Europe Operations and Maintenance Benchmarks

WHITE PAPER SERIES #3

Maintenance Costs and Facility Soft Services Practices

International Facility Management Association

IFMA is the world's largest and most widely recognized international association for professional facility managers, supporting more than 24,000 members in 100 countries. The association's members, represented in 134 chapters, areas of interest (six communities) and 16 councils worldwide, manage more than 78 billion square feet of property and annually purchase more than US$526 billion in products and services. Formed in 1980, IFMA certifies facility managers, conducts research, provides educational programs, recognizes facility management certificate programs and produces World Workplace, the world's largest facility management conference and exposition. To join and follow IFMA's social media outlets online, visit the association's LinkedIn, Facebook, YouTube and Twitter pages. For more information, visit www.ifma.org.

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Simplar is a collaborative team of faculty and researchers from universities across the United States who specialize in facility organizational assessment, performance measurement and analytics, process improvement and advanced procurement delivery systems. Learn more at www.simplar.com.

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Maintenance Costs and Facility Soft Services Practices

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Executive Summary

IFMA has embarked on a global effort to disseminate facility operations and performance data. This white paper focuses on maintenance costs and facility software services practices for a variety of facility industry sectors, and is the final in a series of three reports summarizing performance of select buildings throughout Europe. While there is a small sample size for this pilot study, there are relevant findings to consider. As organizations evaluate the performance and value they receive from facility-related services, benchmarks are an effective tool to develop meaningful business cases.

The average overall cost for maintenance services was €28.82 per square metre (€/SM). This total cost is a summation of external building, interior systems, roads and grounds, utility/central system, and process treatment maintenance. The ratio of preventative, predictive and reactive maintenance cost expenditures is included. Overall, 54 percent of all maintenance costs are for preventative maintenance. The frequency of use for various preventative maintenance plans (e.g., fire service, electrical, as well as heating, ventilation and air conditioning (HVAC) and others) is also included. The use of maintenance tracking and management systems is discussed. About 70 percent of respondents report that they use MS Excel/manual spreadsheets for tracking their maintenance expenditures.

Staffing profiles of maintenance technicians are also included in the report. Overall, there are a total 1.9 full-time equivalent (FTE) maintenance technicians per 10,000 square metres of net floor area for each facility. Additional staffing profiles for controls/low voltage, electricians, generalists, HVAC, plumbers and stationary engineers are included. The report also includes FTE allocations for various supervisory and administrative support roles.

The report concludes with a synopsis on the use of various soft services within facility management. Information on catering/food services, food payment options, interior decoration and furnishings, customer reception and security is discussed.

This white paper focuses on maintenance costs and facility software services practices for a variety of facility industry sectors, and is the final in a series of three reports summarizing performance of select buildings throughout Europe.

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Paper Overview

Benchmarking and metrics are terms that are regularly used in today's business environment that are often misunderstood. Benchmarking is a continuous and systematic management process that measures work processes, protocols and services for the purpose of organizational comparison and improvement. When properly applied, benchmarking can be used to evaluate performance differences in how a facility is operated, as compared to peers.

In this pilot study, IFMA reached out to facility professionals throughout Europe. Individuals from the following countries responded to the survey:

- Austria
- England
- Germany
- Ireland
- Netherlands
- Poland
- Spain
- Switzerland

Note that the information contained in the paper represents a self report from respondents. All information was voluntarily provided, but was not checked with site visits. When interpreting the data, it is important to remember that every facility is different, and every organization operates using different accounting and measurement practices. The data listed in this report will not provide a perfect comparison for your organization to that of another company. It does, however, provide a limited view of facility performance in certain European regions.

Participating in a local IFMA chapter or council benchmarking study is a good way to explore how to improve your facility operations. IFMA's research department can assist companies in forming benchmarking groups and conducting more detailed, smaller-scaled benchmarking studies.

FACILITY BENCHMARKING INSIGHTS

There are several types of benchmarking that an organization can use: internal, competitive and generic. When conducting an ***internal*** benchmarking exercise, a facility manager compares similar functions within their own organization. This is typically done when an organization operates multiple sites or units and comparisons can be made.

With ***competitive*** benchmarking, a facility manager compares costs, processes and practices to other organizations' sites within the same industry. While these partnerships typically encounter the most organizational resistance (due to the collaborative nature of potential competitors in the partnership), they can also offer the most rewarding experiences. Competitive benchmarks are particularly useful as they are based on data from peers who experience similar constraints, operating conditions, regulatory requirements and more. The most successful organizational partnerships are defined by the following characteristics:

- Organizational commitment
- Authority to make organizational changes
- Identified data sources
- Non-disclosure agreements (legal contracts)
- Time commitment
- Identified benchmarking staff and team
- Regular interviews, meetings, site visits
- Agreed upon benchmarking units (facility, department, system, etc.)

Finally, in the ***generic*** or process benchmarking exercise, a facility manager analyzes data and best practices regardless of the industry and concentrates on studying the function or process. Process benchmarking allows facility professionals to leverage lessons learned from industry sectors outside of their own to apply best practices.

