

Index

Note: Italicized page locators refer to exhibits.

- ACA. *See* Affordable Care Act
- Academic medical centers: research and education spaces in, 25
- Access services, 54, 81–82
- Accountable care organizations (ACOs), 3, 7
- Acquisitions, hospital, 90
- Acute care hospital consolidation (case study), 169–73; bed capacity, 169; comparison of existing and new spaces, 170, 173; key planning issues, 169–70; proposed clinical service realignment plan, 172; proposed facility consolidation plan, 170, 171
- Acute care hospitals, 100; bed allocation and organization in, 28; customer service centers and, 55; private patient rooms in, 42; reconfiguring diagnostic services and, 58
- Administrative office building, 186
- Administrative offices, 24; flexible and generic space for, 82–83; generic suites in, 62–63, 183; relocating to less costly and flexible space, 103
- Admissions to hospitals: declining, 3, 4, 40
- Aesthetics: parking structures and, 65
- Affordable Care Act (ACA): electronic health records and, 4–5; facility planning and, 3; passage of, 2; population health management and, 40
- Aging buildings and facilities, 8, 103
- Ambulatory care centers, 24
- Ambulatory care facility planning (case study), 151–55; comparison of configuration options (building section diagram), 155; comparison of facility planning assumptions and space need, 152, 153, 154; estimated project cost, 153; planning approach, 152; space programming, 151
- American Recovery and Reinvestment Act, 4
- Analysis of facility: questions related to, 17
- Architects, 11; in-house and licensed, 105; predesign planning and, 15; project cost estimates and, 114
- Architectural design consultants: feasibility studies and, 15
- Assessment: of market and patient population, 38
- Assignable square feet, 27–28
- ATMs, 55
- Automation: building support space and, 25; clinical support space and, 23; laboratory medicine and, 62; pharmacy warehouses and, 62
- Baby boomers, 8, 40
- Bar coding: clinical support space and, 23; pharmacy services and, 62
- Base construction cost: estimating, 112; project costs and, 113
- Bed expansion plan (case study), 161–67; comparison of future bed need scenarios, 163; final plan, 166–67; high bed need scenario, 166; impact of varying occupancy rates on bed need scenarios, 165; low bed need scenario, 164, 166; planning approach, 162, 164; projected inpatient demand, 161
- Beds: allocation and organization of, 28–29, 94, 95–96; capacity assessment for, 73–74; empty, eliminating, 87–88; high bed need and low bed need scenarios, 39–40, 41; new or replacement, planning for, 133; observation, 42, 44; optimal number in nursing unit, 21; severe shortages in, 55
- Benchmarks, 7; for facility planning, 69; for validation of plans, 188

