February 2022

Proptech Insights

Based on a survey of U.S. and Canadian real estate
management professionals in October 2021.

Contents

Background of report

This report, Proptech Insights, is the result of a survey conducted under the guidance of the IREM Technology Advisory Board.

This survey focused on proptech, the digitization of the real estate industry, and how Proptech is used in real estate management. The survey further focused on building-level technologies, as opposed to business or corporate technologies.

The purpose of the survey was to:

• Assess where real estate managers see themselves and their companies in terms of Proptech adoption and usage

• Identify problems managers are experiencing that may be solved by proptech

• Highlight gaps in comfort level with certain proptech, in order to provide additional resources and information to real estate managers

• Determine the impact of the pandemic on proptech implementation

Similar surveys were conducted in 2019 and 2020. They established benchmarks for pinpointing key issues facing property managers that can be addressed by technology solutions. By conducting the survey on an annual basis, changes in adoption patterns and trends among property management companies can be identified.

The 2021 survey was distributed to all IREM members in the U.S. and Canada, and industry professionals in the Real Estate Management Newsletter, in October 2021. A total of 723 responses were received.

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Overview of findings

- Automating repetitive tasks was the top problem faced by real estate management professionals that they believe can be solved by Proptech, according to the survey. Other top concerns that respondents believe can be improved with proptech included tenant-related issues, integration of existing systems, and security.

- The type of proptech implemented the most at properties managed by survey respondents was drones/photogrammetry, followed closely by internet of things (IoT) and Smart Home technology. Digital twin technology was only implemented at 2% of properties managed by survey respondents.

- The proptech utilized most due to the pandemic was virtual showings of space, followed by resident and tenant communications and touchless devices. Resident and tenant satisfaction and security were the top areas of return from this implemented technology.

- Top reported hurdles to proptech implementation included cost and integration with other existing systems.

Key Insights

- Proptech decisions are often made by the property management teams alone where knowledge of risks associated with implementation may be sparse.

- Despite the proliferation of proptech offerings in the past five years, most people and companies are pragmatists, which may hinder adoption. However, many product options are currently available to solve the problems that respondents believe can be solved by proptech.

- Respondents based the return on implementation for pandemic-driven investments in proptech on non-tangible outcomes (tenant satisfaction, increased safety) as opposed to ROI (reduced cost, added value). In general, many companies see financial performance as two of the three biggest hurdles for adopting proptech solutions.

- Respondent familiarity with each proptech in the survey is 3.1 out of 5 or lower, demonstrating the need for broader training and education. This gap in training is identified as a barrier to adopting proptech solutions.

Respondents' role

The majority of respondents (83.9%) described their role as either a key decision-maker or user with influence when it comes to proptech decision-making.
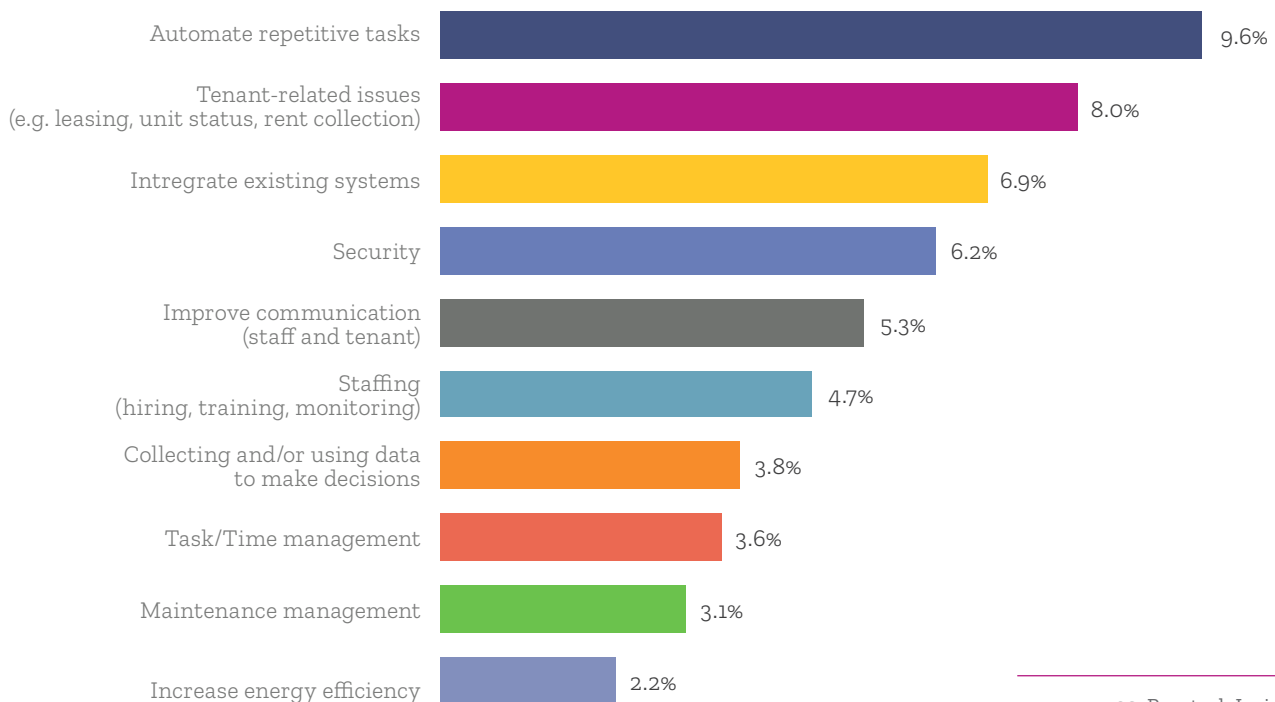
How would you describe your role within your company when it comes to decision-making about property technology (proptech, building-level technology) implemented onsite at your properties?

41.6%	42.3%	16.0%
I'm a key decision maker	I'm a user with influence	I'm a user with little to no input
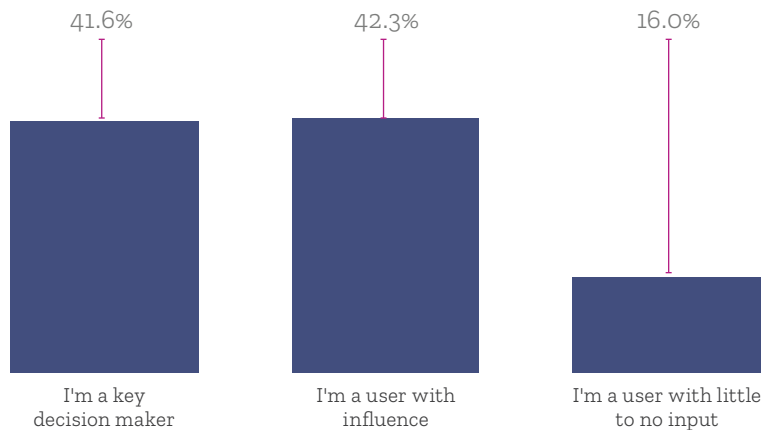
Problems solved by proptech

The top problem identified by real estate management professionals that they believe can be solved by proptech was automating repetitive tasks. Other top concerns that respondents believe can be improved with proptech included tenant-related issues, integration of existing systems, and security. Soft skills such as communication, staffing, and time management also scored highly.

What is the biggest problem you face as a real estate management professional that you believe proptech can help you solve?