The aim of this pilot study is to generate an interest in continued facility operations benchmarking efforts through Europe.

ACKNOWLEDGEMENTS

IFMA relies on the willingness and generosity of its members to compile the data and complete this lengthy benchmarking survey. Without their data, there would be no report. We thank these dedicated participants for their contributions.

A committee of subject matter experts worked with IFMA's research department to craft questions and pilot test the survey. The committee members are acknowledged on the inside cover of the report. Nickalos Rocha, IFMA's director of benchmarking, and staff from Simplar, conducted the survey, validated and analyzed the data, created the tables and graphs, and wrote the report.

ABOUT THIS REPORT

To create this report, a committee of IFMA volunteers with expertise in concierge, maintenance, energy management and sustainability reviewed questions posed in previous IFMA surveys and developed new questions to better match today's practices.

Once tested, the survey was first sent electronically in February 2021 to nearly 2,000 IFMA professional members throughout Europe.

Although the survey was issued to IFMA members, membership was not a requirement to participate. Survey recipients were encouraged to circulate the survey to the person responsible for the activity.

METHODOLOGY

Respondents were asked to provide information on the facilities they manage for a 12-month time period. There were 31 surveys returned during a 12-month time period.

To maintain real-world usability of these research findings, statistics are most often provided in terms of absolute number of responses, percentages and mean averages. Percentages may not add up to 100 percent due to rounding or the acceptance of multiple responses. In many cases, some respondents did not answer all questions, so the base numbers differ among the various quantitative findings. A few tables have dashes (--) in lieu of a number because there were not enough responses to generate a valid statistic.

Respondents provided cost data in their preferred local currency. For the sake of consistency, all currencies were converted to U.S. dollars (USD) based on conversion factors from 18 May 2021. Metric numbers were converted to standard.

This paper is a self-report survey. All data, including respondent identification, was voluntary. As with any research, readers should exercise caution when generalizing results and take individual circumstances and experiences into consideration when making decisions based on the data. While IFMA is confident in its research, it is important to understand that the results presented in this report represent the sample of organizations that chose to supply the requested facility information. See Appendix 1 for a list of acronyms and terminology.

Facility Description

Industries Represented

Comparing a facility's performance to others in the same industry, i.e. competitive benchmarking, is frequently done as part of an organization's quality assessment program. The following chart shows the industry categories represented in this report.

The number of cases presented is the total number of unique respondents that provided partial or complete surveys. As such, the totals vary in each section depending on the number of responses for the given question. Data for individual sectors are not provided due to a limited response rate for each category.

Industry Sector	Number of Cases (N)
Services	36
Manufacturing	8
Institutional	15
Total	59

Respondents were asked to identify the industry served by their facility, grouped into the following sectors:

SERVICES

- Banking (Consumer, Commercial, Savings, Credit Unions)
- Health Care
- Hospitality (Hotel, Restaurants, Hospitality-Related)
- Information Services (Data Processing, Information Services, E-Commerce)
- Insurance (Health, Life, Auto, Mutual, Casualty, Flood)
- Media (Broadcasting, Entertainment, Gaming, Media, Publishing)
- Professional Services (Legal, Accounting, Consulting, Engineering, Architecture)
- Telecommunications (Telecommunications, Internet Services/Products)
- Trade (Wholesale, Retail)
- Transportation (Transportation, Freight)
- Utilities (Water, Gas, Electric, Energy Management)

MANUFACTURING

- Building/Construction (Building, Construction Materials)
- Chemical/Pharmaceutical (Chemical, Pharmaceutical, Biotech)
- Computer (Computer Hardware or Software)
- Motor Vehicles

INSTITUTIONAL

- Association (Association, Federation, Non-Profit Foundation, Society)
- City/County Government (Law Enforcement, Library, Parks/Public Open Space)
- Educational (Training Center, K-12, College/University)
- Federal Government
- Religious
- Research
- Special Districts/Quasi-Government (Transportation Authorities, School Boards)
- State/Provincial Government

Facility Use

Property type and subtype categories used within the Appraisal Institute Commercial Data Standards were applied to allow for a more meaningful comparison. There were 29 facility use categories to choose from, but not all were selected. Note the expansion of the office category. This study breaks office space into three categories: branch, headquarters and mixed-use where office space is dominant.

Facility Use

Facility Use	Number of Cases (N)
Office	37
Branch/Regional Office	16
Headquarters	16
Mixed-Use Office	5
Industrial/Manufacturing	4
Assembly	4
Educational	3
Other	8
Total	56

*"Other" includes Bank Branch, Data Center, Health Care, Multi-Use, Research, Transportation and Recreational Facilities.

Countries/Regions Represented

IFMA targeted members throughout Europe. The survey was presented in English for all respondents.

