An Integrative Approach to Strategic Design in Healthcare

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“Every system is perfectly designed to achieve the result it gets. If we keep doing what we’ve been doing, we will continue to get the results we are getting”...Paul Batalden M.D.

THE CASE FOR STRATEGIC DESIGN

Health systems in the United States face unprecedented challenges for survival. The population is aging with increasing reliance on public insurance (Medicare, Medicaid). With the aging of the population comes increased disease burden, particularly chronic disease. The science and technology of health care is expanding exponentially putting unparalleled pressure on constrained systems for adoption. The growth of costs in both the public and commercial health sectors is unsustainable. Both the aging of the population and the penetration of highly sensitive diagnostic technology means that the demand for care has never been greater. Dr. Gilbert Welch of Dartmouth Medical School estimates, for instance, that almost 50% of Americans have a diagnosis which he labels as an “epidemic of diagnoses”.

The Advisory Board in 2011 conducted an analysis of forces shaping the future of U.S. health care which identified four major forces (figure 1).

Decelerating Price Growth
Continuing Cost Pressure
Deteriorating Case Mix
Shifting Payer Mix

Figure 1: Forces Shaping Healthcare's Future

The Affordable Care Act is the most recent of a series of legislative attempts to reign in cost growth in the public health sector, with decreasing overall reimbursements for physicians and health systems with greater emphasis on value based payment. Although there are constraints now being put on the payment side (value driven disincentives, bundling, capped care management fees), overall costs continue to rise, in a largely non-accretive way. Moreover, the population is aging and the Medicare rolls are expanding with expansions on the Medicaid side as well meaning that the locus of demand growth in payer mix will be largely from the public insured side. For instance, hospitals admissions are anticipated to continue to grow but the majority of this growth comes from Medicare with lower contribution margins. Demand will become increasing more complex with increasing prevalence of chronic diseases often in
admixtures of multiple comorbidities. **It is now abundantly clear that the future of health systems will depend directly and robustly on their ability to manage greater and greater risk with increasingly lower per capita reimbursements.** These are highly dynamic forces that pose challenges for continued solution seeking, and require increasing design flexibility of health systems.

To survive, health systems will need to expand or create new revenue streams, become more efficient in their clinical and administrative processes, and better align their capacity with the needs of a changing population. The Advisory Board analysis (figure 2) suggests that over the next ten years, economic pressures will lead to negative operating margins as large as 17%. Even with expansion of revenue streams, greater efficiency and better alignment of capacity, most health systems will still not be breaking even on their operating margins. By this analysis, robust operating margins of 4% will only be achieved with clinical transformation and new designs of the clinical delivery systems.

![10 Year Path to Sustainability](image)

**Figure 2: Impact of Strategies on Operating Margins (Advisory Board 2011)**

Currently, most health systems operate with 2 to 2.5% operating margins. The capital demands for new infrastructure, human resources, and technologies, the requirement for digging into retained earnings for capital, the increased risk to be managed, and the volatility of payment will require even greater operating margins of 4% or greater. For the future survival of health systems over the next decade and beyond, the fundamental precepts of care delivery, health management
and operation, and engagement with patients, families and communities will need to be examined and new strategic designs tested and deployed.

**FRAMEWORK FOR INTEGRATIVE STRATEGIC DESIGN**

**Definition and Levels of Strategic Design.** Strategic design is a linked series of decisions, deployments and evaluations guided by a set of specifications or principles that integrate people, technologies and business domains across the levels of the system. The Clinical Microsystem model developed by Dartmouth suggests that health systems are layered into four care systems that hierarchically connect to each other (Figure 3). At the center is the patient who is both consumer and provider, who will seek care from specific care delivery units such as clinical practices, emergency departments, and inpatient units called Microsystems, who in turn are managed by an outer layer of the system called the mesosystem, whose strategic directions and resources flow from the larger governance system called the macrosystem. For instance, Cleveland Clinic is led by a cohort of physician executives in a macrosystem (President, CEO, Chief Medical Officer, and Chief Quality Officer) who set policy, make resource decisions, and determine business relationships. This decision making is made operational through leadership at the Institute level organized around common disease and specialty areas (e.g. Medicine Institute) which is the Clinic’s mesosystem. Each of the 23 Institutes manages the clinical and educational programs and clinics in their area ( Microsystems). Cleveland Clinic has a clinical performance reporting system that telescopes from microsystem to the macrosystem level. Effective strategic design must not only develop approaches to high performance for each level of the system, but also for connecting each level into a total system.