Problem	%
Automate repetitive tasks	9.6%
Tenant-related issues (e.g. leasing, unit status, rent collection)	8.0%
Intregrate existing systems	6.9%
Security	6.2%
Improve communication (staff and tenant)	5.3%
Staffing (hiring, training, monitoring)	4.7%
Collecting and/or using data to make decisions	3.8%
Task/Time management	3.6%
Maintenance management	3.1%
Increase energy efficiency	2.2%

Proptech implementation, level of familiarity, and importance

Of the common types of proptech listed, survey respondents implemented drones/photogrammetry the most at the properties they manage. Drones were used primarily for marketing purposes. This was followed closely by internet of things (IoT) or Smart Home technology, used to control building components such as thermostats, locks, and lighting. These technologies also scored highly in level of familiarity and perceived importance.
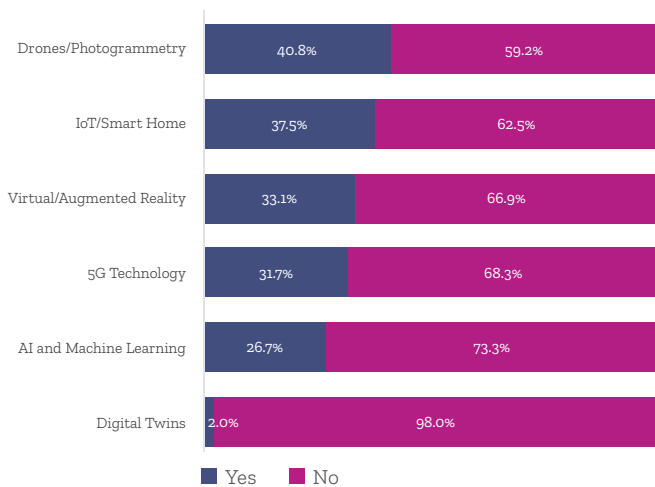
Virtual and augmented reality was also implemented at many properties, the overwhelming majority of which use this technology for virtual tours. 5G technology was also primarily utilized for virtual tours but also supported mechanical systems and energy usage. Respondents rated 5G technology as the most important, even though it was not the most widely implemented.

AI and machine learning was used primarily for work orders and to power chat bots. Digital twin technology was only implemented at 2% of properties managed by survey respondents. Digital twins also had the lowest levels of familiarity and perceived importance.
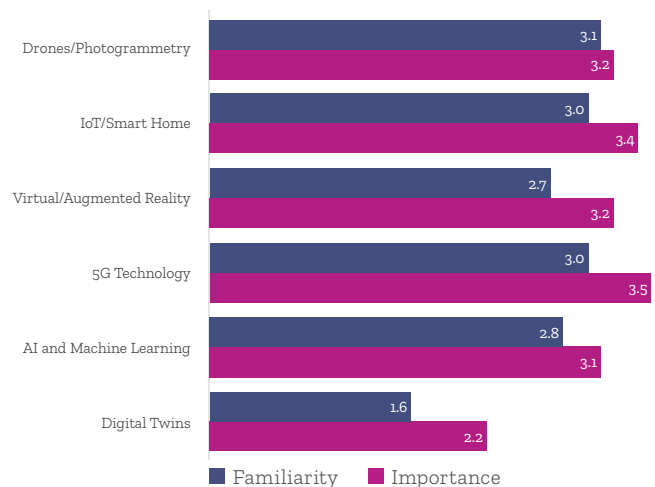
The adopters of each type of proptech are spread across the asset classes in similar proportions, with most respondents who've implemented each technology managing office buildings and conventionally financed apartments. The notable exception is AI and machine learning, with conventionally financed apartments well ahead of the other asset classes at 40.4%.

The biggest hurdles to proptech implementation were listed as cost or cost-benefit analysis (87.6%), integration with other systems (40.9%), convincing the property owner (25.9%), and staff concerns such as training and adoption, a combined 43.8%.
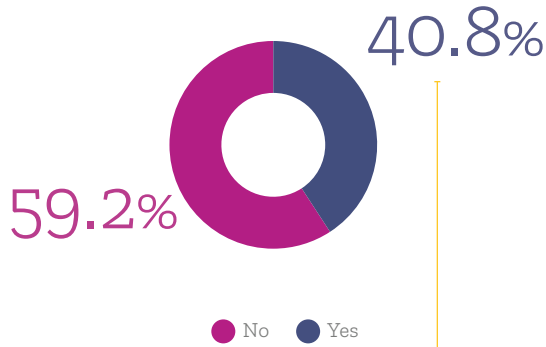
Has this technology been implemented at your property?

Technology	Yes	No
Drones/Photogrammetry	40.8%	59.2%
IoT/Smart Home	37.5%	62.5%
Virtual/Augmented Reality	33.1%	66.9%
5G Technology	31.7%	68.3%
AI and Machine Learning	26.7%	73.3%
Digital Twins	2.0%	98.0%

Please rate both your level of familiarity the technology, and how important you believe it is to property management.

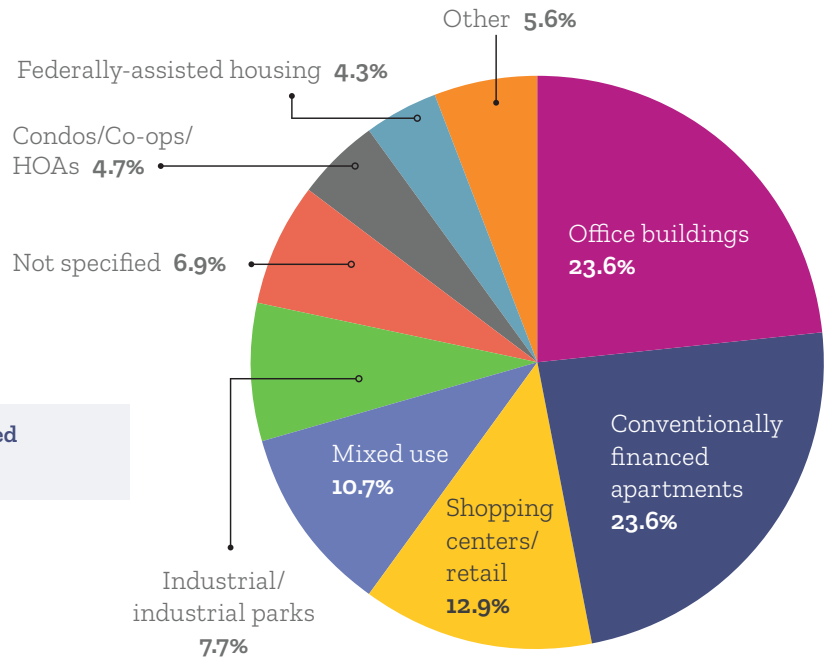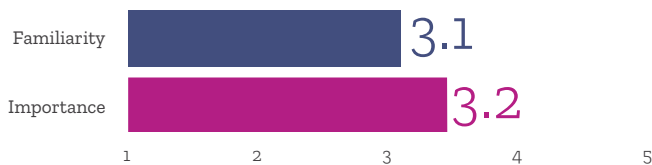| Technology	Familiarity	Importance
Drones/Photogrammetry	3.1	3.2
IoT/Smart Home	3.0	3.4
Virtual/Augmented Reality	2.7	3.2
5G Technology	3.0	3.5
AI and Machine Learning	2.8	3.1
Digital Twins	1.6	2.2

Drones/Photogrammetry

Has this technology been implemented at your property?

