



CAPTIV[®]

Comparative Assessment & Performance Tool for Innovative Workplaces

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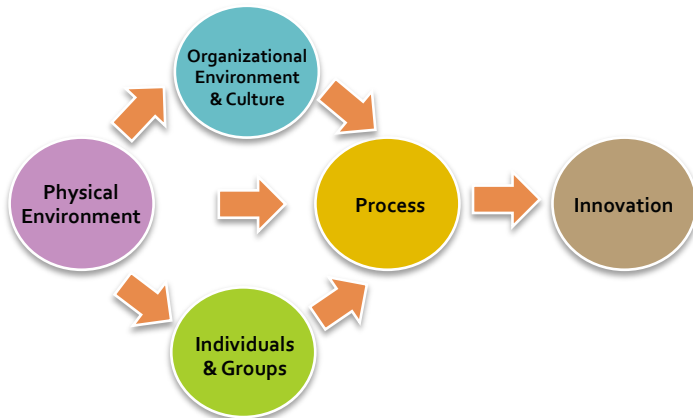
A free comprehensive diagnostic and benchmark tool for the performance of workplace environment in relation to innovation performance of an organization

- specifically developed by a collaborative effort between industry and research partners to provide organizations a dynamic analytic platform

Funded by the American Society of Interior Designers Foundation

Innovation is at the heart of successful, competitive companies. A workplace conducive to innovation is a must to foster the culture of innovation. In workplace design, a one-size-fits-all-answer to what makes a company innovative does not exist. To fully understand the needs and goals of each workplace, **CAPTIV**® (pronounced [captiv]) is broken down into 3 parts.

At the center of **CAPTIV**® is the CHPKW (Creative & High-Performing Knowledge Workplace) model developed by Dr. Young Lee. Based on this model, **CAPTIV**® analyzes how the physical environment impacts **organizational culture, process, and people** in order to increase innovation performance.



PART 1: Key Performance Indicators (KPIs) of the Physical Work Environment

- It examines the performance of the workplace environment with **7 key indicators** of the creative and high performing knowledge workplace.

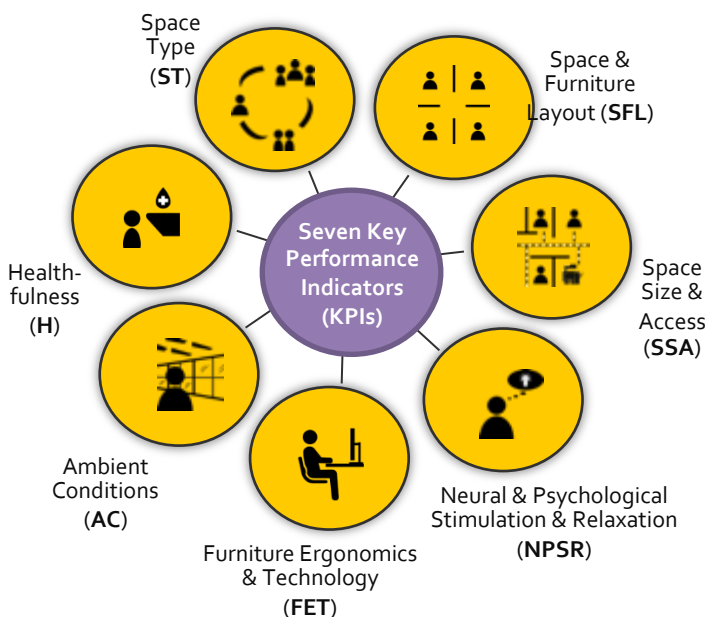
PART 2: Company Information and Innovation Strategies

- It measures innovation strategies and economic growth of a workplace/company.

PART 3: Innovation Performance of the Company

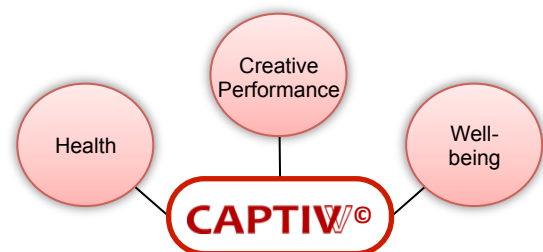
- It examines the innovation performance & activities of a workplace/company in **5 areas**.

CAPTIV® measures and analyzes the performance of the 7 Key Performance Indicators (KPIs) of the workplace environment as to how it supports a company's innovation performance and innovation strategies by supporting employee creative performance, health and well-being.










