Capabilities Brochure

Digital Twin Technology for the C&I Industry

Setmetrics

SET METRICS

Digital Transformation of the Commercial and Industrial Building Retrofit Market

Setmetrics' software technology platform puts data, tools and know-how directly into the hands of building owners and their service providers to drive optimized capital project outcomes.

Technology is rapidly changing the landscape of business, doing away with old paradigms and re-engineering processes, structures and relationships. The global building retrofit industry is no exception - pre-digital and inefficient, it is ripe for modernization. Sub-optimal capital projects and underperforming commercial buildings are costing millions in wasted energy, excessive running costs and inadequate returns.

Setmetrics has developed a 'digital twin' cloud service for capital projects which provides the engine, the tools and the launching pad for the digital transformation of the industry.

The breakthrough technology allows users to rapidly create an accurate digital twin of a building, unlocking hourly energy consumption forecasts and powerful project optimization tools. The unique "Software as a Service" (SaaS) platform can be easily used by non-engineers to optimize the efficient operation of commercial buildings, presenting innovative digital solutions for the processes used to identify, design and manage building retrofits.

The application of Setmetrics' digital twin technology to building retrofits delivers major benefits – digitizing workflows and standardizing processes, pooling and democratizing data, and delivering significant cost savings and efficiency gains across the building lifecycle.

The Setmetrics platform can be applied at the building, portfolio or city level and has the potential to facilitate a comprehensive digital transformation of the industry globally - unleashing huge opportunities for efficiency gains, growth and value capture.

THE QUEST FOR BETTER BUILDINGS

The commercial and industrial building market is currently plagued by a reactive approach to building performance resulting from limited budgets, poor data, and disparate systems that lack holistic building insight.

The service providers tasked with maintaining, upgrading and optimizing buildings are constrained by pre-digital processes, lacking effective technology, tools and timely whole-of-building data for fast, effective analysis and informed decision making. They need practical technology to help them assess what to do, how to meet specified building targets within a given capital budget and how to measure progress and verify success.

Building owners are seeking the means to optimize their buildings and their business strategy: they need tools to develop an accurate long-term master plan across a portfolio, to ensure regulatory compliance, to meet their Environmental, Social and Governance (ESG) obligations, and to prioritize, measure and verify contracted works.

NEW TECHNOLOGY FOR OLD CHALLENGES - THE SETMETRICS SOLUTION

For the first time, our unique platform puts capital projects planning technology directly into the hands of building owners and their service providers. Deceptively easy to use but highly accurate, the platform is underpinned by a gold-standard energy modeling engine and provides powerful analytical and forecasting tools that leverage advanced simulation and AI technologies.

The platform is highly scalable: new buildings can be linked into the ecosystem in a day, enabling the fast on-boarding of large building portfolios and creating the opportunity for city-wide applications.

A new paradigm for the industry

Setmetrics' platform digitizes the industry - fundamentally changing the quality of advice provided to building owners.

Based on data transparency and collaboration, the platform digitally connects building owners and service providers including Mechanical, Electrical, Plumbing (MEP), System Integrators, Consulting Engineers, OEM Suppliers, Government Agencies, Standards bodies and Financial stakeholders.

With broad access to easy-to-use digital tools, participants collaborate to provide informed advice on how best to improve and increase the value and performance of the building, aligning all participants around the building owner's objectives.

Service providers have the means to standardize and automate processes, to differentiate and demonstrate their value as a trusted adviser and ultimately deliver measurable and proven value to the owner. It expands their role and capabilities and enables a major shift from reactive to proactive long-term asset management.

The gap in their capabilities to "talk the language" of building owners is addressed, with improved alignment of strategic goals.