40.8%

59.2%

● No ● Yes

Respondents who've implemented drones/photogrammetry

Other **5.6%**

Federally-assisted housing **4.3%**

Condos/Co-ops/HOAs **4.7%**

Not specified **6.9%**

Office buildings **23.6%**

Conventionally financed apartments **23.6%**

Mixed use **10.7%**

Shopping centers/retail **12.9%**

Industrial/industrial parks **7.7%**

Please rate both your level of familiarity with the technology, and how important you believe it is to property management.

Familiarity **3.1**

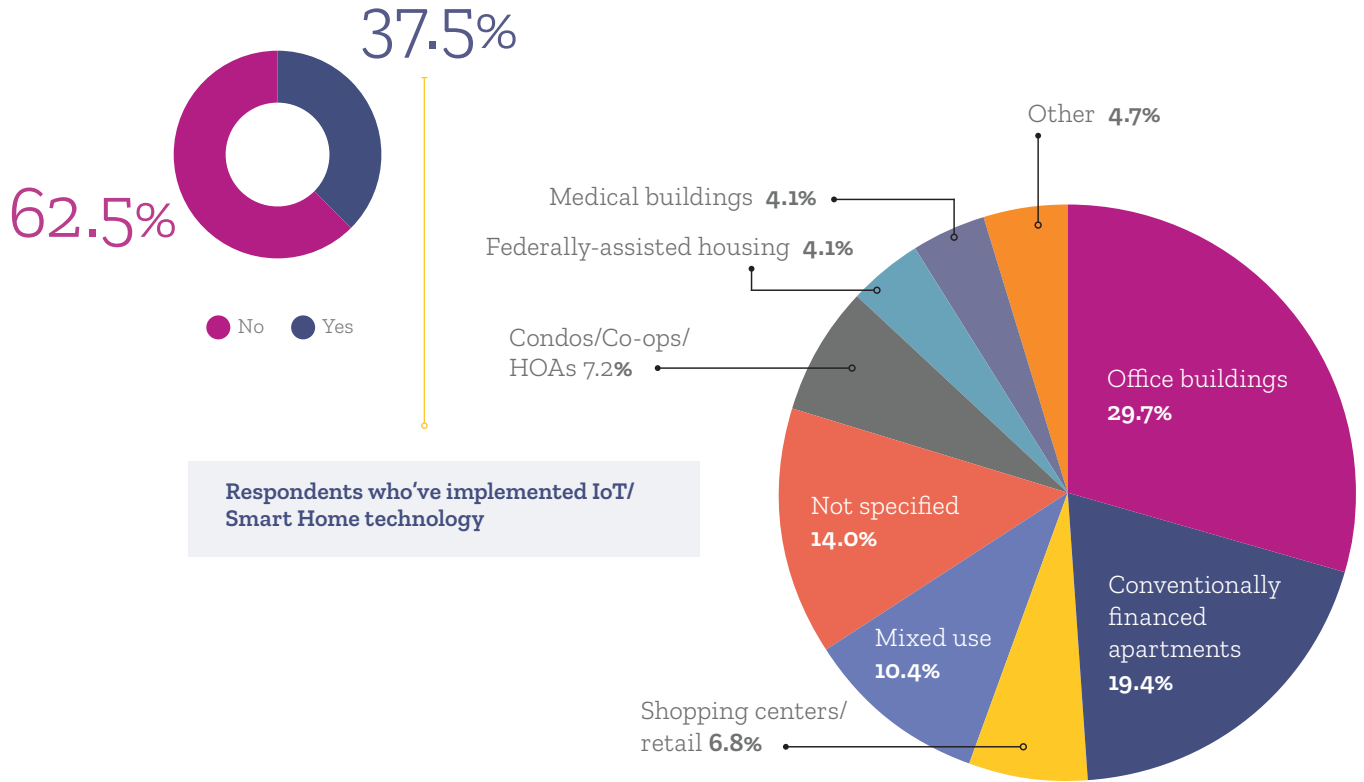Importance **3.2**

1 2 3 4 5

How has this technology been implemented at your property?

Marketing **72.0%**

Roof **12.5%**

Inspections **8.9%**

Construction progress **4.8%**

Mapping **4.8%**
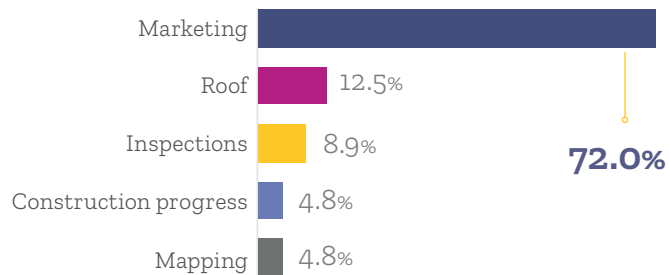
Internet of Things (IoT)/Smart home

Has this technology been implemented at your property?

37.5%

62.5%

- No
- Yes

Respondents who've implemented IoT/ Smart Home technology

Other **4.7%**

Medical buildings **4.1%**

Federally-assisted housing **4.1%**

Condos/Co-ops/ HOAs 7.2**%**

Not specified **14.0%**

Mixed use **10.4%**

Shopping centers/ retail **6.8%**

Office buildings **29.7%**

Conventionally financed apartments **19.4%**

Please rate both your level of familiarity with the technology, and how important you believe it is to property management.
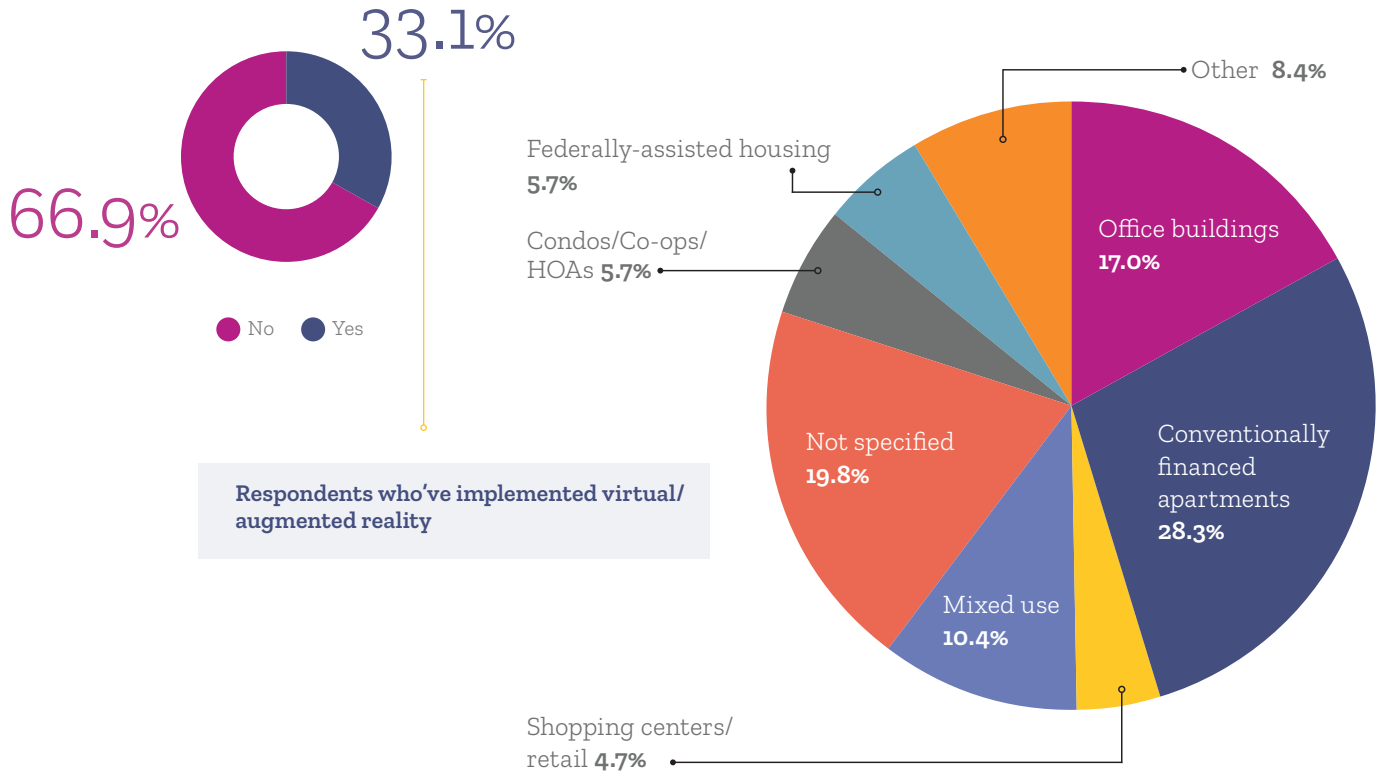
Familiarity	3.0
Importance	3.4

