



# Smart Connected Buildings

Energy Efficiency in Buildings Conference  
June 28<sup>th</sup> 2022

■ ■ ■  
The better the question. The better the answer.  
The better the world works.



Building a better  
working world

# Smart, Connected Buildings

## Perspectives of the Future

---

### Everything is changing

- ▶ *“All space will be flexible and interconnected”*
- ▶ *“Buildings and environments will rapidly become ‘smart’”*
- ▶ *“Analytics companies like Google will take over control of building systems, capturing value from traditional players and commoditizing the market”*



### Change will be evolutionary

- ▶ *“Smart buildings provide some cost savings relative to traditional systems, but the ROI is not game changing”*
- ▶ *“There are bound to be challenges that limit system convergence”*
- ▶ *“‘Cutting edge’ owners will adopt new technologies aggressively, but overall adoption of smart buildings will be gradual”*



**How are building systems changing?**

**How will these changes impact the overall market?**

# Smart, Connected Buildings

## Types of Building Systems

### Core Building Systems

HVAC

*Heating and cooling*

Electrical Distribution

*Electricity*

Data / Comms

*Cable, internet, phone*

Lighting

*Lights and lighting control*

Security

*Controlled access, monitoring*

Fire

*Alarms, sprinklers*

Water

*Water distribution*

Building Shell

*Windows, walls*

In every building

### Additional Infrastructure Related Systems

Elevators & Escalators

*People movement*

Intercom

*Audio announcements*

Rainwater Monitoring

*Rainwater collection and reuse*

Parking Management

*Management of vehicle flow*

Weather Monitoring

*Sensing of outdoor environment*

Energy Storage

*Local storage of energy*

Numerous Others

In some buildings

# Smart, Connected Buildings

## Macro Trends



### Transforming Building Use Patterns

- ▶ Higher variability in short-term demand for commercial space
- ▶ Increasingly flexible & configurable spaces (e.g., offices, retail spaces, learning environments)
- ▶ Shrinking space per person, and increasing use of collaborative space
- ▶ Optimization of provided services to accommodate occupant experience



### Evolving Technology

- ▶ Pervasive shift to smart, connected machines, devices and IoT infrastructure
- ▶ Ubiquitous, low-cost connectivity, data aggregation, analytics, and machine learning
- ▶ Increasing expectations for technology integration and integrated control
- ▶ Data-driven insights informing overall building design and operation

