CAPTIV©

Comparative Assessment & Performance Tool for Innovative Workplaces

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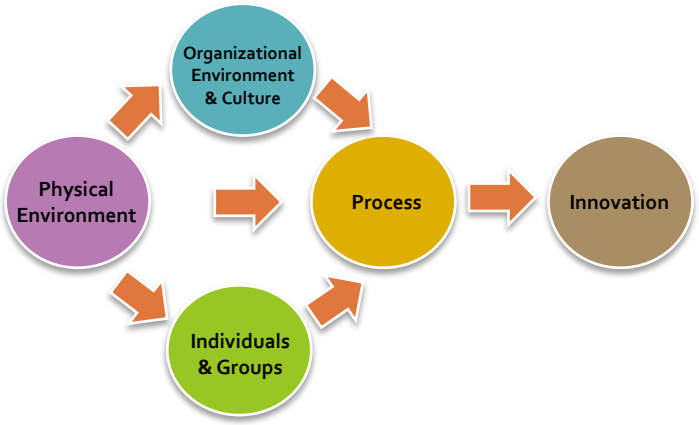
A free **comprehensive** diagnostic and benchmark tool for the **performance** of workplace **environment** in relation to **innovation performance** of an organization

- 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: Company Information and Innovation Strategies

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

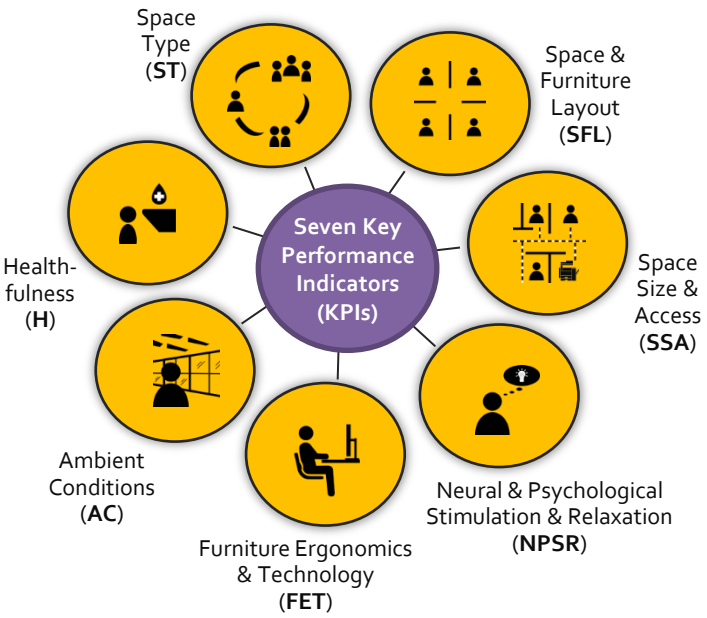
PART 2: Innovation Performance of the Company

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

PART 3: Key Performance Indicators (KPIs) of the Physical Work Environment

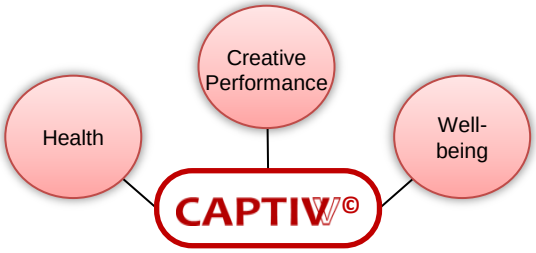
- It examines the performance of the workplace environment with **7 key indicators** of the creative and high performing knowledge workplace.

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.



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CAPTIV© is grounded on the 7 KPIs and complete sets of sub-KPIs that solely utilize objective and prescriptive measures to diagnose the workplace environment. These types of measures offer advanced analyses that are quantifiable and actionable for the better performance of the workplace environment.

