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*Published in:*  
Intelligent Buildings International

*DOI:*  
[10.1080/17508975.2019.1678005](https://doi.org/10.1080/17508975.2019.1678005)

Published: 01/01/2019

*Document Version*  
Peer-reviewed accepted author manuscript, also known as Final accepted manuscript or Post-print

*Please cite the original version:*  
Danivska, V., Heywood, C., Christersson, M., Zhang, E., & Nenonen, S. (2019). Environmental and social sustainability—emergence of well-being in the built environment, assessment tools and real estate market implications. *Intelligent Buildings International*, 11(3-4), 212-226.  
<https://doi.org/10.1080/17508975.2019.1678005>

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## **Environmental and social sustainability – emergence of wellbeing in the built environment, assessment tools and real estate market implications**

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### **Abstract**

Sustainability discussions have been emphasizing social sustainability perspective in recent years. This has been visible in the built environment sector as well with innovations in sustainability assessment tools. Wellbeing has emerged as the new 'green' for buildings thought to reward occupiers, property owners, developers, and other concerned actors.

These new assessment tools such as WELL or Fitwel are seen as the next step of currently widely used 'traditional' sustainability tools such as LEED or BREEAM. However, a lack of knowledge globally about these tools, their compatibility and general adoption in the market due to the newness of the topic inspired this study. In the research, we aim at developing a deeper understanding of the wellbeing and social sustainability perspective as an innovation in relation to the built environment.

The study consists of a literature review on innovations and market adoption of innovations, a desktop study of sustainability and wellbeing rating tools and a qualitative interview data-based research on stakeholders' position regarding the WELL-certificate adoption in the market. Lastly, the conclusions are drawn based on the results of empirical and desktop study.

The results of this research benefit the scientific community by providing a better understanding of the wellbeing approach in the market and points out the areas of interest for further research. Practitioners can benefit from a deeper understanding of market adoption of wellbeing assessment tools and the development of sustainability concept in the built environment.

**Keywords:** health and wellbeing, social sustainability, market acceptance, building certification, assessment tools

**Article Classification:** Research article

**Funding:** Researchers thank Finnish Work Environment Fund, Foundation for Economic Education and Rakli ry fund for supporting the study and preparation of this research paper through personal and travel grants.

## Introduction

For a long time, sustainability in the built environment has mainly focused on aspects of environmental sustainability through energy performance and minimisation of environmental factors, so called 'green buildings' (e.g. Remoy 2018). However, the sustainability has long been defined in terms of economic, social and environment sustainability (Brundtland 1987). These three broad dimensions more recently have been further clarified in the 17 UN's Sustainable Development Goals (UN 2019).

In the built environment, this broader, multi-dimensional sustainability is seen in an emerging shift towards including places, people, ecology, culture, and climate, all aimed at the improved health and wellbeing of people (Cost Restore 2019). This has seen, in recent years, in both industry and academia discussions shift focus on building occupants. This is due to the fact that people spend up to 90% of the time indoor, thus, the potential effects coming from buildings that support social sustainability and health are significant (Ghodrat et al. 2012).

Assessments and certifications of built environment sustainability have reflected the past focus on 'green', environmental sustainability. This has led to the development, globally, of many of these in the past decades. Various tools were developed to gather, objectively measure and report information on building design, construction and use. Environmental sustainable construction and buildings can now be considered as common practice (Berardi 2011).

Often these environmental assessment tools have contained, at least, some attention to building occupants through things like Indoor Environmental Quality (IEQ). Indeed, one of the arguments for buildings that have high certification levels is that they provide better environments for the occupiers. However, though human-directed aspects like IEQ still originate in the 'hard', building services features of buildings.

The broader, more socially focussed sustainability concerns lead to increasing attention to health and wellbeing in buildings. This, in turn, led to the development of new assessment tools and methods emphasizing people's wellbeing. The Living Building Challenge (ILFI 2016, 2019), Fitwel (Fitwel 2018) or WELL (International WELL Building Institute 2019) certifications are just few examples. Although these assessment tools and methods are not yet widely spread, the discussion about wellbeing is emerging as an innovation in the real estate and construction fields. It is suggested that wellbeing is the new 'green' for real estate and providing a healthy and balanced environment is thought to reward not only occupiers but also property owners, developers, and other concerned actors (Heidari et al. 2016). The benefits and efforts also extend beyond the design and construction phases of a 'building' into the whole-of-life use and also into a building's interior parts which are increasingly being conceptualised as 'workplaces' in office buildings.

