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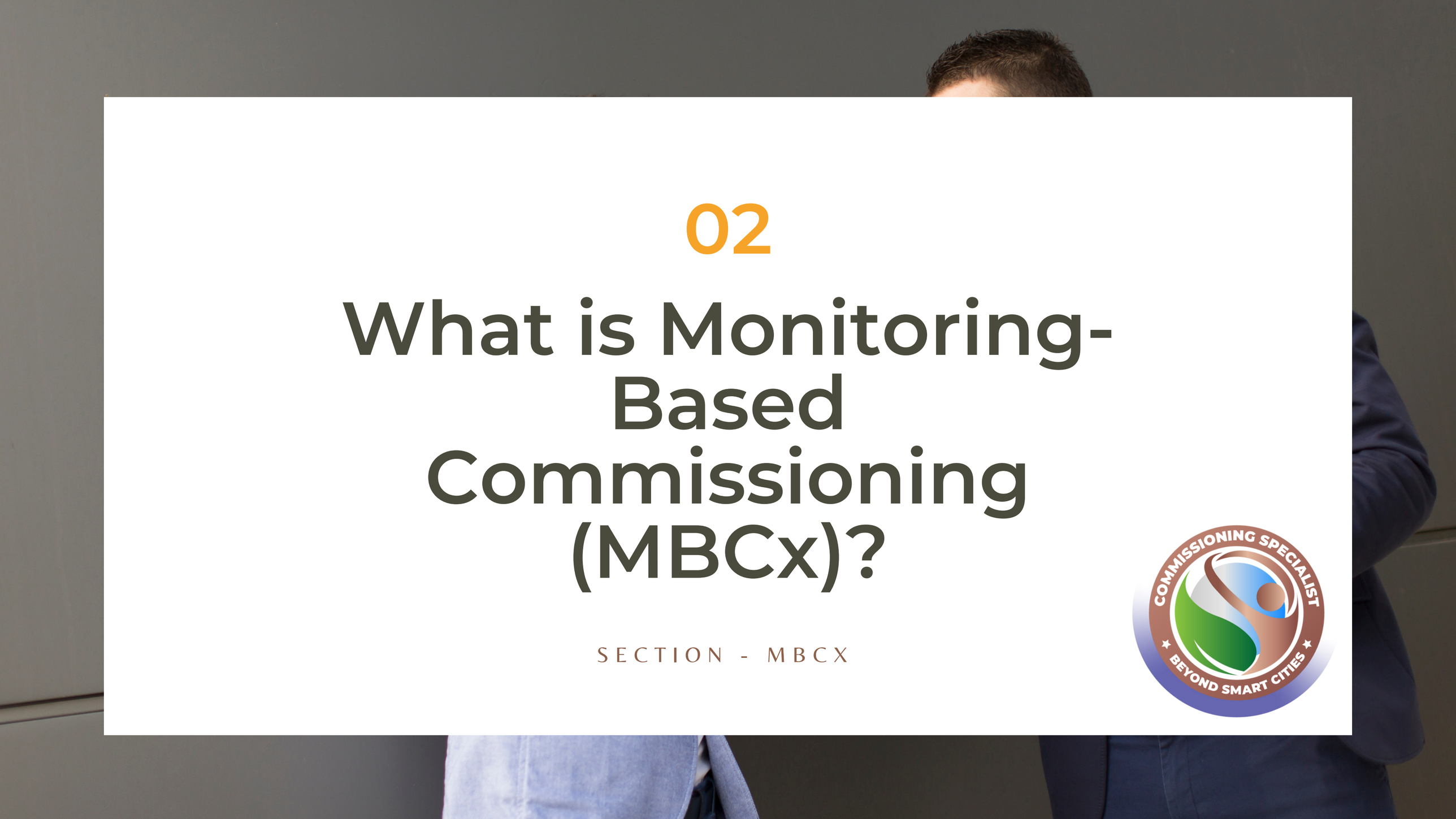
WELCOME TO

BEYOND MONITORING BASED COMMISSIONING - MBCX

ONLINE TRAINING

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What is Monitoring-Based Commissioning (MBCx)?

SECTION - MBCX

MBCx gives “the building owner, operators, and the commissioning authority an ongoing stream of information that helps them identify operational issues as they occur, thereby saving time, money, and energy usage over the lifetime of the structure,” according to the USGBC. USGBC has added MBCx to LEED version 4 certification.

MBCx analyses millions of data points running through a facility and creates a scoring system to rank equipment’s performance in real time. Facility owners use a cloud-based technology to track energy use, identify issues, and find immediate and long-term savings.