1 2 3 4 5

How has this technology been implemented at your property?

Thermostats	44.2%
Locks	31.0%
Lighting	16.8%
BMS/BAS	11.5%
Cameras	8.8%
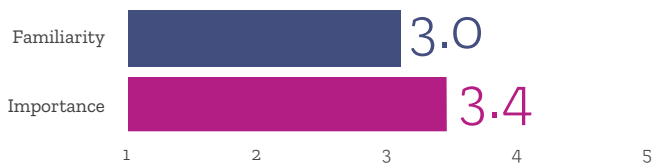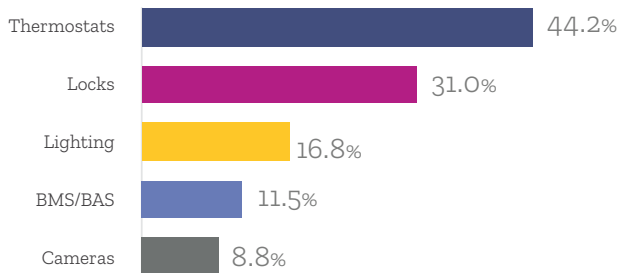
Virtual/Augmented reality

Has this technology been implemented at your property?

33.1%

66.9%

● No   ● Yes

Respondents who've implemented virtual/augmented reality

Other **8.4%**

Federally-assisted housing **5.7%**

Office buildings **17.0%**

Condos/Co-ops/HOAs **5.7%**

Conventionally financed apartments **28.3%**

Not specified **19.8%**

Mixed use **10.4%**

Shopping centers/retail **4.7%**

Please rate both your level of familiarity with the technology, and how important you believe it is to property management.

Familiarity — **2.7**

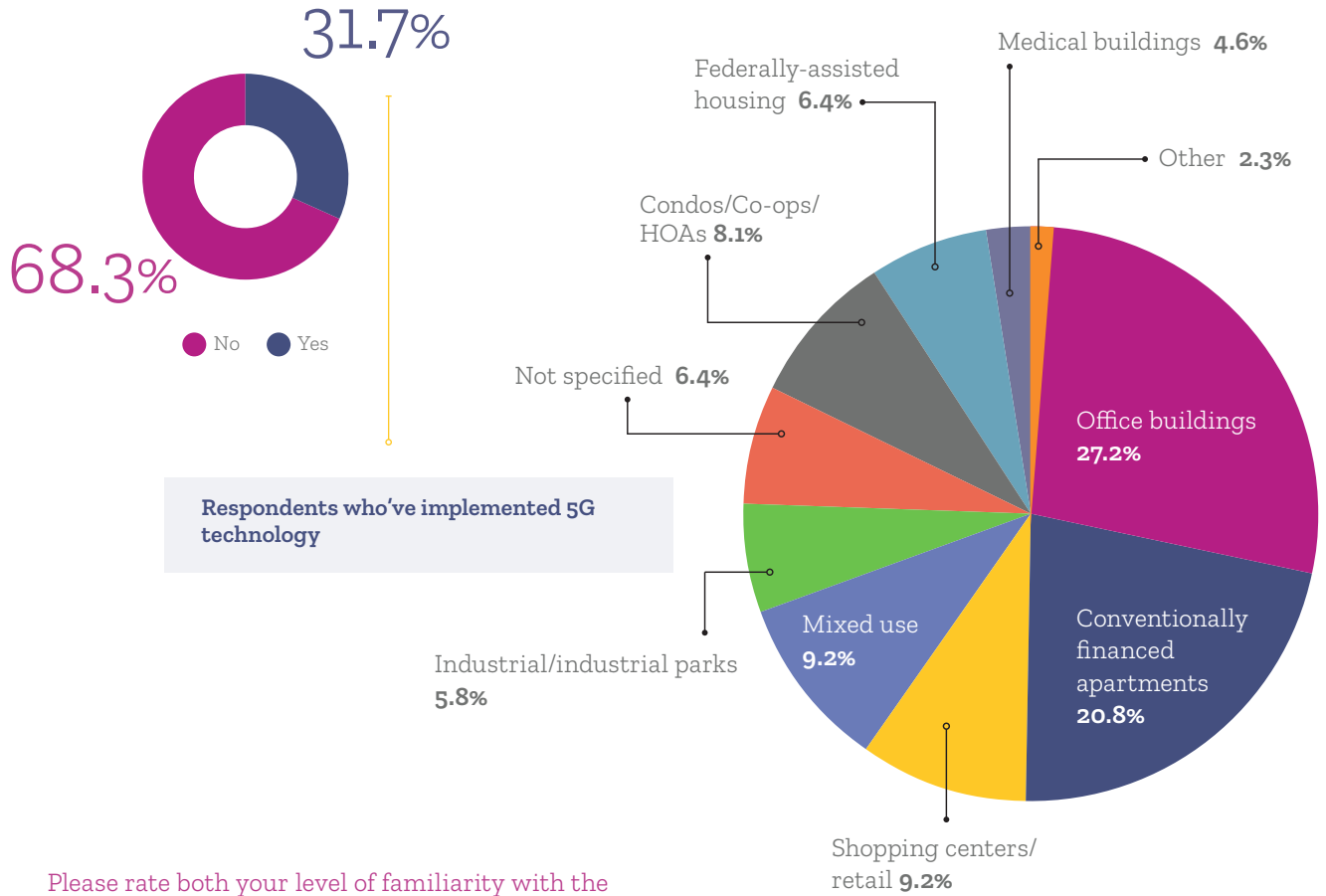Importance — **3.2**

1   2   3   4   5

How has this technology been implemented at your property?