The newness of the topic as well as a lack of academic discussion on new-wellbeing-assessment tools inspired this paper. Thus, this research aims at increasing knowledge on the topic of healthy buildings and assessment tools as well as provide an overview of market acceptance of the new concept.

## Building assessment tools

Buildings have been a major concern regarding environmental sustainable development as they account for 25-45% of the world's energy use, 25-40% of carbon output and 20% consumption of water (World Economic Forum 2011, 2016). Increased attention to the sustainable building sector has also created a demand for environmental sustainability rating tools. The first building assessment tools appeared in markets as an innovation at the end of 20<sup>th</sup> century and aimed at optimizing energy performance and promoting energy efficient construction (LEED v1, BREEAM v1) for new construction projects. Since around year 2000, certificates appeared also for existing buildings.

As there is no single structure or single list of elements that stakeholders would agree upon regarding sustainable development, there are now more than 600 sustainability assessment systems available

worldwide (Saunders 2008). They also vary in terms of their aims and objectives. For example, some certifications are required in order to get an approval for constructing a building and showing that it complies with official requirements and addresses issues such as health and safety in construction. Other certificates aim more at presenting building's energy performance and improving it or assessing the design of the buildings (NABERS 2011).

- a. Energy performance and environmental sustainability as increasingly accepted practice

The amount of energy efficiency certified commercial buildings has been increasing around the globe. According to Ecorys (2014), there were around 24.4 million commercial buildings in EU27 in 2013 (and around 233 million residential and commercial buildings together). They predict that the number of certified commercial buildings will be doubling every five years, so the number of certified buildings will be four times higher in 2030 than the number in 2020 (Table 1).

Table 1. Estimated number of certified commercial buildings for 2020 and 2030

Estimated number of certifications	2013	2020	2030
Total commercial buildings (ODYSSEE)	24,409,970	26,525,704	29,548,181
Number of certified commercial buildings	9764	75518	290070
% share of certified commercial buildings	0,04%	0,27%	0,98%

Source: Ecorys (2014), ODYSSEE

The leading sustainability rating tools around the world are BREEAM (Building Research Establishment Environmental Assessment Method) with over 2 million buildings and 77 countries (BRE 2018) and LEED (Leadership in Energy and Environmental Design) with almost 100,000 commercial projects and 167 countries and territories (BRE 2018; USGBC 2018). Around 80% of the EU27 market of certified (new/refurbished and existing) commercial buildings belongs to BREEAM (Ecorys 2014). Other common certificates around Europe include DGNB (Deutsche Gesellschaft für Nachhaltiges Bauen) (DGNB 2017) and HQE (Haute Qualité Environnementale) and Green Star and NABERS (National Australian Built Environment Rating System) for Australia.

However, the adoption of sustainability certificates was slow. For example, worldwide, BREEAM had 305 registered projects in the year 2000, eight years after its start (BRE 2014). The certification of new commercial buildings started taking off since around 2010s as early adopters started making inroads in various property markets. For example, in Sweden, a number of certified projects reached 400 in 2012 while in 2008 there were no certified buildings at all (Ecorys 2014). Most of the buildings in Stockholm office market are LEED certified and by the end of 2016 there were around 12% certified buildings, compared to 1.2% in 2009 (CBRE, 2018). In Norway, first certifications appeared in 2013 and now almost 70% of Oslo's new office buildings are certified (WGBC, 2017). Poland has certified over 60% of modern office space too (Plebankiewicz et al. 2019). Experts believe that by 2020, around 75% of newly built commercial buildings will be certified also in Germany (Ecorys 2014). According to CBRE (2018), in Amsterdam, Netherlands, around 11% of office buildings were certified by LEED or BREEAM in 2016 compared to 0.1% in 2011.