The comprehensiveness of the KPIs is founded on two frameworks developed by Dr. Young Lee: Workplace Design Criteria for **Creativity & Innovation** and Workplace Design Criteria for **Employee Performance, Health & Well-being**.

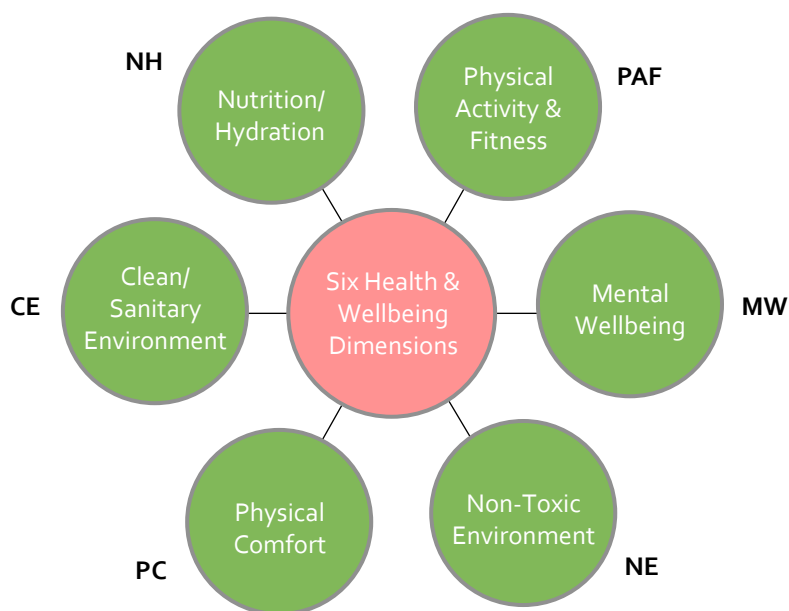
Based on this model, **CAPTIV**® analyzes how the workplace environment supports **employee creative performance, health and well-being** to increase **innovation performance** of a company.



CAPTIV® is grounded on the 7 KPIs and sub-KPIs that encompass criteria in creative performance, health and wellbeing in the assessment. These indicators are measured by solely objective and prescriptive measures to diagnose the workplace environment to offer advanced analyses that are quantifiable and actionable for the better workplace environment.

Cognitive & Psychological Function Factors	KPI	Physical Health, Fitness & Comfort Factors
ST 1. Choice of Work Spaces ST 2. Interaction – Collaboration Work Spaces ST 3. Recharge Spaces	 ST	ST 3. Recharge Spaces
SFL 1. Flexibility SFL 2. Flow and connectivity	 SFL	
	 SSA	SSA 1. Amount of Spaces SSA 2. Access to Equipment
NPSR 1. Unique/ Fun Atmosphere NPSR 2. Stimulation of Senses NPSR 3. Relaxing Environment	 NPSR	
	 FET	FET 1. Furniture Ergonomics
AC 1. Acoustics AC 2. Visual Comfort AC 3. Thermal Comfort AC 4. Indoor Air Quality	 AC	AC 1. Acoustics AC 2. Visual Comfort AC 3. Thermal Comfort AC 4. Indoor Air Quality
	 H	H 1. Healthfulness







CAPTIV® addresses 6 dimensions of health and wellbeing by including indicators of health, wellness, and comfort in addition to the creative performance in the assessment to diagnose multi-faceted dimensions of the performance of the workplace environment.










CAPTIV® assesses a workplace in a comprehensive manner that deliberates not only productivity but also health and wellbeing of workers to tackle the workplace performance issue in its entirety.

CAPTIV® assesses **Six Dimensions of Health and Wellbeing** by including indicators of health, wellness, and comfort in the workplace. These 6 dimensions are: **Physical Activity & Fitness (PAF)**, **Mental Wellbeing (MW)**, **Non-Toxic Environment (NE)**, **Physical Comfort (PC)**, **Clean/ Sanitary Environment (CE)**, and **Nutrition/ Hydration (NH)**.