- Best practices, 7, 69, 70, 188
- BGSF. *See* Building gross square feet
- Block floor plans, 29, 30
- Bottom-up approach: industry benchmarks, rules of thumb, and, 189; to operational space programming, 131, 132, 132–33
- Bricks-and-mortar buildings, 9, 9
- Bubble diagrams: operational and space program and, 130
- Building codes, 130
- Building efficiency ratio, 27
- Building gross square feet (BGSF): acute care hospital consolidation impact on, 170, 173; ambulatory care facility planning case study, 152, 153, 153, 154; estimating, 27
- Building maintenance services, 63
- Building Owners and Managers Association International, 28
- Building section diagrams, 29, 32, 105, 155
- Building support services: relocating or consolidating, 103; unbundling, 63–64, 82
- Building support space, 24–25; reducing, 89
- Bundling payments: Affordable Care Act and, 3
- Business (market) plan, 9; sound, 188; space planning and, 9
- “Campus of care,” 186
- Campus planning: key questions for, 81; redesign and, 185–86; ten optimal configuration principles in, 81–83
- Campus traffic: separating key types of, 81
- Capital access: limited, flexibility and, 181
- Capital budgeting: infrastructure issues and, 35
- Capital costs: predesign planning and impact on, 12
- Capital expenditures: traditional facility planning process and, 1
- Capital investments: long-range facility investment strategy and, 94; optimizing, 49, 187–89
- Capital investment strategy, 9, 11; financial viability and, 9; integrated predesign planning and, 12, 13, 14. *See also* Long-range facility investment strategy
- Capital project: six stages of, 10, 10–11
- Cardiologists, 6
- C-arms: definition of, 5; fixed, 6, 59
- Case studies: ambulatory care facility planning, 151–55; consolidating two acute care hospitals, 169–73; developing a bed expansion plan, 161–67; evaluating emergency expansion, 157–60; planning a prototype community health center, 175–79; ten-year capital investment strategy for multihospital system, 139–50
- Centers for Medicare & Medicaid Services, 4
- Centers of excellence: planning, 47, 103–4; specialty, 186
- Central sterile processing, 63
- Change orders, 114
- Chapels, 55
- Chief executive officer, 14
- Chief operating officer, 14
- Circulation flow, 17
- Clinical service line operations improvement initiatives, 51
- Clinical services: integrating and restructuring, 88; reconfiguration and upgrading of, 94, 96
- Clinical support space, 23, 84
- Codes: building codes, 130; facility planning and, 84; space program and, 129
- Coile, Russ, 90
- Communications technology: advances in, 51–52
- Community health center prototype plan (case study), 175–79; benefits of, 179; challenges in, 175–76; economies of scale and future expansion needs, 179; facility planning principles, 176; generic spaces identified, 176; key space drivers for, 176–77, 177; organizing space into functional categories, 178, 178–79
- Community hospitals: department gross square feet in, 34, 34; downsizing, consolidation, and closures of, 4; long-range facility investment strategy, example, 103
- Computed tomography (CT), 6, 58, 96; forecasting workloads for, 45, 46; intra-operative, 6, 59
- Computer-aided drafting, 33
- Conceptual diagrams: supplementary, 130–31, 131
- Consolidation: healthcare reform and, 7; hospital, 4

- Construction managers: project cost estimates and, 114
- Construction specialists: feasibility studies and, 15
- Consumerism: new, 8–9
- Corridor width requirements: healthcare campuses and, 185
- Cosmetic improvements, 136
- Cost estimates: realistic, catch-22 with, 114–15
- Cost estimator: project cost estimates and, 114
- Covenants, 17
- Critically ill patients: remote patient management of, 61
- Cross-departmental task forces: assembling, 188
- CT. *See* Computed tomography
- Current organizational and operational models, rethinking, 188
- Customer access and satisfaction: rationale for potential projects and, 108
- Customer focus, 189
- Customer intake: coordinating and collocating access services and, 81–82; space and amenities, 84
- Customer loyalty: patient experience improvement and, 97
- Customer service center, 100; developing, 54–55, 56, 57; functional components of, 54–55; hub-and-spoke model and, 57; implementing, 102; location of, 54, 102
- Customer services: amenities and, 22–23; flexible space for, 183