**Strategic Design Specifications.** Every robust strategic design in healthcare or other industry is built upon a clear set of specifications or blueprint. This is often a neglected element in the strategic planning process that weakens the ultimate performance of the system. These
specifications articulate how the high performing health system should look like and form the core of how success is measured for the system. A starter set of specifications can be gleaned from the characteristics of existing high performing systems. Six health systems have formed the High Value Health Collaborative to study the determinants of high quality, lower cost care in six acute and chronic conditions. These six health systems are Mayo Clinic, Cleveland Clinic, Geisinger Health System, Intermountain Health Care, Dartmouth-Hitchcock, and Denver Health. Table 1 presents the key design specifications from this study.

Table 1: Strategic Design Specifications for High Performing Health Systems

- Focus on priorities
- Specification and planning
- Deliberately designed microsystems
- Data liquidity
- Robust measurement and transparency
- Commitment to learning, innovation, improvement
- People centric with high value on human capital
- Evidence and standards driven
- Attention to communication

Strategic Design Thinking. Organizations, healthcare and otherwise, that have charted a successful trajectory in strategic design have found an effective integration of analysis and innovation that I consider as ‘whole brain’ design. I would argue as well that the challenges faced by U.S. healthcare systems will only meet the transformation challenge through whole brain or integrative strategic planning and design. The organization of health care has largely been around left brain or analytic models that focus on greater understanding and exploitation of existing knowledge, with minimization of judgment, and inductive or deductive proof. Development of new service lines, improvement of existing services that is guided by performance data and business intelligence has been driven by the analytic design paradigm. The outcome of analytic design is higher reliability of health care. The counterbalance to analytic design is right brain or innovative design that is based on exploration of new knowledge, envisioning of
future models, and suspension of logical rules. The outcome of innovative design is greater validity of health care. Integrative strategic design is the synthesis of these two approaches. As best described by Dr. Roger Martin, Dean of the Rotman School of Management, this ‘power of the AND’ approach (figure 4) involves a four step integrative process that includes determination of salience of the landscape of variables potentially contributing to desired performance, understanding of the causal relationship of these variables under consideration, determination of where to start and order of change work, keeping in mind the whole system of salient variables, and finally honing in on strategies that grow from considering the ‘AND’ in the problem, often the most difficult step in integrative strategic thinking. Yet the result can be a breath-taking mix of a highly efficient present state with the unprecedented potential of a future state.

The Dynamics of Integrative Strategic Design. This integrative design framework becomes operational through a design and production sequence of processes beginning with finding focus, creating the care model, testing this care model to determine its efficacy, and if proven then to spread throughout the organization with continued monitoring and refinement (figure 5)
The Dimensions of Integrative Strategic Design. Strategic transformation of health systems can occur in any of three dimensions (figure 6). Strategic change in business design is built upon aligning payment model and care delivery in a sustainable growth direction leading to improved viability of the health system. Strategic change in technology portfolio including integration of new technologies or adaptation of old technologies for new purposes provides for greater feasibility of efficient and effective care delivery. Finally, strategic change involving people is shaped to find new audiences for care services, new providers of care services (role redesign) or both, all with the aim of elevating the level of experience of interactions and satisfaction with the services provided by the health system. The intersection of these dimensions offer opportunities for specific types of strategic change. For instance, at the convergence of technology and people resides the opportunity for human factors design and innovation. Applications of computerized kiosks for registration or home tele-monitoring technology are examples of these opportunities. Likewise, at the intersection of technology and business dimensions resides the opportunity for service or process innovation. For instance, the development of point of care diagnostic technologies allows new configurations of providers and patients. Finally, the intersection of business and people dimensions opens up new strategies in engagement and branding. Consumer directed health care models is one such strategic design. The Holy Grail in healthcare strategic design is at the convergence of all three dimensions.

Figure 6: Strategic Design Dimensions (IDEO)

IMPLEMENTING STRATEGIC DESIGN

The strategic design framework described above lays the foundation for engaging in comprehensive, integrative strategy design. What follows is a brief survey of opportunities that are on the horizon in the dimensions of people, technology and business, and an application model for integrative strategy development and deployment.
People. People are first and foremost the primary drivers of system achievement of optimal outcomes, and include both the consumers of health care as well as the providers of health care. Understanding people and engaging them are key elements in successful strategy development and deployment.

