ESG and Digitization in the Office Market

Market Report
February, 2022

There is no Planet B!

workcloud 24

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Introduction - ESG and Digitization - From nice to have to must have

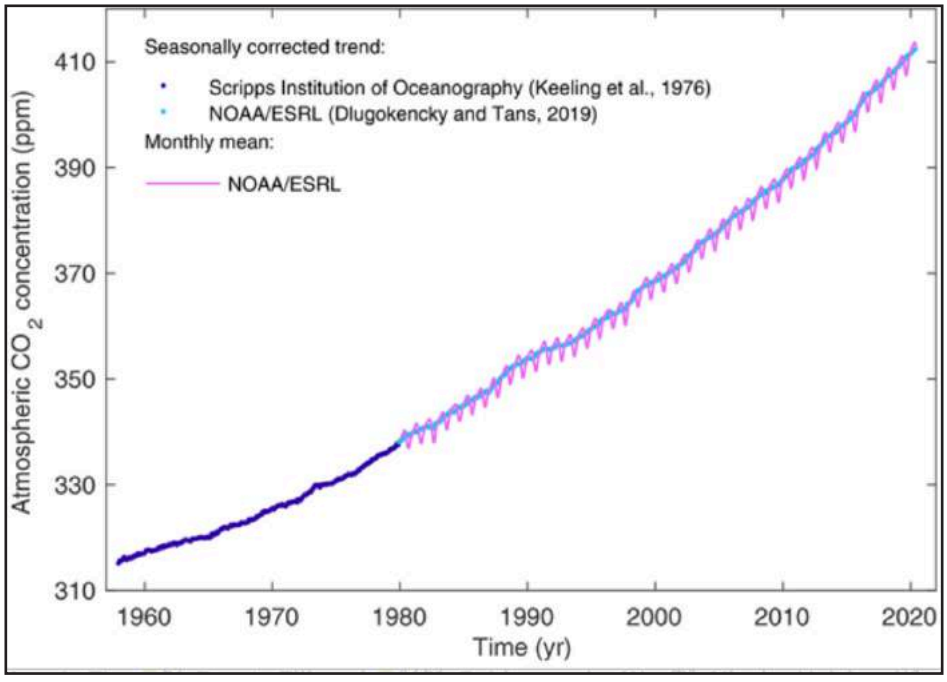
ESG has moved to the top of the agenda in the industry.

Out of the 51.000.000.000 tons (51 Giga tons) of mankind produced pollution per year, real estate causes approximately 39 % of the total global emissions.

The phenomenon of carbon emission is not new. However, we are slowly reaching a tipping point from where damage is evident to the next generations and maybe from where there is no return.

To set this in perspective, already in 2018 air pollution, caused by the burning of fossil fuels such as coal and oil, was responsible for 8.7M deaths globally while COVID-19 caused 5mio deaths in total.

When Dennis Meadows recently gave an interview on his theses about “The Limits of Growth” which were published 50 years ago, he said: “It´s not the survival of the planet we are talking about, it´s about the survival of civilization.”



The timeline is supported by a lot of initiatives which raised interest at the time they were initiated but now does not seem to have too much long-term impact.

- In 1972 the Club of Rome published the thesis “The Limits to Growth”, where they predicted that we will run out of time in the next 100 years - since then 50 years have gone by and the message of study still holds up today!
- On 23 June 1988, James Hanson, a NASA scientist, disclosed the greenhouse effect and its link to global warming in front of the United States Congress.
- In 1992 the United Nations set up the Framework Convention on Climate Change, which 197 states have joined so far. Since then, 26 climate summits have been organized.

While all these events and initiatives are less effective to cause a turn-around in thinking, the capital market has made its choice already.

More and more investors are publishing their net-zero commitments.

And developers and asset managers in the real estate market will need to follow if they do not want to risk their valuation and performance.

In fact, the pressure from capital markets, supported by the public expectation, creates a transition risk for the industry as more than 90 % of the commercial buildings do not meet ESG standards today.

According to McKinsey, a study of a diversified equity portfolio found that absent mitigating actions, climate risks could reduce annual returns toward the end of the decade by as much as 40 % and DENEFF.org found out that the need for modernization to comply with such standards can lead in a discount of up to 30 % of the property value.

Already in 2015 Fürst / van de Wetering published in their study “How does environmental efficiency impact on the rents of commercial offices in UK?” the result of analyzing more than 19.000 lease transactions in UK. They came to the result that certified buildings achieve between 23 – 26 % higher rents while at the same time such buildings also report 8 % higher occupancy.

Tenants are demanding more sustainable buildings, as the awareness of their employees and stakeholders have risen. Soon most corporate tenants will only sign up for buildings complying with ESG Standards.

As a result, owners of real estate have a choice to make, either they play in the “green premium” or “grey discount” team.

