TRIRIGA Tuesday

Strategic Real Estate Asset Management

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Kal Gyimesi
TRIRIGA GTM Product Manager
IBM Sustainability Software
kalgyimesi@us.ibm.com

Sal Rosato
Workplace Technology Transformation Manager
IBM Global Real Estate
salr@us.ibm.com

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IBM

Corporate real estate is undergoing a **shake-up...**

... the time for enterprises to **slash costs** from their real estate operations is now

Most enterprises have

30-50%

more real estate than it needs

That was before the Pandemic
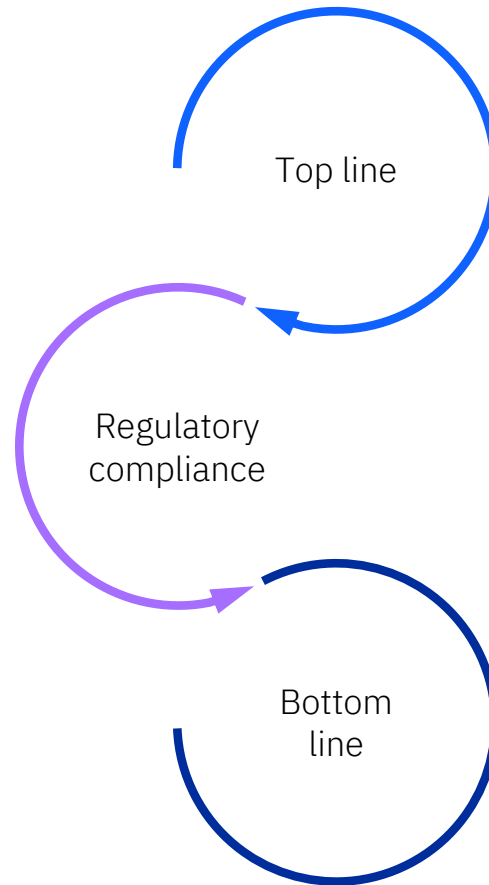
Today, in-office occupancy
remains stuck below

50%

Source: Accenture, Kastle Systems.

Leading edge enterprises are **transforming real estate operations** from an afterthought to a contributor to growth and profits

Top line
- Workforce productivity
- Availability of revenue-generating facilities such as retail outlets, restaurants, bank branches or arenas
- Uptime of revenue-generating capital assets such as cell towers or billboards

Regulatory compliance
- Lease accounting mandates (ACS, IFRS, GASB)
- System of record for audits (safety, ISO, SOC,…)
- Environmental audits
- ESG reporting

Bottom line
- Real estate portfolio optimization and realignment
- Reduction of space usage
- Efficiency of maintenance and warranty repairs
- Cross-pollination of data across the real estate lifecycle to optimize operations

Enterprise real estate challenges are increasingly complex
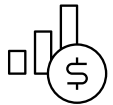
Real estate is typically the second highest organizational cost after its people
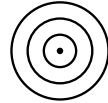
Enterprises are hampered by siloed systems that increase costs and prevent timely response to critical events
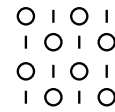
Data proliferation and the isolation of data between real estate functions limit cost savings

All while investment in workplace experience moves to the forefront of efforts to attract talent

These challenges have been compounded by the Pandemic:

Pressure to reduce costs through re-balancing real estate portfolio

Determining how to bring employees back on-site safely and confidently

Ensuring critical workplace services are available when and where they are needed

Organizational complexity, regulatory and operational constraints are holding back digital transformation

What are the biggest challenges to your enterprise' digital transformation efforts?

44% Organizational complexity

43% Regulatory constraints

39% Legacy systems and architecture constraints

36% Employee resistance to change

35% Cybersecurity issues

32% Inadequate skills

Many enterprises have complex operations that require business process automation and configuration

ESG regulatory reporting requires continual information across real estate portfolio

Most enterprises have more than 10 systems, some over 40 that manage real estate lifecycles

Single-purpose "best of breed" solutions limit data connection across operations

Source: IBM Institute for Business Value Global CIO Study, 2021.

Corporate Real Estate teams focus on five core capabilities across their portfolio

Real Estate and Leases

Sustainability

Traditional Integrated Workplace Management (IWMS)

Space

Maintenance

Projects
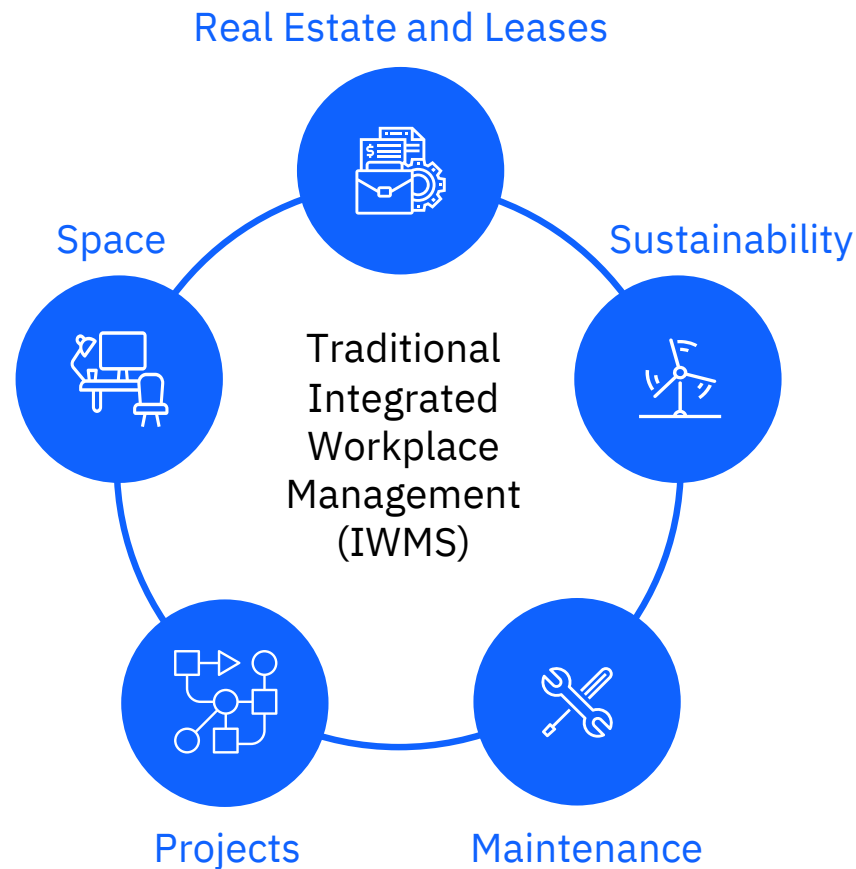
Strategic Real Estate Asset Management offers a complete suite of best-in-class applications to manage complex business operations

- Real Estate management, workplace experience and cost optimization with process automation