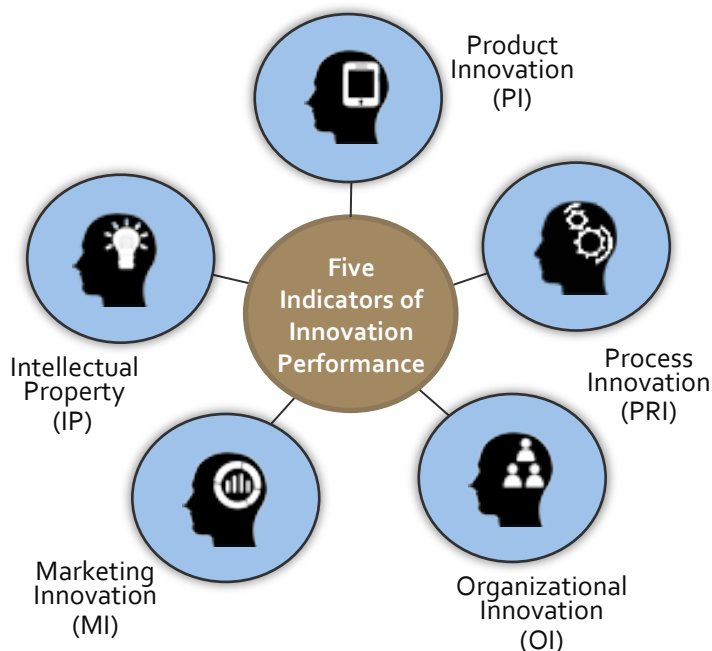
CAPTIV® integrates a comprehensive list of health and well-being indicators as these are two most critical contributors to employee performance. Key indicators of health and well-being are identified by an extensive literature review of peer-reviewed & expert-reviewed publications.

KPI	Sub-KPI	Health, Wellness & Comfort Factors of Six Dimensions
 ST	ST 3. Recharge Spaces	ST3: 1. Play Spaces (PAF); 2. Solitude Spaces (MW); 3. Fitness Spaces (PAF); 4. Social Spaces (PAF) (MW)
 SSA	SSA 1. Amount of Spaces SSA 2. Access to Equipment	SSA1: 1. Individual Work Spaces (PC); 2. Collaborative Work Spaces (PC); 3. Storage Spaces (PC) SSA 2: Access to Equipment (PC)
 NPSR	NPSR 1. Unique/ Fun Atmosphere NPSR 2. Stimulation of Senses NPSR 3. Relaxing Environment	NPSR1: 1. Stimulating Arts (MW); 2. Unconventional Functions & Shapes of Interiors (MW); 3. Whimsical & Fun Decorative Objects (MW) NPSR 2: 1. Olfactory Stimulation (MW); 2. Auditory Stimulation (MW); 3. Visual Stimulation (MW) NPSR 3: 1. Natural Elements (MW); 2. Home-like Settings (MW)
 FET	FET 1. Furniture Ergonomics	FET1: 1. Use of Key Ergonomic Principles (PC); 2. Use & Compliance of Ergonomic Guidelines (PC); 3. User Involvement (PC)
 AC	AC 1. Acoustics AC 2. Visual Comfort AC 3. Thermal Comfort AC 4. Indoor Air Quality	AC1: 1. Use of Space Planning Principles (PC); 2. Acoustic Materials & Systems Furniture (PC); 3. Isolation of Noisy Spaces (PC); 4. Use & Compliance of Acoustics Guidelines (PC) AC2: 1. Amount of Light (PC); 2. Access to Daylight (PC) (MW); 3. Glare & Reflection Control (PC); 4. Views to Outdoor (PC) (MW); 5. Occupant Control (PC) AC3: 1. Temperature & Humidity Level (PC); 2. Occupant Control (PC); 3. Use & Compliance of Thermal Comfort Guidelines (PC) AC4: 1. Indoor Air Odor Level (PC); 2. Fresh Air (PC); 3. Draft (PC); 4. Isolation & Removal of Chemicals & Irritants (NE); 5. Low Emitting Finishes and Furnishings (NE); 6. Occupant Control (PC); 7. Use & Compliance of Indoor Air Quality Guidelines (PC)
 H	H 1. Healthfulness	H1: 1. Green Cleaning Materials and Products (NE); 2. Cleanliness & Maintenance Level (CE); 3. Access to Fresh Drinking Water (NH)

KPI	Sub-KPI	Fitness, Wellness & Comfort Factors*		
		Well Building Standard	Active Design	GSA FITWEL Standard
 ST	ST1. Choice of Workspaces	✓	✓	✓
	ST2. Interaction-Collaboration Spaces		✓	
	ST 3. Recharge Spaces (Indoor & Outdoor)	✓	✓	✓
 SFL	SFL 1. Flexibility		✓	
 SSA	SSA 1. Amount of Spaces	✓		
 NPSR	NPSR 1. Unique/ Fun Atmosphere	✓	✓	
	NPSR 2. Stimulation of Senses	✓		✓
	NPSR 3. Relaxing Environment	✓		✓
 FET	FET 1. Furniture Ergonomics	✓	✓	
 AC	AC 1. Acoustics	✓		
	AC 2. Visual Comfort	✓	✓	✓
	AC 3. Thermal Comfort	✓		
	AC 4. Indoor Air Quality	✓		✓
 H	H 1-3. Healthfulness: Fresh Drinking Water	✓		✓

* Overlapping criteria between CAPTIW® and Well Building Standard, Active Design Guideline, and GSA FITWEL Standard

CAPTIV® links the performance of the workplace environment to the innovation performance of a company in 5 representative innovation indicators and a set of measures under each innovation indicator.