- Data, 51; baseline, collection of, 69; baseline facility planning summary, 36; bed forecasts, 44; collecting and analyzing, 17; on inpatient nursing units, 28–29; utilization of, for facility planning, 44
- Day recovery centers, 186
- Demand: new planning environment and, 3–4
- Department gross square feet (DGSF), 26, 28, 34, 34, 36, 68, 69, 119, 153; base construction cost estimates and, 112; bed capacity and, 73, 74; benchmarks and, 69, 70; definition of, 27; emergency expansion evaluation and, 158, 159, 159; incremental need approach and, 70; scenario analysis and modeling and, 71
- Department location diagram (floor plan), 30, 31
- Department managers: traditional facility planning process and, 1
- Department net square feet (DNSF), 25, 28
- Departments: priorities assigned to, 85
- Design architects, 93; operational and space programming document and, 117; room data sheets preparation and, 134
- Design capacity: of inpatient nursing units, 29
- DGSF. *See* Department gross square feet
- Diagnosis-related group (DRG) payment methodology, 4; high bed need and low bed need scenarios and, 40
- Diagnostic and treatment centers: flexible, 183
- Diagnostic and treatment spaces, 22, 33, 36
- Diagnostic imaging: convergence with surgical procedures, 5–6
- Diagnostic services: major, capacity benchmarks for, 77; positioning for changing technology and future operational flexibility, 82; reconfiguring, 57–58; shared, 186
- Diagrams: bubble, 130; building section diagrams, 155; conceptual, developing, 130–31, 131; stacking, 29, 105
- Dietary services, 63
- Discharge lounges, 55
- Distance learning, 25
- DNSF. *See* Department net square feet
- Donors: private, 104; rationale for potential projects and funding by, 108
- Downsizing: of hospitals or hospital-based departments, 40, 96
- DRG payment methodology. *See* Diagnosis-related group payment methodology
- Durable medical equipment, 55

- Easements, 17
- ED. *See* Emergency department
- Education space, 25
- EHRs. *See* Electronic health records
- eICU, 61
- Electronic health records (EHRs), 51; incentivizing use of, 7; “meaningful use” and, 5; paperwork and administrative cost reduction and, 3; rapid adoption of, 4–5

- Electronic information management: flexibility and, 181
- Emergency department (ED), 60, 61, 96, 97; conceptual diagram for, 131; observation beds in, 42; relationship between performance and capacity of, 51, 52
- Emergency expansion evaluation (case study), 157–60; facility expansion goals, 157; planning approach, 158–59; reevaluation conclusions, 159–60; treatment room turnaround time and emergency department space and project costs, 159, 159
- Emergency vehicles: expediting campus access for, 17
- Emotional issues: hospital closures or consolidations and, 90
- Endoscopic retrograde cholangiopancreatography (ERCP), 119
- Endoscopy suite operational program, example of, 118–25; current and future staffing, 121, 121; current and projected workloads, 120; current situation (baseline), 118–19; equipment, technology, and support systems, 122–23; functional adjacencies and access, 123–24; future trends and operational flexibility, 124; future vision and planning goals, 119; outstanding issues to be resolved, 124–25; planned hours of operation, 120
- Engineering assessment: of physical plant, 35
- Engineers, 11
- Enterprise imaging, 5
- Entrances to buildings, 17
- Environmental assessment: strategic planning and, 37
- Environmental maintenance services, 63
- Equipment, 9, 9; acquisition or replacement of, 94, 97; facility planning and, 84; outdated, 84–85; as space driver, 129
- ERCP. *See* Endoscopic retrograde cholangiopancreatography
- Exam rooms, 78, 88
- Express testing services: consolidating, 57
- Facilities Guidelines Institute, 130
- Facility capacity for clinical services: evaluating, 71, 73
- Facility configuration models: new, 53
- Facility investment strategies: most common, 94–97, 99–103
- Facility manager: project cost estimates and, 114
- Facility master plan, 9, 9
- Facility planning committee: assembling, 14–15; roles and responsibilities of, 15, 16
- Facility planning consultants: predesign planning and, 15
- Facility planning process: Affordable Care Act and, 2–3; appropriate planning horizon for, 48; high bed need and low bed need scenarios, 39–40, 41; institution-wide operations improvement initiatives and, 49–50; integrating with strategic (market) planning, 38; new vocabulary in, 9, 9–10; traditional, problems with, 1–2; utilization analyses unique to, 38–39. *See also* Predesign planning process; Space in healthcare facility; Strategic planning
- Family members: circulation system and, 18
- Feasibility studies: predesign planning and, 15
- FGSF. *See* Floor gross square feet
- Financial data management functions: consolidation of, 52
- Fire codes: state and local, 130
- Flexibility: definition of, 181
- Flexibility optimization, 181–86, 189; building flexible infrastructure, 184; developing space standards and planning generic spaces, 184–85; importance of flexibility, 181; leasing space, 184; multiuse or shared facility components, planning, 182; planning flexible space that can be adapted over time, 182–83; redesigning the healthcare campus, 185–86; unbundling selected services, 183–84
- Floor gross square feet (FGSF), 27
- Floor plans: department block, 29, 30, 36; department location diagram, 30, 31
- Fluoroscopy, 58
- Forecasts and forecasting: of future demand, capacity assessment linked to, 47–48; healthcare utilization, 44, 45, 46
- Front door: clearly defining, 81
- Functional and space programming, 9
- Functional layout: facility planning and, 84

