White Paper.

Health Ecosystem Design:

Solving for 'Market Interoperability' in Healthcare

Blue Spoon Consulting®

A Global Leader in Strategy and Innovation at a System Level

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Blue Spoon Consulting is a global leader in strategy and innovation at a system level. Blue Spoon was the first to apply systems theory to solve complex market access and integration challenges in the pharmaceutical industry. We deliver a Punk Rock ethos of disruption.

Market Interoperability

Most governments, industries and institutions are struggling with an adaptive challenge to a changed context for strategy. Nearly everyone is trying to figure out how to deal with a new operating environment whose main features are complexity, interactivity, and rapid evolution. It produces more disruption than any one person, business, or government can respond to effectively. This has two implications. The first is the importance of building collaboration that spans industry environments, engages in the boldest forms of connection making, and unifies multiple stakeholders. The second is the importance of shaping developments proactively around a new theory for growth.

The idea for ecosystems as a business metaphor was introduced in the mid-1990s, drawing on biology as a new language and logic for strategy. At the time, it was considered a fundamental shift that reframed the cutting edge for thinking about leadership and competition across a broad arc of potential settings, from airlines to restaurants. While the information technology industry is adopting a vision of digital ecosystems as a guide for technological evolution, a wider embrace of business ecosystems as opportunity space for new markets and competitive advantage has stalled.

This white paper introduces the concept of 'health ecosystem design'. Health ecosystem design is a new approach to overcoming market fragmentation in healthcare. Pharmaceutical companies can use the concept to collaborate with integrated delivery networks (IDNs) on marketplace aggregation and service innovation. Health ecosystem design centers on reassembling building blocks to health to create a new standard of care, producing a new growth platform for a range of players simultaneously. In other words, prospects for new market power -- achieving differentiation and premium pricing, something most pharmaceutical companies and IDNs are struggling with -- will come from risk factor alignment through market alignment.

In healthcare, momentum is growing for performance-based contracting, connected health, and collaborative business models. This is creating new commercial pressure that will force leaders in industry and government to reorient their thinking in order to escape the Darwinian reaper. A framework to accomplish this strategic reorientation is in the pages that follow.

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Elements

A New Taxonomy for New Ideas
This section provides context to understand some of the major structural changes shaping a new operating environment. It speaks in strategic themes with implications throughout our global economic system. **pages five and six**

An Unnatural Creative Act
Thinking at a system level is not a natural act. There is also widespread error confusing tactics with strategy. Against this backdrop, this part of the white paper explores the question of fragmentation in healthcare, and suggests that pharmaceutical promotion, and its value as a business driver, has reached its productivity frontier. **pages seven and eight**

A Containing Whole
You never solve complexity. You bound it. Here is where a new methodology to create ecosystem-centered market strategy is introduced. **pages nine and ten**

A New System of Markets in Diabetes
The number of people worldwide with diabetes is more than 170,000,000. This figure is expected to double by 2030. The white paper shows how to change outcomes for diabetes and the direction of its epidemiology with a solution centered on risk factor alignment through market alignment. **pages eleven and twelve**

A New Market Ecosystem in Diabetes Health (Figures 2 - 4)
Here is what a new business ecosystem looks like. We thought it would be interesting to explore fitting together Pfizer, General Mills, GE Healthcare, and Apple Computer into a new industry architecture. (Strictly illustrative: we do not currently have a relationship with any of these companies.) **pages twelve thru fourteen**

Systemic Collaboration
Strategy is a creative act, not an analytical one. It's all about using resources to influence direction. The new dimension to strategy at a system level is a change in focus, from pieces and parts to new relationships and wholes. **page fifteen**

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A New Taxonomy for New Ideas

There is no friction in the Internet. Information is liquid, moving without resistance through a global economic system. The conceptual boundaries that used to govern how we thought about space, time, matter, and knowledge have vanished. Nearly anything anyone needs can be had within seconds to hours – there is no waiting because "duration" has disappeared. "Distance" has become irrelevant. "Separation" – between customers, between markets, between governments, between countries, between ideas – is a bankrupt notion. Everything is connected to everything else in complex systems of behaviour. The connections and interactions can be so intense and transformative that we can no longer distinguish between actors and their environments, let alone say much about any piece in isolation.