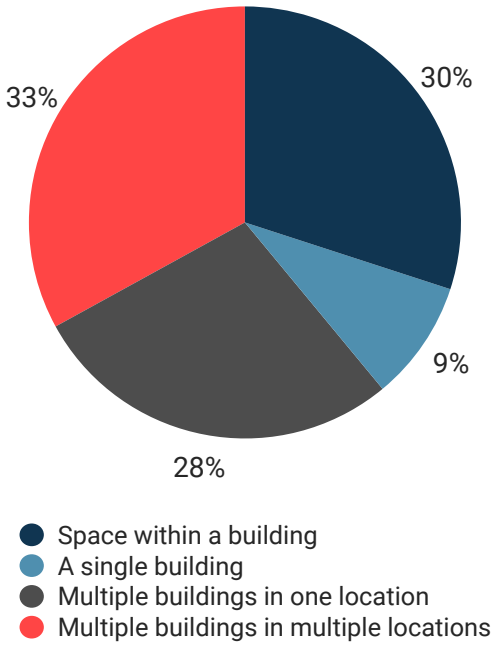
Countries/Regions Represented

Country/Region	N
Austria	3
England	3
Germany	3
Ireland	3
Netherlands	13
Poland	14
Spain	5
Switzerland	4

Facility Description

To provide a more accurate comparison of cost and practices, respondents were asked to provide data on a single-use facility, preferably the largest or most active facility of their portfolio. Thirty percent of the facilities represented in this study are single buildings. A total of 1,360 buildings were included in this study.

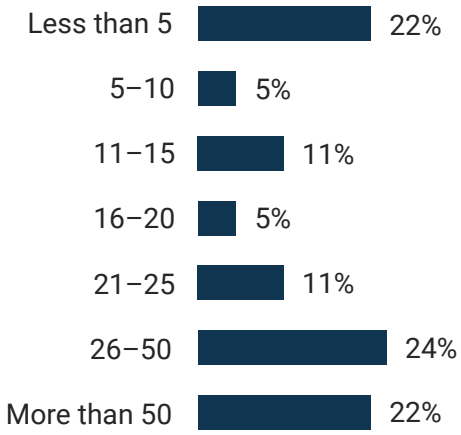
Facility Building Description



Facility Age

The average age of the facilities in this data set is 38 years; the median age is 30 years.

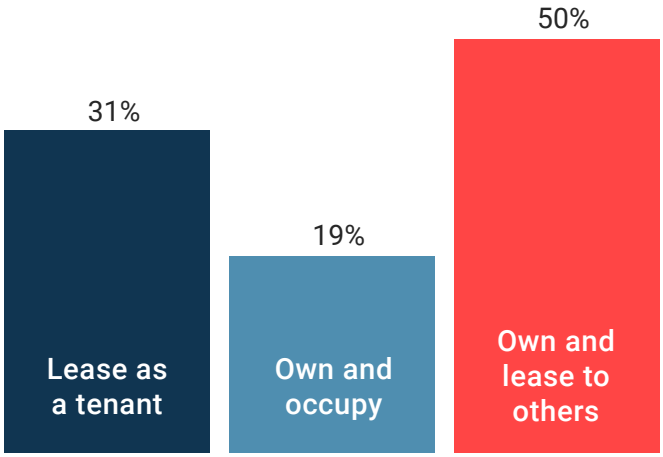
Facility Age (Years)

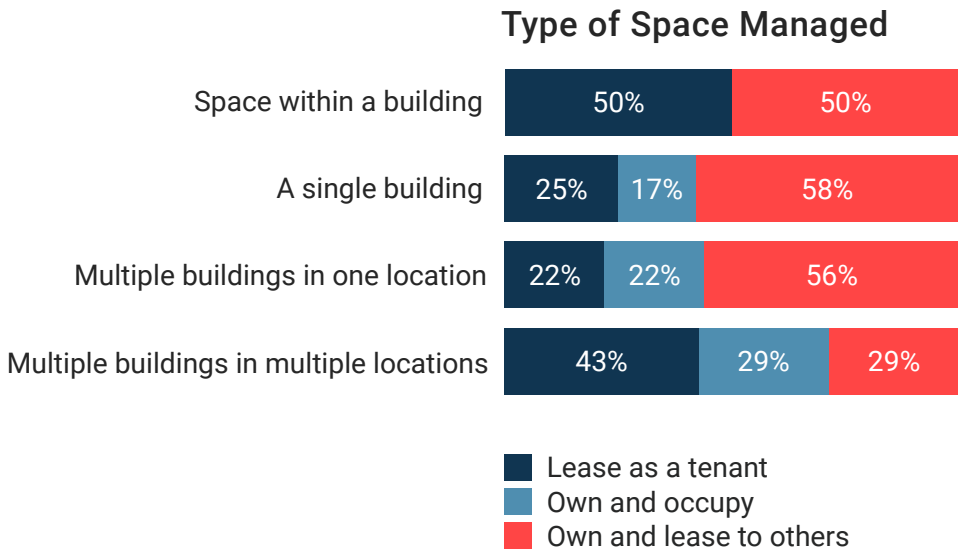


Overall Ownership

About 50 percent of the facilities in this report are owner occupied.

As the type of space managed includes more buildings and locations, the portfolio expands to include both owned and leased facilities.