On the bright side leading real-estate players will decarbonize their assets, attracting trillions of dollars of capital, that has been committed to net zero and consequently create new revenue sources related to the climate transition.

Building climate intelligence is central to value creation and strategic differentiation, while significant reductions in emissions associated with real estate can be achieved with positive economics through technologies that already exist.

We want to reflect on the current situation and find out how we can approach this challenge without risking the business.

Cost-effective upgrades can create meaningful change while also de-risking assets.

Budapest, 24th of February 2022

Hubert Abt
CEO and Founder

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Transition risks on ESG and digitization - Doing nothing is not an option (anymore)

The climate transition will affect both individual buildings and entire real-estate markets while some assets, because of their carbon footprint, location, or tenant composition will benefit from changes.

Much of the industry faces a transition risk which requires immediate action. It´s a question of dead or alive!

Some examples:

- In 2019 in New York City, the Urban Green Council found out that retrofitting all 50,000 buildings which are not reaching a certain “green” standard today, would create retrofit demand of up to $24.3 billion through 2030. While standard property valuation models generally do not account for the capital costs required to decarbonize a building, and investors and operators are often left with a major capital expenses or taxes that were not considered in the investment memo.

- In Calgary, the combination of oil price volatility and market- access issues (driven by climate change–related opposition to pipelines) has dramatically depressed revenues from some buildings. Vacancy rates in downtown Calgary reached about 30 %, a record high, as of January 2021. Investors exposed to the Calgary market have seen their asset values drop precipitously and are left trying to either hold on and hope for a reversal of fortunes or exit the assets and take a significant loss.

- A carbon-intensive building obviously faces regulatory, tenancy, investor, and other risks; over the long term, so does a building that exists in a carbon-intensive ecosystem. For example, a building supplied by a carbon-intensive energy grid, or a carbon-intensive transportation system is exposed to the transition risks of those systems as well. Unwelcome news for real estate in Poland, as those are exposed since 96% of the energy is produced by coal-fired power plants, while the same property in France has a completely different segmentation as 90 % of their energy comes from nuclear energy sources.

The below table gives an idea of carbon emission from different energy sources and consequently its impact on a carbon certificate for a building.

Wind energy	-	11g CO2 / KWh
Nuclear energy	-	12 g CO2 /KWh
Solar energy	-	27 g CO2 / KWh
Gas-fired powerplant	-	490 g CO2 / KWh
Coal-fired powerplant	-	820 g CO2 / KWh

All these changes add up to a historic relocation of capitol. This will change the structure of our economy and impact the value of single properties as well as entire markets.

Transparency and disclosure are fundamental to sustainable finance and ESG. That is why information gathering and reporting is the top priority of today.

However, disclosure is only useful when one can make sense of the information disclosed.

This is hampered by the divergence in ESG measurement practices as divergence in ratings is driven by three distinct measurement causes:

- divergence in scope
- divergence in indicators and
- divergence in aggregation rules.

First, divergence in scope refers to the situation where ratings or measurements are based on different sets of attributes, such as labor practices or lobbying activities. One rating agency may include both, another may include neither, causing ratings to diverge.

Secondly, divergence in indicators means that different rating firms use different indicators to measure the same attribute, such as labor practices, again leading to different scores.

Finally, divergence in aggregation rules appears when firms attribute different weights to attributes.

As these are all intertwined, it makes it difficult to interpret ratings and understand divergence in scores.

As for example Tesla, which was given a top ESG score by MSCI, ranking the company best in the global car industry. But simultaneously made the bottom of the FTSE's list and ended up somewhere in the middle on Sustainalytics ESG ranking. All acclaimed rating agencies, all with a different outcome.

An approach for a real estate company to overcome the transition risk could be as following:

- Commit to ESG and make it clear for the entire organization what are the objectives for the future to kick start a change of culture
- Develop a target on the strategic goals for the company or the particular asset to comply with ESG.
- Incorporate climate change risks into asset and portfolio valuations by building the analytical capabilities to understand both direct and indirect physical and transition risks and being able to follow up on milestones and KPI´s.
- Develop a budget and a glidepath for actions in question
- Digitize all properties which are subject of transformation towards ESG.
- Start to measure the utilization to lower the embedded and operational carbon and start monitoring energy consumption.
- Set goals and translate into an action plan for the single assets and portfolios to reduce the carbon emission.
- Identify the top 5 points on `S` from user perspective.
- Incorporate the user behavior and create new sources of value and revenue streams for investors, tenants, and communities.
- Report according to one of the common standards and disclose financial KPI`

Standards – IFRS and financial disclosures versus GRI and non-financial disclosures