A. Understanding People.

- **Inspirations and stories.** The impetus to engage in strategic change derives from the human need to understand and relieve suffering. Health care is fundamentally a moral enterprise. Compassion is a universal value found in virtually all health systems. Inspiration comes from meeting people who are afflicted with suffering, and seeking known and new means of helping them attain meaning, lessen worry and anguish, and gain a degree of wellness. Hearing their stories and wishes guide the delineation and prioritization of care delivery strategies, and serve as a barometer of the success of health care organizations. Likewise the stories of health care providers of all disciplines also illuminate where there are opportunity for change and transformation. Strategies include surveys such as the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) or Press Ganey employee/physician engagement surveys, focus groups, or social media such as Twitter or Facebook all offer insight into the experience of both consumers and providers of care.

- **Personal health ecology.** Every health consumer, both sick and well, have ecologies of personal strategies for managing health decisions and care. The Institute for the Future has developed a model of personal health ecology that includes understanding the relationships, activities, places, products, information, providers and technologies that comprise a health ecology that expands the realm of possible healthcare strategic directions and solutions.

Figure 7: Personal Health Ecology Domains (IFTF)
- **Population Health and Healthcare Ecology.** Integrative strategic design benefits from understanding populations as well as individuals. 75% of populations experience an illness or injury but only 25% seek care from a physician. The remaining 50% of individuals either don’t treat themselves or more likely self-treat (figure 8). Hence the key reason to continuously seek understanding of individuals personal health ecologies. Moreover, the ecology of disease burden are also important to account for in strategic planning as there are distinct segments. Most of the population are healthy or have minor illness where strategies to expand prevention and wellness would have the most impact. A quarter of any population will have 1-2 chronic diseases or major illness where strategies to provide timely access and standards defined protocols of care are critically important. Then there is the top 5% of the population that experience multiple co-morbidities and consume an disproportionate share of healthcare resources. Its estimated that this 5% of the population accounts for 65% of healthcare expenditures. If health systems want to do well in an environment where the population is aging and disease risks are escalating, and health care spending is tightening, chronic care strategies must be given priority.

![Figure 8: Ecology of Medical Care](image)
Predictive modeling. The epidemiologic science of predictive modeling has matured and now provides a strategic planning tool to evaluate patterns and trends in populations for diseases, risk behaviors, resource utilization and cost. It also allows health systems to determine comparable contribution of particular care delivery strategies on health outcomes, thereby guiding prioritization of health services, and targeting of populations. The combination of not only health related data from claims or directly from clinical encounters through electronic health information technology system with consumer data along the dimensions of health ecologies (‘big data’) provides that information to target populations and conditions including wellness through multiple, nontraditional locations such as community centers, places of business and schools.

B. Engaging People

Community Boards. A first step in activating consumers-patients in the design of responsive health systems is through appointing members of the community to hospital and system Boards to represent viewpoints and needs of current and potential care recipients. In addition to the patient experience surveys mentioned above, this allows additional ‘voice of the customer’ to be present in key strategic discussions.

User Design. An additional step now utilized by the National Health Service in the United Kingdom is the invitation of consumers-patients not only to join
strategic discussions, but also in the design process itself so that operational architectures and services best match the real needs of consumers-patients.

- **Personal Health Records.** Tethered or un-tethered electronic personal health records connect patients to their health data, and provide a mechanism for secure messaging with their clinical providers. Early evidence suggests that PHRs are a significant contributor to chronic disease self management and improvement of outcomes. Consumers-patients participate through viewing of their own data, uploading/entering their own data, and communicating remotely with their providers. In addition, wireless remote physiologic monitoring systems such as glucometers, scales and peak flow meters are now becoming directly connected to PHRs, allowing real time data connection of physiologic data allowing both patient and providers to more actively manage chronic conditions.

- **Self Scheduling.** Through electronic portals in personal health records or directly into electronic health record systems, patients are now able to directly schedule appointments, further enhancing patients accountability for their health. Electronic self scheduling is a key tool in advanced access initiatives.