CAPTIV® is Comprehensive:

- It offers a most comprehensive set of **key indicators** and **sub-indicators** to measure the performance of the workplace environment as well as innovation performance of a company.

CAPTIV® is Analytic:

- It offers a first of its kind **diagnostic platform** to analyze the workplace environment in relation to innovation performance and strategies.

CAPTIV® is Action-Driven:

- It identifies **specific attributes** of the workplace environment to support organizational pursuits and objectives in innovation strategies unique to each company.

CAPTIV® analyzes the performance of the workplace environment in a unique scoring system. The scores in 7 KPIs are calculated and, then, weighted by the impact/ significance in achieving creative and innovative performance by applying a mathematical procedure of the Analytic Hierarchy Process that prioritizes criticality among the KPIs.

The image shows two overlapping CAPTIV SCORECARD forms. The left form, titled "Key Performance Indicators of the Physical Work Environment", lists various indicators under categories like Space Type (ST), Space & Furniture Layout (SFL), and Healthfulness (H). The right form, titled "Innovation Performance of the Company", lists indicators under categories like Product Innovation (PI), Process Innovation (PRI), Organizational Innovation (OI), Marketing Innovation (MI), and Intellectual Property (IP). Both forms have a grid for scoring and a total score at the bottom.



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Further Questions:
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CAPTIV[®] generates automated analyses that compare the results of a company to the benchmarks. The first part of the analyses compares the performance of the workplace environment, innovation performance as well as innovation strategies of the company to the benchmarks. The second part of the analyses diagnoses the strengths and weaknesses in each of the KPIs of the company against the benchmarks.

2. The Physical Work Environment and Innovation Performance of the Company

The total score of the performance of your physical work environment in supporting creativity and innovation is 71.1, which is 28.22 higher than the benchmark. The highest performing key indicator of the physical work environment, compared to the benchmark, is AC: Ambient Conditions (42.23%), and the lowest performing key indicator of the physical work environment is (43.9%) out of the seven key performance indicators of the physical work environment.

The total score for the innovation performance of your company is 52.3, which is 49.12% lower than the benchmark. The highest performing innovation indicator, compared to the benchmark, is OE: Organizational Innovation (52.95%), and the lowest performing indicator is PE: Product Innovation (47.72%) among the five innovation performance indicators.

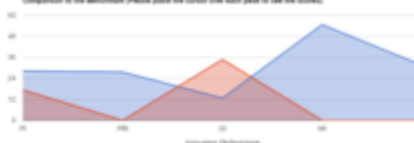
KPI	Current Project	Benchmark
Visual Connectivity (Vf, 2, 1)	20.43	19.02
Core Interaction Networks (IN, 2, 2)	9.42	9.22
Cross-Pollination (Pf, 2, 3)	9.08	9.22
Non-Hierarchical Spaces (Sf, 2, 4)	1.29	2.09
FEI: Furniture Ergonomics & Encouraging	14.09	12.76
AC: Ambient Conditions	13.48	9.76
HI: Health/Wellness	7.20	5.48

Comparison to the Benchmark (Please place the cursor over each pair to see the scores)



KPI	Current Project	Benchmark
PE: Product Innovation	17.36	28.29
OE: Organizational Innovation	0.00	27.08
NI: Marketing Innovation	14.76	12.75
SI: Intellectual Property	0.00	14.09
TI: Technology Innovation	0.00	35.48

Comparison to the Benchmark (Please place the cursor over each pair to see the scores)



Performance of the Physical Work Environment Supporting Organizational Creativity and Innovation

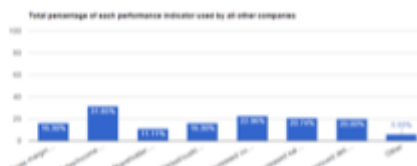
Critical Key Indicators of the Physical Work Environment	Current Project Score	Benchmark Score	Strengths/Opportunities
Visual Connectivity (Vf, 2, 1)	5	3.48	✓
Core Interaction Networks (IN, 2, 2)	5	2.74	✓
Cross-Pollination (Pf, 2, 3)	2	2.85	✓
Non-Hierarchical Spaces (Sf, 2, 4)	0	2.98	✓