- Monitoring, management and maintenance of critical assets

- Measurement and reporting on sustainability initiatives and goals

Ecosystem

Extensions

TRIRIGA Application Suite

Integrated

Maximo Application Suite

Envizi
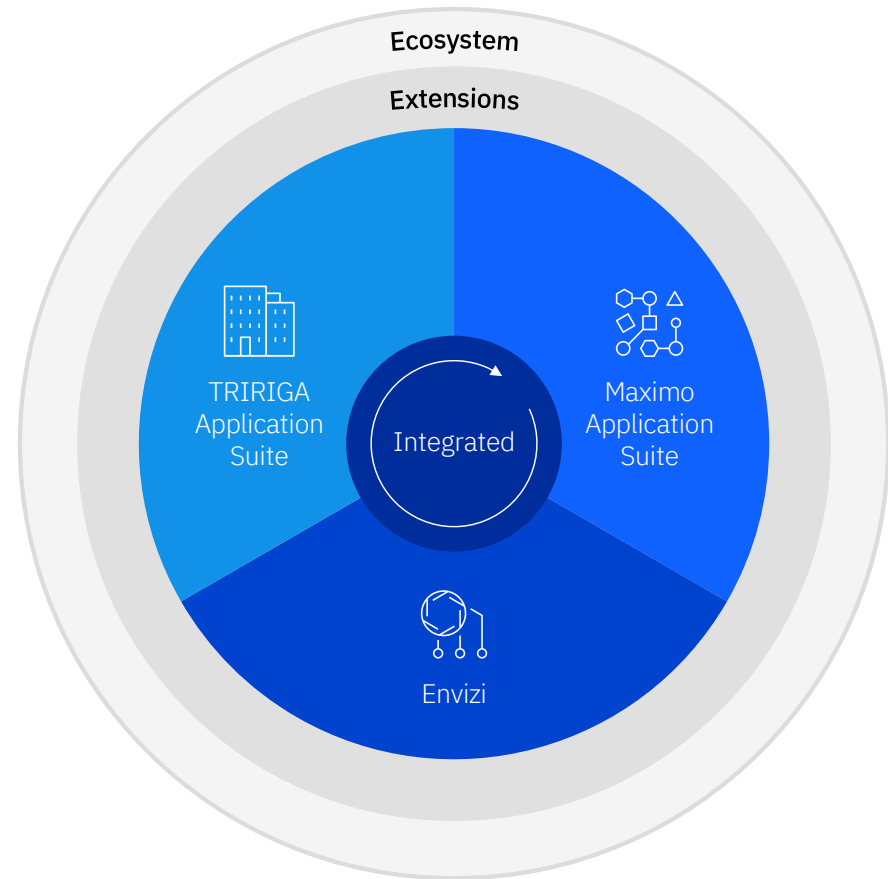
Strategic Real Estate Asset Management extends beyond IWMS to manage complex business operations

TRIRIGA

– Location-based hierarchy

– Request portal is the "front door" to initiate service requests

– Full OOB complement of core real estate capabilities

– Configurable to align to user business processes

– End-user tools for workplace experience

Lease

Space

Sustainability

Strategic Real Estate Asset Management (STREAM)

Projects

Maintenance

Envizi

– Environmental goals and reporting

– Carbon emissions and energy reporting

– Capture activity data (energy, water, waste) or CO_2 data from suppliers

TRIRIGA

– Routine requests (cleaning, facility repairs, catering, moves, etc.)

– Scheduled preventive maintenance

Maximo

– Complex equipment failures

– Predictive and condition-based maintenance

– Automated sensor-driven inspection [9]
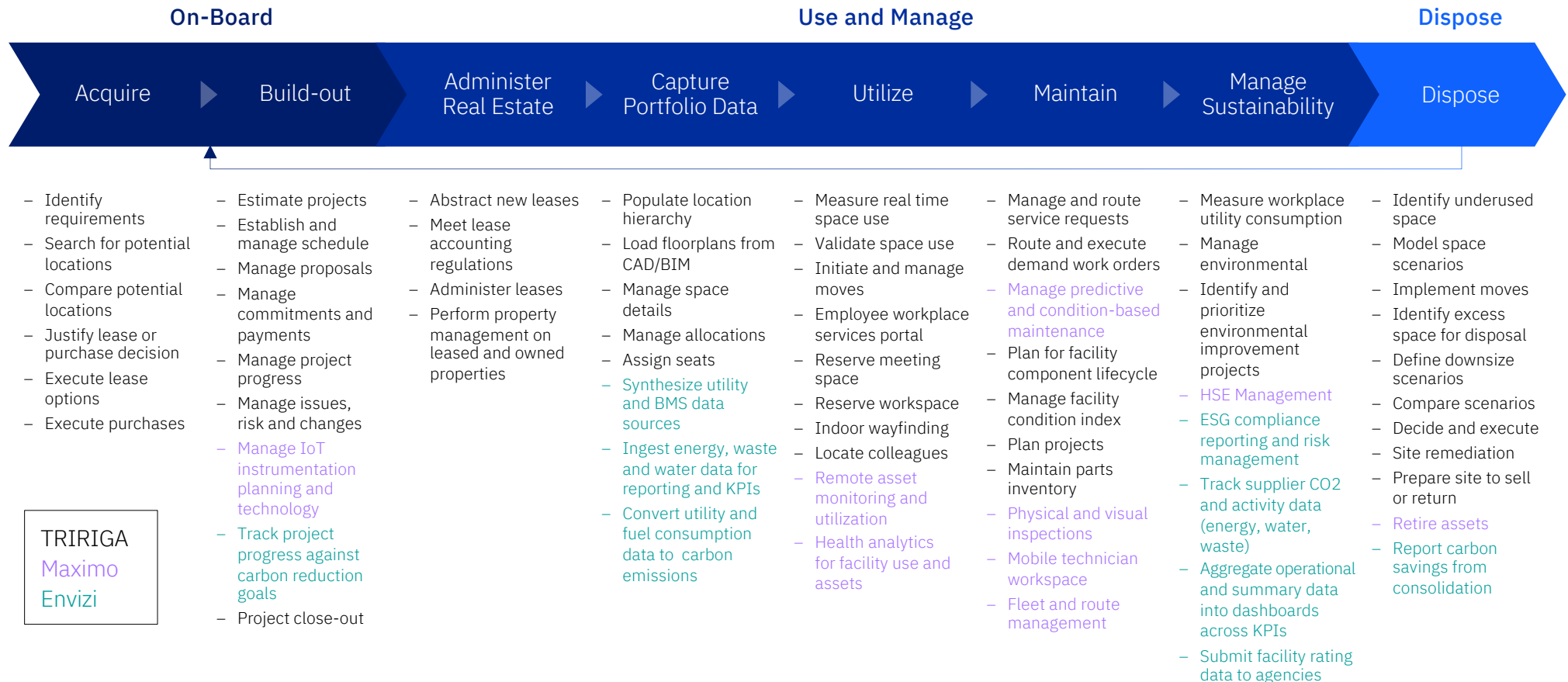
STREAM substantially extends sustainability, maintenance and asset management in optimizing real estate lifecycles