- **Health Navigators.** Consumers-patients can serve as navigators for others in the health system, both in person and virtually. As part of community teams of providers, they can serve vital roles in helping other patients with getting and making appointments, transporting patients, and assisting in other ways such as picking up prescriptions, and answering questions about the health system. Lay health navigators have been especially effective in helping patients with cancer in the community, and now are being extended to other areas of health navigation.

**Technology.** Healthcare technology encompasses tools of any kind that are used in the care of patients, and management of health systems. Although beyond the scope of this white paper, four categories of technologies are and will have major impacts on how care is organized in the next decade and the outcomes that can be achieved. These are the GRIN technologies which are in the areas of genomics, robotics, information technology, and nanotechnology. Personalized medicine based upon genomic profile is now a reality, requiring less sophisticated environments and having broad applications. Robotic innovation has largely been in the surgical arena though new uses will offer an expanded set of strategies for health care delivery. For instance, Boston Medical Center and Project RED have designed a robot who delivers discharge instructions for hospitalized patients [https://www.bu.edu/fammed/projectred/meetlouise.html](https://www.bu.edu/fammed/projectred/meetlouise.html). Nanotechnologies hold the potential for a range of uses including drug delivery systems, and rapid diagnostic testing.
• **Wireless Medicine.** The advent of wireless communication technology has not only revolutionized cell phones but opened up a new frontier in mobile health care. Dr. Eric Topol, author of The Creative Destruction of Health Care, describes an almost limitless set of applications of wireless technology to transmit physiologic data from patients anywhere, anytime that can be remotely accessed. Table 2 below presents a starter set of potential targets for wireless technologies.

**Table 2: Wireless Medicine Applications**

<table>
<thead>
<tr>
<th>Disease</th>
<th>No. Affected</th>
<th>Wireless Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alzheimers</td>
<td>5M</td>
<td>Vital signs, location, activity, balance</td>
</tr>
<tr>
<td>Asthma</td>
<td>23M</td>
<td>RR, FEV1, air quality, oximetry, pollen count</td>
</tr>
<tr>
<td>Breast Cancer</td>
<td>3M</td>
<td>Ultrasound self-exam</td>
</tr>
<tr>
<td>COPD</td>
<td>10M</td>
<td>RR, FEV1, air quality, oximetry</td>
</tr>
<tr>
<td>Depression</td>
<td>21M</td>
<td>Medication compliance, activity, communication</td>
</tr>
<tr>
<td>Diabetes</td>
<td>24M</td>
<td>Glucose, hemoglobin A1C</td>
</tr>
<tr>
<td>Heart Failure</td>
<td>5M</td>
<td>Cardiac pressures, weight, BP, fluid status</td>
</tr>
<tr>
<td>Hypertension</td>
<td>74M</td>
<td>Continuous BP, medication compliance</td>
</tr>
<tr>
<td>Obesity</td>
<td>80M</td>
<td>Smart scales, glucose, caloric count, activity</td>
</tr>
<tr>
<td>Sleep Disorders</td>
<td>40M</td>
<td>Sleep phases, quality, apnea, vita signs</td>
</tr>
</tbody>
</table>

• **Telemedicine.** Bi or uni-directional video communication allows for delivery of specialized expertise and consultation remotely, thereby expanding the reach of health systems to rural and under-served populations. Project ECHO based at the University of New Mexico is a Department of Health and Human Services Innovation grantee that provides tele-consultation to rural areas in New Mexico in 10 areas is the best example in the United States. There is still much to learn about the comparative uses and impact of telemedicine. For instance, a Cochrane Collaboration review in 2010 could find only seven studies with a total of 800 patients. The potential for reshaping the access to care for many populations is immense.

• **Business intelligence.** The ability to data mine data sets to identify performance levels, trends, and outliers (clinical analytics) is a crucial health system technology for strategic planning and management. Software tools such as SAP Business Objects or the Crimson Continuity of Care provide robust analytics to understand performance, resource utilization and cost patterns, and identify outliers where opportunity for improvement are located (facilities, providers). Originally based in claims data, additional data sources such as electronic encounter data, laboratory data, and administrative datasets expand the ability to
comprehensively understand and manage populations of patients and their providers. These are critical tools for service line development, accountable care organizations, and bundled pricing initiatives.