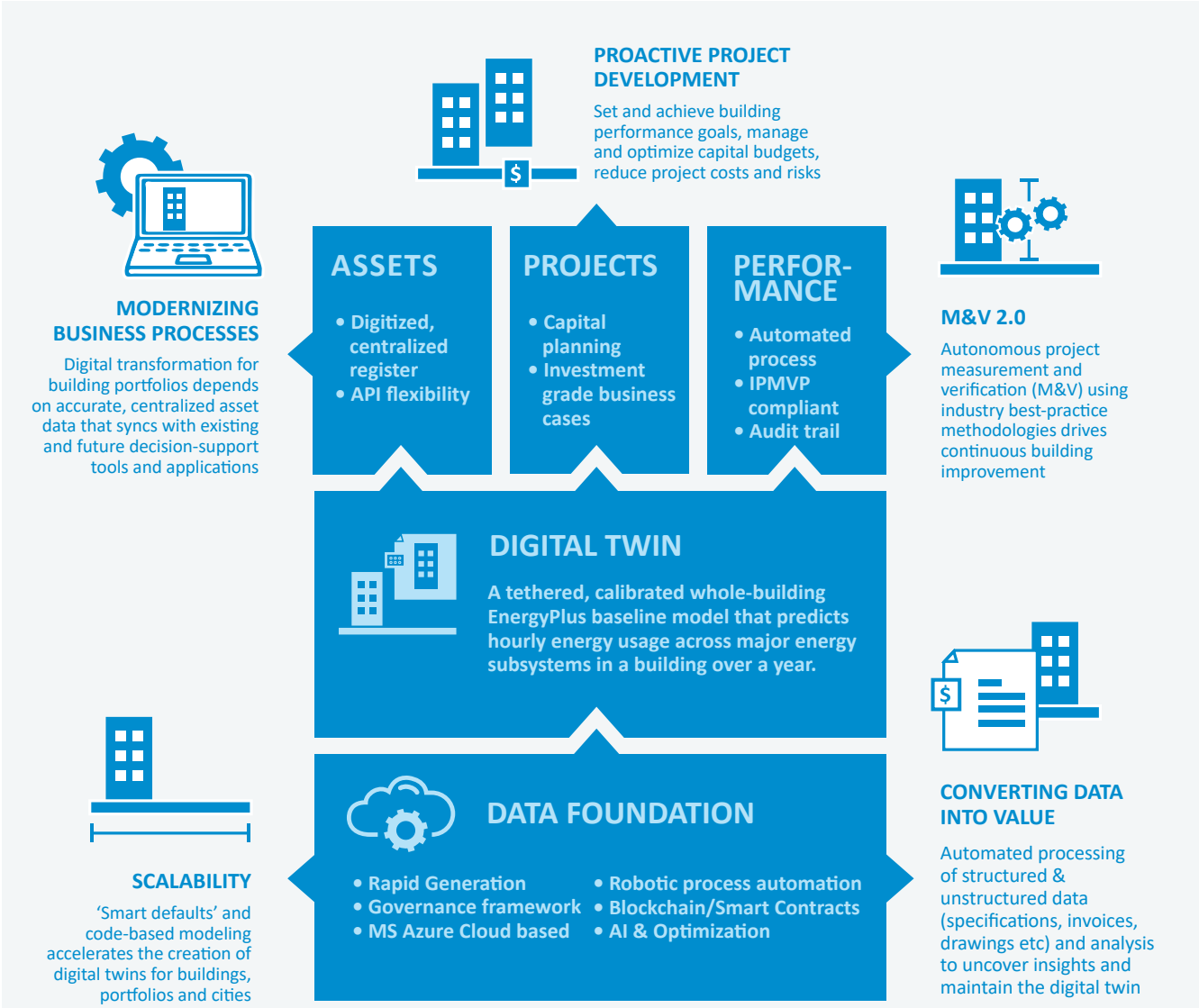


Figure 1: Flexible digital offering - asset, project and performance modules built on a digital twin foundation.

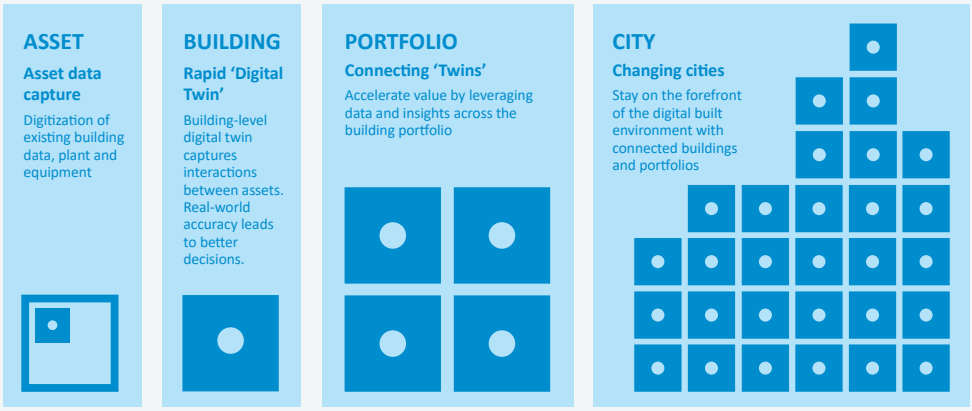


Figure 2: Platform scalability - digitizing the built environment from single assets to cities.

DIGITAL TRANSFORMATION OF CAPITAL PROJECTS

As more building data is digitized it becomes a powerful asset, a tool for business management and informed decision-making that now can be accessed, shared and leveraged by anyone tasked with driving better building performance. The project data becomes a valuable tool to win and grow business from key customers.