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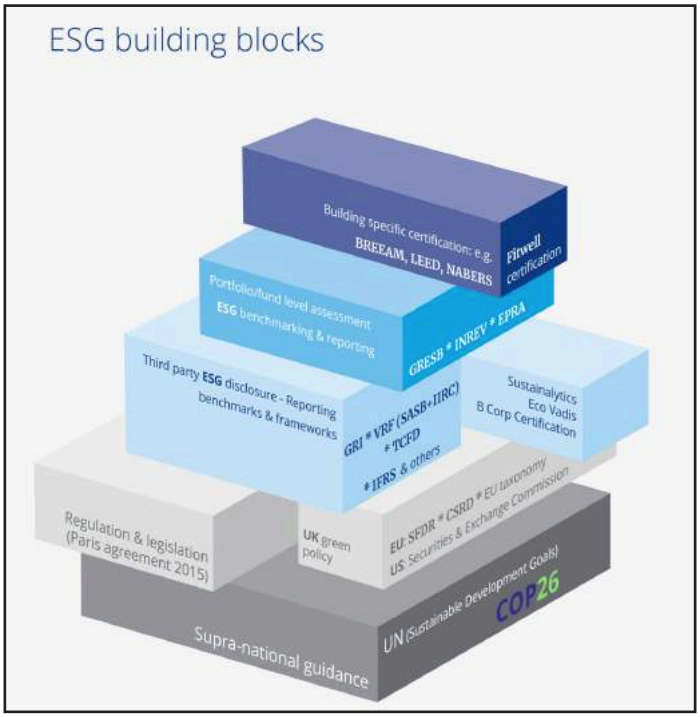
While it is relatively simple for a company to set ESG goals with their investments as they mainly need to generate positive, measurable social and environmental impact alongside a financial return, it gets complex the minute it needs to agree with which purpose the measurements should hold up to.

Financial disclosure & KPI´s are regulated in the International Financial Reporting Standards (IFRS) and can be transparently measured, there are multiple standards on real estate to disclose Non-Financial Disclosure & KPI´s.

On the contrary, when it comes to non-financial disclosers there are multi-level approaches from organizations on country and Industry level which are competing. A widely accepted standard is GRI Sustainability Reporting Standards, which are global standards for sustainability reporting by companies ranging from anti-corruption practices to biodiversity and emissions.

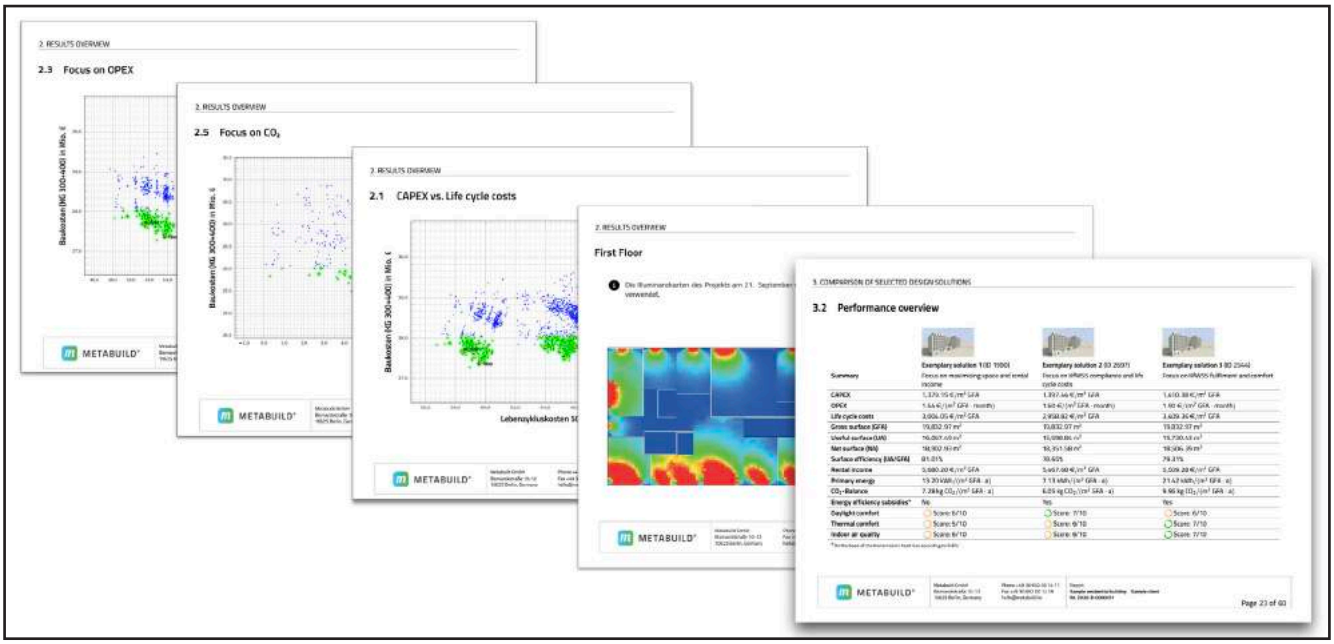


As of today, we see six main rating systems for real estate all focusing predominantly on ‘green’ buildings and environmental impact.