On-Board   **Use and Manage**   **Dispose**

Acquire	Build-out	Administer Real Estate	Capture Portfolio Data	Utilize	Maintain	Manage Sustainability	Dispose

Acquire
- Identify requirements
- Search for potential locations
- Compare potential locations
- Justify lease or purchase decision
- Execute lease options
- Execute purchases

TRIRIGA
Maximo
Envizi

Build-out
- Estimate projects
- Establish and manage schedule
- Manage proposals
- Manage commitments and payments
- Manage project progress
- Manage issues, risk and changes
- Manage IoT instrumentation planning and technology
- Track project progress against carbon reduction goals
- Project close-out

Administer Real Estate
- Abstract new leases
- Meet lease accounting regulations
- Administer leases
- Perform property management on leased and owned properties

Capture Portfolio Data
- Populate location hierarchy
- Load floorplans from CAD/BIM
- Manage space details
- Manage allocations
- Assign seats
- Synthesize utility and BMS data sources
- Ingest energy, waste and water data for reporting and KPIs
- Convert utility and fuel consumption data to carbon emissions

Utilize
- Measure real time space use
- Validate space use
- Initiate and manage moves
- Employee workplace services portal
- Reserve meeting space
- Reserve workspace
- Indoor wayfinding
- Locate colleagues
- Remote asset monitoring and utilization
- Health analytics for facility use and assets

Maintain
- Manage and route service requests
- Route and execute demand work orders
- Manage predictive and condition-based maintenance
- Plan for facility component lifecycle
- Manage facility condition index
- Plan projects
- Maintain parts inventory
- Physical and visual inspections
- Mobile technician workspace
- Fleet and route management

Manage Sustainability
- Measure workplace utility consumption
- Manage environmental
- Identify and prioritize environmental improvement projects
- HSE Management
- ESG compliance reporting and risk management
- Track supplier CO2 and activity data (energy, water, waste)
- Aggregate operational and summary data into dashboards across KPIs
- Submit facility rating data to agencies

Dispose
- Identify underused space
- Model space scenarios
- Implement moves
- Identify excess space for disposal
- Define downsize scenarios
- Compare scenarios
- Decide and execute
- Site remediation
- Prepare site to sell or return
- Retire assets
- Report carbon savings from consolidation

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Why now?

Enterprise challenges

The top transformation challenges highlight growing regulatory constraints, legacy infrastructure and operational complexity

Source: IIBM Global CIO Study, 2021.

Re-alignment of real estate portfolios and work models	Targeted **sustainability** improvement and expansion of reporting	Increased rate of **M&A**, spin-offs and divestitures	Readiness for unexpected **business continuity** events
in-office occupancy is stuck **below 50%,** leading to a glaring inefficiency in the most expensive asset class	**76%** of top 50 economies are pursuing auditable corporate disclosure requirements around environmental impact	**60% increase** in M&A activity requiring major realignment of real estate portfolios	**55% experience** "shock events" requiring rapid-response within their real estate portfolio
Source: Kastle Systems	Source: Business and Sustainable Development Commission	Source: Statistia	Source: IBM.com

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Aligning real estate portfolios to work models is a strategic business decision

Input from Real Estate systems

- Space usage
- Facility utilization
- Maintenance costs
- Facility conditions
- Overall facility costs
- Lease clauses and terms
- Lease expiration
- Sustainability criteria

Strategic business considerations

- Organic growth or contraction
- Anticipated mergers, acquisitions, divestitures or spin-offs
- Changes in economic conditions
- Business continuity readiness
- Organizational comfort with new hybrid work models

Execution by Real Estate systems

- Lease termination or reassessment
- Manage projects
- Move management
- Site remediation

Sustainability can be tracked across

Facilities

Corporate Real Estate considers the physical structure's location, location risk, condition and overall age to develop options for alternative sites or replacement costs

Systems / Components

Facility Management determines when components, sub-assemblies and systems should be replaced with updated design or require preventive maintenance for optimal functioning
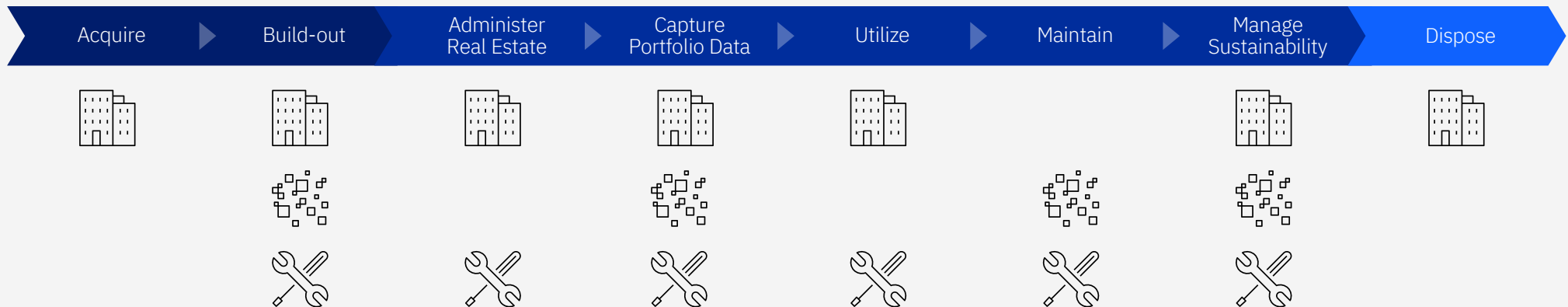
Operations

Facility Management and IT enable workforce transformation to improve the efficiency, digital optimization and execution of maintenance and major upgrade efforts

...a system incorporating workplace processes and practices to reduce an enterprise's environmental impact is needed

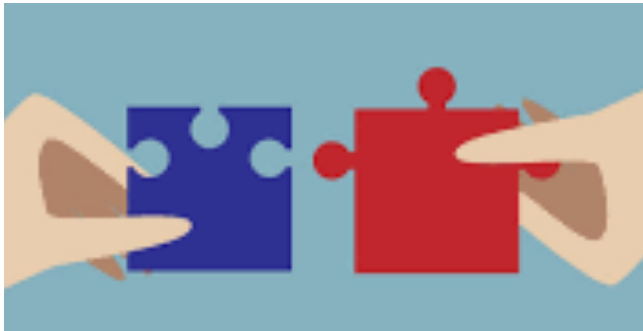There are opportunities to affect sustainability throughout real estate lifecycle processes

Acquire	Build-out	Administer Real Estate	Capture Portfolio Data	Utilize	Maintain	Manage Sustainability	Dispose

Real estate systems must be responsive to continually changing business needs

Joint Ventures

Two Fortune 100 companies established a joint venture their boards wanted to get off the ground right away. Both had to identify and share information about the respective assets and employees that would join the JV globally.

One utilized TRIRIGA and was able to provide verified list of select employees within a day, while the other used a combination of other tools and took some months before they could respond with a corresponding list.

Mergers

Two Fortune 500 companies merged to form one of the largest US based healthcare enterprises. They created an entirely new market combining retail and insurance.