Space Type (ST)	ST 1. Choice of Work Spaces ST 2. Interaction – Collaboration Work Spaces ST 3. Recharge Spaces
Space & Furniture Layout (SFL)	SFL 1. Flexibility of primary work spaces SFL 2. Flow and connectivity
Space Size & Access to Equipment (SSA)	SSA 1. Amount of Spaces SSA 2. Access to Equipment
Neural & Psychological Stimulation & Relaxation (NPSR)	NPSR 1. Unique/ Fun Atmosphere NPSR 2. Stimulation of Senses NPSR 3. Relaxing Environment
Furniture Ergonomics & Technology (FET)	FET 1. Furniture Ergonomics FET 2. Technology
Ambient Conditions (AC)	AC 1. Acoustics AC 2. Visual Comfort AC 3. Thermal Comfort AC 4. Indoor Air Quality
Healthfulness (H)	H 1. Healthfulness

CAPTIV© encompasses a set of key performance indicators of employee creative performance, health and well-being in the assessment in order to diagnose multi-faceted dimensions of the performance of the 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
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

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

KPI	Sub-KPI	Fitness, Wellness & Comfort Factors						
		Air*	Water*	Light*	Fitness*	Comfort*	Mind*	Active Design**
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		✓					

* Factors overlapping criteria in Well Building Standard® ** Factors overlapping criteria in Active Design Guideline

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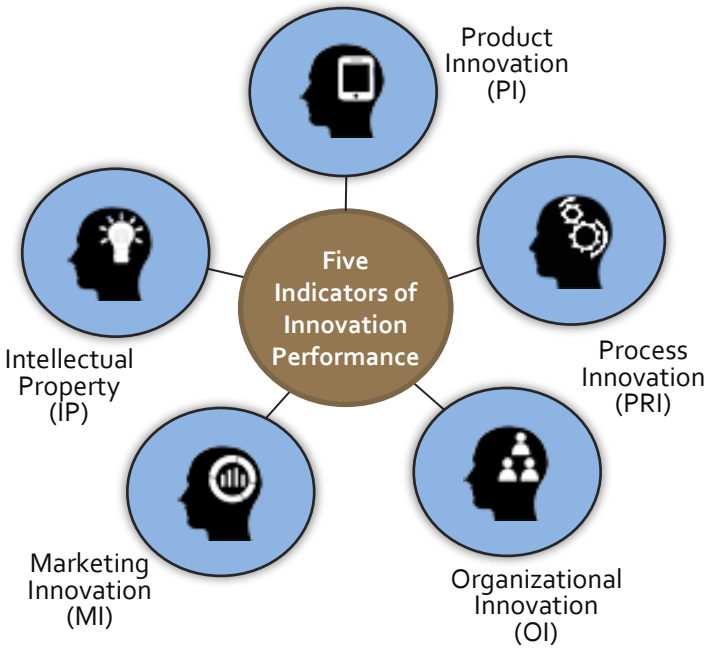
CAPTIW© links the performance of the workplace environment to the innovation performance of a company in 5 representative innovation indicators and a set of measures under each innovation indicator.



CAPTIW© 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.