Critical Key Indicators of the Physical Work Environment	Current Project Score	Benchmark Score	Strengths/Opportunities
Interaction-Collaboration Work Spaces (M, 3, 1)	3	1.81	✓
Social Spaces or Spaces with Features for Socialization (M, 3, 4)	3	1.88	✓
Visual Connectivity (Vf, 2, 1)	5	3.48	✓
Core Interaction Networks (IN, 2, 2)	5	2.74	✓

Critical Key Indicators of the Physical Work Environment	Current Project Score	Benchmark Score	Strengths/Opportunities
Choice of Work Spaces (M, 3, 2)	4	3.33	✓
Interaction-Collaboration Spaces (M, 3, 3)	3	1.81	✓
Recharge Spaces (M, 3, 4)	1	0.98	✓
Flexibility (M, 3, 5)	4	2.26	✓

3. Innovation Strategies

- Revenue Growth from this location/facility of your company in the last three years is 22%
- Employment Growth from this location/facility of your company in the last three years is 22%
- The most important long-term strategy to your company is Office
- Performance Indicators currently used to monitor the performance of the long-term strategic objectives in your company are:
 - Project Performance 5.52



The implementation degree of innovation strategies currently used in your company are:

- Fully implemented innovation strategies

CAPTIV[®] can be used in 6 major ways to evaluate the performance of the workplace environment and to develop strategies for future projects and upgrades in order to enhance the performance of the workplace environment.

1. Benchmark Assessment

- To compare the performance of the existing workspace against the CAPTIW[®] benchmark



2. Internal Parallel Assessment

- To compare the performance between multiple existing workspaces for the internal benchmark



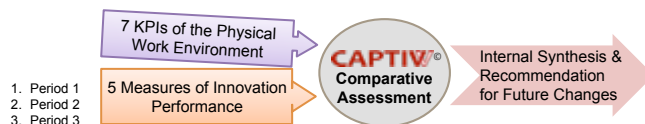
3. Composite Assessment

- To compare the performance between multiple existing workspaces against the CAPTIW[®] benchmark



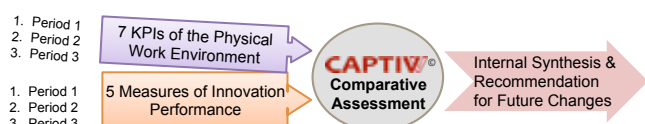
4. Time Laps Assessment

- To monitor the performance of the existing workspace against innovation performance overtime



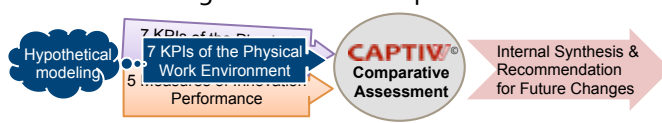
5. Dynamic Time Laps Assessment

- To Monitor the performance of changes in workspace against innovation performance concurrently overtime



6. 'What if' Simulation Assessment

- To Simulate the performance of the existing workplace environment against innovation performance



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Further Questions:

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Young S. Lee, Ph.D., LEED AP, NCIDQ
Director, Innovative Workplace Institute

Dr. Lee is the project lead of CAPTIW®, Online Benchmark and Evaluation Tool for Knowledge Workplace. Trained in Interior Architecture and Design for two decades, her expertise resides in the impact of indoor environmental quality (IEQ) on occupant performance; spatial and design attributes of the innovative workplace affecting the organizational bottom line; and sustainable design attributes and occupant performance, health, and well-being.



The groundwork of her decade-long research in two areas became the foundation of CAPTIW®: Workplace Design Criteria for Creativity & Innovation and Workplace Design Criteria for Employee Performance, Health & Well-being. Bridging research, design and consulting experience, Dr. Lee has created CAPTIW®, one of the most innovative and comprehensive evaluation tools for the 21st century workplace, connecting organization innovation performance to the performance of the workplace environment. The importance and quality of her research has frequently been recognized by a variety of peer groups. This has been acknowledged through: best journal article award, selection of the most read articles, and citations of her work by the practice community.

Dr. Lee has published numerous peer-reviewed articles and has also been invited at various international and national conferences. Her research has been published in such reputable journals as Indoor and Built Environment, Building and Environment, the Journal of Green Building, and Facilities. She has served on the editorial board of the internationally renowned journal, Indoor and Built Environment as well as the International Conference on Sustainability, Technology, and Education for many years. She is a Leadership in Energy and Environmental Design Accredited Professional and a certified US Green Building Council Green Classroom Professional.