Both companies used TRIRIGA leading up to the merger and it helped smooth the complex merger to create a new Fortune 10 conglomerate
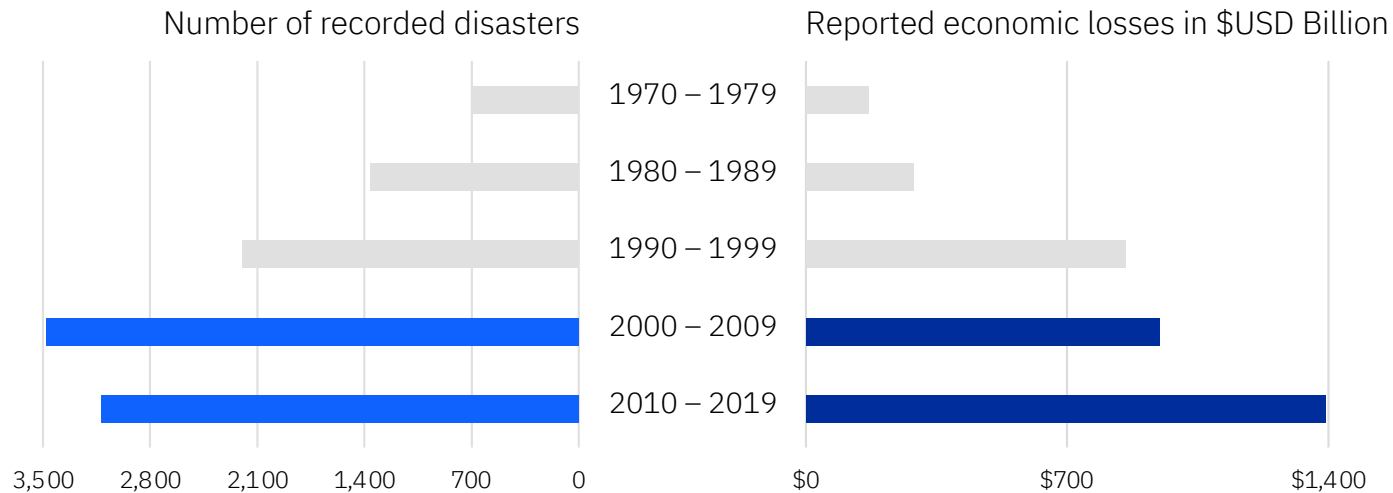
Spin-offs

While determining how to bring employees back to the workplace safely during the Pandemic, IBM's Global Real Estate team had to simultaneously spin-off an $18b business unit into a separate entity.

TRIRIGA was a critical tool to manage over 500 facilities, including large data centers with assets that were transferred and sub-leased to Kyndryl to meet an aggressive timeline to establish a new Fortune 500 company.

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The volume and the costs of business continuity events is growing

How weather disasters have changed...

Number of recorded disasters

1970 – 1979	
1980 – 1989	
1990 – 1999	
2000 – 2009	
2010 – 2019	

3,500   2,800   2,100   1,400   700   0

Reported economic losses in $USD Billion

$0 $700 $1,400

Readiness for unexpected business continuity events

Many other events add even more to the cost:

Pandemic

Geo-political unrest

Terrorist attacks

Cyber attacks

Infrastructure failures
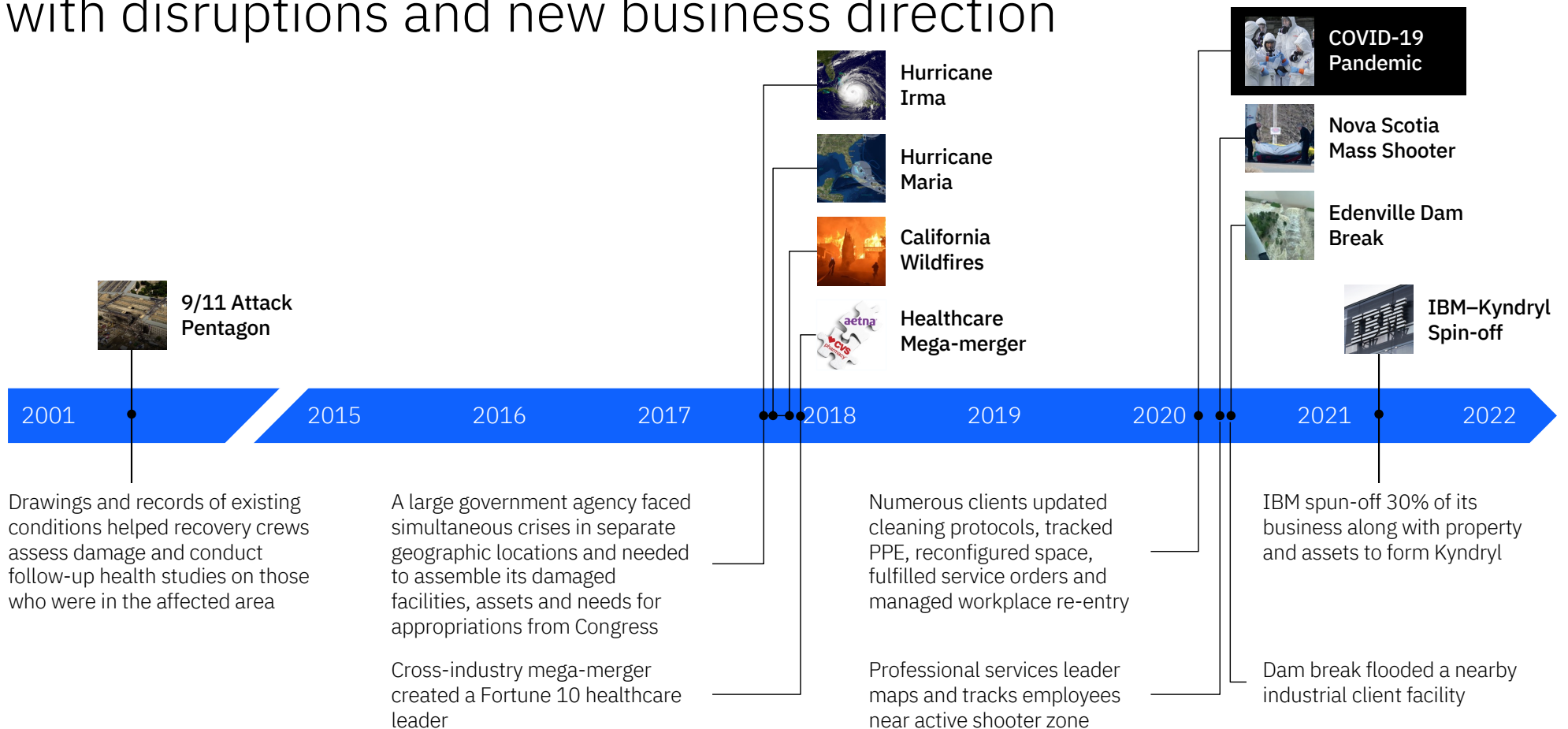
Fires

TRIRIGA clients were ready when faced with disruptions and new business direction