- Building Research Establishment Environmental Assessment Methodology (BREEAM),
- Leadership in Energy and Environmental Design (LEED),
- Comprehensive Assessment System for Built Environment Efficiency (CASBEE),
- Deutsche Gesellschaft für Nachhaltiges Bauen (DGNB),
- Haute Qualité Environnementale (HQETM),
- Sustainable Building Tool (SBTool)

While the current taxonomy is focusing exclusively on environmental goals, as energy and environmental impact has become a clear business case which is easily expressible in monetary values.

There are no specific regulations in place which can qualify as a social element. Environmental and energy optimizations seem to be the main drivers for the ESG evaluation of an investment.



Of course, all economic activities must comply with minimum international human and labor rights and standards to qualify as environmentally sustainable. But is this enough for a structured way to comply with ESG?

Analyses should encompass direct effects on assets as well as indirect effects on users.

At the end everything needs to be reported. To set up this process it is immanent to which standard and for which usage the report needs to comply.

This makes it tricky to decide which rating agency or measurement procedure is “the right one” however, the development of a house view on targets to achieve on business, investors, stakeholders, regulatory and other objectives seems to be immanent before any standard comes into play.

ESG compliance with digitization - How to start

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Software eats industries - and real estate is not the first, but one of the very last industries adapting to this trend.

Real-estate owners and investors will need to improve their climate intelligence to understand the potential impact of revenue, operating costs, capital costs, and capitalization rate on assets. This includes developing the analytical capabilities to consistently assess both physical and transition risks.

This exercise gets far easier for new projects where the team can simulate a digital twin from the start and hence knows exactly what the building consists of.

While an average European citizen is causing 8 tons of carbon emission per year, real estate is toxic.

- Running an office building takes up to 350 kwh/sqm/GLA/year of operational energy and to build one sqm of GLA you need up to 3.500 kwh on embedded energy.
- In Poland, where 96 % of the energy comes from coal-fired power plants, this leads to 2.8 tons embedded carbon while additional 0,28 tons per sqm per year of carbon is emissioned due to operation.
- With today's standard of 10 sqm/GLA per workstations this leads to 2.8 tons operational carbon due to operation ever year and massive 28 tons of embedded carbon per workstation.

You may sense already where this leads us. It´s crucial how efficient we use space and how much energy is needed to operate it. So, on the one hand it matters which technology for HVAC systems and lighting is built in, how it is monitored and on the other hand it matters how the space is utilized.

While on the operational side the problem can be overcome by using a smart software which lowers the energy consumption during the time the office is not occupied, the problem with the embedded carbon only can be solved by using as much CO2 neutral materials as possible when constructing or modernizing the building.

ESG is all about sufficient data points which are processed digitally.

Hence, it´s logic that every approach on ESG starts with digitization and a general check on the systems available to process data.

While on the operational carbon management there are plenty of software applications which support, measure and control energy, the available software on measuring and managing the embedded carbon are far less available.

We conducted a beauty contest with Unissu, which is a marketplace for prop-tech software houses and started a tender in December 2021 to find the right partner to calculate the embedded carbon on existing buildings.

Surprisingly out of the 800 prop-tech listed companies, only 5 made it on the long-list and only 2-3 are good for the purpose of measuring the embedded carbon without a preparation from the client side on a rocket science level.

The reason is simple, while almost all data on energy, water and waste for operation are available, it´s tricky to analyze the list of materials, its quantity and quality and origin on an already constructed building.