Maintenance

Maintenance Categories

IFMA divides maintenance cost into five distinct categories which are defined below. Most maintenance costs fall within the first three categories: external building maintenance, interior systems maintenance and, roads and grounds. The remaining two cost categories, utility system maintenance and process treatment/environmental system maintenance, are costs likely incurred by manufacturing facilities and large campuses with central plants. Solid waste management — a category found under environmental system maintenance — refers to industrial waste that contains non-hazardous materials, such as by-products of production, and should not be interpreted as ordinary garbage, trash or municipal waste.

Due to a limited sample size, this report does not provide breakdown by individual cost category. Rather, the total maintenance cost is presented, which is a sum of the five major categories defined.

EXTERNAL BUILDING MAINTENANCE

- Roof
- Skin (siding, masonry, sash, glazing, window washing, external doors)
- Exterior signage

INTERIOR SYSTEMS MAINTENANCE

- Electrical systems (primary and secondary systems, emergency electrical systems, uninterrupted power supply or UPS, lighting systems, egress signage, master clocks, fire/life safety systems and alarms along with remote monitoring, elevator maintenance/repair)
- Mechanical systems (HVAC, chillers, boilers, plumbing, extinguishing systems, back flow prevention, refrigeration and non-process related pumps)
- Building and general maintenance (interior walls, doors, ceilings, partitions and interior finishes, pest control)
- Interior signage
- Administrative support services

ROADS AND GROUNDS MAINTENANCE

- Roadways, sidewalks, parking lots (paving repairs, sealing, striping, parking, roadway lighting, power washing), snow removal and de-icing
- Landscaping (planting, mowing, irrigation)
- Parking structures (surface repairs, sealing, striping, lighting and drainage systems)
- Storm sewers (catch basins, manholes, sub-surface drainage systems)
- Underground fire systems and hydrants

UTILITY/CENTRAL SYSTEM MAINTENANCE

- Electrical (generation/distribution)
- Mechanical (steam, hot and cold water systems)

PROCESS TREATMENT AND ENVIRONMENTAL SYSTEMS

- Process cooling water systems
- Process gas systems
- Air discharge scrubbers
- Waste water systems
- Water treatment plants
- Incinerator operation
- Solid waste management system

Maintenance Costs

The annual maintenance cost includes all repair, preventive, materials, direct labor and contract costs. The average total maintenance cost per rentable square metre is €28.82.

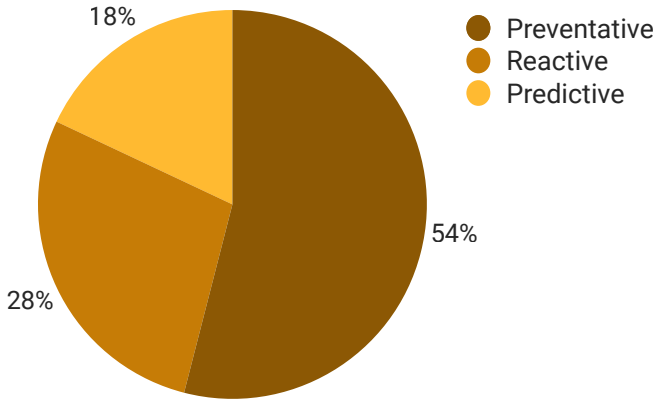
Maintenance Costs by Percentile (N = 23)

Percentile	Total Maintenance
99%	€93.89
75%	€34.40
50%	€24.44
10%	€11.89
1%	€5.58
Mean	€28.82

Maintenance Cost Allocations

Respondents were asked to identify what percentage of their total maintenance costs were allocated between preventive, reactive and predictive categories. Overall, 54 percent of the maintenance cost was preventive maintenance.

Cost Allocation by Maintenance Strategy

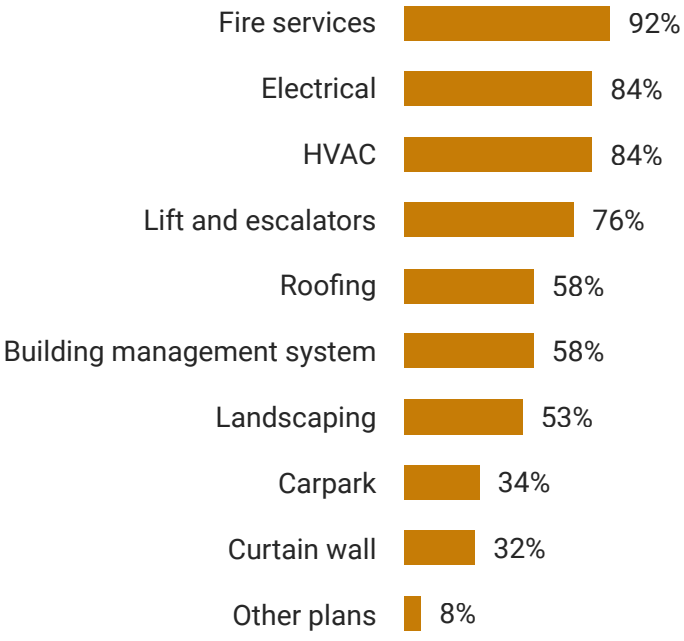


Preventative Maintenance

Preventive maintenance is an effective strategy to lower overall FM operation costs or prevent expensive repairs (as a result of a breakdown). The cost of an unplanned equipment shutdown is typically much higher. See IFMA's Facility Management Professional® credential program for more details.