Australia and USA have a bit lower total percentage of certified office space; however, the building stock is much bigger than in European countries. In Australia, Sydney leads by the number of certified spaces. Around 46% of office space in Sydney's CBD was certified under Green Star or NABERS by 2017, which is a significant change from 2006 when less than 1% of spaces were certified. Melbourne, in comparison, had almost 30% of office space in CBD certified by the end of 2016 (CBRE, 2018). CBRE (2018) reports similar trends in US markets. In 2017, there were almost 40% of certified commercial office space (LEED or Green Star), increasing from less than 5% in 2005 in 30 office markets.

## b. Sustainability focus shift in the built environment – social sustainability

Social sustainability historically had less attention than environmental and economic sustainability in global discussions. However, human-centric approach to urban environment suggests that social sustainability encompasses all human activities and every aspect of sustainability is social (James et al. 2015). Since 2012, when UN's framework for advancing environmental and social sustainability was published, more practices and tools are being developed to support both environmental and social sustainability. Moreover, sustainable development goals (UN 2019) also emphasize the health and wellbeing (Goal 3), industry, innovation and infrastructure (Goal 9) and sustainable cities and communities (Goal 11) which all translate to human-centric approach to the built environment.

Since the appearance of first sustainability assessment tools in the market, the concept of sustainability has developed to include not only the building's performance as an artefact but occupant performance as well (Horr et al. 2016). Research shows that environmental rating tools can help reduce energy and water consumption, greenhouse gas emissions as well as improve health and productivity of employees (for example, Poveda and Young 2015; NABERS 2011; Yudelso 2008; Durmus-Pedini and Ashuri 2010; Mateus and Bragança 2011; Reed et al. 2011; World Green Building Council 2013). Previous studies (for example, Loftness et al. 2003; NSR/IUCRC Center for Building Performance and Diagnostics at Carnegie Mellon University 2004) demonstrate that various building services-based sustainable practices, such as temperature control, improved lighting design or ventilation, can increase productivity from 0.4% to 36.6% and improve workers' health, happiness and satisfaction (WGBC 2013). Health and wellbeing at workplace have both direct and indirect effects on financial performance, corporate culture and organisations' profitability through things like reduced health insurance costs, increased productivity, and less of compensable disorders (Zhang 2017, Cooper and Cartwright 1994).

Social sustainability and human-centric approach has not only been a nice term used by various organisations for developing policies. The wellbeing of people in buildings is gaining market interest as well (Table 2). New wellbeing tools started to emerge with focus on occupants and their health and wellbeing inside buildings, compared to 'traditional' sustainability tools that emphasize energy performance and 'hard' building services. The most popular wellbeing certificate at the moment is WELL, which was presented into the market in 2014 by World Green Building Council. Other certifications include International Living Future Institute's Living Building Challenge (since 2006) and Fitwel (since 2012), launched by The Center for Active Design. They comprise of physical factors that have been identified in the academic literature affecting occupants' health and wellbeing and promote social sustainability practices, aiming at capturing other, more human, aspects of occupant's experiences. Physical factors, affecting health and wellbeing in buildings include indoor air quality and ventilation, thermal comfort, temperature and humidity, lightning and daylight, noise and acoustics, safety and security, office layout and look and feel, biophilia and views, and location and amenities (Horr et al. 2016; Ward 2018).

Table 2. Occupiers' interest in WELL-certified buildings (adapted from CBRE Research 2017)

Wellness affecting building selection	Percentage
No impact	28%
Marginal preference for WELL-certified buildings	39%
Strongly favour WELL-certified buildings	27%
Will only occupy WELL-certified buildings	6%

The adoption of new tools has been significant too. For example, since its launch in 2014, WELL certificate has been granted to over 220 buildings in total by September 2019 and there are over 3500 registered projects around the globe (International WELL Building Institute 2019). Compared to the

first years of LEED and BREEAM certification systems, the number of registered projects is more than ten times larger.

## Market adoption of innovations

The appearance of building certificates can be considered as an innovation in the built environment industry due to the need to compare and assess building's performance and suitability for occupiers' needs. However, these needs have been changing and health and wellbeing in the built environment has been gaining more attention. In terms of sustainability, this is also translated to increasing attention to social-human-part of it. Thus, new assessment tools can be considered as incremental innovation capable of serving those changed needs better.