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Learning Objectives

- Brief Introduction
- Definition of Monitoring-based commissioning (MBCx)
- Monitoring-based commissioning (MBCx) process
- Monitoring-based commissioning (MBCx)- phases
- Benefits and cost of Monitoring-based commissioning (MBCx)

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Introduction

- What we are really talking about is a sophisticated package of software applications that combines building data from a wide variety of sources to better manage building performance and efficiency.
- MBCx includes the implementation of improvement measures as well as the ongoing service and insights needed for full transparency, measurement, and reporting.That is, what facility engineers have been doing by hand for decades can now be done more quickly, thoroughly, and accurately by combining building and energy system data with the expertise of an engineering team.
- When MBCx is built into a continuous building improvement process, it allows the combined technologies involved in data mining to identify faults or issues in building systems and the necessary human analysis to determine how to address those faults or issues.
- Truly advanced MBCx solutions will also help identify and prioritise resolution paths; for example, if there is simultaneous heating and cooling in air handler 5, facility engineers should investigate a leaking chilled water valve to avoid a potential costly expenditure.
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What is monitoring-based commissioning (MBCx)?

- Monitoring-based commissioning (MBCx) is a continuous process designed to increase comfort and reduce energy waste in your facility by using building control and metering data. Much like new commissioning, re-commissioning, and retro-commissioning, monitoring-based commissioning identifies ways to increase efficiency and comfort within your building.

- The process of monitoring-based commissioning varies in its approach as compared to the more common new commissioning approach but is often conducted in conjunction with traditional commissioning. MBCx can also be conducted after a commissioning process to ensure continued operational and efficiency goals. You can implement a MBCx process into your building even if it has never been commissioned before, and even in lieu of a retro-commissioning project.

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What is monitoring-based commissioning (MBCx)?

- Although while the MBCx software platforms are incredibly strong tools, they should not be considered to be energy efficiency equipment that is capable of providing results on their own. The MBCx programme is a human-in-the-loop tool, with the exception of automated supervisory controls.
- In order to completely turn data into knowledge, insights, and ultimately action, these tools need to be used on a consistent basis by a team that has access to adequate resources. MBCx software provides data analysis that helps the building owner prioritise the alerts that were received. This increases the likelihood that important operating deficiencies will be acted on and corrected. While a building automation system (BAS) provides trend log data and fault detection, MBCx software provides data analysis.
- In order for MBCx to be effective, continuous operations need to be integrated into the broader standard operating procedures of the organisation. In order to create operational processes, onsite personnel and the MBCx operations team need to plan out how they will search the MBCx reports, dashboards, and RCx faults for opportunities for improvement, how they will take action to implement those improvements, how they will check to see if those improvements were successful, and how they will communicate the results to key stakeholders.
- In addition, in order for the MBCx software to continue to function at its optimal level, it needs to be regularly maintained and updated, just like the underlying systems that it is monitoring.

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Components of the Monitoring–Based Commissioning Process



Defining Monitoring-Based Commissioning

Monitoring based commissioning (MBCx) combines ongoing building energy system monitoring with standard retro-commissioning (RCx) practices with the aim of providing substantial, persistent, energy savings