Virtual Tours — **97.5%**

Design (e.g. staging, interior design, pre-construction planning) — **2.5%**
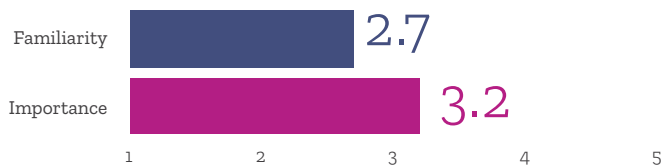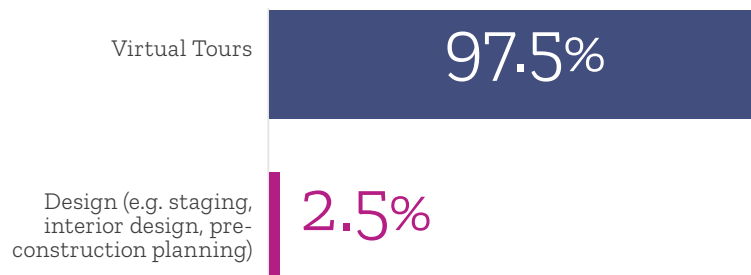
5G technology

Has this technology been implemented at your property?

31.7%

68.3%

● No ● Yes

Respondents who've implemented 5G technology

Medical buildings **4.6%**

Federally-assisted housing **6.4%**

Other **2.3%**

Condos/Co-ops/HOAs **8.1%**

Not specified **6.4%**

Office buildings **27.2%**

Industrial/industrial parks **5.8%**

Mixed use **9.2%**

Conventionally financed apartments **20.8%**

Shopping centers/retail **9.2%**

Please rate both your level of familiarity with the technology, and how important you believe it is to property management.

Familiarity — 3

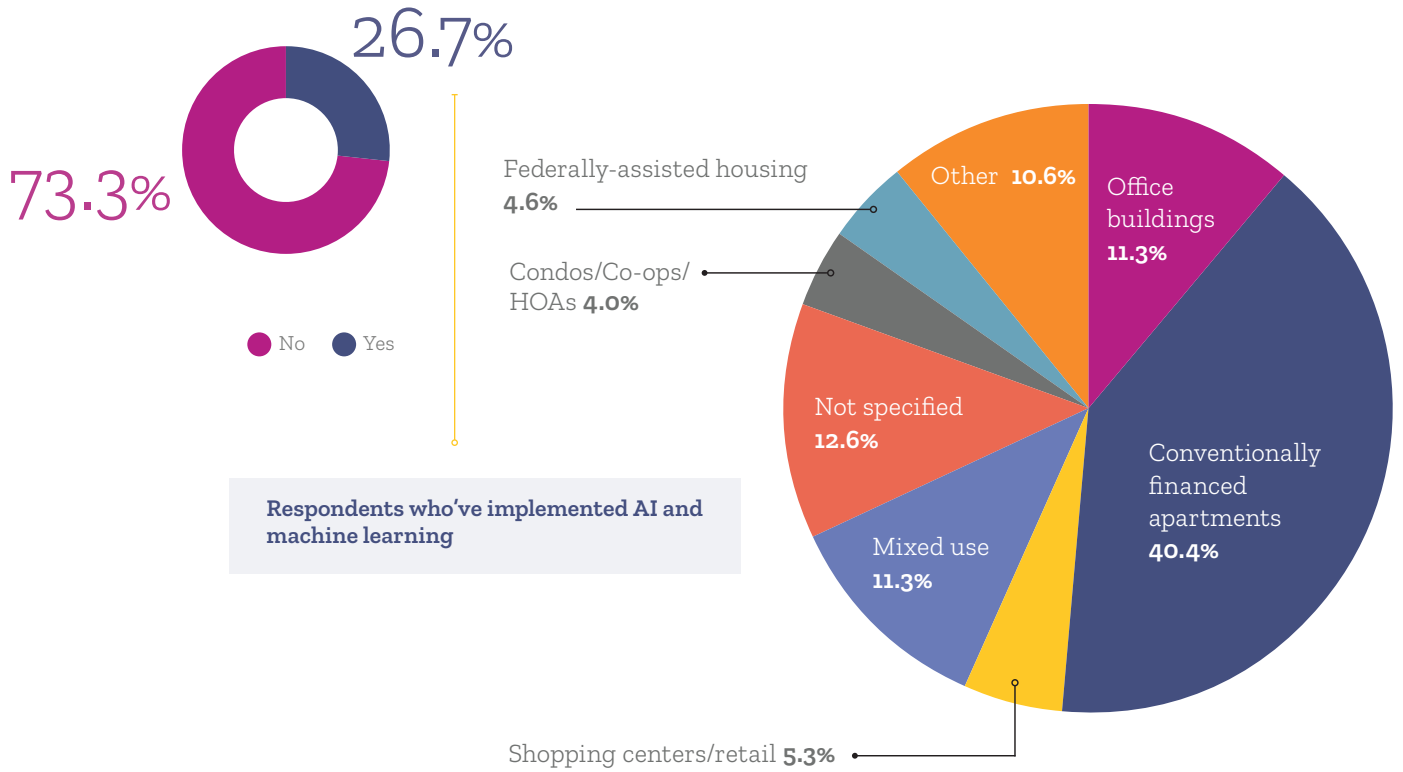Importance — 3.5

1   2   3   4   5

How has this technology been implemented at your property?

Virtual tours — 50.0%

Mechanical systems — 33.3%

Energy — 16.7%
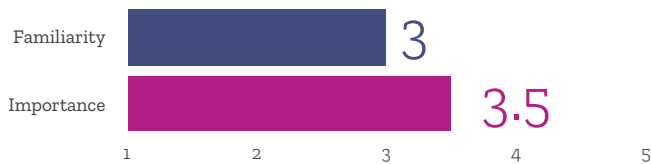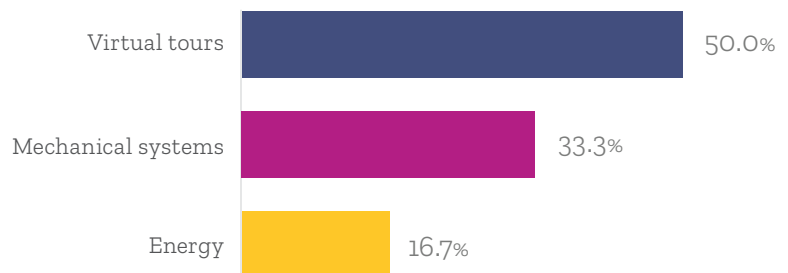
AI and machine learning

Has this technology been implemented at your property?

26.7%

73.3%

- No
- Yes

Respondents who've implemented AI and machine learning

Federally-assisted housing **4.6%**

Condos/Co-ops/ HOAs **4.0%**

Other **10.6%**

Office buildings **11.3%**

Not specified **12.6%**

Conventionally financed apartments **40.4%**

Mixed use **11.3%**

Shopping centers/retail **5.3%**

Please rate both your level of familiarity with the technology, and how important you believe it is to property management.

Familiarity 2.8

Importance 3.1

1 2 3 4 5

How has this technology been implemented at your property?