The different pace of market adoption of innovations is influenced by multiple factors in internal and external environment that lead to the implementation of it and other aspects related to the adoption process (Berwick, 2003). According to Rogers (1962), innovation acceptance is affected by four elements: the innovation itself, communication channels, time, and a social system. The process of innovation diffusion and full market acceptance goes through multiple steps from awareness to full adoption (Rogers, 1995).

The rate and time of acceptance is affected by contextual factors such as socio-economic and demographic factors, organization or social system's support of innovation (Berwick 2003), and communication and marketing (e.g. Bulte 2000, Straub 2009; Tolba and Mourad 2011). Information from early adopters and opinion leaders seems to be a highly influential factor for creating a perception of an innovation in organisations and society, and influence organisation's decision-making process (Mahajan 2010; England and Stewart, 2007; Berwick 2003). Rogers (1983, 2003) identified five main attributes that are taken into consideration by potential adopters and make the change faster:

- relative advantage, referring to the balance between the risks and benefits that one receives;
- compatibility, meaning the compliance with values, past experience, and current needs;
- complexity of the innovation as perceived by potential adopters;
- trial-ability referring to the possibility of testing the innovation on a small scale; and
- observability as a possibility to watch others try the change first.

Construction industry is special in this case as it builds long-lasting products; moreover, the process from planning to building is very long. However, it is important to understand and identify other factors that might make the adoption faster. By understanding these factors one can adjust the strategies to overcome customer inertia.

## Methodology

This research follows exploratory study principles as it aims to gain more knowledge on change in sustainability understanding and increased attention to health and wellbeing in the built environment through discussion on building assessment tools. We first look at the most popular sustainability and wellbeing tools to get a general overview of content and then concentrate on market adoption of WELL-certificate as an example of adoption of new social sustainability-oriented tools. The aim of the study is to follow and understand the change and transformation of certifications. Thus, a qualitative approach to the problem seems most relevant (Creswell 2008).

The data collection and analysis was performed in two steps. First, a desktop study on the building assessment tools was done and used as a background for further data collection. Compared schemes are developed specifically for evaluating buildings during the occupation, for example BREEAM In-Use,

LEED Operation and Maintenance, Green Star Interiors, Living Building Challenge for existing buildings. Although some categories in these schemes (e.g. Water in BREEAM, WELL and Living Building Challenge) are called the same, features of those might be equivalent, aligned or not addressed at all. Thus, it is a challenge to compare these tools. We used crosswalks and each rating tools' scorecards to evaluate their alignment. It is important to note that none of the categories in all building certification tools are totally equivalent to each other. Some of the features might be equivalent while others can have similar objectives but differ, for example, on level of performance requirements.

Later, qualitative data was gathered through semi-structured in-depth interviews to generate a richer data set (Newton, 2010) and allow deeper analysis of results (Table 3). The selection of interviewees was based on their knowledge about the sustainability and wellbeing certifications. Researchers decided to approach consultancy firms' representatives who have a wider grasp of market knowledge in corresponding markets as well other experts if they were known to have the expertise on the topic. Interviewees work closely either with real estate owners and construction companies or with the occupier side. When possible, selection of WELL-Accredited Professionals (WELL AP) was made assuming that these interviewees have the deepest knowledge on the topic in the market. Interviews were done with Finnish and Australian consultants. Representatives of these two countries were chosen due to these countries being at the opposite ends regarding the number of projects registered for WELL certification. Australia was a second country after USA by the number of projects as of autumn 2017 and Finland had only two registered projects as of June 2018. With the update of September 2019, Australia stands 4<sup>th</sup> by the number of registered projects and Finland, with seven registered projects, is 25<sup>th</sup> out of around 50 countries who have at least one project registered in the system (International WELL Building Institute 2019).