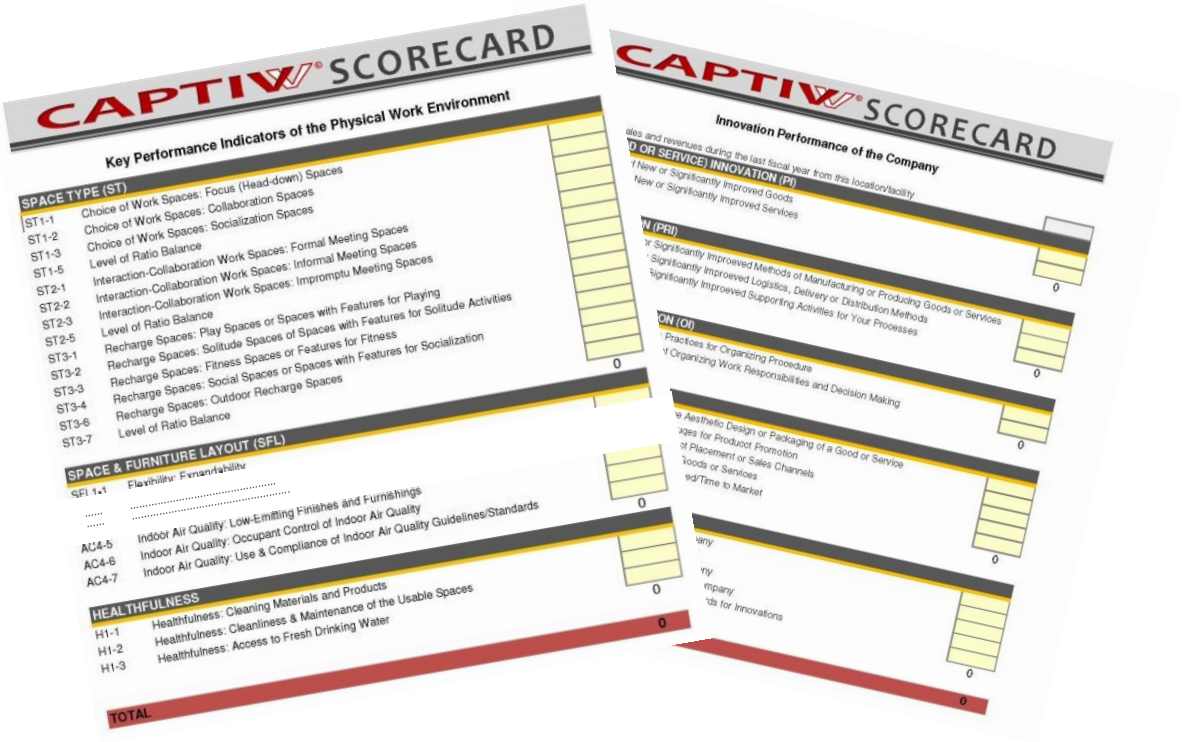
CAPTIW© is Analytic:

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

CAPTIW© is Action-Driven:

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

CAPTIW© 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.



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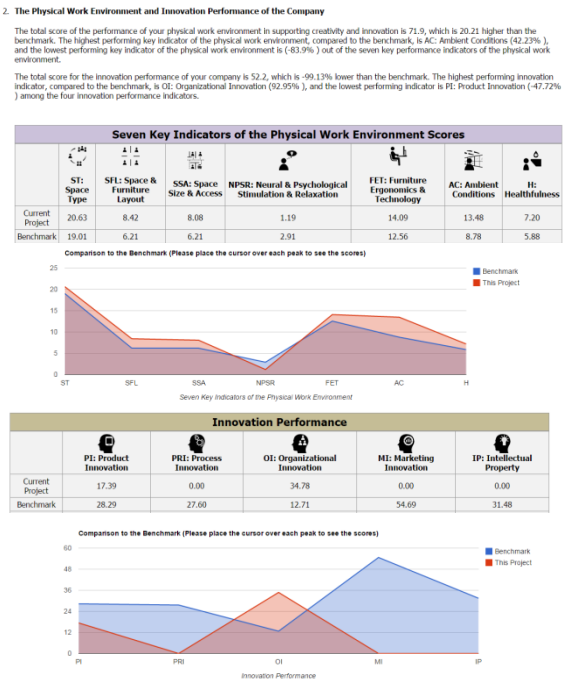
CAPTIW© generates automated analyses that compare the results of a company to the benchmarks. The first part of the analyses compares the performance of the workplace environment, innovation performance as well as innovation strategies of the company to the benchmarks . The second part of the analyses 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 71.9, which is 20.21 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 (-83.9%) out of the seven key performance indicators of the physical work environment.

The total score for the innovation performance of your company is 52.2, which is -99.13% lower than the benchmark. The highest performing innovation indicator, compared to the benchmark, is OI: Organizational Innovation (92.95%), and the lowest performing indicator is PI: Product Innovation (-47.72%) among the four innovation performance indicators.