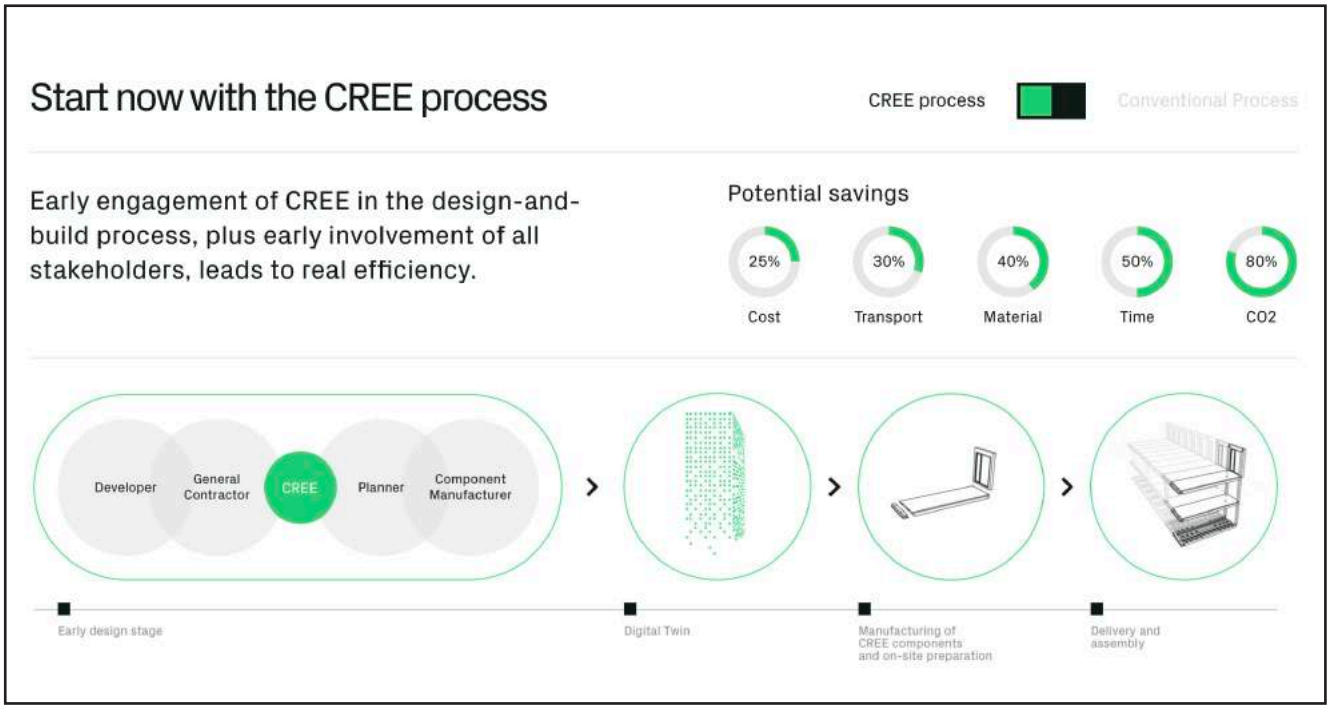
Hence, to build the intelligence on the landlord side it´s not only crucial to build the awareness by changing the culture in the company, but also to find the digital tools to support this process.

Besides this, The Science Based Targets initiative (SBTi) has an incredibly good grid to start with, while Mc Kinsey recommends following steps.

- Understand the starting point. Quantify baseline information of each building
- Set targets. Decide which category of the E, S & G is the most important and build project around
- Choose the right software which helps you to support the process and monitor the results
- Identify qualification levels. A marginal abatement cost curve provides a clear view of the potential cost/return on investment of a quality improving investment. This approach can be complemented with market and policy scenarios that change the relative costs and benefits of each potential abatement lever.
- Execute. Set up the mechanisms to effectively deploy the ESG plan. These may involve making changes to financing and governance, stakeholder engagement (investors, joint-venture partners, operators, and tenants), and a range of operational and risk-management aspects of the business.
- Track and improve. As investors, lenders, and tenants make their own ESG commitments, they will need to demonstrate that their targets are getting achieved.

Building the ability to monitor and progressively achieve the target levels with the support of software creates an opportunity for players to make the difference and transparently disclose the transformation.

Using a platform like CREE allows building a digital twin of the building before the first stone is moved and results in significant savings in costs, transport, material, time, and energy which plays well into ESG compliance.



Impact on leasing activities and utilization - Making the difference

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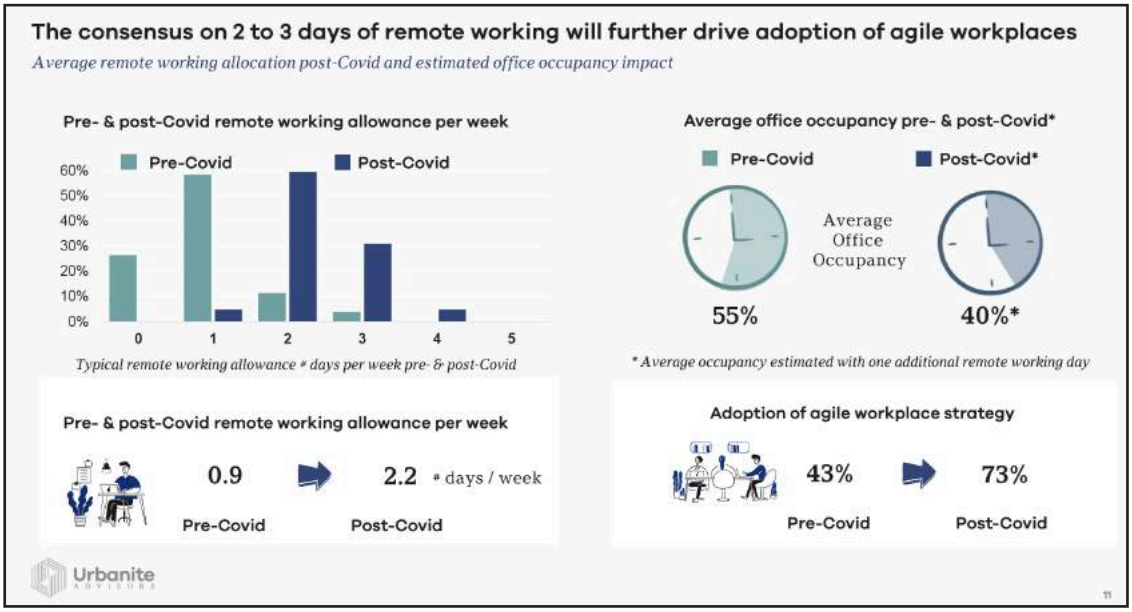
Knowing that sustainable, certified buildings achieve between 23 – 26 % higher rents while at the same time they also report 8 % higher occupancy, should be reason enough to deep dive into the possibilities on how we can create add value for a single building or a portfolio aligned with ESG Standards.