**Business.** Strategic design in healthcare finds new audiences or delivery mechanisms for existing services, or new services for existing populations, all with the goal of sustaining or growing organization viability. Much of the focus of Federal healthcare reform has been on cost savings through care delivery efficiency, but there is substantial investment and emphasis in the Accountable Care Act to test new business approaches such as accountable care organizations.

- **Value Based Purchasing.** The growth of healthcare costs has been directly linked to the growth in supply sensitive care in which health system revenues in correlated with the volume of services provided, regardless of the appropriateness or effectiveness of these services. The Centers for Medicare & Medicaid Services (CMS), followed by the commercial payers, has embraced the operational principle of paying for the quality of outcomes, rather than the volume of outcomes. CMS built this program through rapid creation of a performance measurement system for physicians, hospitals, nursing homes, home health agencies, and dialysis programs. Around this performance measurement bastion, CMS has started to build an incentive payment system, starting with hospitals, that pays for well-defined performance across quality, utilization, and patient experience domains. Within a short period, this VBP initiative will be extended to physicians, and other sites of care.

- **Accountable Care Organization (ACO).** Medicare and other insurers have placed great hope on supporting creation of consortia of healthcare providers including primary care physicians, specialists, hospitals, home health agencies, and nursing homes who collectively take accountability for managing the outcomes of a defined, shared population. This includes establishing care coordination mechanisms, standard care protocols, capability for measuring and using quality measures for improvement, and a shared governance structure to manage physician and patient recruitment, quality measurement, and distribution of shared savings among physician participants. First conceived of as an “extended medical staff” by physician researchers at Dartmouth, this model has been tested initially in the Medicare Physician Group Practice demonstration project, and endorsed by the Medicare advisory body, MEDPAC. It is now incorporated as a core strategy in the Affordable Care Act. Data is starting to accumulate that the primary shared saving component is a result of more efficient care delivery rather than improved quality outcomes. This supports the notion that successful strategic innovation needs to tie together macrosystem incentives with
integrative approach to strategic design in healthcare

microsystem change. As a radical departure from the current, autonomous volume-based practice model, this model’s long term impact remains to be seen.

- **Episodes of Care/ Bundled Payment.** Medicare and other payers have also recognized that quality and efficiency can be promoted through creating and paying for bundles of related services that individually and together contribute to optimal quality outcomes. Prometheus ([http://www.hci3.org/what_is_prometheus](http://www.hci3.org/what_is_prometheus)) developed by GE, and the Quality Alliance have developed episode of care models for high priority conditions (figure 10), and have begun assessing the reasonable costs associated with each episode. These episodes of care (EoC) form the basis of bundling payment models (Models 2,3,4) tested in the Acute Care Episode demonstration program by Medicare, and now being rolled out to healthcare systems across the U.S.

- **Hospital at Home.** Patients with a defined set of conditions presenting to emergency departments for care can be treated at home rather than be admitted to hospital with similar clinical outcomes and significant cost saving. These programs developed at Johns Hopkins University by Dr. Bruce Leff have demonstrated savings but have been slow to be adopted. As an innovation requiring a substantial culture change among providers, this model has met with

![Episode of Care Model](image-url)

Figure 10: Episode of Care Model
pockets of resistance from providers, but in the long term represents a truly disruptive innovation

- **Home based Primary Care.** The physician house call has been reborn in a new form called home-based primary care. Rather than patients struggling to get to office-based physicians, this model brings physicians, midlevel providers and nurses to their homes. This model has found a home with the Veterans Health System as a strategy for reaching geriatric veterans who are home bound with complex medical problems.

- **Patient Centered Medical Home.** Back in the 1960’s, the American Academy of Pediatrics envisioned a primary care model in which children received comprehensive, coordinated care with a single practice. This model has been updated in the 21st century with the patient-centered medical home. Adopted by CMS and other payers of enhancing primary care coordination for difficult patients, NCQA certifies three levels of medical homes based upon six standards and 27 elements (table 3).

| 1 Enhance Access and Continuity |
| 2 Identify and Manage Patient Populations |
| 3 Plan and Manage Care |
| 4 Provide Self-Care and Community Support |
| 5 Track and Coordinate Care |
| 6. Measure and Improve Performance |

Table 3: NCQA PCMH Standards (2011)

- **Hello Health.** One of the most exciting ambulatory experiments is Hello Health. Founded in Brooklyn, New York by a young primary care physician, this model utilizes a wide array of available mobile and internet base platforms to provide efficient, mobile health care. Patients schedule appointments on line, communicate with their physician through a Facebook like interface, communicate asynchronously via email, and pay though PayPal. ([http://jayparkinsonmd.com/](http://jayparkinsonmd.com/))
Integrative strategic design is a whole system, whole brain systematic process that involves planning and priority setting, design of strategic initiatives that are testable, small scale rapid testing of the elements of the strategic initiatives and refinement based on results, deployment across the system with regular, ongoing evaluation and continued enhancement. As outlined in figure 5, integrative strategic design has sets of inputs, defined processes, and optimal, measurable outcomes.