Table 3. Description of interviews in the study

	1	2	3	4	5	6	7
Description	Commercial RE consultancy firm	Sustainability consultancy firm	RE consultancy firm	RE consultancy firm	RE service provider	Commercial RE consultancy firm	Commercial RE property group
Main customer groups	Occupiers	RE owners and construction companies	RE owners and constr. comp.	RE owners, investors, occupiers	RE owners and constr. company.	Occupiers	Property developers, investors, occupiers
WELL AP	-	Yes	Yes	-	Yes	-	-
Country	Finland	Finland	Finland	Finland	Finland	Australia	Australia

\*RE – real estate

Interviews were conducted during August-December 2017, June 2018 and August 2019. Some of the interviews were recorded and from others extensive notes were taken. Thematic content analysis was performed in order to understand the attributes of new sustainability tools that might fasten or slow down the process of innovation acceptance and adoption.

## Findings

### Development of sustainability certifications

The shift towards occupants and increasing importance of health and wellbeing in the built environment can be noticed from comparison of certification schemes throughout the time (Table 4). The development of sustainability tools towards occupants started in the early 2000s, when, e.g. LEED v2.0 (2000) added certification for existing buildings and promoted light pollution, alternative

transportation, metering, water use, and optimization of energy performance. LEED v3 (2008/2009) for existing buildings had more extensive occupant/user perspective, including measurements of indoor air quality, occupant comfort and sustainable business practices, for example purchasing. At the moment, a 4<sup>th</sup> version (since 2016) is available that includes daylight and quality views, thermal comfort, lighting or enhancing indoor air quality, besides traditional optimization of energy performance (Tufts 2016). Extensive update in standards was done also for all other assessment tools, including BREEAM already since 2008. New categories emphasizing occupier perspective such as biophilia and views, layouts, noise and acoustics appeared after 2010.

Table 4. Health and wellbeing factors included in certification schemes

	LEED v2	Leed O+ M v3	Leed O+M v4	BREEAM In-Use v1	BREEAM In-use v2	BREEAM In-Use	WELL v1	WELL v2	Fitwel v1	Fitwel v2	Living Building Challenge 1.3	Living Building Challenge 2.0	Living Building Challenge 3.0	Living Building Challenge 4.0
	2004	2009	2018	2008	2013	2015	2014	2018	2012	2018	2006	2009	2014	2019
Indoor air quality & Ventilation	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Lighting & Daylight	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Thermal comfort	x	x	x	x	x	x	x	x		x			x	x
Look & Feel			x			x	x	x	x	x	x	x	x	x
Location & Amenities	x	x	x	x	x	x	x	x	x	x			x	x
Noise & Acoustics			x	x	x	x	x	x	x	x				
Office layout			x	x			x	x	x	x			x	x
Biophilia & Views		x		x	x	x	x	x	x	x		x	x	x
Safety & security	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Table 5 has more in-depth comparison of recent versions of assessment tools, emphasizing the most aligned categories between different tools (in grey). The most aligned categories are *Indoor Air Quality and Ventilation*, *Lighting and Daylight* or *Water and Transportation* under *Location and Amenities*. These categories are based on ‘hard’ building services and orient towards requirements for safe and healthy buildings. The least aligned categories are based of soft-human-oriented services such as *Look and Feel*, *Amenities*, *Layout* and *Biophilia and Views*. For example, new assessment tools take into consideration accessibility of good food, the beauty of the building, layout that allows social interactions and is suitable for different needs of building users, ergonomic design, and social inclusion of different groups in the building. The human perspective is much stronger in new-wellbeing-tools and can be seen as an incremental innovation from sustainability assessment tools’ perspective.

Table 5. Sustainability and wellbeing rating tools in comparison to health and wellbeing affecting factors

Certificates						
Categories based on academic research	BREEAM In-use 2015	Green Star (Office Interiors) v1.2	LEED O+M v4	Living Building Challenge 4.0	WELL v1	Fitwel v2
Indoor air quality & Ventilation	Health & Wellbeing initiatives	Indoor Environment Quality	Indoor Environment Quality	Health & happiness	Air	Indoor environment