- Furniture: leasing, 184
- Future capacity: rationale for potential projects and, 108
- Future demand forecasts: capacity assessment linked to, 47–48
- Future facility configuration drawings, 105, 106
- Generic spaces: planning, 184–85
- Gift shops, 55
- Gross space: net space *vs.*, 25, 26, 27–28, 136
- Guidelines for Design and Construction of Hospitals and Outpatient Facilities* (FGI *Guidelines*), 130
- Handicap accessibility standards, state and local, 130
- Health agency codes: state, 130
- Healthcare campus. *See* Campus planning
- Healthcare executives: predesign planning and, 11
- Healthcare reform: consolidation and, 7; new planning environment and, 2–3
- Healthcare Strategic Planning* (Zuckerman), 37
- Healthcare systems: consolidation of, 7
- Health informatics, 5
- Health Insurance Portability and Accountability Act (HIPAA), 4
- Health safety: rationale for potential projects and, 107
- High bed need scenarios, 39–40, 41, 43
- HIPAA. *See* Health Insurance Portability and Accountability Act
- Home base: providing, for families and visitors, 102
- Home health agencies: proliferation of, 4
- Hospital-centric model: population-centric model *vs.*, 4, 40
- Hospital licensing rules, state, 130
- Hospitals: closures of, 40, 87; consolidations of, 40; downsizings of hospital-based departments and, 40, 96; facility planning issues for services or departments in, 83–84; flexible infrastructure for, 184; future bed need scenarios comparison, 41; inpatient care space in, 95; occupancy rates in, 40; optimizing reimbursement for, 7; reconfiguring diagnostic services in, 57–58; replacement, planning from the ground up, 115; traditional facility planning process and, 2. *See also* Acute care hospitals; Community hospitals; Case study: consolidating two acute care hospitals; Multihospital systems
- Hotel services (or building support services), 63
- Hub-and-spoke model: customer service center and, 102; hotel reception–desk concept, 23, 57
- Human resources departments: reengineering of operations and, 6
- Hybrid operating room, 59
- Imaging equipment: leasing, 184
- Imaging procedure space: integrating with surgical procedure space, 59
- Imaging services: location for, 58
- Imaging studies, 5
- Implementation planning: strategic planning and, 37
- Inadequate facilities: perception of, 99, 100
- Incremental approach, 70
- Inflation factor: adding to base construction cost, 113
- Information technology (IT): advances in, 5, 51–52; integrating facility planning with investments in, 49. *See also* Electronic health records; Internet
- Infrastructure: flexible, 184; major issues for, 35, 36; strategic planning for, 38; upgrading, 94, 97
- Inpatient beds: declining demand for, 4
- Inpatient care: fragmentation of, 95
- Inpatient floor: typical layout of, 21
- Inpatient nursing units, 18, 36, 84; data collection for, 28–29; department gross square feet of, 34; design capacity of, 29; inventory and analysis of, 73, 75; programming, 133–34, 135
- Inpatient rooms: building codes and, 130
- Inpatients: outpatients *vs.*, 97
- Inpatient space: redeploying or downgrading, 22
- Inpatient transfers: minimizing, 82
- Institute of Medicine (IOM): *To Err Is Human* report, 7–8
- Institution-wide operations improvement initiatives, 49–50