Increased M&A and spin-offs

Business continuity events

Hurricane Irma

Hurricane Maria

California Wildfires

Healthcare Mega-merger

COVID-19 Pandemic

Nova Scotia Mass Shooter

Edenville Dam Break

IBM–Kyndryl Spin-off

9/11 Attack Pentagon

2001 — **2015** — **2016** — **2017** — **2018** — **2019** — **2020** — **2021** — **2022**

Drawings and records of existing conditions helped recovery crews assess damage and conduct follow-up health studies on those who were in the affected area

A large government agency faced simultaneous crises in separate geographic locations and needed to assemble its damaged facilities, assets and needs for appropriations from Congress

Cross-industry mega-merger created a Fortune 10 healthcare leader

Numerous clients updated cleaning protocols, tracked PPE, reconfigured space, fulfilled service orders and managed workplace re-entry

Professional services leader maps and tracks employees near active shooter zone

IBM spun-off 30% of its business along with property and assets to form Kyndryl

Dam break flooded a nearby industrial client facility

The impact of Real Estate on corporate performance is driving workplace transformation

Value Creation Strategy

IoT and AI use cases increasingly deployed
–
Enhanced workplace experience
–
Optimize facilities to improve productivity and engagement
–
Shift focus to HIGH VALUE WORK

Strategic Management

STREAM becomes a strategic Asset
–
Consistent C-Suite visibility and dependency
–
Financial, operational and environmental OKRs linked to strategic goals

Performance Management

Enterprise value driven
–
Actively track KPIs such as total occupancy costs, space utilization, etc.
–
Automate processes and workflow
–
Manage across real estate lifecycle

Integrated Solutions

Centralized organizations
–
Centralized data platform
–
Real estate lifecycle functionality
–
Vertical integration capabilities

Point Solutions

Departmental focus
–
Decentralized operations
–
Task orientated activities
–
Limited data shared across lifecycle

IBM Purpose ⟳

To be the catalyst that makes the world work better.

IBM Global Real Estate enhances global activities

across
800 locations

managing
1,300 leases

covering
~50m sq/ft of space

in
100 countries

with
188k assets tracked

with complex and diverse operations

distributed as
45% office space

25% manufacturing

4% research

9% data centers

17% utility + others

which includes
5 waste-water treatment plants

274 back-up generators

meeting the needs of a dispersed workforce

serving
282k+ IBMers

plus
88k contractors

through
350 GRE employees

and
4,000+ real estate contractors

via
$2.0B operating budget

IBM Global Real Estate faces all the challenges that are addressed through STREAM

Enterprise challenges

- IBM has highly complex operations across multiple lines of business
- Expansion in SEC and EU ESG reporting requirements
- Substantial legacy infrastructure across IBM

Re-alignment of real estate portfolios and work models

IBM facilities have **highly varied occupancy.** There's a mix of essential on-site employees to go with a large base of mobile knowledge workers who expect hybrid work models.

Targeted **sustainability** improvement and expansion of reporting

IBM has run environmental programs for over 50 years.

We have **annual corporate environmental reporting** since 1990.

Increased rate of **M&A**, spin-offs and divestitures

In the last five years, IBM has made **23 acquisitions** headquartered in 10 countries.

In addition, GRE executed an $18b+ spin-off of Kyndryl that included extensive facilities, datacenters and assets

Readiness for unexpected **business continuity** events

IBM Global Real Estate's response to the Pandemic led to winning **IFMA's George Graves Award** for Facilities Management in 2021

Our legacy software stack held us back and was difficult to navigate

TRIRIGA			Maximo			
Archibus	ManagePath		Schneider EcoStruxure Building Operations (EBO)	Alerton Envision	Eaton Foreseer	
CadPlus Pro	REbase		SkySpark	BCS VMWare	JCI MetaSys	
Schneider TAC	Schneider PME	Optimum Energy OptiLoop	Sphera (formerly SiteHawk)	Utility Accountant / EEMS	Siemens Apogee Insight	Schneider PSO
Business Data Standards	Location Update	GRE Manual Updates	Worldwide Building Database	Move Request	SORT	Workplaces @IBM
SpaceSuite DB/2	Building Profile	Validation Tool	LMIS	SOS Notes	Furniture Req	FacWeb
SRS dB	Project Request Sheet	Rent Roll	WW Energy Mgt & Checklists	(COInS)	WASTE BD Notes Bromont	EHS - IMPACT (Incident Mgt, Processing And Containment Tracking)
Events Calendar	US Room request	EHS-EIA-Tools Connect - Main		Food Service		
Global Information Warehouse						

Limitations

- Many localized point solutions
- Too many 3rd party applications
- Customizations delay upgrades
- Siloed GRE data and processes
- Integrations with each application
- Mis-aligned hierarchies between applications
- Difficult to support
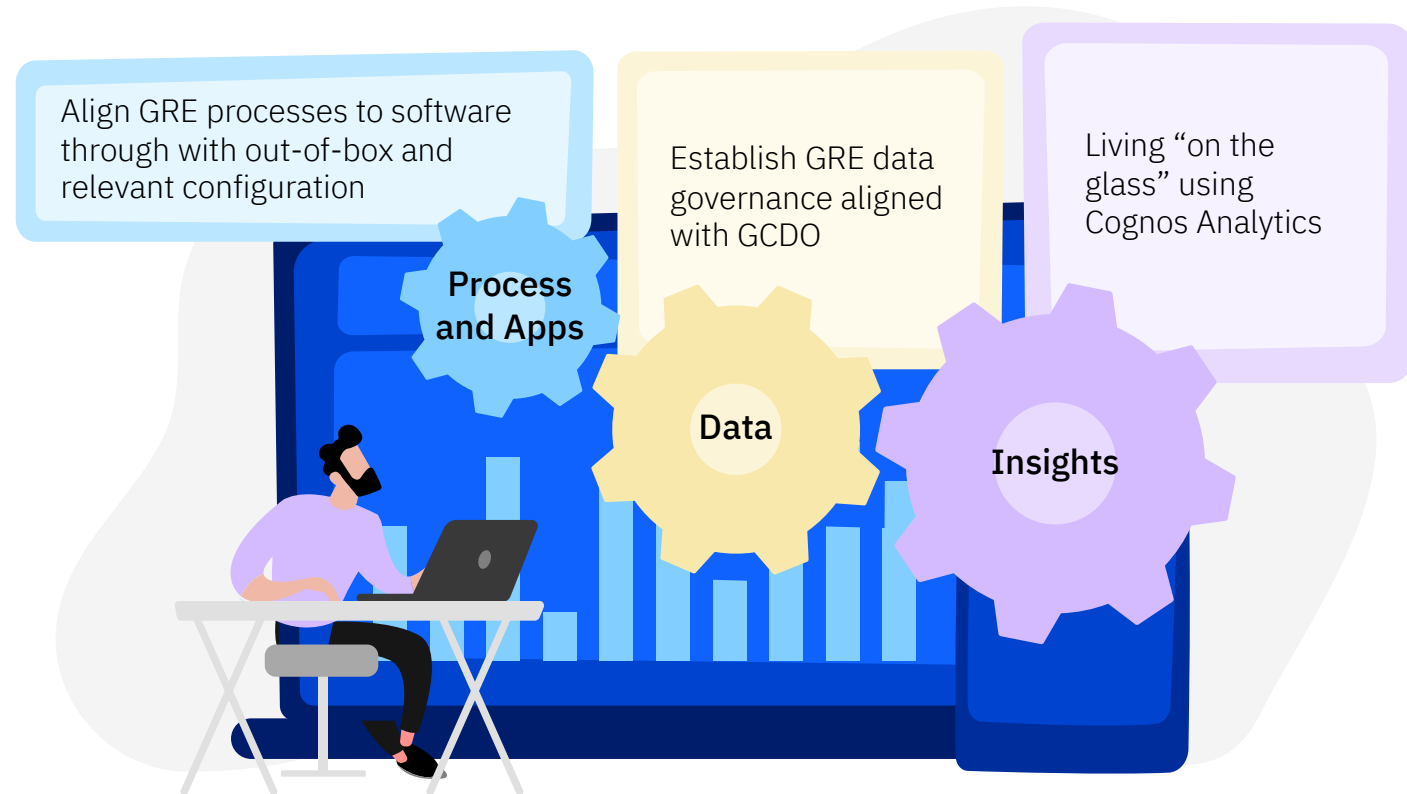
It was complex… siloed…. and customized