In a networking world, the meaning of "enterprise-wide" should move beyond the edges of a company's assets or its own sources of information. The infinite reach and penetration of information technologies causes linkages to form – both good and bad – that consist of many interacting components, nodes, and layers co-evolving and aggregating with each other in new ways. These intricate relationships give rise to many networks of dependencies and cascading effects, or emergent behaviours within self-organizing systems. The linkages cannot be prevented from forming. They dramatically impact business models and markets, and in so doing redefine what has value, enhancing the value of some capabilities and solutions that are a better response to the new operating environment, and devaluing others. As the cost of processing and communications power tumbles, it gets ever cheaper for organizations and individuals to use information technology in more and more situations. So what was once a highly constrained and vertical information flow has evolved into a torrent of vertical and horizontal flows pushed and pulled from a galaxy of sources, both on- and off-line. The marketplace is awash in information and data. No media environment has retired because of obsolescence or irrelevance. Layers of complimentarity are being added, but none are being deleted. Complexity is increasing. Diversity is multiplying. Differentiation is exploding. The number of alternative choices is becoming endless. It is more difficult to analyze, model, predict or control. Permanent fixtures of the world economy are in free fall or have suddenly disappeared, having been unable to rewire their houses in time to save them from crumbling with stunning velocity.

Back to the Future Again

These strategic issues were just beginning to bubble to the surface when James F. Moore introduced business ecosystems as a concept for strategy making more than a decade ago. He found a way to make systems thinking accessible, using principles from biology and ecology to articulate a new form of creative leadership and business renewal in the face of multiple shifting paradigms. Moore recognized a new landscape for business was on the horizon, in which increasingly porous customer, competitor, and collaborator boundaries would need a broader market scope, calling for an entirely new grammar of strategy and predicting "the end of industry" as it was conventionally understood [1]. A new taxonomy was going to be needed, not for its own sake, but to semantically separate conventional approaches from novel ones, and to generate strategic imagination and ideas that have the greatest power to create new value. He paved the way for not only the shift to "network-centric" operations,

currently being developed by Western militaries as a new way of war organized around 'loosely-coupled systems', it formed the basis for the publication of the *Keystone Advantage* in 2004 by Marco Iansiti, a Professor of Business Administration at Harvard Business School, and Roy Levien, a former manager at Microsoft who had been involved in applications architecture for Windows. They, too, elevated biology as a point of departure for new theoretical foundations for strategy in a world of infinite networks (Levien received a masters in biology from Yale University); business ecosystems were positioned as collaborative platforms to actively integrate, shape and regulate the workings of vast numbers of business partners and suppliers that could span multiple industries. Different business species within an ecosystem pursue different sub-strategies based on their role and contribution to the health of the system as a whole: "keystones" are small but important players that serve as hubs keeping the ecosystem together and shaping its overall direction; "dominators" take up the most space in terms of physical size and occupy the most nodes; a "niche" player develops specialized capabilities that differentiate it from other players, leveraging resources from the ecosystem while occupying only a narrow part of it. But everyone has a stake in the success of the ecosystem or its failure ("shared fate"), with critical implications for thinking about industry health and, indeed, about what constitutes an industry in the first place [2]. As we shall see later, this question of identity is a critical one, influencing an entire economy of activities and transactions with the marketplace.

While a vision for a general theory of systems goes back to the 1930s with an Austrian biologist, these are the two intellectual approaches that mainlined biology as a metaphor to describe an emerging business reality, one where social, economic, and cultural processes are not impeded by geography or physical constraints. New strategic possibilities, and new models for growth, would come from seeing the larger systems we operate in, and then creating new industry architectures around this shared marketspace.

These ecosystem frameworks were developed from different perspectives, however, with one (Iansiti and Levien) being archaeological, essentially descriptive of the past and assuming the task at hand is to understand, diagnose, and manage the business linkages already 'out there' in the operating environment. It is also an approach that rests heavily on operational-level methods and technology as the basis for innovation and sustainability. Not surprisingly, this is the approach a growing number of technology companies take for their business strategy and in developing new software applications. The leading examples are Oracle Corporation and SAP, each of whom have branded their ecosystems and heavily promote their value within the developer community. Open to debate is the extent to which the actors within these ecosystems view themselves as part of a portfolio to deliver a broad solution, or rather a narrow play to maximize their own channel relationships. The other (Moore) is prescriptive and creative, focusing on a methodology to assemble disparate business elements into new economic wholes, from which new businesses, new rules of competition, and new industries may emerge.

There are few, if any, outstanding examples of companies explicitly pursuing an ecosystem-centered strategy, however, either as an approach to solve a "mess" of business problems (to borrow a term from systems thinking) or to create markets. Fragmentation is, in fact, getting worse, not better, suggesting that the potential of business ecosystems as a new model for integration has yet to be realized. There are a couple of reasons for the arrested development.