<b>Lighting &amp; Daylight</b>	Health & Wellbeing initiatives	Indoor Environment Quality	Indoor Environment Quality	Health & happiness	Light	Workspaces
<b>Thermal comfort</b>	Health & Wellbeing initiatives	Indoor Environment Quality	Indoor Environment Quality	Health & happiness	Comfort	Thermal comfort
<b>Look &amp; Feel</b>	Materials	Materials	Materials & Resources	Materials	Air	Outdoor spaces
	Health & Wellbeing initiatives	Indoor Environment quality	Energy & Atmosphere	Beauty	Mind	Vending machines & snack bars
				Equity	Nourishment	
<b>Location &amp; Amenities</b>	Water	Water	Water efficiency	Water	Water	Water supply
	Transport	Transport	Location & Transportation	Place	Fitness	Building access
	Health & Wellbeing initiatives	Management	Energy & Atmosphere	Equity	Nourishment	Location
		Energy				Entrances & Ground floor
		Land Use & Ecology				Emergency procedures
						Cafeterias & Prepared food retail
						Vending machines & snack bars
<b>Noise &amp; Acoustics</b>	Health & Wellbeing initiatives	Indoor Environment Quality	Indoor Environment Quality	<b>Not included</b>	Comfort	Indoor environment
<b>Office layout</b>	<b>Not included</b>	<b>Not included</b>	Indoor Environment Quality	Health & Happiness	Mind	Stairwells
					Fitness	Workspaces
						Shared spaces
<b>Biophilia &amp; Views</b>	Health & Wellbeing	Indoor Environment quality	<b>Not included</b>	Beauty	Mind	Outdoor spaces
				Health & happiness		Workspaces
	Categories include most of the features that are equivalent or partially aligned between certification tools					

### New assessment tools' adoption in the market

Social sustainability and wellbeing in the built environment are seeing an increasing interest from all stakeholders. However, the differences in the market adoption are quite significant. For example, in Finland, there is only a slight interest from developers and occupiers. The construction sector is

interested in hearing about the certification but is not yet ready to invest extra in their projects. From the occupier side, the interest is still weak.

*“if we talk about the tenants, they don’t know a thing about this – they are busy with other things.” (3)*

*“But I think it is not high on the list for smaller tenants or Finnish tenants.” (2)*

Literature on innovation adoption distinguishes socio-economic factors, social system and attributes of innovation itself as elements that might enhance the adoption of innovation or slow it down. Interviewees identified multiple potential reasons for slow adoption in the WELL-certification which are presented in Table 6.

Table 6. Adoption attributes of the WELL-certificate mentioned in the interviews

Adoption attributes/ Interviews	System	Relative advantage	Compatibility	Complexity	Trial-ability	Observability
Finland						
1	x	x		x		x
2	x	x	x		x	
3	x	x	x	x		
4		x			x	
5		x	x	x	x	x
Australia						
6	x	x	x	x		
7		x	x	x		

- System – conservative construction sector and slow industry cycles

Organisation’s or social system’s support for innovation has been identified as one of the attributes affecting adoption of innovation. Four interviews mentioned a conservative construction sector as one of the reasons why new types of certificates are not widely accepted. Slow industry cycles and long-lasting products mean that the stock is changing slowly and even if new buildings will have wellbeing certification, it will take time until these buildings are ready.

- Relative advantage – costs of certification vs benefits it presents

All interviewees mentioned high costs of the WELL-certificate as a potential reason for slow adoption of certification in the market. As one interviewee pointed out, the pricing model based on square meters is not fair and should be changed.

*“trying to set up it [WELL, ed.] as a premium option” (4), “It is like 10 times the price of LEED” (3)*

The benefits of the certification seem to be somewhat questionable compared to the costs of the certification. According to the interviews in Finland, wellbeing requirements as set in the certificate are often met only by following Finnish legislation and certification framework works the best as a benchmark tool.

*“Our buildings are high quality already and they are built so that we often have views to the nature around us, we also think about daylight a lot, our tap water is good quality – we have the basis there already” (5)*

On the other hand, in Australia, the benefits to construction industry and occupiers seem to be more important. Interviews emphasized the benefit of brand for developers as well as a recruitment strategy for occupiers as important factors for wellbeing certificate adoption:

- For the construction industry and landlords, the main benefit is to be the forerunner and industry leader, to stand out from the competition.

*“They might be able to increase rents eventually but for them to do the project alone is quite difficult” (3)*

*“For investors and other property tenants we show that we are committed to health and wellbeing of our people” (7)*

- Recruitment strategy and public relations (PR).