Setmetrics' technology provides a framework for a business to implement its digital strategy with a holistic, long-term approach. The modular features provide maximum flexibility and ensure that subsequent investment in technology can be integrated, and much more effective.

How it works

Setmetrics offers innovative and smart applications

We utilize scalable Microsoft Azure cloud-based computing infrastructure combined with complex thermal modeling techniques. The easy-to-use software front end disguises a powerful engine which rapidly delivers highly detailed engineering-grade results.

RAPID DIGITAL TWIN CREATION

Setmetrics leverages the industry-leading building energy modeling engine (EnergyPlus) wrapped around clever breakthrough technologies that unlock energy modeling capabilities for a broad audience.

Users create a digital twin by interacting with a web interface to upload documentation and building information, and receive real-time feedback that focuses their data collection effort and reduces audit costs. Behind the scenes, robotic process automation (RPA) analyses and extracts key input data and creates a custom database of indexed, building-specific information. Optical character recognition (OCR) techniques scan drawings, invoices and photos converting unstructured data into valuable, searchable information that is used to seed the energy model.

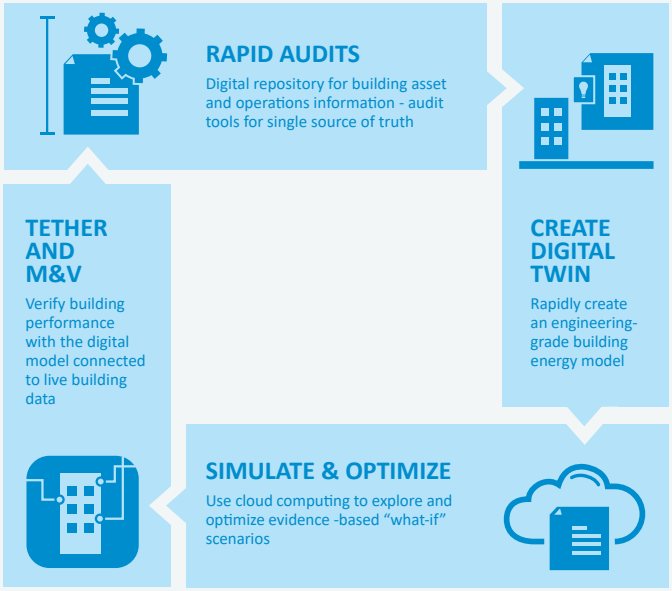
Setmetrics' platform is game-changing, transforming the business model for the entire industry.

Advanced building-profiling technology allows an energy model digital twin to be created in just hours, rather than weeks, with its predictive accuracy maintained via automated calibration against the building's sub-metering infrastructure. Once complete, the twin is launched onto the platform – 'live' and ready to deliver results.

TARGETED FORECASTS (SIMULATIONS)

Building Owners assign performance targets from ESG goals such as emissions or energy reductions, through to building-specific operational metrics. Service Providers can assess the suitability of any scenario they propose against these targets with optimization capabilities that hunt for combinations of improvements. Using powerful search algorithms, thousands of simulations iteratively refine the search space until a range of scenarios are found that achieve the desired outcomes.

Figure 3: The perfect corporate toolset to achieve a GHG portfolio reduction target - on time and on budget.



TOOLS TO OPTIMIZE ASSETS

The Asset module hosts extracted and digitized asset information in a centralized asset register comprising key engineering and financial parameters. This digital dataset syncs with other asset management tools onsite and unlocks new value creation opportunities such as detailed asset master plans, optimal plant and equipment management strategies and the ability to quantify the impact of deferred maintenance or replacement decisions.

OPTIMIZING CAPITAL PROJECTS

The Projects module caters from small operational changes to multi-year, million-dollar capital upgrades. Users can use an intuitive, guided wizard to model proposed building changes to create engineering-grade performance and financial results. The simulation engine (EnergyPlus) handles complex analyses with rigour and repeatability and has become the standard for Energy Performance Contracts, Public Private Partnerships and all scenarios where accuracy is critical.

OPTIMIZE PERFORMANCE AND REDUCE RISK

Developed in accordance with international standards (IPMVP) for energy savings calculations, Setmetrics' Performance module enables users to automate project measurement and verification (M&V) and manage risks associated with under-performing projects, shifting baselines and interference from unrelated building operations.

With transparency, auditability and third-party independence introduced to energy savings calculations, the industry is presented with new opportunities. Setmetrics is at the forefront of exploring how digital ledger technologies such as smart contracts can further enhance these benefits and unlock even more value: financial liabilities once associated with long-term performance guarantees can be better managed; projects across multiple locations can be bundled to share risk and reward; and contractual disputes arising from under-performance can be avoided as the impacts of each party's actions are readily quantifiable and remedied.

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