Nearly 90 percent of respondents report that they have preventive maintenance plans for fire services, electrical and HVAC systems.

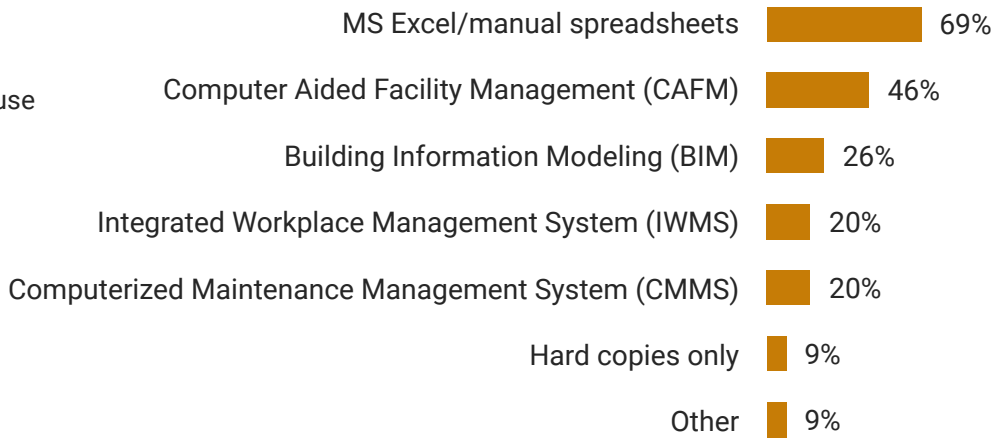
Preventative Maintenance Plans (N = 38)



Maintenance Tracking

To manage, schedule and track maintenance costs and activities, the majority of respondents, 69 percent, use a MS Excel or manual spreadsheets.

Maintenance Tracking System (N = 35)



Maintenance Staffing

Survey respondents completed a worksheet quantifying the number of workers employed for base building operations. The worksheet was divided into two categories: maintenance workforce (technicians or trades), and maintenance management/administrative support. Custodial workers and grounds keeping staff were not included in this maintenance headcount.

Respondents were asked to identify their organization's definition of an FTE. While most respondents defined FTE as 40 hours-per-week (2080 hours per year), some defined FTE as something different (i.e., 38 hours per week). All values reported here were calculated on a 40 hours-per-week basis. The adjustment to a 40 hours-per-week is calculated as follows:

1. Determine the typical number of "full-time" work hours per week. This can be calculated by dividing the "total number of full-time work hours in a year" by "52 weeks in a year."
2. Multiply the total number of FTEs for a given staff position by the number of work hours per week from Step 1.
3. Divide this number by 40. The result is the equivalent number of FTEs based on a 40 hours-per-week basis.

EXAMPLE

An organization defines full-time as 1,976 hours per year and has two (2) full-time electricians. The 40 hours-per-week equivalent of FTEs is calculated as follows:

1. **1,976** full-time work hours per year ÷ **52** weeks = **38** hours per week
2. **2** FTEs x **38** hours per week = 76 total person hours in one week
3. **76** ÷ **40** hours per week = **1.9** FTE electricians (40 hours per week)

Due to a limited sample size, the FTEs reported are the ***number of FTEs per 10,000 square metres of net floor area (NFA)***. You can compare the staffing allocation reported by following these steps:

1. Sum the total of number of FTEs (assuming a 40-hour week; see above) for a given staff position.
2. Divide the NFA (in metres) of your facility by 10,000.
3. Divide the number of total number of FTEs from Step 1 by the results from Step 2. This result can be used to compare the values shown in the following tables.

Maintenance Staffing

Maintenance Technicians
Number of FTEs per 10,000 SM of NFA

Percentile	Controls and Low Voltage	Electricians	Generalists	HVAC	Plumbers	Stationary Engineers	TOTAL
99%	1.6	3.4	3.4	1.7	3.5	3.4	4.2
75%	1.1	0.7	0.6	0.4	0.3	0.5	2.6
50%	0.3	0.4	0.5	0.3	0.2	0.3	1.4
10%	0.02	0.2	0.1	0.1	0.04	0.02	0.9
1%	0.004	0.04	0.07	0.03	0.03	0.002	0.9
Mean	0.6	0.7	0.7	0.4	0.6	0.6	1.9
N	6	12	12	11	8	11	16

