

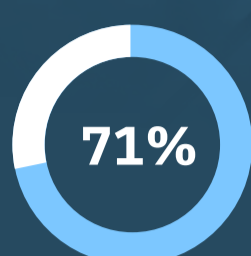
Intelligent Buildings, Connected Workspaces, Empowered People

Why buildings matter

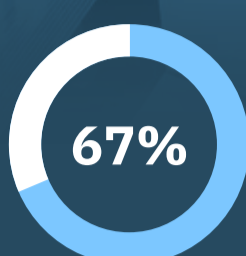
90%

of our time is spent indoors¹

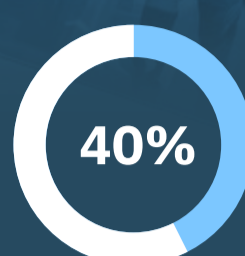
Industries spanning a variety of sectors—from hospitals to corporate offices—spend **112X** more money on people as they do on energy costs in the workplace.²



Operation costs account for **71%** of total cost of ownership.³



Yet we use a fraction of that space—only **67%** of commercial real estate space is fully utilized.⁴



Worldwide, buildings consume **40%** of global energy, **25%** of global water and **40%** of global resources—but up to **50%** is wasted.⁵

Putting a human touch into buildings makes them more personal, intuitive and user friendly

Putting a “human touch” into buildings

- Improves productivity
- Decreases absenteeism
- Creates a more comfortable workplace
- Offers occupants more personalized services

Higher employee retention ▶ More info	Increased productivity ▶ Learn more
More efficient cafeteria ▶ More info	Positive sentiment ▶ More info
Improved health—fewer sick days ▶ More info	Engaged employees ▶ More info
Asset value protected ▶ More info	Reduced maintenance ▶ More info

But how do you enhance and improve the user experience within a building?

Create superior buildings that understand the users and occupants throughout the lifecycle of the building.



Use deep analytics driven by real-time data

Real-time stream of building, floor and zone data helps predict critical location events and drive responses to requests, allowing time to sense, analyze and act on the needs of occupants.



Incorporate exogenous data

Integrate weather, parking, transit and information about local services to create a virtual campus with a significantly improved occupancy experience.



Use a digital twin

Use a digital twin to understand the data being collected throughout the building allows more efficient planning and management of operations, equipments, systems, space and environment.



Infuse cognition into the workplace

Gain insight into occupancy patterns to enhance human interaction with the building.

A digitally optimized building can influence employee performance, productivity and retention to impact long-term business profitability.

IBM TRIRIGA can help

Cognitive buildings with IBM Watson IoT can optimize the experience of occupants, staff and management through deep analytics driven by real time IoT data.

The IBM TRIRIGA® real estate and facilities management solution provides space management and audit tools that report on space capacity and assignment while managing the financial and real-time operational needs across the organization.

- Improve utilization and occupancy management
- Manage agreements and chargeback to increase accountability for usage
- Provide move planning and management to streamline relocations
- Track budgets, costs and schedules for more efficient facilities management

Learn more

Tap into IBM Watson IoT to better understand the data in thousands of buildings around the world.

Learn how to use IoT to understand space utilization:

- Watch webinar
- Explore resources

“Every building has its own function and personality, and the Internet of Things and cognitive computing enable us to understand and control in powerful new ways that will transform the way we manage and experience buildings around the world.”

Jeff Gravenhorst, CEO, ISS

Watson IoT



© Copyright IBM Corporation 2017. IBM, the IBM logo, ibm.com, TRIRIGA and Watson are trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the web at “Copyright and trademark information” at www.ibm.com/legal/copytrade.

WW912385USEN-00

¹ U.S. Environmental Protection Agency. 1989. Report to Congress on indoor air quality: Volume 2. EPA/400/1-89/001C. Washington, DC

² Terrapin Bright Green: The economics of biophilia. www.terrapinbrightgreen.com/reports/the-economics-of-biophilia/

³ CB Richard Ellis. “Driving an Aggressive Occupancy Cost Reduction Program,” January 2009.

⁴ The Economy of Things Extracting new value from the Internet of Things, IBM Institute for Business Value 2015, <http://www-935.ibm.com/services/us/gbs/thoughtleadership/economyofthings>

⁵ UN Environment Programme: <http://www.unep.org/sbcj/AboutSBCI/Background.asp>

⁶ World Green Building Council, Health, Wellbeing & Productivity in Offices, the next chapter for green building, http://www.worldgbc.org/files/6314/1152/0821/WorldGBC_Health_Wellbeing_productivity_Full_Report.pdf

⁷ Happiness and Productivity, Andrew J Oswald, Eugenio Proto and Daniel Sgroi, University of Warwick.

⁸ Harvard Business Review: Workspaces That Move People, Ben Waber, Jennifer Magnolfi & Greg Lindsay, Oct 2014

⁹ World Green Building Council, Health, Wellbeing & Productivity in Offices, the next chapter for green building, p 37.

¹⁰ Circadian, Absenteeism: The Bottom-Line Killer, <http://www.workforceinstitute.org/wp-content/themes/revolution/docs/Absenteeism-Bottom-Line.pdf>

¹¹ Harvard Business Review: Workplace re-design proven to improve employee productivity, Steff Humm, Jul 2015, <http://www.hrreview.co.uk/hr-news/strategy-news/workplace-re-design-proven-improve-employee-productivity/58471>

¹² Deloitte University Press: Smart buildings: How IoT technology aims to add value for real estate companies, The Internet of Things in the CRE industry, 2016.