*“you need to be different than others, attract more employees, get a positive image in the media. For employees, you show that you take care of your employees and people in your building, acknowledge their issues” (6)*

- Compatibility – previous certifications and wellbeing trend

Previous experience with sustainability tools and current needs also came up in five interviews. In both countries, wellbeing certification was seen as a next step in building better buildings and reducing the effect on the environment:

*“So it is a transition from LEED and BREEM and you actually go to people instead of environment.” (2)*

*“also from a sustainability point of view, LEED or BREEAM is kind of the 1st phase and then the 2nd phase is WELL. So you already have a good baseline with the building, this is what you can do to make it even better.” (3)*

*“We’ve been engaged in the Green Star standard, also the NABERS operating standard, and so the wellness standard was a natural third leg filling the space around the individual and what was important for individual from the built space point of view” (5)*

Wellness and wellbeing trend is strong in Australia and it was brought up in all interviews. The push is coming from the occupiers’ side which also motivates developers to consider WELL requirements for their future projects:

*“Wellness in Australia is a trend” (7)*

*“When we speak with tenants, WELL certification is interesting. And all new development are targeting to meet WELL requirements” (6)*

*“Institutional landlords are ready to invest” (6)*

- Complexity – new stakeholder involvement and slow certification process

Four out of five interviewees mentioned the involvement of new stakeholders in certification process as a potential reason for slowing down the adoption in the market. For example, interviewees mentioned user/occupier involvement, discussions with service providers and designers:

*“maybe HR policies need to be changed or their service providers need to change their ways of working” (3)*

*“landlord and tenant relationship is very important here” (2)*

*“in our test location, we had to select our partners very carefully to be able to achieve needed results, not everyone is ready for a change” (5)*

Two interviewees also discussed the slow certification process due to the fact there is a need for more (or different) documentation which takes time to collect, as well as a need for policy changes not only within the organisation but also for outsourced service providers. This reason might not have been mentioned in other interviews because none of these organisations had hands-on experience with the certification process.

- Trial-ability – testing small scale

A possibility to try out the innovation on a smaller scale was mentioned only in Finnish interviews. Interviewed representatives told that first they need to evaluate how certification process works and what benefits the certification brings in order to be able to bring it to their clients. Thus, in three organisations, they did a trial on their own premises. This might also be due to the fact that when the interviews were held, there was no single building that was certified in Finland, thus, no experience how it works together with Finnish legislation.

- Observability – looking what the market does

Being able to see how the market reacts was mentioned again only in Finnish interviews. Here, the difference in approach was quite significant. In interviews with Australian representatives, they emphasized the need for developers and investors to be the forerunners in the market, while according to the interviewed Finnish representatives, both developers and occupiers are a bit hesitant and want to see if the certification gains the interest in the market.

*“they [clients, ed.] are following the market, now we do some feasibility analysis for them but they are not ready to invest just yet” (5)*

## Discussion and Conclusions

### Wellbeing certification still in an early state of adoption

From the first sustainability tools introduced in the market in late 1990s, we have gone a great way. According to various estimates, up to 60-70% of newly built buildings around the globe will have some kind of sustainability certification. However, the existing stock of buildings lags behind and the number of certified buildings is estimated to be less than 1% of the overall stock. According to Roger’s diffusion of innovation model (1962), we are in the late majority state with the new buildings, allowing us to assume that sustainability certification is here to stay.

However, the concept of sustainability and our requirements to buildings are changing. The importance of health and wellbeing of people inside and around the buildings is increasing and we can see this change on both increased attention to social sustainability globally and in certificate development in the market. The adoption of wellbeing certification is growing every year and with a faster speed than first sustainability certifications. We have around 5000 projects (as of September 2019) registered under WELL, Living Building Challenge, and Fitwel certificates. However, there are major factors slowing down the adoption of new assessment tools. In our study, we can see that relative advantage, compatibility and complexity of the certification have effects on adoption of the certificate in the market.