Supervision and Administrative Support
Number of FTEs per 10,000 SM of NFA

Percentile	Group Supervisor (first line)	O&M Manager (second line)	Other Managers	Help Desk	Admin Assistance	Other Admin Support
99%	1.7	1.5	1.0	2.6	3.1	4.2
75%	0.8	0.5	0.7	1.4	0.9	1.8
50%	0.3	0.3	0.5	0.3	0.3	0.5
10%	0.1	0.13	0.2	0.1	0.1	0.12
1%	0.03	0.11	0.1	0.0	0.03	0.10
Mean	0.5	0.5	0.5	0.8	0.7	1.3
N	16	10	11	9	10	7

Soft Services

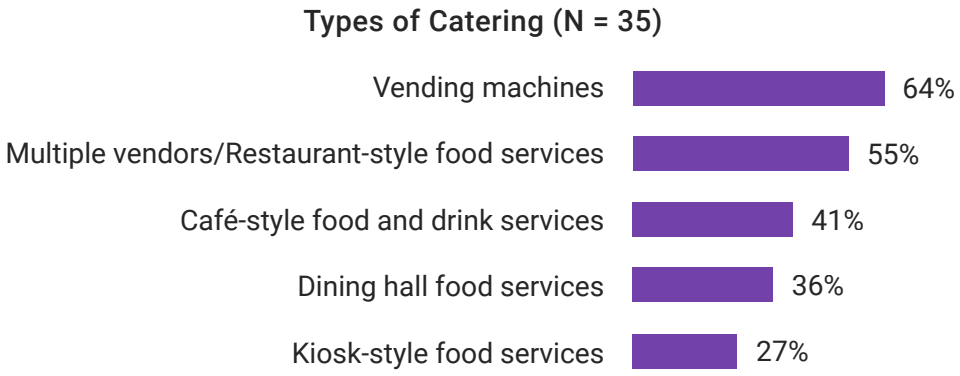
Overview

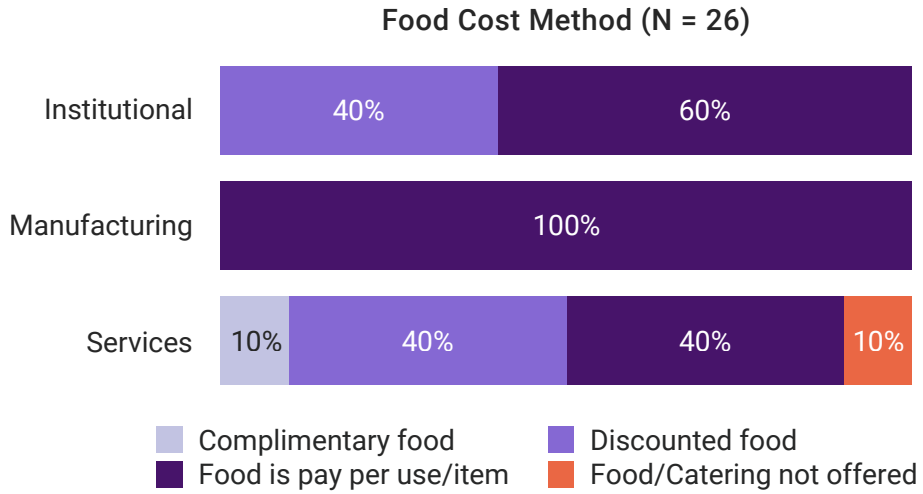
This final section focuses on what is generally classified as soft services, with a focus on the building occupant experience. As there is limited sample size, cost and staffing information is not provided. However, general practices by industry sector are discussed. Practices relating to catering/food services, interior decoration and furnishings, customer reception and security operations are discussed.

Catering/ Food Services

Respondents identified the types of catering or food services that are offered at their facility. About 64 percent of respondents said their facility had vending machines, with 55 percent offering "restaurant-style" food services. Balancing the cost-effectiveness and sustainability goals is an impact factor in optimizing the delivery of food services in facilities.[1]

Respondents also identified how occupants typically pay for food. Overall, 50 percent report that food is paid for on a per use/per service basis, while 38 percent identified that food is discounted.



