand or face geometry, fingerprints) being collected and stored during VR/AR usage, issues around intellectual property, counterfeiting, and fraud will likely become more pervasive and worrisome in the future. To manage these risks and their ethical implications, companies must establish appropriate and legitimate practices concerning the protection of privacy.

61% OF ORGANIZATIONS HAVE EXPERIENCED AN IOT SECURITY INCIDENT.

— CSO ONLINE, 2020

WHERE IS OUR DATA AND HOW SECURE IS IT?

TECH ADDICTION 4.

2.3c

Thanks to its seductive lure, XR is always a temptation to overindulge in terms of frequency, intensity, and duration. But when taken to unhealthy extremes, AR/VR can lead to many psychological, social and physical health problems, including poorer response-inhibition and emotion regulation, impaired brain functioning and cognitive control, poorer working memory and decision-making, lower visual and auditory functioning, and a reward system deficiency (Nottingham Trent University, 2019). To maintain a healthy tech-life balance, companies must weigh XR-enabled states of pleasure or relaxation against potential harms on the basis of fact and scientific knowledge.

HUMAN AVERAGE ATTENTION SPANS HAVE DECLINED SIGNIFICANTLY IN THE 11 YEARS SINCE SMARTPHONES EXISTED AND ARE NOW LOWER THAN THAT OF A GOLDFISH.

— MICROSOFT, 2015

WHO CONTROLS THE POWER-OFF BUTTON?

ANTISOCIAL BEHAVIOUR 5.

2.3c

With the rise of avatars and virtual social networks, undesirable online behavior such as harassment, trolling, and sockpuppeting can creep into real-world behaviors more easily because the perpetration of bullying and victimization will, over time, be normalized through a lack of impulse control in online communities. To avoid the inherent dangers of 'digital nastiness', companies must not only educate and train employees but also tackle both hate crimes and illegal activities by imposing criminal liability upon bullying, breaches, and bystanders.

NEARLY 1 IN 5 PARENTS WORLDWIDE SAY THEIR CHILD HAS EXPERIENCED CYBERBULLYING.

— IPSOS, 2018

HOW DO WE PUT THE 'GOLDEN RULE' INTO PRACTICE IN VIRTUAL ENVIRONMENTS?

A PARALLEL UNIVERSE 6.

XR-induced motion sickness is not the only problem caused by transitioning and readjusting from the virtual world to reality and back. As regards employees, research studies have detected an inability to “disconnect” during leisure time. This can result in negative consequences like higher stress levels, poor decision making, and reduced productivity. Apart from digital fatigue, another pressing issue is the evergrowing gap in access to modern information and communications technology between the privileged members of society and the underprivileged portion of the population. To tackle exclusion and socioeconomic inequality, the digital divide must be bridged through e.g. telecommunications infrastructure, global partnerships, and educational programs.

**“AS TERRIFYING AND PAINFUL AS REALITY CAN BE, IT’S ALSO
THE ONLY PLACE WHERE YOU CAN FIND TRUE HAPPINESS.
BECAUSE REALITY IS REAL”**

— JAMMES HALLIDAY (‘READY PLAYER ONE’)

**HOW DO WE TACKLE CULTURAL COLLISION AND SOCIAL
FRAGMENTATION IN THE GLOBAL ECONOMY?**

03

THE NEXT 25 YEARS?