- Institution-wide systems: common, and related technology, 50–51
- Integrated healthcare: Affordable Care Act and, 3
- Intensive care units (ICUs): rethinking, 61
- Intensivists, 61
- Interior décor and design, 84, 136
- International Facilities Management Association, 28
- Internet: information and communication systems, investing in, 100; meetings and presentations via, 25; networking and mobile computing advances and, 52; paperless healthcare environment and, 5
- Interstitial space: flexible infrastructure and, 184
- Interventional imaging: convergence with surgical procedures, 5–6
- Interventional radiologists, 6
- Interventional services: rethinking, 59
- Interviews, 69
- Intranet, 52
- Intraoperative computed tomography (iCT), 59
- Intraoperative magnetic resonance imaging (iMRI), 59
- IOM. *See* Institute of Medicine
- IT. *See* Information technology

- Joint Commission, 130
- Joint ventures, 90
- Just-in-time delivery, 64

- Kemper, John E., 16, 115
- Kitchens, 25, 63, 89

- Laboratory testing: changes in, 62
- Land acquisition: campus enlargement and, 103
- Launching a Capital Facility Project: A Guide for Healthcare Leaders* (Kemper), 16, 115
- Lead shielding, 22
- Lean process improvement, 6–7
- Leasing space, 28, 184
- Length of stay: space requirements and, 21
- Life Safety Code compliance: healthcare campuses and, 185
- Location: facility planning and, 44–45, 84

- Long-range facility investment strategy: bed allocation and nursing unit reconfiguration, 94, 95–96; building infrastructure upgrading and equipment acquisition/replacement, 94, 97; centers of excellence and, 103–4; clinical services reconfiguration and upgrading, 94, 96; community hospital example, 103; defining, 14; developing, reasons for, 94; future facility configuration drawings, 105; inaction and, 104–5; outpatient services configuration and provision of physician space, 94, 96–97; patient experience improvement, 94, 97, 99–101; private donors and, 104; reaching consensus on, 93–105
- Long-span joists: flexible infrastructure and, 184
- Low bed need scenarios, 39–40, 41, 43

- Magnetic resonance imaging (MRI), 6, 58, 96; forecasting workloads for, 45, 46; intraoperative, 59
- Main entrance: clearly defining, 81
- Major clinical services: capacity of, 76, 78
- Mammography, 58
- Managed care, 40
- Market assessment, 38
- Materials management, 63, 186
- Matrices: key facility issues summarized with, 86; target projects and rationale summarized in, 108, 109; using, 85
- Medicaid: “meaningful use” of electronic health records and, 5; preventive health coverage and, 3
- Medical errors: electronic health records and reduction in, 3
- Medical procedure unit: developing, 59–60
- Medicare, 101; diagnosis-related group payment methodology, 4, 40; hospital admissions, 60; “meaningful use” of electronic health records and, 5; observation patients and, 42, 60, 61, 87
- Meditation rooms, 55
- Mergers, 87, 89–90
- Minimally invasive surgery, 97
- Mobile technologies, 5, 52
- Morale: traditional facility planning process and, 2
- MRI. *See* Magnetic resonance imaging