Planning and Priority Setting. This is a key step. Many initiatives fail because priorities were unclear, focus was not well defined, and the desired outcomes not well enunciated. Borrowing from Stephen Covey, successful strategic planning starts with the end in mind.

![Diagram of Planning and Priority Setting](image-url)
**Mission and Values.** All strategic design starts with understanding what are the organizations core mission and values. They are the touchstones for judging all strategy and outcomes. What does this organization stand for, what is the cardinal purpose for its existence? What do we want to be known for by the community, by our patients, by our payers and partners?

**Business Intelligence.** What does the aggregated and distilled data we have tells us about where opportunities lie? What are the most prevalent conditions, prevalent populations and demographics? How are revenue and cost distributed across conditions, populations, payors, services and service lines? Where do we do well compared to national and regional benchmarks; where do we have significant gaps in performance against benchmarks?

**Leadership.** What is the near and distant vision of organizational leadership? Where do they see the greatest opportunities, greatest barriers to success?

**Staff and Employee Needs and Priorities.** Through individual and group discussion, what themes emerge about greatest strengths, greatest barriers? What are the aspirations of the people working everyday in our hospitals, clinics, communities?

**Payer Programs and Requirements.** What are the public and commercial payers requiring of healthcare systems in terms of disease and service focus, and performance expectations and reporting. What are the incentive payment opportunities and demonstration programs in which the health system might benefit from participating?

**Community Needs.** What does our community needs assessment, and other community related data tell us about where diseases and conditions cluster, what are the prevalent conditions, what are our community demographics. Consider additional data collection such as *geomapping* of public health data and *personal health ecology* surveys of customers-patients.

Based on a synthesis of the above information, what are the top 5-10 opportunities based on disease prevalence, needs and aspirations, financial opportunity, opportunity for recognition and leadership. How would we rank this top 10 list of opportunities by potential for market and revenue growth, positive health impact on individuals and communities, greatest potential to close performance gaps, and demonstrate leadership and build a strong reputation and brand among the community, partners, and payers. Through this convergence process, what are our top 1-3 priorities for strategic development and deployment? What are the goals, and measurable indicators of success for each priority, and what are the expectations regarding timelines and resource commitments?
Strategy Design. Once the strategic priorities are determined, these need to be translated into operational models that can be tested and implemented.

Design Specification. All strategic design begins with having clarity about the attributes and outcomes that are desirable for the design. These are the specifications that guide both the building and evaluation of operational models of care delivery. These are often encapsulated in the mission and values of the organizations supplemented with attributes that emerged from the themes of the planning process – community and individual needs, leadership vision, examples from payers and other healthcare systems.

Best Practice Models. Many areas of strategic implementation have existing operational models that have been proven to be best in class. The first key task in strategic design is to determine if a best practice model exists. Review of the literature, contacts in other healthcare organizations, Internet searches may uncover adaptable models for our organization. Be sure that the evidence supporting the best practice correlates with the strategic goals and indicators that have been established.
**Existing Models.** There are some strategic priorities for which there are available examples of care models that have the potential to achieve best practice level outcomes with some redesign and improvement. For these models, tools such as Lean Design can assist in identifying where efficiencies and improvement in process flow can occur.