### Factors affecting the adoption rate and speed

Complexity of the certification and, presumably, wellbeing in buildings itself might be few of the main factors slowing down the adoption of new certification tools. With sustainability discussion concentrating on social aspects more and more, it becomes a challenge for the built environment sector. First, due to the fact that 'buildings' is frequently used in the discourse. This usage is so in the design and construction phases of the life cycle where the production of buildings is seen as a main activity. Building, as a particular conceptualisation, can, at times, be an elastic concept. In some circumstances (called by Duffy (1992) a European real estate model) can include all the improvements on the land. An alternative conceptualisation (a so-called North American real estate model (Duffy 1992)) separates the building's outer parts (base building) from the interior improvements (fit out). In the latter model, the developer-owner is responsible for the base building and the occupier for the fit out. This does assume leasehold tenure by the occupier. Increasingly this fit out is also called 'a

workplace', which, conceptually, can conflate the physical improvements, information technology, human factors and management practices. Sustainability certifications partially recognise this distinction with, for example, LEED Interior Design & Construction and with design and in-use certifications. The distinction becomes greater with wellbeing. According to our study, in WELL certificate, the least familiar and the most difficult categories to comply are *Fitness, Mind, Comfort and Light*. These categories include factors that are the most different from the existing sustainability rating tools and most disconnected from the dominant 'building' concept. The challenge, thus, rises in defining the entity to which the certification applies, who is responsible for the entity's management and for achieving the benefits offered by certification. In addition, there is a lack of clear guidelines considering social sustainability in the built environment. For example, in UN's Sustainable Development Goals, there are multiple goals that bring up the issues of developing healthy and sustainable environments but these goals might not be most relevant to the built environment concerns in developed countries. Thus, better definitions should be developed in regards to social sustainability approach to buildings.

Other factors that might slow down the adoption of innovation in certifications are related to the monetary value and investments required. Developers, investors and occupiers are concerned about a high price of certification and see a little value of it beside the brand for a developer and HR strategic tool for the occupier. One way to tackle this is to be able to show how, for example, office environment can reduce absenteeism and presenteeism of employees, thus, increasing their productivity which translates to saved costs and increased returns for the company. Being able to show the monetary value of wellbeing through increased productivity can also translate to higher rents for the investors and speed up wellbeing certification adoption in the market.

Compatibility, on the other hand, can be seen as a positive factor, speeding up the adoption of wellbeing certification in the market. Currently existing wellbeing tools are well aligned with 'traditional' sustainability rating tools, covering 'hard' building categories that are equivalent or similar in most of the certifications. These new tools just add another – human – dimension to the building assessment, which should be as a natural "next step" for sustainable built environment.

This study looked at the market adoption of two countries – Australia and Finland – with the attempt to understand if there is a difference between the reasons for faster or slower adoption of wellbeing certifications. Both countries have high base quality of buildings and there is high general interest in health and wellbeing in general. However, there is a significant difference in the numbers of WELL-certified buildings and registered projects. In absolute count as of September 2019, Australia has over 160 registered projects and stands fourth behind the UK, USA, and China in uptake, while Finland has only 7 registered projects and lags behind in the number of the WELL-certificates. One explanation can be related to the size and competitiveness in the markets. Australia is a much more competitive country with bigger international tenants and higher requirements for certified buildings while Finland does not experience the same competitiveness in regards to talent attraction and retention or occupier attraction into the buildings. The recent steep growth in a number of registered projects was seen also in the UK which stands first in line now. That can be related to stronger than ever competition for occupiers and talents. However, more research and data are required to be able to identify country-level factors having the biggest impact of adoption of wellbeing certifications.

The article offers an explorative overview of sustainability assessment tools and their development and introduces the WELL-certificate to the real estate academy. We can see that, although, there are factors that might slow down the adoption of new certification tools in the market, the potential for wellbeing certification is there. Health and wellbeing approach to buildings is a natural development for sustainability discussion – we need to make buildings energy efficient but also healthy and pleasant for people who are inside. This requires a holistic approach to 'buildings' throughout their life cycle requires and close collaboration between all stakeholders.

## Acknowledgements

We thank Ann Godfrey for the suggestion to analyse the entity to which the certification applies.

## Disclosure statement

No potential conflict of interest was reported by the authors.

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