- Multihospital systems, 64; eliminating surplus capacity in, 87; political, emotional, and regulatory issues related to, 90
- Multihospital system ten-year capital investment strategy (case study), 139–50; current bed complement, 145; detailed project phasing and implementation plan, 150; existing hospital sites and characteristics, 141; facility planning process, 142; key facility priorities, 143, 145–46; long-range facility development scenarios, 146–47; major facility assets and liabilities by campus, 142–43, 144; market dynamics and future bed need, 143; ten-year capital investment strategy, 147, 148, 149; three acute care campuses, description of, 139–40; 2015 capital investment strategy, 140, 142
- Multiple-bed rooms or wards, 42
- Multispecialty group practices, 7
- Multiuse facility components: planning, 182
- Needs assessment: eliminating surplus capacity, 87–91; evaluating facility capacity, 71, 73–74, 76, 78–79; key facility issues and priorities, 83–85; key questions to ask in, 67; matrices used in, 85, 86; outpatient population and, 79–80; summarizing space requirements, 83; tools and techniques in, 68–71; understanding the space planning process, 67–68
- Neonatal intensive care units (NICUs), 70; modeling space for different sizes and configurations of, 72
- Net assignable (or usable) area, 28
- Net space: gross space *vs.*, 25, 26, 27–28, 136
- Net square feet (NSF), 25, 26, 27, 28, 68; ambulatory care facility planning case study, 152, 154; emergency expansion evaluation, 158
- Net-to-department gross space conversion factor, 27
- New consumerism, 8–9
- New facility: planning, from the ground up, 115
- New planning environment, 2–9; aging facilities and, 8; consolidation in, 7; convergence of diagnostic, interventional imaging, and surgical procedures in, 5–6; electronic health records in, 4–5; fluctuating demand/utilization and, 3–4; healthcare reform and, 2–3; information technology advances and, 5; media attention to patient safety and, 7–8; new consumerism and, 8–9; operations reengineering, process improvement, and, 6–7; reimbursement and, 7; turf wars and, 6
- Non-Architect's Guide to Major Capital Projects: Planning, Designing, and Delivering New Buildings* (Waite), 16
- NSF. *See* Net square feet
- Nursing units: capacity analysis, example of, 75; reconfiguration of, 94, 95–96; size of, 21
- Observation beds: same-day-stay patients and, 42, 44
- Observation units: developing, 60–61
- Occupancy planning, 134
- Open-bay designs, 70–71
- Operating rooms: hybrid, 59
- Operational and space programming, 9, 9
- Operational configuration models: new, 53
- Operational costs: predesign planning and impact on, 12
- Operational efficiency: rationale for potential projects and, 108
- Operational processes: facility planning and, 84
- Operational programs/programming: components of, 118; defining, 117–18; detailed, preparing, 117; for endoscopy suite, example, 118–25; inpatient nursing units, 133–34, 135; relationship of, to subsequent documentation, 134; supplementary conceptual diagrams and, 130–31, 131; ten common pitfalls in, 134, 136–37
- Operational space programming: bottom-up approach to, 131, 132, 132–33; top-down approach to, 131, 132, 133
- Operations improvement, 9, 9
- Operations reengineering: consolidation of traditional hospital departments through, 49–50
- Organizational charts: flatter, 6
- Organizational direction: strategic planning and, 37

- Organizational mission: space program and, 129
- Outpatient clinics: evaluating, 78–79
- Outpatient destinations: minimizing total number of, 82
- Outpatient diagnostic centers, 58
- Outpatients, 18; inpatients *vs.*, 97; types of, 98; understanding population of, 79–80; various types of care for, 99
- Outpatient services, 64; configuration of, 94, 96–97; high-volume and recurring, unbundling to off-site location, 82
- Outpatient visits: daily, by service and destination, hospital-sponsored only, 80
- Outpatient volumes: projection of, 45