Work Orders 63.1%

Chat bot 32.1%

Leasing 3.6%
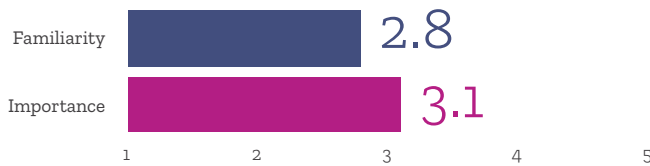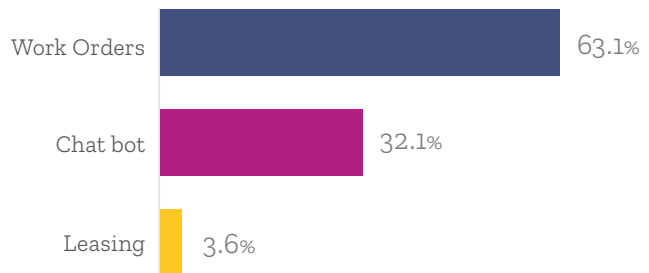
Digital twins

Has this technology been implemented at your property?

2.0%

98.0%

● No ● Yes

Respondents who've implemented digital twins

Office buildings **27.3%**

Conventionally financed apartments **27.3%**

Shopping centers/ retail **9.1%**

Mixed use **27.3%**

Industrial/industrial parks **9.1%**

Please rate both your level of familiarity with the technology, and how important you believe it is to property management.
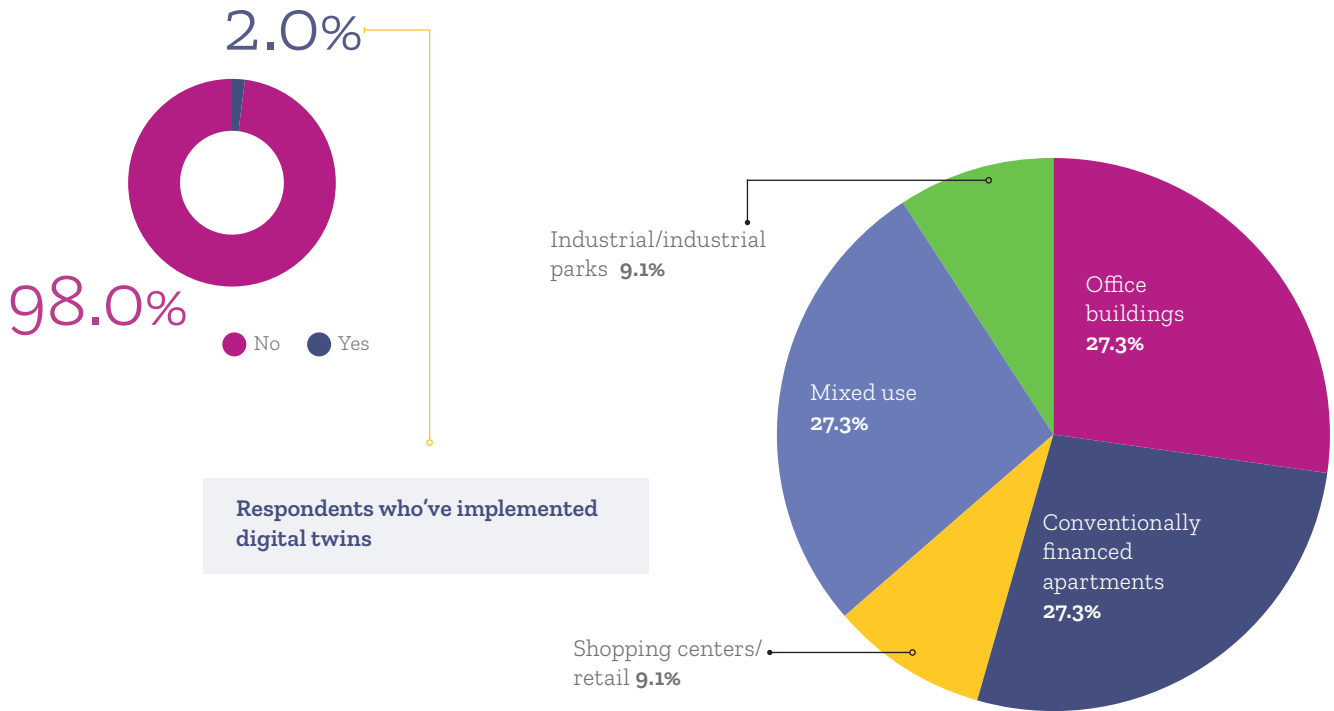
Familiarity — 1.6

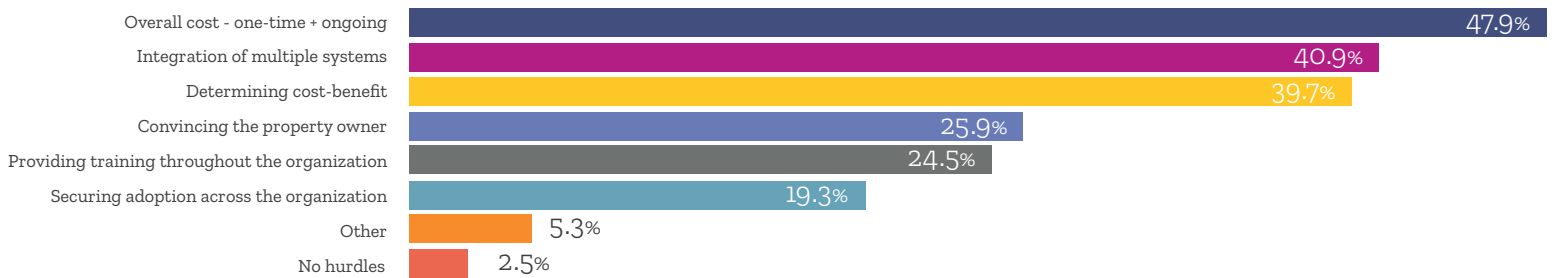Importance — 2.2

1　2　3　4　5

How has this technology been implemented at your property?

Virtual tours — 50.0%

Mechanical systems — 33.3%

Energy — 16.7%
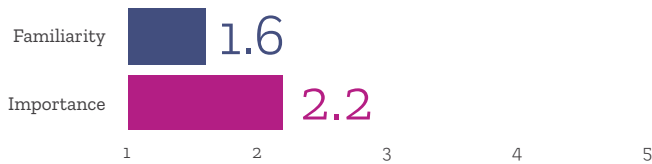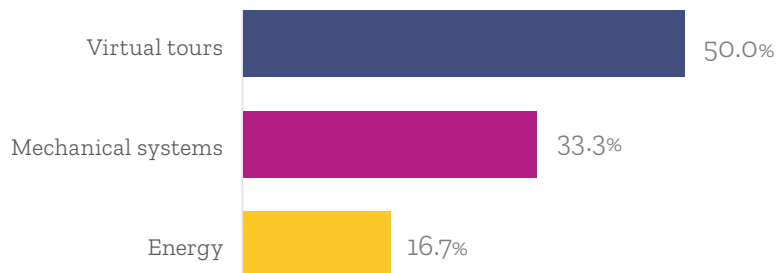
In considering and implementing proptech solutions at your company, what have been the major hurdles?