If there are up to 28 tons embedded carbon per workstation and only 2.8 tons per year on operational carbon the priority to reduce the carbon should come with the utilization.

By improving utilization by 30 % we can achieve savings of 8.4 tons for the ESG Compliance report, while it takes 10 years to come to the same result by improving operational carbon (which should not be used as an excuse not to do it).

In spring 2021 Urbanite Advisors reported on the utilization of offices Pre- and Post-Pandemic.



With only one additional remote working day the average occupancy decreases to 40 % and we all know about the leased but empty office buildings we have seen over the last 2 years when the utilization went down close to zero.

Coming back to the earlier mentioned Erste Campus in Vienna which was designed for 4.500 employees and now is frequently used by 7.000 employees is a nice example what can be done in this category.

But Erste Campus was already designed as an office building without offices and centralized functions like meeting and conference centers in the main entrance hall together with restaurants and hot desk areas available for all visitors.

How can we overcome this problem in existing buildings which are designed in the old traditional way with fixed offices and where the entrance hall is not multi-functional?

As everything on ESG starts with data points, we need to ensure that we measure the utilization of the space first.

Measurement can happen by sensors which are installed on each workstation or by using a space manager software.

By using a space manager software, the floor plan gets digitized, and all users have an application which allows them to book their workplace in advance, check-in, and check- out when they leave.

The administrator can then issue a report on the average utilization grade of the space, the peak loading times, and further can manage the hybrid workforce and hence influence the visits in the space, which has the effect that more people use the same space, and the utilization increases.

At New Work Offices we call it "Space in the Cloud" where the client using these services has exactly these advantages and at the same time saves a lot of money as the core space shrinks down to 50 % of the original demand.

Some examples:

- The mobile telephone company Verizon occupies a space which is good for 46 workstations but it´s used by 150 employees.
- Dealogic, a Software company, signed for 80 workstations while additional 80 employees signed up for the service.
- When Erste Bank, in Vienna developed their Campus in 2018 they planned 54.000 sqm of space which was good for 4.500 employees while today more than 7.000 employees are using the very same space with a simple space manager software.

This has a positive effect on the leasing activities as the leasing team can make add value propositions to new tenants signing in for the core space, and the fact that the product is fully digitized allows the marketing team a multi-level approach which is not in place with the common way of leasing office space.

Of course, this requires some additional investment from the landlord as space must be prepared for immediate use and daily operation, but at the same time the landlord is able to achieve a premium on revenues with a management-based leasing approach.

Once digitized, landlords can use their locations to create multiple revenue streams and improve asset values or launch entirely new businesses as for example.

- Local energy generation and storage.
- Developers can use their facilities to generate and store energy. Starting with solar systems up to power banks and small nuclear power reactors which the client can benefit from.
- Design a green environment, customized to tenants needs.
- Implementing corporate design creates corporate identify which helps to increase retention rate. Achieving green building standard with new or retrofitted increases not only efficiency but also occupancy as the appetite for sustainable workplaces is growing.
- Green-building materials and premanufactured elements.
- Exploring the advantages of green steel, tall timber, modular construction, and other emerging technologies have additional benefits, such as faster and lower-cost construction and can be used by the future clients for their own ESG reports. Hence, they are willing to pay premium.
- Extra services on-site.
- Companies can introduce new revenue streams, including vehicle charging, green-facilities management, and other on-site services that enable occupants' sustainable preferences.
- Services for reducing and tracking emissions.
- Landlords can support occupants by tracking emissions and offering solutions to reduce carbon footprints. These services could include smart sensors and tracking energy consumption through heating, cooling, lighting, and space management.
- Differentiated capital attraction.
- Given the volume of capital that has already been committed to achieving net zero, developers that are able to decarbonize will have an advantage in attracting capital. Real-estate players may, for example, create specific funds for net-zero buildings or investment themes that support community-scale decarbonization.