- Parking lots and structures, 17, 64–65, 81, 103
- Partner funding: rationale for potential projects and, 108
- Patient acuity: space requirements and, 21
- Patient care and treatment space, 84
- Patient-centered care: customer service center and, 54; facility planning and, 50
- Patient experience improvement, 94, 97, 99–101; cost and, 100; inpatients *vs.* outpatients, 97, 99; other customers and their needs, 101; predesign phase and, 101; separating perception from reality and, 99
- Patient population assessment, 38
- Patient rooms: acuity adaptable or universal, 182; evaluating impact of future bed scenarios on mix of, 43
- Patient safety: intense media focus on, 7–8
- Patient service center, 54
- Pedestrian walkways and bridges, 65
- PET. *See* Positron emission tomography
- Pharmacy: future planning for, 62
- Physical and virtual spaces, 10
- Physical plants: aging, 8; facility planning and, 84; major issues for, 35; renewing or retooling, rationale for potential projects and, 108; strategic planning for, 38
- Physician office space: provision of, 94, 96
- Physician practices: consolidation of, 88
- Physician practice space: construction and location of, 23–24; evaluating, 78–79
- Physicians: Affordable Care Act and compensation for, 3; in multispecialty group practices, 7; traditional facility planning process and, 1; workload projections and, 45
- Planning horizons: for facility planning, 48
- Politics: hospital closures or consolidations and, 90
- Population-centric model: hospital-centric model *vs.*, 4, 40
- Population health management: Affordable Care Act and, 40
- Positron emission tomography (PET), 96
- Predesign planning consultants, 105
- Predesign planning process: capital investment strategy development and approval, 12, 13, 14; challenge of, 10–12; formal, deployment of, 187; impact on potential capital and operational costs, 12; implementation, 12, 13, 14; importance of, 187; integrated process in, 12, 13, 14; right services, right size, right location, and right financial structure in, 11; team for, 14–16
- Preventive health services: Affordable Care Act and, 3, 40
- Prime real estate: optimizing use of, 82
- Private donors: challenges with, 104
- Private patient rooms: deficit of, bed scenario evaluation and, 42; redeployment of, 96; requirements for, 60
- Procedure rooms, 22; building codes and, 130; colocation of, 182; multiuse, 182; turnaround time for, factors related to, 78
- Process improvement: ongoing, 6–7
- Project management consultant: project cost estimates and, 114
- Projects: detailed phasing and implementation plan, 110–11; developing rational approach to, 107–9; differentiating base construction and project costs, 113; grouping by priority, 109, 112; preliminary cost estimates, developing, 112–13; realistic cost estimates, preparing, 114–15; summarizing rationale for, in a matrix, 109
- Property boundaries, 17

- Questionnaires, 68–69

- Radiography, 58
- Reengineering: of operations, 6–7

- Regulations and regulatory issues: facility planning and, 84; hospital closures or consolidations and, 90; space programming and, 129
- Reimbursement: service demand, location, and, 7
- Reinforced floors, 22
- Remote patient management system, 61
- Renovation: estimating base cost of, 112
- Rentable square feet, 28
- Research and education spaces, 25
- Return-on-investment assumptions: developing, 188
- Revenue: increasing, rationale for potential projects and, 107
- Robotics: building support space and, 25; clinical support space and, 23; pharmacy services and, 62
- Room data sheets, 134
- Rules of thumb: for validation of plans, 69, 188