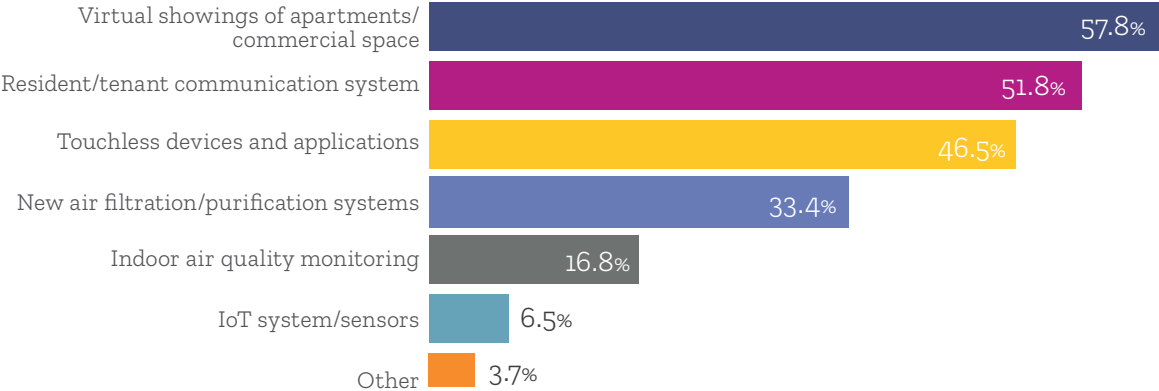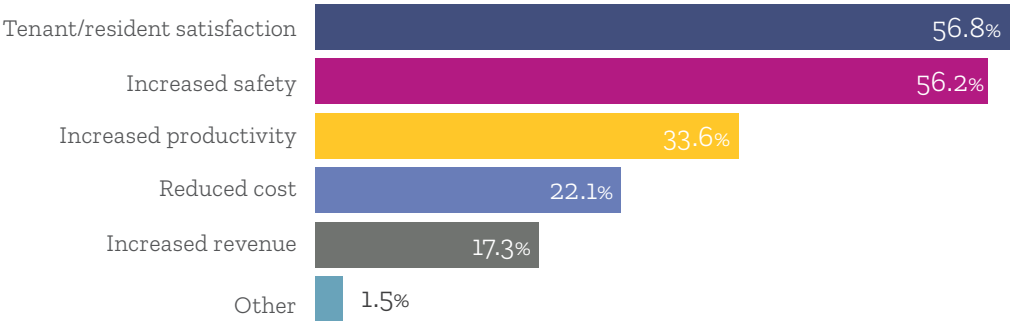| Category	Percentage
Overall cost - one-time + ongoing	47.9%
Integration of multiple systems	40.9%
Determining cost-benefit	39.7%
Convincing the property owner	25.9%
Providing training throughout the organization	24.5%
Securing adoption across the organization	19.3%
Other	5.3%
No hurdles	2.5%

Pandemic impacts

The continued impact of the pandemic was seen in the increased use of virtual space showings (57.8%), followed by resident and tenant communications (51.8%) and touchless devices (46.5%). Air quality monitoring and air filtration and purification were also implemented by a combined 50.2% of respondents.

Return on the implementation of these technologies was seen in areas such as resident and tenant satisfaction (56.8%) and safety (56.2%). Increased productivity was listed as an area of return for 33.6% of managers and reduced cost or increased revenue was listed by a combined 39.4% of respondents.

What proptech did you implement, if any, as a result of the COVID-19 pandemic?

Category	Percentage
Virtual showings of apartments/commercial space	57.8%
Resident/tenant communication system	51.8%
Touchless devices and applications	46.5%
New air filtration/purification systems	33.4%
Indoor air quality monitoring	16.8%
IoT system/sensors	6.5%
Other	3.7%

How do you measure the return on implementing the solutions selected above?

| Category	Percentage
Tenant/resident satisfaction	56.8%
Increased safety	56.2%
Increased productivity	33.6%
Reduced cost	22.1%
Increased revenue	17.3%
Other	1.5%

Demographics

The majority of survey respondents were IREM members, with nearly equal respondents managing conventional apartments (24.7%) and office buildings (24.1%).
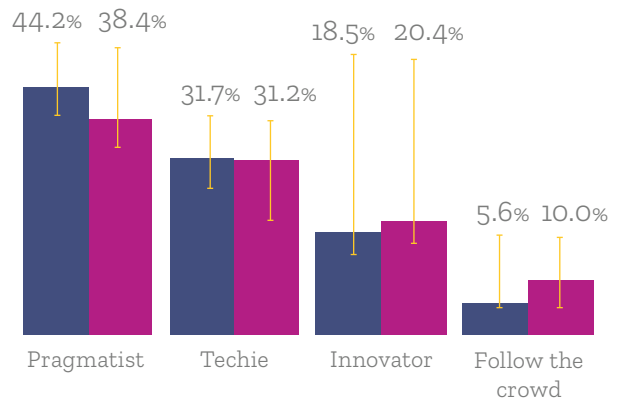
The majority of respondents rated both themselves and their companies a "pragmatist," with an assessment of "techie" in second place at both the individual and company level. Most managers indicated that they work in tandem with their IT groups (38.7%) to make Proptech decisions, while 30.2% indicated that the property management staff makes these decisions alone. Another 15% indicated that these decisions are made by their IT department.

The majority of respondents work for property management firms (46.2%) or full-service real estate firms (28.2%). Firms ranged in size, with nearly equal respondents representing small, medium, and large firms and portfolio sizes. While 37.1% of survey respondents work for local firms, regional (28.5%), national (24.3%), and international (10.2%) firms were also heavily represented.
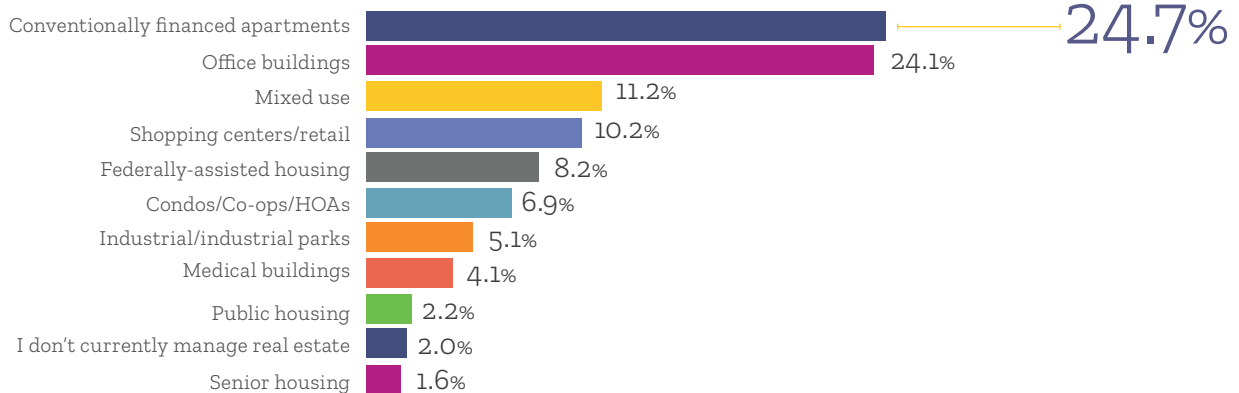
Are you a member of IREM?

1.2%

98.8%
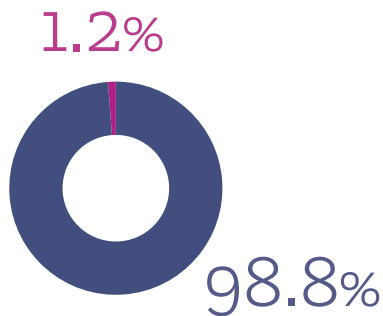
When it comes to proptech, how do you describe yourself and your company

	Pragmatist	Techie	Innovator	Follow the crowd
	44.2%	31.7%	18.5%	5.6%
	38.4%	31.2%	20.4%	10.0%

What property type do you primarily personally oversee?