Seven Key Indicators of the Physical Work Environment Scores

	ST: Space Type	SFL: Space & Furniture Layout	SSA: Space Size & Access	NPSR: Neural & Psychological Stimulation & Relaxation	FET: Furniture Ergonomics & Technology	AC: Ambient Conditions	H: Healthfulness
Current Project	20.63	8.42	8.08	1.19	14.09	13.48	7.20
Benchmark	19.01	6.21	6.21	2.91	12.56	8.78	5.88

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

Seven Key Indicators of the Physical Work Environment

Innovation Performance

	PI: Product Innovation	PRI: Process Innovation	OI: Organizational Innovation	MI: Marketing Innovation	IP: Intellectual Property
Current Project	17.39	0.00	34.78	0.00	0.00
Benchmark	28.29	27.60	12.71	54.69	31.48

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

Innovation Performance

Performance of the Physical Work Environment Supporting Organizational Creativity and Innovation

Organizational Environment and Culture Critical Key Indicators of the Physical Work Environment	Current Project Score	Benchmark Score	Strengths	Opportunities
Good Communications				
Visual Connectivity (sfl_2_1)	5	3.48	✔	
Core Interaction Networks (sfl_2_2)	5	2.74	✔	
Cross-Pollination (sfl_2_3)	2	2.85		✔
Non-Hierarchical Spaces (sfl_2_4)	0	2.98		✔
Process				
Knowledge Share				
Interaction-Collaboration Work Spaces (st_2_1)	1	1.61		✔
Social Spaces or Spaces with Features for Socialization (st_3_4)	1	1.68		✔
Visual Connectivity (sfl_2_1)	5	3.48	✔	
Core Interaction Networks (sfl_2_2)	5	2.74	✔	
Individuals & Groups				
Cognitive Style and Psychological Process Conductive to Creativity				
Choice of Work Spaces (st_1_1)	4	3.33	✔	
Interaction-Collaboration Spaces (st_2_1)	1	1.61		✔
Recharge Spaces (st_3_1)	1	0.98	✔	
Expandability (sfl_1_1)	4	2.26	✔	

1. **Innovation Strategies**

- Revenue Growth from this location/facility of your company in the last three years is: ...
- Employment Growth from this location/facility of your company in the last three years is: ... 0% 21%
- The most important long term strategy to your company is:Other
- Performance indicators currently used to monitor the performance of the long term strategic objectives in your company are:
  - Project Performance 5.93

Total percentage of each performance indicator used by all other companies

- The implementation degrees of innovation strategies currently used in your company are:
  - Fully implemented innovation strategies:

CAPTIW© 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

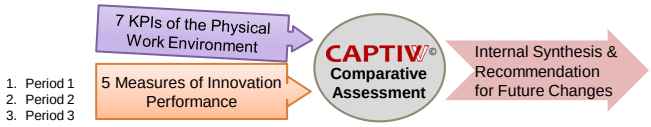
- To compare the performance between multiple existing workspaces for the internal benchmark

3. Composite Assessment

- To compare the performance between multiple existing workspaces against the CAPTIW© benchmark

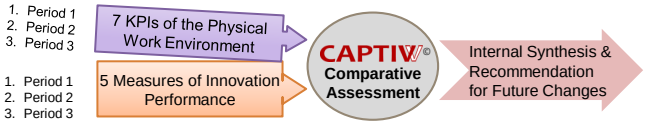
4. Time Laps Assessment

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



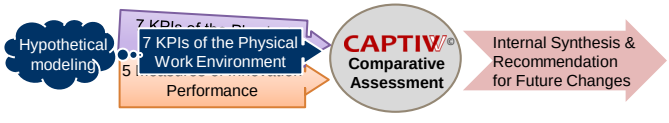
5. Dynamic Time Laps Assessment

- 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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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 decadelong 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 renounced 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.

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