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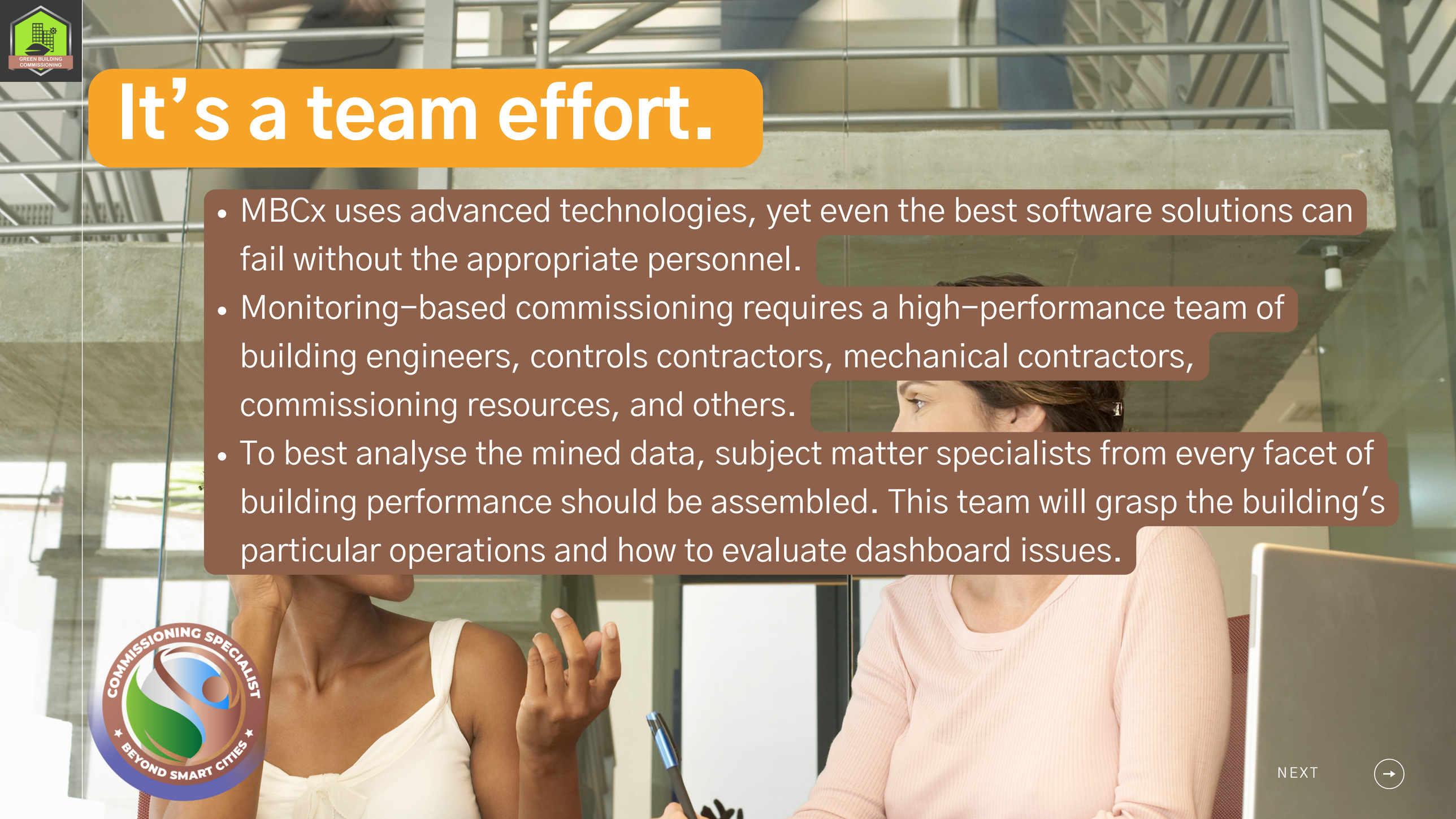
It’s not just about the energy savings.

According to the Research report, MBCx is a strategy that has a very high return on investment. According to the report, the buildings that were analysed for this benchmarking project achieved an average reduction in energy consumption of 10%, with some reaching as high as 25%. The report also found that the investment had a straightforward payback period of 2.5 years. Undoubtedly, those are some really outstanding results.