- Same-day medical procedures, 87, 97
- Same-day-stay patients: observation beds and, 42, 44
- Satellite ambulatory facilities, 185
- Scenario analysis and modeling, 70–71
- Scheduling patterns: space program and, 129
- “Scope creep,” 137
- Security: parking lots and, 64
- Selected services: unbundling, 183–84
- Semiprivate patient rooms, 42, 95, 96
- Sensor and device readings, 5
- Service traffic, 18
- Shared facility components: planning, 182
- Shopping center concept: wayfinding and, 101
- Shuttle services, 64
- Signage, 18, 101; architectural cues and, 102; campus traffic and, 81; for parking lots and structures, 65; visitors and, 102. *See also* Wayfinding
- Site access points, 17
- Space in healthcare facility: administrative offices, 19, 24; allocation of, 33–34, 34; bed allocation and organization, 28–29; building support, 20, 24–25; clinical support, 20, 23; customer services and amenities, 19, 22–23; diagnostic and treatment space, 19, 22; evaluation of, 17–18; functional categories of, reasons for, 34; inpatient nursing units, 18, 19, 21–22; leasing, 184; location and configuration of, 29, 30, 31, 32; major diagnostic and treatment spaces, 33; net space *vs.* gross space, 25, 26, 27–28; other categories of, 25; physical plant and infrastructure issues, 35; physician practice space, 20, 23–24; redeploying by shift, 182; types of, characteristics, 19–20
- SpaceMed Guide*, 130
- Space planning: new terminology for, 9, 9. *See also* Space programs/programming
- Space planning process: understanding, 67–68
- Space programs/programming: building codes and, 130; common spaces, 128; defining, 117–18; detailed, example, 126–27; detailed, preparing, 117; inpatient nursing units, 133–34; key space drivers, 128–29; organizing, 128; preparing, 125; relationship of, to subsequent documentation, 134; supplementary conceptual diagrams and, 130–31, 131; ten common pitfalls in, 134, 136–37
- Space requirements: summarizing, 83
- Space standards: developing, 184–85
- Space use: rationale for potential projects and, 108
- Specialty centers of excellence, 186
- Stacking diagrams, 29, 105
- Staff: cross-training of, 53; flexibility and shortages of, 181; intensive care unit, turnover rate, 61; resizing, 63; space program and, 129; support space for, 84
- State building codes, 130
- Stents, 6
- Stockless materials management models, 64
- Strategic planning: bed scenarios with deficit of private patient rooms, 42; capacity assessment linked to future demand forecasts, 47–48; centers of excellence planning, 47; financial visibility and, 9; four-stage approach, for healthcare organizations, 37; high bed need and low bed need scenarios in, 39–40, 41, 43; integrating facility planning with strategic (market) planning, 38; location and, 44–45, 46; same-day patients and observation beds, 42, 44; understanding your market and patient population, 38. *See also* Facility planning

- Strategy formulation: strategic planning and, 37
- Surgeons: workload projections and, 45
- Surgery: forecasting workload for, 45, 46
- Surgical procedures: convergence of diagnostic and interventional imaging with, 5–6; integrating imaging procedure space with space for, 59
- Surplus capacity: consolidating physician practices, 88; eliminating, issues associated with, 87–91; eliminating empty beds, 87–88; integrating and restructuring clinical services, 88; major consolidation issues separated from nonissues, 89–90; overview of, 87; political, emotional, and regulatory issues tied to, 90–91; reducing building support space, 89; for space and equipment, 38
- Surveys, 69
- Technology: common institution-wide systems and, 50–51; facility planning and, 84; investing in, 9, 9; mobile, 5, 52; outdated, 84–85; rethinking use of, 188; telecommunications, 52; wireless, 5. *See also* Electronic health records; Information technology; Internet
- Telemedicine, 5, 52
- Telepresence: eICU and, 61
- Time-share clinic space, 182
- To Err Is Human* (Institute of Medicine), 7–8
- Top-down approach: leadership's vision and, 189; to operational space programming, 131, 132, 133
- Total project cost, 112–13
- Traditional facility planning process: problems with, 1–2
- Traffic flow, 18
- Treatment spaces: characteristics of, 22; major, 33
- Turf wars: new planning environment and, 6
- Underground utilities, 17
- Uninsured population: Affordable Care Act and, 4
- Unpredictable healthcare environment: flexibility and, 181
- Usable square feet, 28
- Utilization: facility planning and analysis of, 38–39; fluctuating, new planning environment and, 3–4
- Vacant spaces, 38
- Valet parking, 64
- Validation of plans: industry benchmarks, rules of thumb, and best practices for, 188–89
- Vascular surgeons, 6
- Videoconferencing, 25
- Virtual workplaces, 52
- Visitors: circulation system and, 18; signage and, 102
- Voice communication, 5, 52
- Waite, Phillip S., 11, 16
- Wayfinding, 17, 51, 64, 65; customer service center and, 54; improving, 101–2. *See also* Signage
- Wireless technologies, 5
- Workload: capacity, facility planning and, 83; composition, space program and, 129; projections of, 45, 46
- Young consumers, 8–9
- Zero-based budget approach, 70
- Zuckerman, Alan M., 37