An Unnatural Creative Act

Thinking at a system level is not a natural act. We are essentially linear creatures – Western society fosters and rewards linear behaviour and performance from kindergarten on. Our educational system teaches and grades on it; our social programs are designed and executed on it; and it drives policy decisions throughout government, non-government, and business settings. A linear frame of reference is part of our subconscious bedrock.

Another factor is the center of gravity – the focal point for overall competitive capability – in the majority of business units sits squarely on generating awareness for the features and benefits of individual products or services. Markets are studied, forecasts are made, operational capabilities get pointed in the right direction, and vendors deployed based on a default assumption: achieving sales and market share goals relies on optimizing promotion of distinct product features and benefits, of getting message "out there". (Whether or not "optimization" is achievable in a hyper-dynamic marketplace is a separate question entirely.) Competitive strategy, if it is planned for at all, is seen as something that happens between products, not between systems. Normal management attention is not concerned with someone else's business, much less willing to assume personal professional risk to pursue building a new industry architecture.

There is also widespread error confusing tactics with strategy. This confusion produces a persistent fog that makes good strategy difficult to see, and strategic results harder to reach. Strategy is the relationship between means and objectives. It answers three questions:

(1) Where do we go (ends) ?
(2) How do we get there (ways) ?
(3) How much does it cost (means) ?

Strategy design is a creative process shaped as a vision interacts with its operating environment ("creativity" defined as the art of developing means to achieve objectives). Technology is not strategy. Nor is the digital overlay. The ever-expanding universe of specialized technology applications makes possible almost any conceivable operational vision, but strategy is not forged from technological power alone. There is an enduring human dimension to strategy, with policy, legal, and public relations components. This is why strategy remains principally an art rather than a science, and why, within that art, blending the many interdependent elements to strategy is a creative activity [3].

Structural Adjustment

The purpose of tracing the lineage of a biological metaphor as a framework for business, and deconstructing some of the themes causing a marginal acceptance and use of system-level strategies by the marketplace, is to provide a backdrop for the next section to this white paper: introducing an ecosystem-centered approach to reorient the pharmaceutical and health industry, in the process creating a new and self-generating market.

Pharmaceutical companies operate with a view of their business as being manufacturers and promoters of individual drug brands, not as a business in the service of health. It is an expensive vision. The strategic effect of advertising prescription drugs directly to consumers in the United States has been to open the industry to scrutiny and sanction at a global level. In the highly litigious U.S., more than 65,000 product liability lawsuits have been filed against drug companies since 2000 [4].

Much of the information from these lawsuits is made publicly available and flows freely throughout the world, completely revealing the promotional workings of the industry to anyone with Internet access or a television. European antitrust regulators have been raiding the offices of some of the continent's biggest pharmaceutical companies as part of a far-reaching inquiry into the sector. And issues around pharmaceutical sales force and market access, as well as pipelines and generics, are now so widely known they are cliché. Despite spending somewhere between $30-$60 billion a year on promotion, sales of prescription drugs in the United States (the only major industrialized country in the world that does not have price regulation on pharmaceuticals) rose just 1.3 percent in 2008, slowing for the second straight year and continuing a downward trend in developed markets throughout the world [5]. Pharmaceutical promotion, and its value as a business driver, has reached its productivity frontier. 'Product innovation' has stalled.

Disconnected government policy, lack of continuity of care, poor information exchange, and fragmented service systems are persistent problems in the provision of health for nearly every industrialized country in the world. "Connected health" – defined (technologically) as a world where patient needs, rather than those of institutions, drives pathways through care – is a priority for providers, professionals, and insurers, and is high on the policy agenda for national, regional, and state governments throughout the European Union, the United States, and AisaPac. In December 2008, Australia launched a new national strategy to coordinate care and overcome fragmentation in the health sector. The Department of Health and Human Services in the United States is pursuing a Presidential Initiative to create a new standard of health information exchange in federal government systems. In Finland, Germany, The Netherlands, and England, there is a constellation of legislation, financial incentives, and other measures to encourage providers to establish integrated care arrangements and to support their efforts in doing so [6].