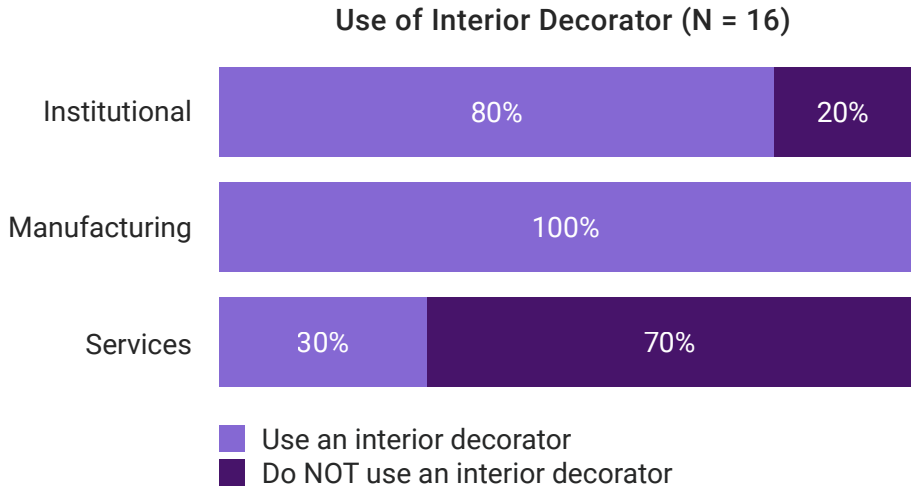


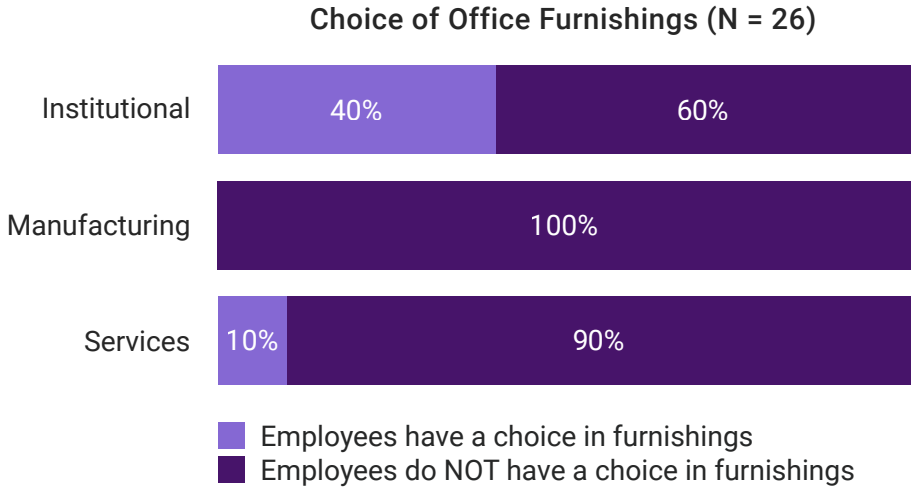
1 Weisshaupt, O., Leiblein-Züger, G. V., & Hofer, S. (2018). Process Model for the Food Service in Swiss Hospitals. *Journal of Facility Management Education and Research*, 2(2), 74–82. https://doi.org/10.22361/jfmer/00072

Interior Decorations and Furnishings

Effective use of interior decor can affect the overall productivity and job satisfaction of building occupants.[2] In this report, we find that about half the respondents use an interior decorator.

We also asked respondents to identify if building occupants have a choice with regard to the furnishings or equipment in their office. Only about 19 percent have a choice, while 81 percent do not have a choice.



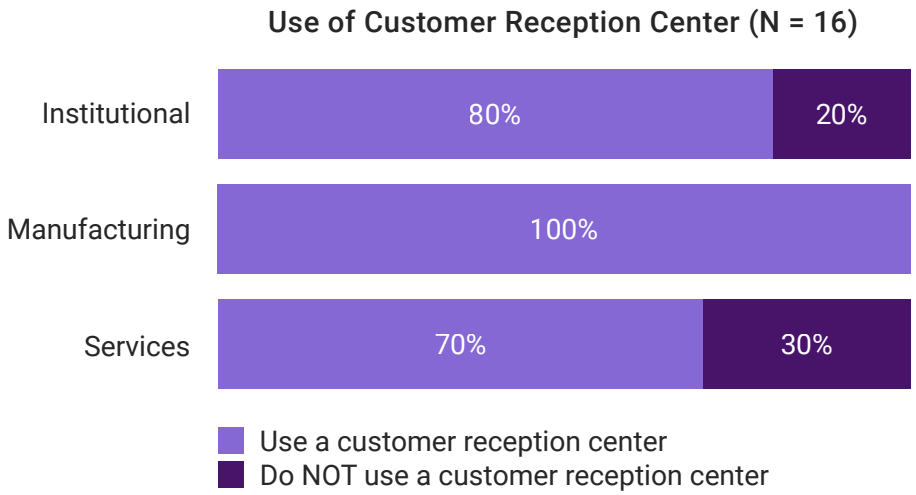


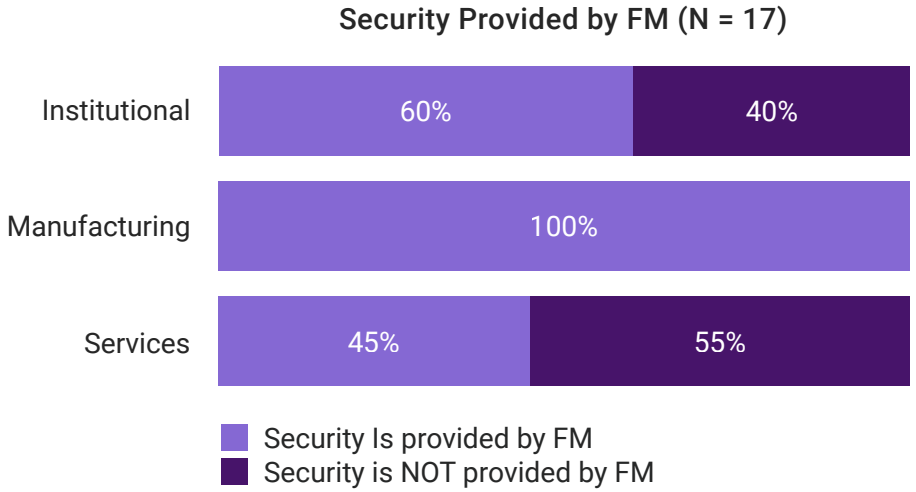
2 Yang, E., & Nie, Y. (2017). An Aging Workforce and Work Environment: A Hotel Case Study in China. *Journal of Facility Management Education and Research*, 1(2), 59–64. https://doi.org/10.22361/jfmer/81608