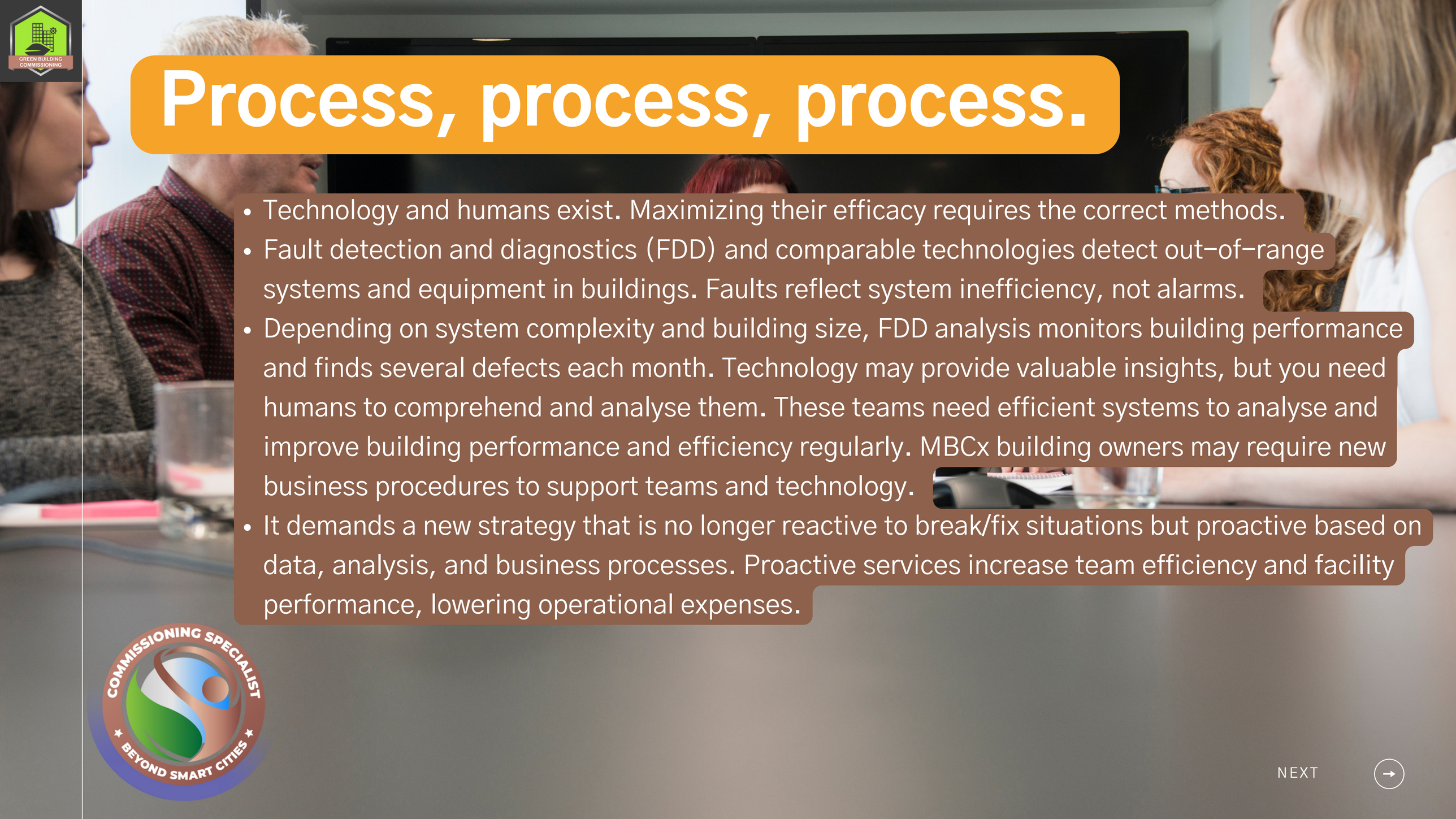
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It’s a team effort.

- MBCx uses advanced technologies, yet even the best software solutions can fail without the appropriate personnel.
- Monitoring-based commissioning requires a high-performance team of building engineers, controls contractors, mechanical contractors, commissioning resources, and others.
- To best analyse the mined data, subject matter specialists from every facet of building performance should be assembled. This team will grasp the building’s particular operations and how to evaluate dashboard issues.



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Process, process, process.

- Technology and humans exist. Maximizing their efficacy requires the correct methods.
- Fault detection and diagnostics (FDD) and comparable technologies detect out-of-range systems and equipment in buildings. Faults reflect system inefficiency, not alarms.
- Depending on system complexity and building size, FDD analysis monitors building performance and finds several defects each month. Technology may provide valuable insights, but you need humans to comprehend and analyse them. These teams need efficient systems to analyse and improve building performance and efficiency regularly. MBCx building owners may require new business procedures to support teams and technology.
- It demands a new strategy that is no longer reactive to break/fix situations but proactive based on data, analysis, and business processes. Proactive services increase team efficiency and facility performance, lowering operational expenses.

MBCx doesn’t work on its own.

- MBCx may increase performance and save money, but without a complete commissioning strategy, it won’t give the benefits building owners want, need, and expect from commissioning vendors and partners.
- A complete commissioning strategy must incorporate existing building commissioning (EBCx) to ensure a facility is working optimally for present demands, while MBCx may save money and discover advanced performance improvement solutions. This complete commissioning technique only works with qualified building personnel’s diagnostics. An HVAC system was overworked to cool a building.
- MBCx showed engineers that one of the temperature sensors was reporting much higher than in other parts of the building, but it required a human touring the building to recognise that the sensor was behind the soda machine to fully appreciate that data. The comprehensive diagnosis and correction required the EBCx.

What are some of the benefits of implementing a MBCx Project?

- Benchmarking how your facility performs compared to other facilities.
- Energy savings (10-25%)*.
- Continual monitoring of all your equipment 24/7/365.
- Identification of underlying issues behind ongoing problems in your facility.
- Discovering previously unknown savings opportunities.
- Verifying that savings initiatives produce real results.
- Optimizing facility performance over time.
- Enhancing staff knowledge about your facility.
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How much does MBCx cost to implement?

- For the first year, the cost could range anywhere from $0.10/ft2 to $0.50/ft2 on average, although this will vary greatly depending on the size and complexity of your facility.
- After then, the costs of continued monitoring could vary from $0.09 and $0.15 per square foot (including software) for each subsequent year.



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