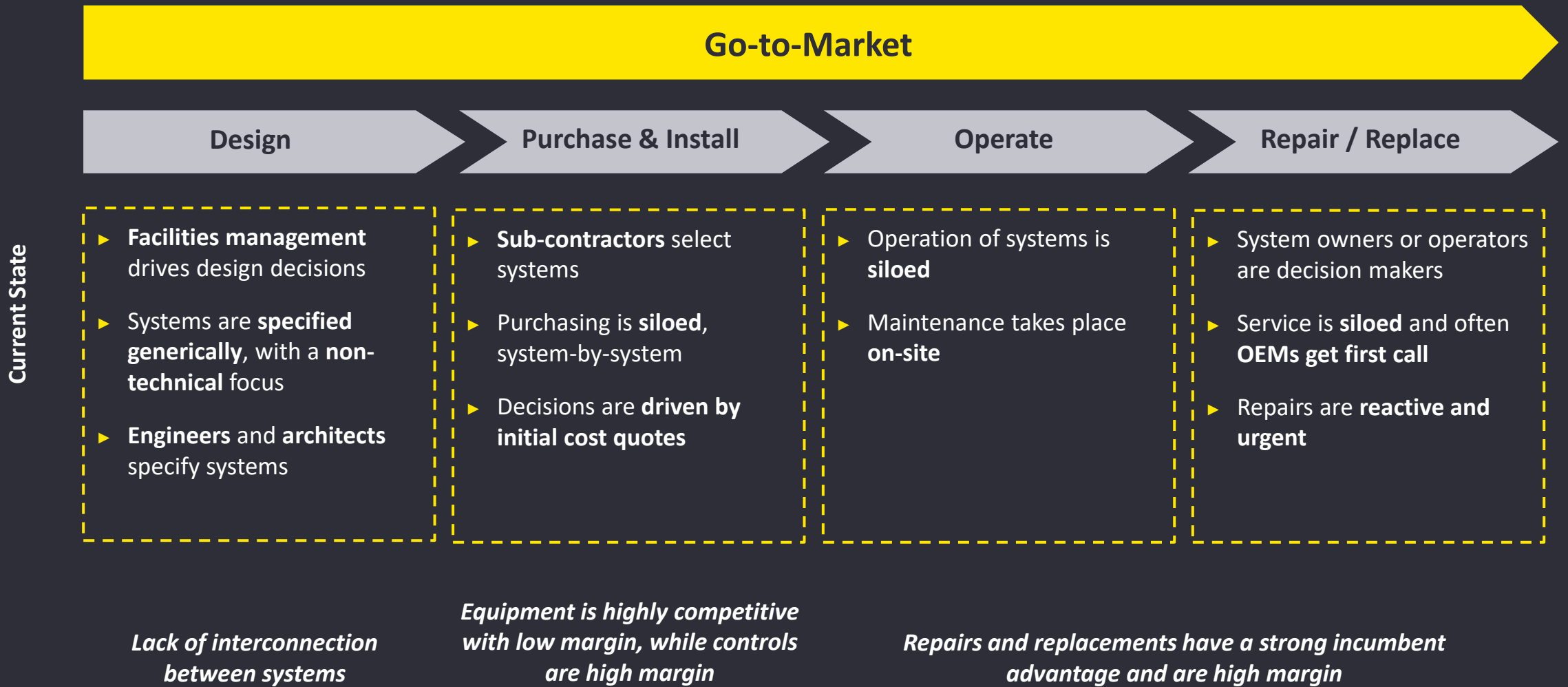


### Expanding Building Roles and Ecosystem

- ▶ Buildings play a broader role in commercial mission
- ▶ Broader community factors (e.g., sustainability) impacting building design and operation
- ▶ Buildings become part of broader smart enterprises and smart cities
  - ▶ Dynamic power management across the grid
  - ▶ Interactive transportation systems and fleets
  - ▶ Dynamic communication with municipal services

# Smart, Connected Buildings

## Today's Go-to-Market Process



# Smart, Connected Buildings

## The Expanding Value Opportunity



### Cost Savings

- ▶ Initial equipment & installation costs
- ▶ Energy costs
- ▶ Maintenance & repair costs
- ▶ Other operating costs



### Occupant Environment

- ▶ Rising standards for occupant safety & security
- ▶ Increased opportunities for improving occupant comfort and customization
- ▶ Providing a healthier building environment



### Commercial Mission

- ▶ Use of building systems to enhance core business performance
- ▶ Better fulfil the purpose for which the building was created (e.g. patient outcomes in health care facility, etc.)