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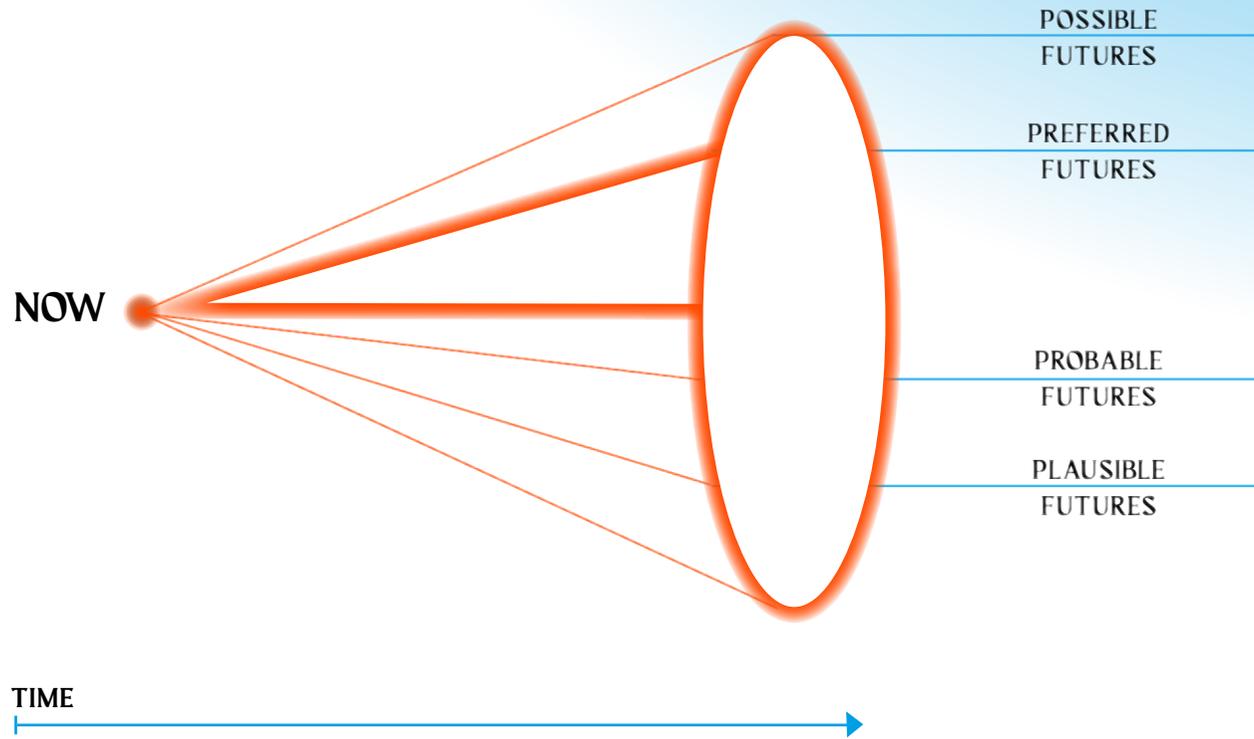
THE POSSIBLE, THE PROBABLE, AND THE PREFERABLE

3.1

Not knowing what to expect in times of transition makes it hard to plan for the future. But, when the cost and risk of staying neutral are too high, it's important to remember that an active stance is much more productive than a passive stance. In the early stages of a coming digital renaissance, retrospective investigation should be treated as a nice extra, not a strategic imperative because it reveals what went wrong rather than what ought to be done. To make challenging decisions in real time, business leaders must create a set of guiding objectives and principles linking their company's future to the present day.

**"TO SEE WHAT IS IN FRONT OF ONE'S NOSE NEEDS A
CONSTANT STRUGGLE"**

– GEORGE ORWELL, NOVELIST



*"Future Cone" (Voros, 2003), Digital Freedom Fund

To help shape *preferable* business outcomes, we've explored the future of work with regard to what's *possible* and what's *probable*. Although we can't identify which outcome will actually come to pass, our three scenarios may be suitable to establish potential impacts as well as a mix of immediate action and longer-term strategic initiatives.

MY OFFICE IS A CYBERSPACE

3.2

In a super-smart society, we will be always on and connected no matter what. As a result, physical and digital worlds will blur until disturbingly indistinguishable. To master the balancing act that exists between technology and people, companies must define a linking bridge that harnesses the best of both worlds. By combining cutting-edge technology with analog or non-digital expertise and best practices, business leaders can create highly supportive working environments that complement and augment rather than replace human capabilities. A critical requirement for achieving high hybridization efficiency and reliable productivity is the adoption and effective usage of smart furniture that leverages advanced networking technologies in conjunction with AI-powered analytics to anticipate employee's needs. Besides creating user-centric office spaces, companies have to place digital maturity and cyber resilience on top of their business agendas to ensure socioeconomic stability and prosperity.

“GOOD INTENTIONS DON'T WORK, BUT MECHANISMS DO”

— JEFF BEZOS, CEO AMAZON

COMPANIES THAT STRATEGICALLY COMBINE THE OLD (ANALOG) AND THE NEW (DIGITAL) TO HARNESS THE UNIQUE CAPABILITIES OF HUMANS AND DIGITAL TECHNOLOGIES WILL BE THE WINNERS OF TOMORROW.