**New Models.** Some strategic priorities just don’t have examples, best practice or otherwise, from which to borrow. A new model needs to be designed guided by the specifications that have been determined. To more comprehensively understand the needs and directions for design, a deep dive can be undertaken to gather user information. A deep dive, developed by IDEO, a design consulting firm that has done extensive work in healthcare, is a collection of methods (IDEO has 52 methods) borrowed from the social sciences to take different looks into a system under study, methods such as photo survey and focus group interviews that fall into four categories – Learn, Look, Ask, Try. The Institute for Healthcare Improvement has developed an abbreviated deep dive called a ‘snorkel’ [www.rwjf.org/content/rwjf/en/research-publications/find-rwjf-research/2001/10/a-review-of-the-ideo-process.html](http://www.rwjf.org/content/rwjf/en/research-publications/find-rwjf-research/2001/10/a-review-of-the-ideo-process.html). This multifaceted user information is then used to inform the idea generation process and prototype creation that results in a new, testable operational model.

**Model Specification.** By whatever path, the operational model conforming to the strategic priority is mapped and specified including the people, processes, tools and spaces required to accomplish the priority.

**Test Plan.** With the specified operational model, a plan is developed to test how well this strategic design performs. This plan includes where it is to be tested and when, by whom, and for whom, using what resources in what timeframe. Included in this plan as well are the metrics that will be used to evaluate how well it performs. Unlike more comprehensive dashboards, these metrics are primarily process oriented.

**Testing.** Before investing the health system resources in broad implementation, a trial of the operational design is warranted. This involves taking the operational specifications and translating them into processes, materials, tools and experiences and then testing them in rapid fashion in a limited test involving a few subjects for a limited test period. Using the test metrics in the test plan, the operational model can be rapidly evaluated for performance. Based on the results of the test, the operational model can be tweaked, and re-tested till performance is in the acceptable range, and is ready for system dissemination. Specific steps to successful model testing include:

**Operational Specifications for Test.** The specific elements of the operational model must be included in the test so that results will reflect the efficacy of the design. This includes all tools and processes applied by representative caregivers for specified audiences.
Spread and Deployment. For full benefit to the healthcare system, the strategic design that has proved itself during testing, needs to be spread across the system, and integrated into the daily work of the system.

**Diffusion Plan.** A spread plan is a critical component of a strategic plan. It defines the target audiences and the communication/translation approaches that optimizes the probability of successful adoption. The science of spread as popularized by Everett Rogers has identified ten factors that influence the diffusability of a new strategic design (Table 4). Four of these are particularly crucial in healthcare- observability, trialability, social networks, and opinion leaders. The opportunity to see a new strategy in action or even better to try it yourself can be compelling to highly pragmatic healthcare providers.
All humans interact in networks of different types. Understanding how, for instance, nurses (highly centralized) or physicians (highly diffused) are connected can direct your strategy for spread. For physicians, use of physician champions located in different parts of the system can play a vital role in communicating, demonstrating, and supporting adoption.

**Monitoring Adoption.** Spread efforts should include a mechanism for measuring whether the strategic design is being adopted and by whom, and where the constraints or barriers to adoption might lie. Most spread efforts require multiple waves of diffusion to reach critical mass of adoption.
Hardwiring into Systems. As the new strategic design is adopted across the system, a systematic plan for hardwiring needs to be implemented to ensure continued use and performance. Some key elements of this hardwiring into the system include:

Assignment of Process Owners and Champions. The long-term sustainability of a strategic design is, in part, determined by how well it is managed. It needs to be owned, supported, and communicated on a continual basis.

Dashboard. A key tool in managing the new strategic design is a balanced scorecard or dashboard (Dartmouth calls it a Value Compass) that is regularly updated and used to
assess how well it is performing across a number of dimensions such as cost, patient experience, and clinical quality.

**Design Updating and Improvement.** The dashboard indicators are helpful to determine if the implemented strategic design is meeting the goals that were set at the beginning. If there are gaps in expected performance, the design phase (or components of it) can be repeated, and the operational model refined.

**SUMMARY**

In the increasingly difficult economic environment in healthcare where operating margins continue to sink into the red, revenue, efficiency, and capacity-enhancing strategies may not be sufficient to main sufficient positive margins. A strategic transformation is needed that experiments with new designs around business models, technology and tools and interfacing with people. This strategic transformation will emerge from a whole brain, whole system approach that combines the analytic and the innovative that provides for greater understanding of the present, and greater illumination of the future. Already there are brilliant examples of new strategies in the three design areas of business, technology and people. A disciplined and integrative approach to strategic design that includes planning and prioritization, operational model design and building, testing and deployment, and hardwiring into system offers a robust way of building the healthcare system of the future that is resilient to the volatile economic forces in U.S. healthcare.