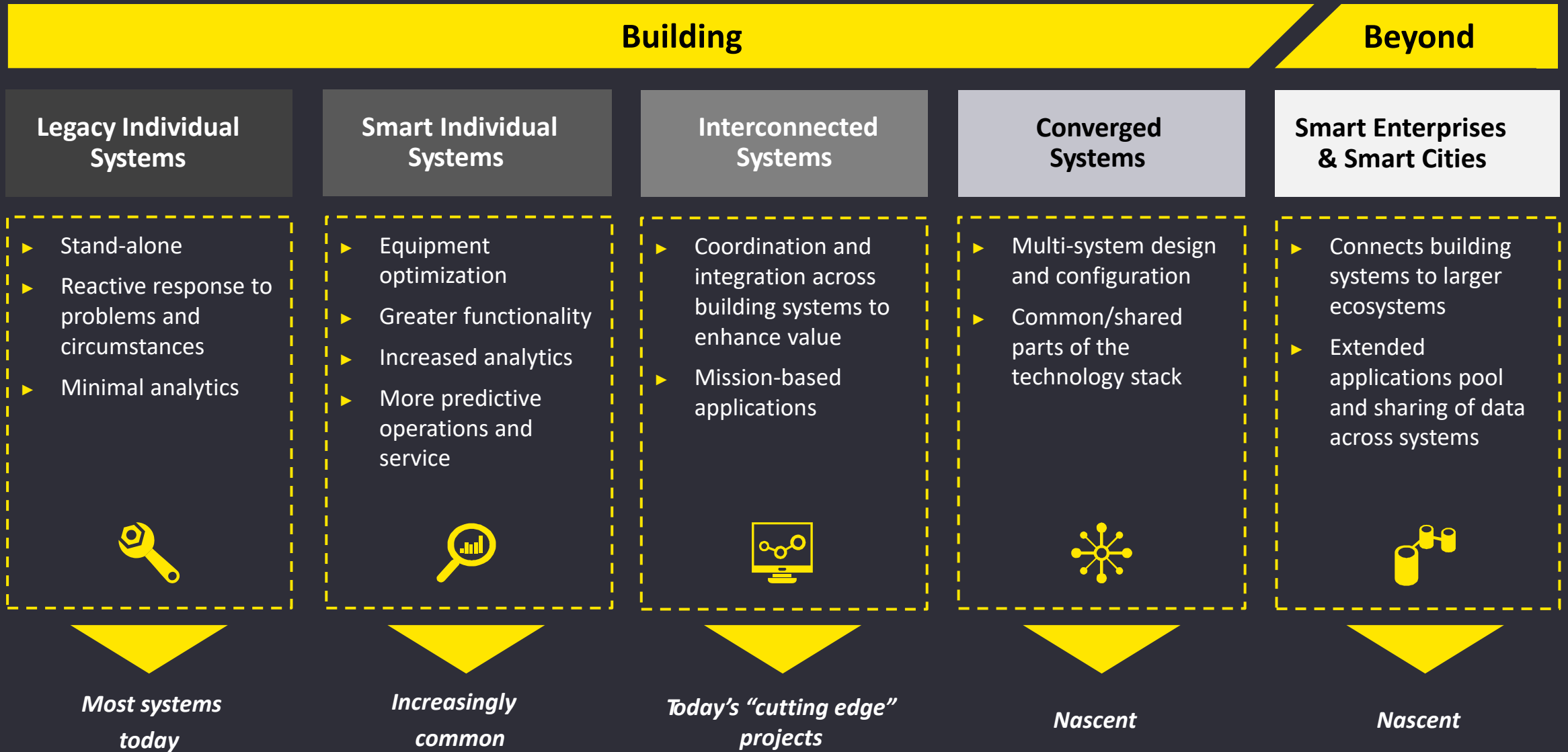
**New opportunities to drive cost reduction, including capital and operating costs (maintenance, service, custodial, etc.)**