In preparing for the future

Transformation is required in order to be successful

GRE business transformation approach

Partnering with IBM solutions and stakeholders as Client Zero to transform our business

– Global Real Estate (GRE)

– Chief Information Office

– Global Chief Data Office (GCDO)

– IBM Sustainability Software

– IBM Consulting

Align GRE processes to software through with out-of-box and relevant configuration

Establish GRE data governance aligned with GCDO

Living "on the glass" using Cognos Analytics

Process and Apps

Data

Insights

North Star architecture is drastically simplified with several systems consolidated into core solutions

Legacy Software Stack

TRIRIGA				Maximo		
Archibus	ManagePath		Schneider EcoStruxure Building Operations (EBO)		Alerton Envision	Eaton Foreseer
CadPlus Pro	REbase		SkySpark		BCS VMWare	JCI MetaSys
Schneider TAC	Schneider PME	Optimum Energy OptiLoop	Sphera (formerly SiteHawk)	Utility Accountant / EEMS	Siemens Apogee Insight	Schneider PSO
Business Data Standards	Location Update	GRE Manual Updates	Worldwide Building Database	Move Request	SORT	Workplaces @IBM
SpaceSuite DB/2	Building Profile	Validation Tool	LMIS	SOS Notes	Furniture Req	FacWeb
SRS dB	Project Request Sheet	Rent Roll	WW Energy Mgt & Checklists	(COInS)	WASTE BD Notes Bromont	EHS - IMPACT (Incident Mgt, Processing And Containment Tracking)
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Global Information Warehouse						

North Star

IBM Services	IBM Consulting - CIO	System Integrator Partners
IBM Software IBM Cloud Paks	TRIRIGA Maximo Envizi	Software and SaaS Partners Cority

Red Hat Hybrid Cloud Platform
Development, Security and Operational Services

IBM Cloud Info Warehouse	Public Clouds	IBM Systems	Schneider, Siemens, JCI, Tridium, Cisco	Edge

Accelerate
IBM Consulting learns through GRE deployments to improve transformation capability

Co-Create
IBM software deployed fit for purpose, easily updated to latest version

Engage
Internet of Things devices improve occupant experience

TRIRIGA leads our enterprise-wide real estate management solution and is enhanced by Maximo and Envizi

TRIRIGA

– Location-based hierarchy

– Request portal is the "front door" to initiate service requests

– Full OOB complement of core real estate capabilities

– Configurable to align to user business processes

– End-user tools for workplace experience

– Routine requests (cleaning, facility repairs, catering, moves, etc.)

– IoT Integration
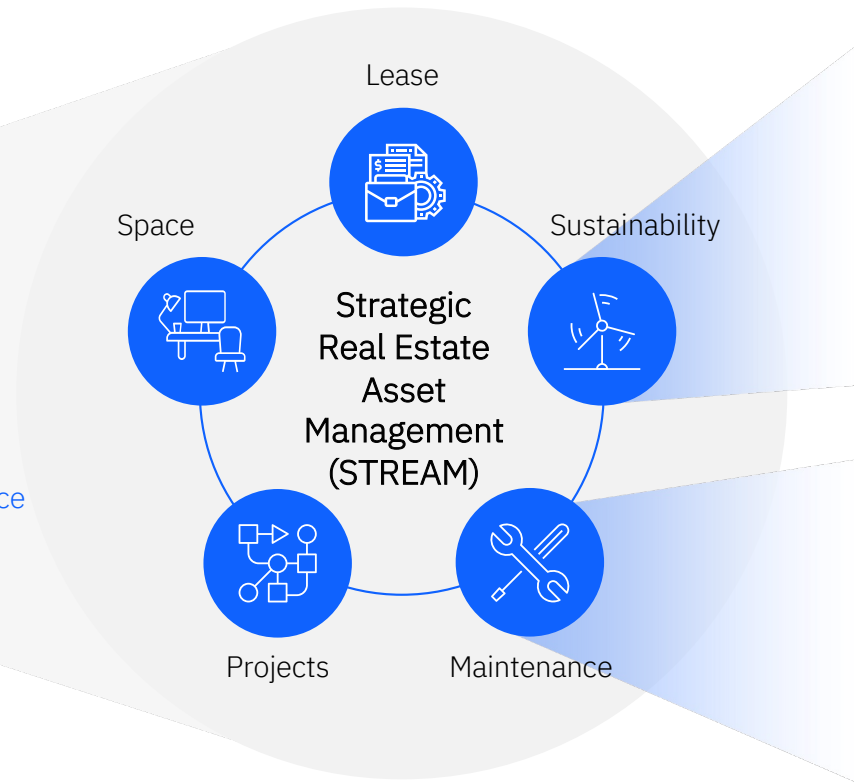
Lease

Space

Sustainability

Strategic Real Estate Asset Management (STREAM)