The user behavior – It´s all about indoor environmental quality (IEQ)

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While Improving ESG is predominantly seen as a matter of reducing the carbon footprint of buildings and making them ‘greener’, the environmental dimension and user behavior is often underexposed.

There is investment value in designing facilities that make users feel good.

Bringing the user back in the building requires trying to engage them into the concept and at the same time creating a unique experience.

Landlords who understand this approach can gain premium rents above market rents, creating additional revenue streams and building a relationship with the customer which increases retention rates.

This is to be perceived as a key element that is pertinently overlooked in ESG considerations. But the user in the building has an impact on the ESG rating of the building and its investment value.

The preliminary inclusion of users’ needs into the process by following a smart – user centered approach, will create add value and will make a transformation towards ESG even more successful.

The concept of user-wellbeing in buildings and social sustainability has an impact, not only on environmental sustainability, but also on user behavior.

Topics such as diet and water, movement, social well-being, and psychological well-being are less consistently addressed, but the health and economic benefits of drinking clean water and eating healthy food have a massive impact on user experience.

McArthur and Powell reviewed eleven global health-related rating systems and found that only four considered this in some regard (such as free and close access to water or nudges to increase water consumption), which seems like a missed opportunity.

It is interesting to note that the most prominent health factors included in rating systems were building-focused themes such as indoor air quality, thermal comfort, acoustics, and ergonomics.

From a social science perspective, the systems that do include social and psychological well-being focus predominantly on ‘biophilic’ design, which has been found to have significant health benefits including improved cognition, stress reduction and reduced mortality rates.

Garbage cans which measure littering and brightly colored stairs to discourage elevator use, have subconscious impact on well-being of tenants and once this is supported by a data-driven and personalized informational systems, like real-time feedback on water and energy use, it creates awareness on “occupant health” and “occupant well-being” while lifestyle choices also make up an important part of energy usage.

As Steven jobs once said: “Think the product backwards from the user’s perspective.”

Fridays For Future may not instantly come into a landlord’s mind as a relevant factor for an ESG rating, but by creating a workshop, what can be done to improve the indoor environmental quality and hence the users experience, will reveal the additional potential of a location or a space.

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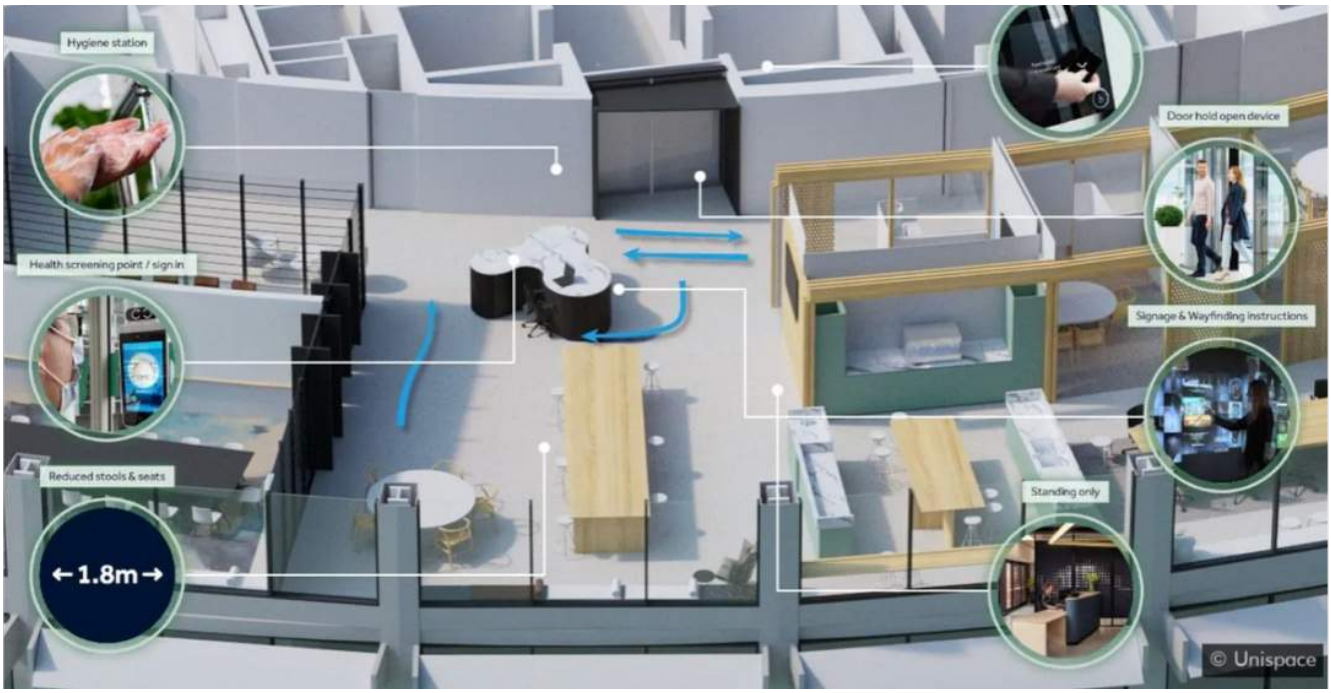
Outlook -
Sustainability as a broader concept