**Increasing ability to improve and tailor building environment**

**Increasing opportunity for buildings and building systems to impact the commercial mission**

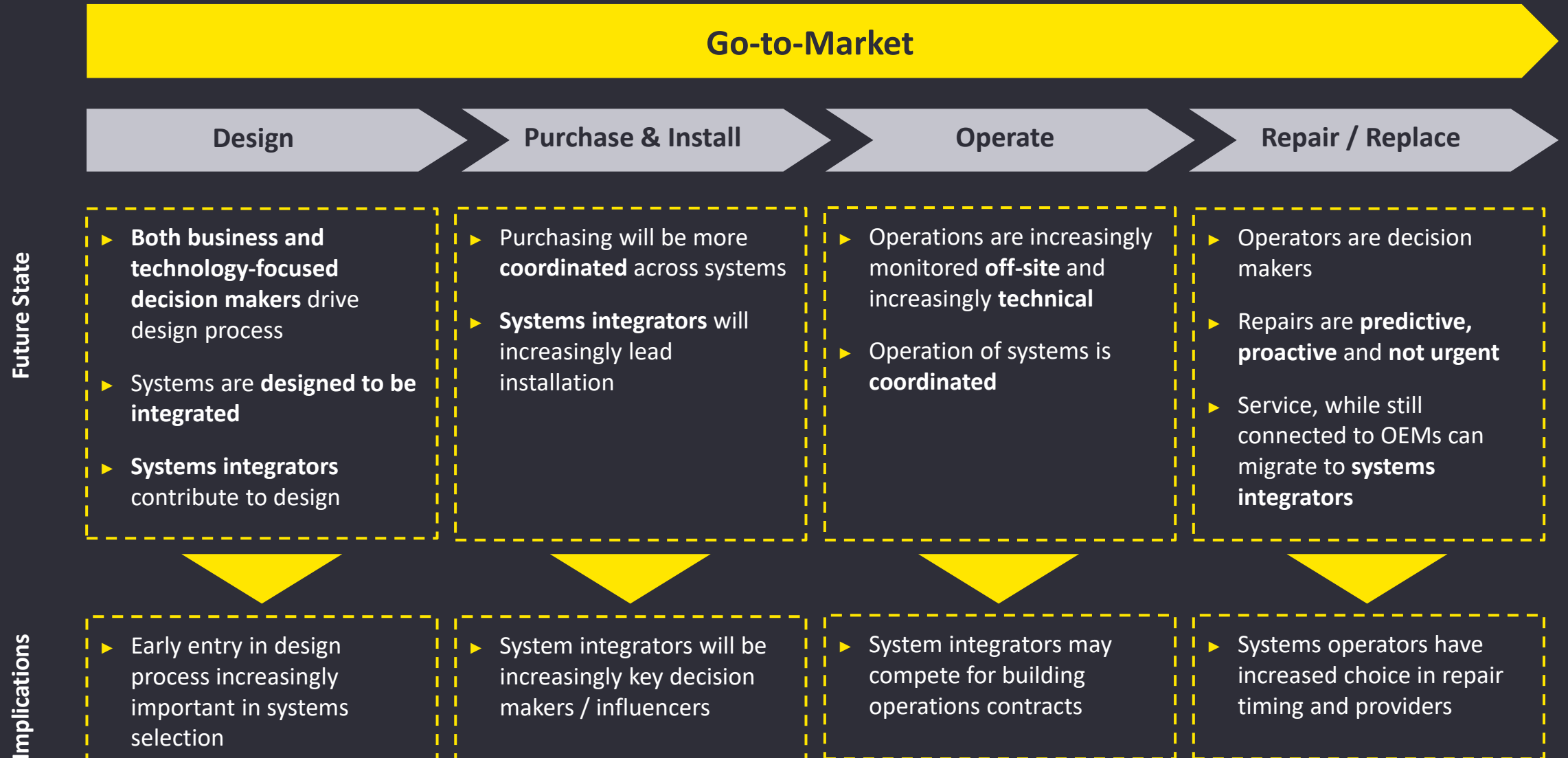
# Smart, Connected Buildings

## The Migration to Smart and Interconnected Building Systems



# Smart, Connected Buildings

## Evolving Go-to-Market Process





#### About EY

EY is a global leader in assurance, tax, strategy, transaction and consulting services. The insights and quality services we deliver help build trust and confidence in the capital markets and in economies the world over. We develop outstanding leaders who team to deliver on our promises to all of our stakeholders. In so doing, we play a critical role in building a better working world for our people, for our clients and for our communities.

EY refers to the global organization, and may refer to one or more, of the member firms of Ernst & Young Global Limited, each of which is a separate legal entity.

Ernst & Young Global Limited, a UK company limited by guarantee, does not provide services to clients. Information about how EY collects and uses personal data and a description of the rights individuals have under data protection legislation are available via [ey.com/privacy](https://ey.com/privacy). For more information about our organization, please visit [ey.com](https://ey.com).

#### About EY's Consulting Services

**In Consulting, we are building a better working world by transforming businesses through the power of people, technology and innovation.**

**It's our ambition to become the world's leading transformation consultants.**

**The diversity and skills of our 70,000+ people will help EY clients realize transformation by putting humans at the center, delivering technology at speed and leveraging innovation at scale.**

**These core drivers of 'Transformation Realized' will create long-term value for people, clients and society.**

**For more information about our Consulting organization, please visit [ey.com/consulting](https://ey.com/consulting).**

© 2022 EY  
All Rights Reserved.

[ey.com](https://ey.com)