Projects

Maintenance

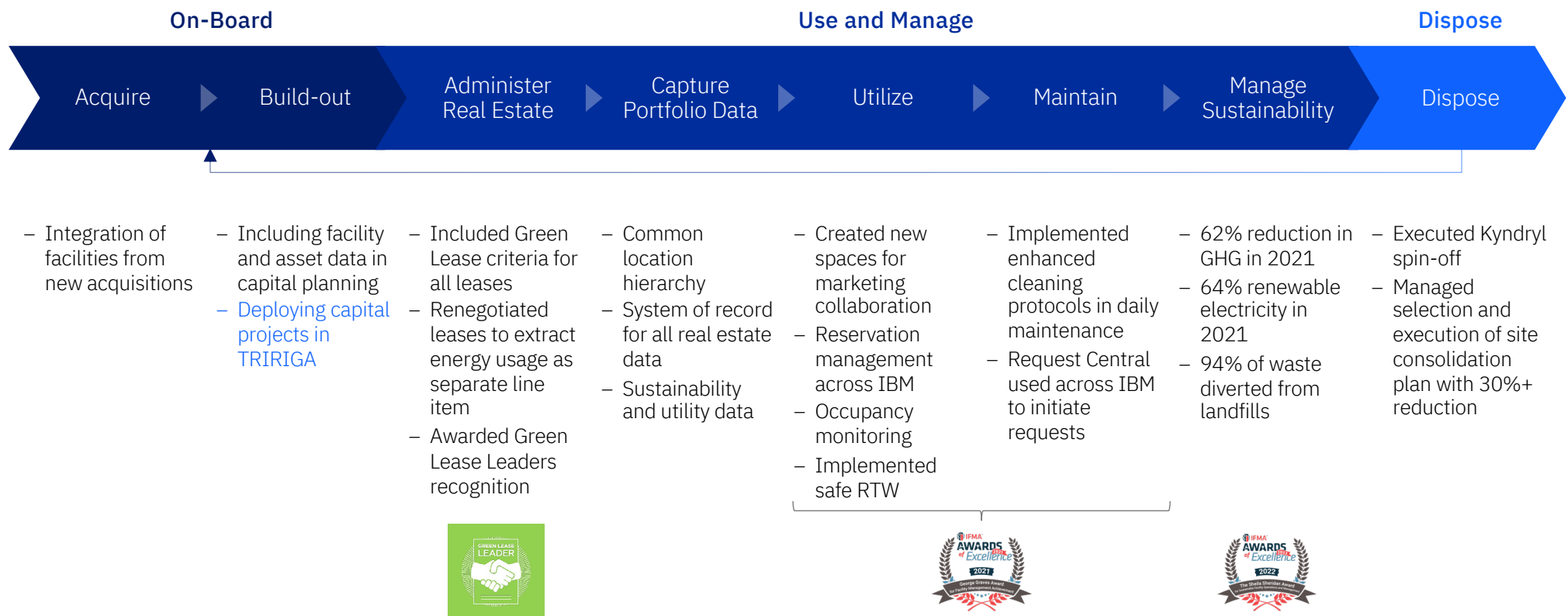**Envizi**

– Environmental goals and reporting

– Carbon emissions and energy reporting

– Capture activity data (energy, water, waste) or CO2 data from suppliers

– Enterprise-wide ESG reporting

Maximo

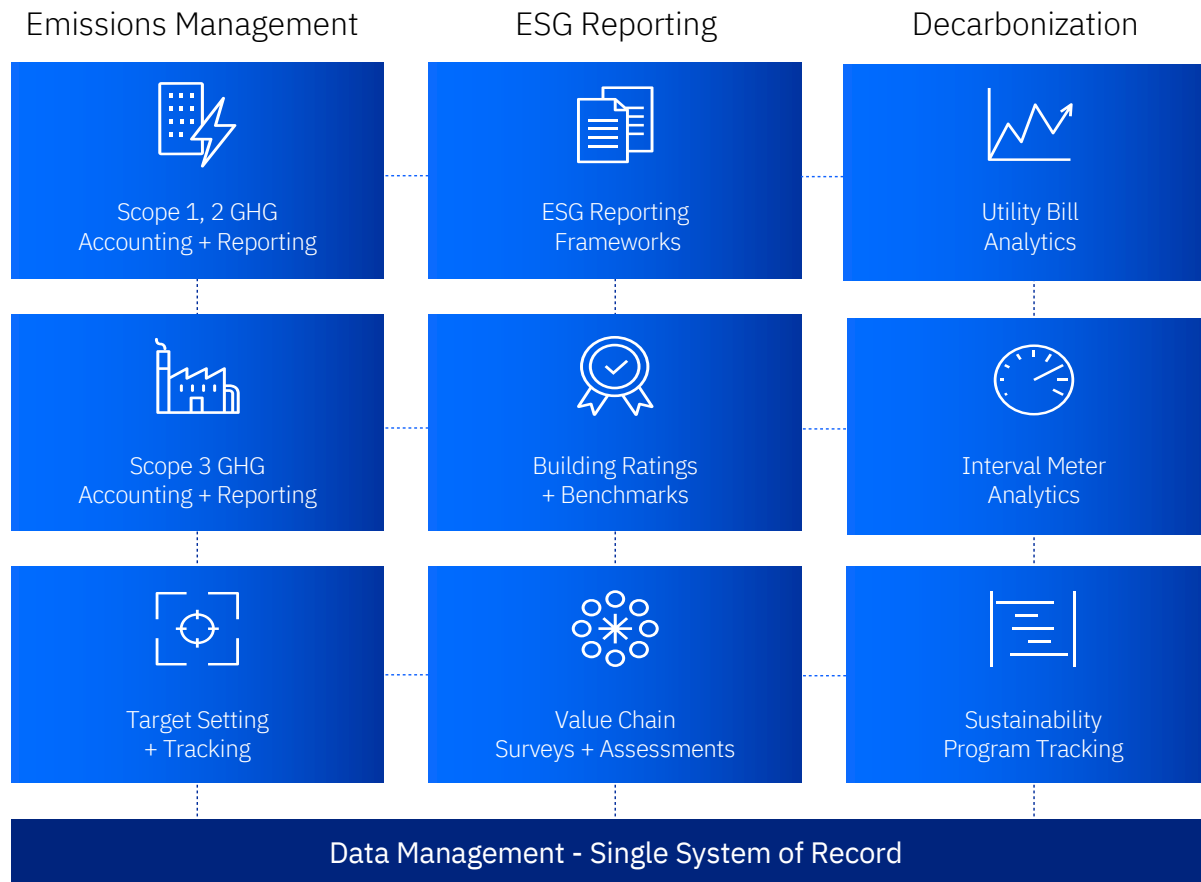– Full suite asset management

– Predictive and condition-based maintenance
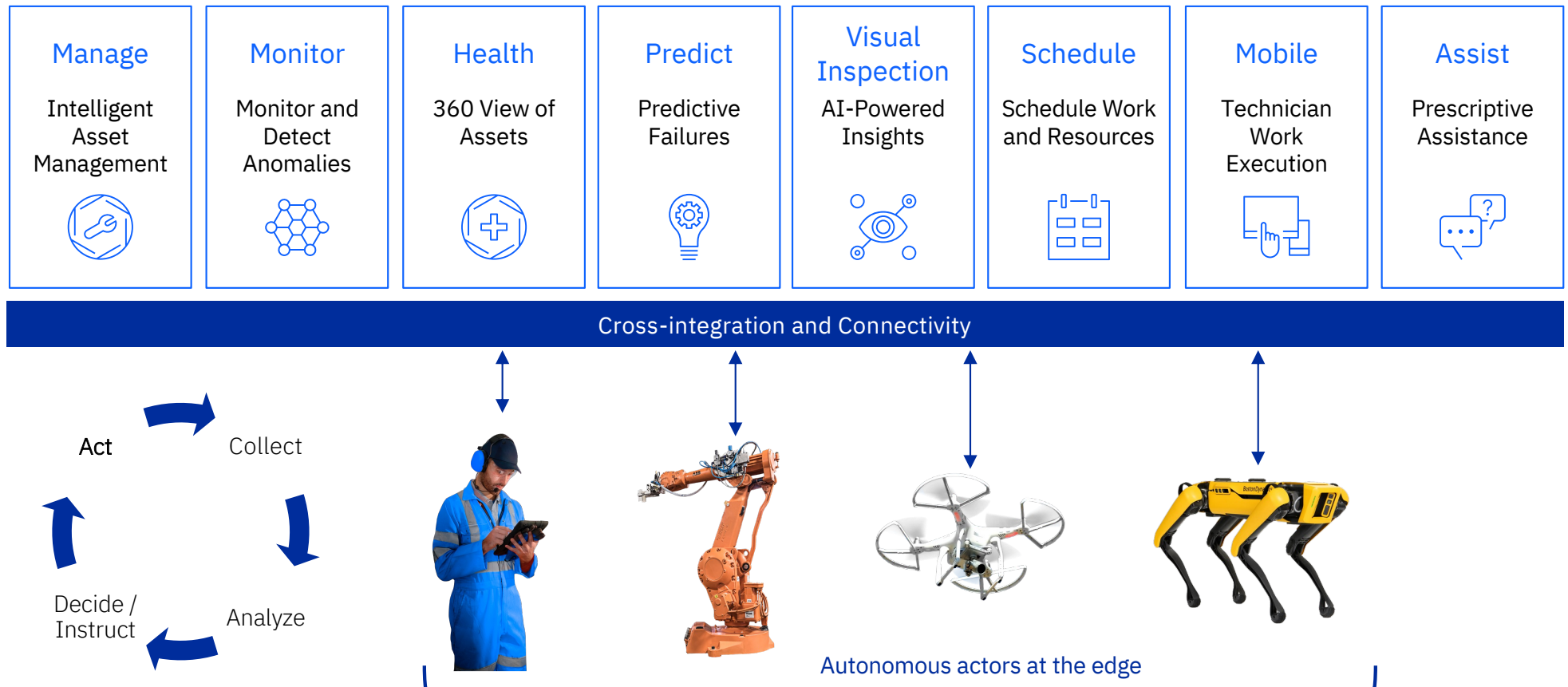
– Automated sensor-driven inspection

– IoT Integration

TRIRIGA, as an integrated suite, is critical throughout our real estate lifecycle

On-Board — **Use and Manage** — **Dispose**

Acquire	Build-out	Administer Real Estate	Capture Portfolio Data	Utilize	Maintain	Manage Sustainability	Dispose

- Integration of facilities from new acquisitions

- Including facility and asset data in capital planning
- Deploying capital projects in TRIRIGA

- Included Green Lease criteria for all leases
- Renegotiated leases to extract energy usage as separate line item
- Awarded Green Lease Leaders recognition

- Common location hierarchy
- System of record for all real estate data
- Sustainability and utility data

- Created new spaces for marketing collaboration
- Reservation management across IBM
- Occupancy monitoring
- Implemented safe RTW

- Implemented enhanced cleaning protocols in daily maintenance
- Request Central used across IBM to initiate requests

- 62% reduction in GHG in 2021
- 64% renewable electricity in 2021
- 94% of waste diverted from landfills

- Executed Kyndryl spin-off
- Managed selection and execution of site consolidation plan with 30%+ reduction

Envizi provides a complete framework for enterprise ESG reporting

Emissions Management	ESG Reporting	Decarbonization
Scope 1, 2 GHG Accounting + Reporting	ESG Reporting Frameworks	Utility Bill Analytics
Scope 3 GHG Accounting + Reporting	Building Ratings + Benchmarks	Interval Meter Analytics