In its early days, environmental psychology was mainly concerned with the impact of the natural, and later built environment on humans' welfare. However, since the 1970's, the field has become increasingly focused on the interaction between humans and their environment.

The claim is that humans who develop a positive attitude towards the environment, will also experience higher levels of well-being.

Designing offices that protect users against environmental stress factors has a multi-level approach such as:

- Designers should communicate more with potential users for whom the environment is being built.
- The most basic natural elements should be incorporated in built spaces.



To improve the environmental and social sustainability of buildings, and as a result the investment value of a property, the user needs to be given a more central place in the building.

This can be done through a transition to smart office, which could be "A property which key features are user-centeredness, sustainability and the use of innovative and disruptive technologies in such a way as to attain holistic benefits that are otherwise not attainable."

Key in this definition is the user-centeredness, which is demarcated as a necessity for smart real estate. 'Smart' is not just about incorporating disruptive technology in design but using technology to serve the user and elicit behavioral change.

Or another definition from Vantage Circle, "A Smart office is a high-tech hybrid workplace with a human touch. Designed to improve the overall office space with the best management tools, they make employees work smarter, better, and faster."

According to McArthur and Powell, in general user satisfaction can be improved through technology on three levels: physical, functional, and psychological.

- Physical satisfaction includes the physically tangible topics, such as temperature, lighting, and air quality, which can be optimized, automated, and tailored through technology.
- Technology can also be used to improve functional satisfaction, by facilitating users' interactions with the built environment through the intelligent design of space and technology.
- Finally, the smart integration of technology and space with users' everyday lives can support and enhance their lifestyle and needs on a psychological level.

Key disruptive technologies, known as the 'Big9', are the use of clouds, software, big data, IoT, drones, 3D scanning, wearable tech and gadgets, VR, AR and AI and robotics.

Despite its potential to revolutionize the way the built environment interacts with users, in Europe smart real estate has not reached the mainstream of real estate yet, while in US the market is already significant and the product, or better its idea, will spread globally fast.

According to a market report from Grand View Research Inc. from September 2020 the global market size is projected to hit USD 57.05 billion by 2025. It is also expected to generate a 13.2% CAGR during the projected period (from 2017 to 2025.)

Though technology is increasingly used to improve user satisfaction on the physical and perhaps functional level, the true integration between user and building through technology has not yet been achieved.

Smart real estate is about user experience, and smart real estate experience will do well with computers but technology, though disruptive in its effects, should have a quiet material presence in the background, without drawing too much attention.

Users should not be disturbed by technology but immersed in it.

This way, the physical boundaries of space can be overcome, and smart real estate can accommodate Space as a Service where the possibilities are endless, and all the user's needs (physical, functional, and psychological) can be met.

The value of real estate is no longer simply determined by square meter footage or cost per year, but additionally by the digital 'flow' a building can produce. Differences in ability to produce flow are likely to become a key value indicator for future real estate. Not in the least through its effect on ESG factors when performing an investment analysis.

Making real estate user centered, and thus a consumer product, will lead to a hedonic pricing.

About workcloud24

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At workcloud24 we help real estate companies analyze and measure carbon emission as well as to utilize the office as a smart product to support the transformation of bricks-to- business with the use of technology.

As a spin-off of New Work Offices, we participate from years of operational experience in 4 countries in over 20 business centers with today more than 4.000 clients.

We believe that achieving climate goals by lowering carbon emission in real estate can only be done by digitizing space and properties.

Today the company is active with offices in 4 countries while the smart office platform of workcloud24 is available in all European countries.

Hubert Abt
CEO & Founder
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Hubert has been working in the real estate industry for over 35 years. He worked as a developer and later in the land banking sector providing equity and Mezzanine capital for various real estate projects across Europe.

He founded NEW WORK Offices in 2013 and developed the business into 5 countries and over 20 locations, until 2020 when the Pandemic set a stop and changed the game.

Hubert used this circumstance to transform “Space as on Office” towards “Space as a Service” which includes digital products like Space in the Cloud.

Convinced that the future is all about shared economy and digitization he incorporated workcloud24 Holding Zrt.

Hubert strongly believes that ESG is acting as the game changer and offering the opportunity to make the difference by creating a human-centric smart office.

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