Property type	Percentage
Conventionally financed apartments	24.7%
Office buildings	24.1%
Mixed use	11.2%
Shopping centers/retail	10.2%
Federally-assisted housing	8.2%
Condos/Co-ops/HOAs	6.9%
Industrial/industrial parks	5.1%
Medical buildings	4.1%
Public housing	2.2%
I don't currently manage real estate	2.0%
Senior housing	1.6%

Demographics

When it comes to proptech decisions within your company, who typically takes the lead role?

38.7%

Collaboration among IT, property management, and/or accounting	38.7%
Property management department	30.2%
IT department	15.0%
Other	14.0%
Finance/accounting department	2.2%
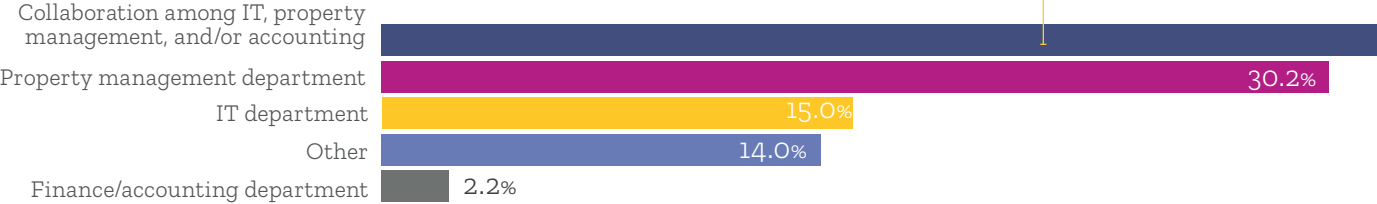
Demographics

Which best describes the type of organization you work for?

Organization Type	Percentage
Property management	46.2%
Full-service real estate	28.2%
Private owner/investor	9.5%
REIT	2.8%
Corporate real estate	2.6%
Not-for-profit management company/agency	2.6%
Investment company	2.2%
Development/construction	0.8%
Government agency – HUD	0.8%
Financial institution	0.6%
Government agency – other (e.g., military)	0.2%
Other	3.6%

46.2%
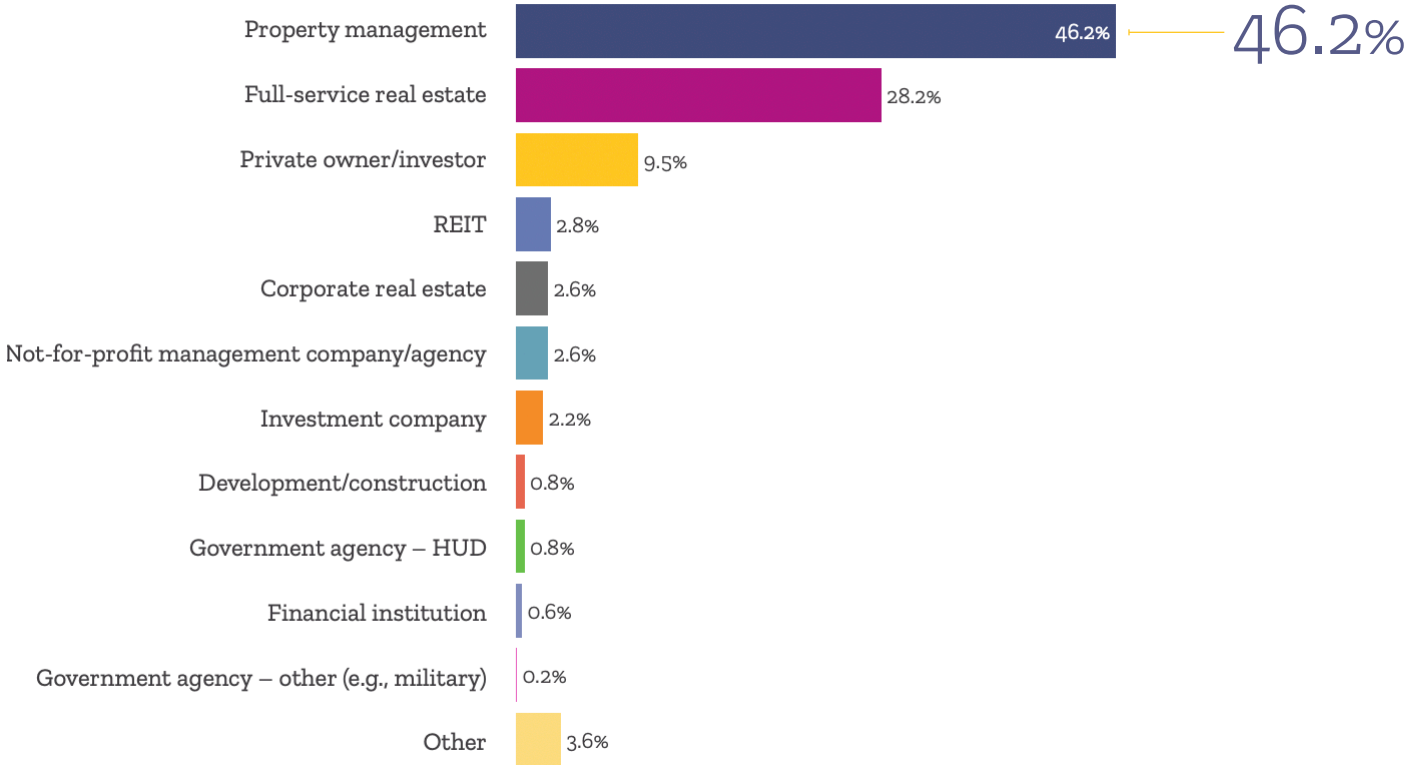
What is the size of your company based on total employees?

Company Size	Percentage
Fewer than 20	25.2%
20-49	14.3%
50-99	10.6%
100-249	14.3%
250-499	11.4%
500-999	9.8%
1,000 or more	14.5%
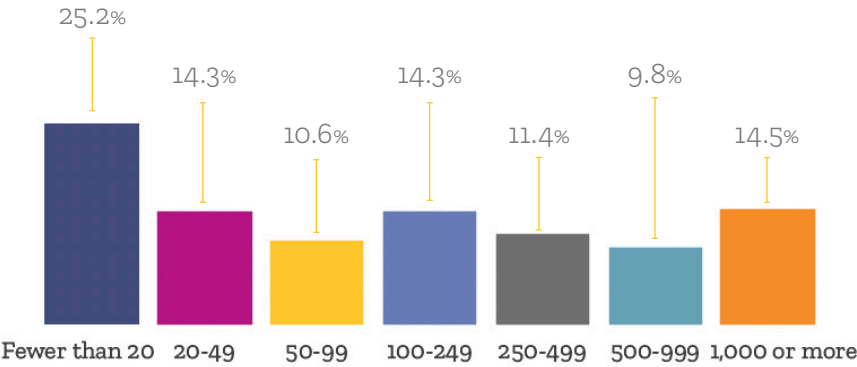
Hi, we're IREM

We're an international institute for property and asset managers, providing complete knowledge to take on real estate management's most dynamic challenges. That means knowledge prepared for the day-to-day and the one-of-a-kind: from solving the latest tenant crisis to analyzing market conditions.

For over 85 years, our members have made us the world's strongest voice for all things real estate management. Today, almost 20,000 leaders in commercial and residential management call this home for learning, certifications, and networking.