Target Setting + Tracking	Value Chain Surveys + Assessments	Sustainability Program Tracking

Data Management - Single System of Record

Maximo provides best-in-class capabilities through an integrated approach to optimizing assets

Manage	Monitor	Health	Predict	Visual Inspection	Schedule	Mobile	Assist
Intelligent Asset Management	Monitor and Detect Anomalies	360 View of Assets	Predictive Failures	AI-Powered Insights	Schedule Work and Resources	Technician Work Execution	Prescriptive Assistance

Cross-integration and Connectivity

Act

Collect

Decide / Instruct

Analyze

Autonomous actors at the edge

Maximo helps meet service agreements, maintain complex equipment and informs capital planning

Datacenters	Manufacturing	Water Treatment
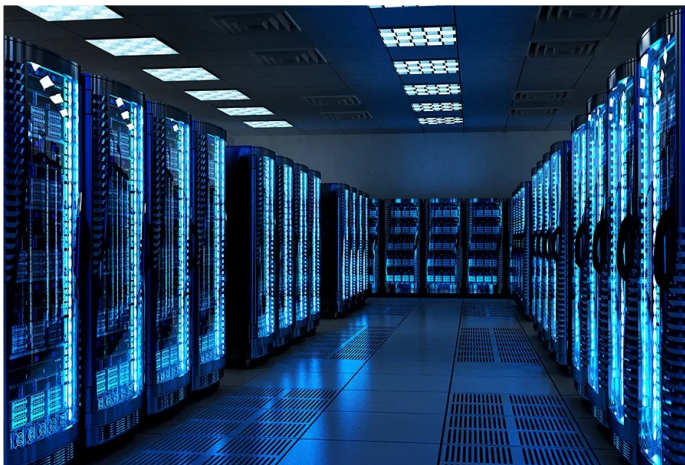
Datacenters

– Datacenters have critical uptime requirements

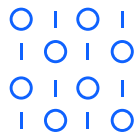– Cooling systems

– Air handlers

Manufacturing

– Control systems keep environmental specifications in check

– Air handlers

– Chillers

– Pumps

Water Treatment

– Instrumentation to ensure water quality remains within specifications

– Waste handling and chemical injection pumps

– Mixers

– Blowers

# Lessons learned as we navigate this journey

Digital

- Transformation is a team sport that starts at the top
- Configure, don't customize your software
- Speed to improve/upgrade is everything
- Process, process and process interactions

Sustainability

- Transparency, authenticity, and credibility
- Trust but verify; go ahead and automate, but check the automation
- 3rd party data assurance
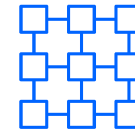
Governance

- Define clear roles and responsibilities from data gatherers, data entry, data verifiers
- Establish ownership of process, applications, data, and reporting
- Leverage single sources of truth to increase trust and speed to insights

Real Estate.
Assets.
Sustainability.

The time to act is now