Customer Reception and Security

Customer reception areas can be an effective tool to ensure guests are comfortable while waiting or entering an unfamiliar space, while also serving as an effective form of security. About 75 percent of respondents reported the use of a customer care/reception center.

Management of security-related functions has seen changes in the past few years. In Europe, we find that about 53 percent of respondents state that facility management provides security operations.





Appendix 1: Acronyms and Terminology

AVERAGE

Average is also referred to as the mean — the sum or total of all responses divided by the number of respondents.

BUILDING EXTERIOR GROSS AREA (GROSS AREA)

The sum of the floor areas on all levels of a building that are totally enclosed within the building. Measure exterior building gross area to the outside face of exterior walls, disregarding canopies, cornices, pilasters, balconies, and buttresses that extend beyond the wall face and courtyards that are enclosed by walls but have no roof. The building exterior gross area of basement space includes the area measured to the outside face of basement or foundation walls. Exterior bridges and tunnels that are totally enclosed, and constructed areas connecting two or more buildings are included in building exterior gross area.

FACILITY

Collection of assets which is built, installed or established to serve an entity's needs.

FACILITY MANAGEMENT

Organizational function which integrates people, place, and process within the built environment, with the purpose of improving the quality of life of people and the productivity of the core business.

FULL-TIME EQUIVALENT (FTE)

The operational and supervisory headcount that delivers a facility service on an annual, full-time basis, calculated on a 40-hour work week (2,080 hours per year).

KILOWATT HOUR (kWh)

A unit of work or energy, measured as one kilowatt (1,000 watts) of power expended for one hour. One kWh is equivalent to 3,412 British thermal units (BTUs).

INTERIOR AREA

Respondents were asked to provide the interior gross floor area (GFA), which was defined as the portion of the inside finished surface of the permanent outer building wall which is 50 percent or more of the vertical floor-to-ceiling dimension. For example, if a window is more than 50 percent of the wall height, then the inside of the glass is the dominant portion. ANSI/BOMA Z65.1 provides additional details. The janitorial and maintenance cost metrics were based on the interior area.

MAINTENANCE COST CATEGORIES

Maintenance costs are divided into the following six categories: external buildings, interior systems, roads and grounds, utility/central system, process treatment/environmental and other costs not included in the other categories. The maintenance chapter provides detailed examples of costs included in each category.

MAJOR VERTICAL PENETRATIONS

Major vertical penetrations include stairs, elevator shafts, utility tunnels, flues, pipe shafts, vertical ducts and their enclosing walls.

MEAN

See definition for average. Mean and average are used interchangeably and the interpretation is the same.

MEDIAN

The middle value in a range of responses is the median. One-half of all respondents will be below this value, while one-half will have a higher value. The median is also known as the 50th percentile. The advantage in using the median is that it is not affected as much by extreme highs or lows in the range of values as is the case with the mean.

MULTI-USE

In this report multi-use describes facilities with two or more primary uses, such as a single site that encompasses headquarter offices, as well as production or research facilities.

N

N is the number of cases supplying the data being described. It is important to note the size of the sample for the value you are comparing.

PERCENTILE

Percentile indicates dispersion of data. A specific percentile identifies where a value lies in relation to other values in a range of responses. The 25th percentile is the lower one-fourth point in the range of values in the group. The 50th percentile, also referred to as the median, represents a value of which one-half of the group falls below and one-half falls above. The median is not affected by extreme high or low values, whereas the mean could be distorted.

PLANNABLE AREA

Plannable area is equal to the sum of the following areas: restricted areas, interior encroachments, occupant void areas, unassignable areas, assignable areas, and secondary circulation. It does not include: primary circulation, service areas (lobbies, walkways, security desks) and major vertical penetrations.

PREVENTIVE MAINTENANCE

Preventive maintenance is a type of planned maintenance having an equipment maintenance strategy based on replacing, overhauling, or remanufacturing an item at a fixed interval, regardless of its condition at the time.

SITE POPULATION

The number of full- and part-time employees, contract workers and/or tenants located at the facility or facilities.

STATIONARY ENGINEERS

Stationary engineers (also called licensed engineers) are licensed personnel assigned to operate a power plant including the steam and hot water boilers or a chilled water plant.

SQUARE METER (SM)

Basis used for cost calculations.

VOID AREAS

Rooms that are more than one story in height. Void areas exist on upper floors, such as atriums, light wells or lobbies.