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MY OFFICE IS A HYBRID SPACE

3.3

As the boundaries between the personal and the professional life become ever more blurred, work-life integration will get and keep the center of attention while work-life balance struggles to keep up. With fewer commutes, more employees will gravitate from high-density urban areas to rural settings where there's a higher quality of life. This de-urbanization will put an end to city monopoly and make large-scale office spaces like high-rise buildings less attractive for companies, thus resulting in reduced corporate footprints. Instead, both structural diversity and functional versatility (e.g. modular furniture systems, mixed-use concepts, pop-up & on-demand real estate) will embark on a period of sustained expansion because flexible consumption and freedom of choice will be most in demand. To empower employees with compelling spaces that they can choose to adapt at their convenience, the impetus for spatial innovation must be bottom-up, not top-down.

"IT'S ABOUT STARTING WITH THE CUSTOMER INSTEAD OF THE PRODUCT. IT'S ABOUT ESTABLISHING ONGOING RELATIONSHIPS. IT'S ABOUT FLIPPING THE SCRIPT"

— TIEN TZUO, CEO AND FOUNDER OF ZUORA INC.

**COMPANIES THAT INTEGRATE LIFE'S FOUR MAJOR DOMAINS — WORK, HOME, COMMUNITY,
PRIVATE SELF — TO MOVE FROM SILOS TO SYNERGIES BETWEEN WILL BE THE WINNERS
OF TOMORROW.**

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MY OFFICE IS A GREAT GOOD SPACE

3.4

For every trend, there's a countertrend that capitalizes on opposing force vulnerabilities. In the case of digital business transformation, a decline in place attachment will be the Achilles heel to the success of companies because technology dilutes the glue binding us to a particular location and the people who frequent it. To generate social capital through participation in local settings, business leaders must build visionary environments that materialize corporate culture and give meaning to people in an otherwise chaotic and unpredictable world. As such, the office needs to feel both ambient and more human than it does now. If there's an energetic buzz in the air, employees can not only refuel and recharge but also reenergize others in their organizational networks. This will facilitate interpersonal relationship-building and the cultivation of trust among peers, which in turn supports high-performance teams.

"THE OFFICE WILL BE PURPOSELY DESIGNED TO BE MORE THAN JUST A WORKPLACE. IT WILL BE A COMMUNITY PLACE, A CULTURAL PLACE, A PLACE OF LEARNING"

— MELISSA SHELTON, PRESIDENT OF VITRA'S NORTH AMERICAN OPERATIONS

**COMPANIES THAT ARE HOOKED ON HERITAGE — DESIGNED AROUND THE AUTHENTIC TRAITS
AND NEEDS OF AN ORGANIZATION — WILL BE THE WINNERS OF TOMORROW.**

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Given all the global forces at play, it's impossible to predict which if any of the scenarios outlined above may occur at some point in the future. But, while we may not be able to define the trajectory of work life, we certainly have no shortage of trends that are relatively certain to play out over time. Therefore, companies should focus on managing preventable risks and capitalizing on the many emerging business opportunities inherent in each scenario. If business leaders and policymakers direct their attention and resources towards making desirable futures happen, they can rise to the different challenges presented by digital business transformation and figure out the optimal way of implementing remote work.

Regardless of the path we travel down, a recognition of the existence of different perspectives on the future of work may enhance global resilience by stimulating diversification across industries. No doubt, the solution to global change, that is economic globalization and climate change, doesn't lie in *more of the same*. What we need instead is new vision and direction for virtual and analog office environments as well as strong leadership and a supportive corporate culture, which empowers employees to make strategic decisions that foster radical innovation. To reduce socioeconomic inequality among countries and populations, a more holistic, integrative, and frugality-based approach to the use and development of digital and exponential technologies is urgently needed. Together we ensure good work, come what may.

**"IF YOU HAD A BLANK PAGE AND WERE STARTING THE BUSINESS AGAIN,
WHAT WOULD YOU NEED TO ADJUST AND WHAT WOULD BE
THE GAME FOR THE FUTURE?"**

— ELIZABETH STEWART, PARTNER AND HEAD OF EXECUTIVE ASSESSMENT AND DEVELOPMENT AT ODGERS BERNDTSON

OUTRO

All content presented in this document on “Mapping the Universe of Remote Work” is part of a research project by Merit Zimmermann, writer/curator, and Raphael Gielgen from Vitra AG. The idea was born out of collaboration as the world began to emerge from lockdown in July 2020. A special thanks to Michael Stoz from Partner AG.

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