Few would disagree that health systems need to adapt to the challenges of a changing world, and that in a number of countries, inequitable access, impoverishing costs, and erosion of trust in health care constitute a threat to social stability [7]. Untangling the vertical and horizontal complexities that have shaped these degrading trends is far beyond the aim here, except to say that healthcare is a broad opportunity environment in crisis. It is also a system with a history. There is a legacy of decision-making that has made things the way they are. The strategic challenge for reform, policy entrepreneurship, and industry and government leadership is achieving structural adjustment and, simultaneously for business, new growth. This unmet need for market organization and systemic collaboration is where the pharmaceutical industry has an opportunity to leverage its resources in an entirely new way to create a different future for itself. Prospects for market power and premium pricing – the objective for commercial model innovation, something all big pharmaceutical companies are trying to do -- can come from leading a system-level business strategy, one that transcends the established boundaries to realign the building blocks of health and improve outcomes. Here is how it can happen.

A Containing Whole

You never solve complexity. You bound it. The more possibilities a system embodies, the more information it contains. Constraints on those possibilities are needed to extract signals from the noise. A system is scale free: there is no upper limit to either the number of interacting pieces, or the number of new pieces, that could be added. There are an infinite number of linkages, and combinations of linkages, that could be made. And because the set of problems and opportunities continuously change based on how linkages are made, there can never be an optimal solution. In ecosystem design, we are looking for the fittest approach, not the fanciest. An ecosystem should deliver a scalable new vision of collective value and comprehensive action across an entire operating environment, a master solution framework, not only for a range of customers, but the partners within it. Defining boundaries of the ecosystem, and the components to align within it, is a core strategic question (Fig. 1).

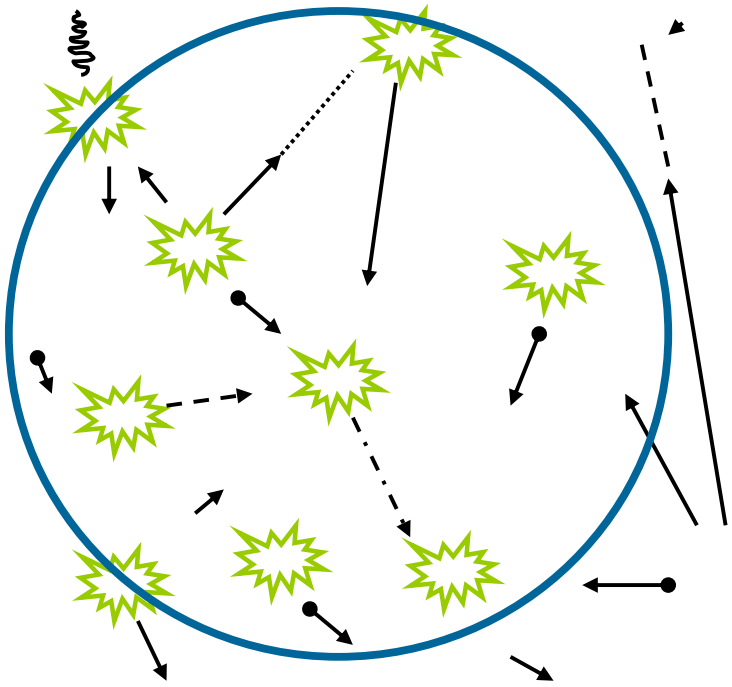


Figure 1

Life creates conditions for life. The aim is to establish the first set of interactions that, once in motion, attracts participation into the new economic system. As membership grows and diversity *within the boundaries of the ecosystem* increases, its value as a new platform for growth is reinforced and increases. Peer-to-peer relationships between alliance partners, vendors, and suppliers – components and actors from the marketing services, information technology, and data mining industries, policy and the government sector, the scientific and academic communities, advocacy groups – are negotiated and awarded based on their ability to conduct and contribute to system performance. The ecosystem becomes the thing to position, brand and support. In other words, the market is the product. This is a creative orientation.

Conceptualization and action are merged, so that when it comes to evaluating ideas, insights, and advances in information management, they are judged not on their individual merits, as technical issues to be solved separately, or as compartmentalized pieces and approaches that are marketed and sold individually (and splintering the marketplace even more), but as elements to progressively integrate and add value to the system already in place. Implementation is not separated from analysis and evolution. The role for keystones is to support and guide the choices that sustain this process for market genesis.

A self-generating market is ultimately about building a collaborative business model framed by a shared vision of opportunity. The first step is to get 'a whole system' into a room, and then collectively step back from the familiar. The aim is to see the larger patterns driving change and opening possibilities. Each stakeholder in the new ecosystem will bring different technical, organizational, and personal perspectives to bear on the market space, and see a different set of problems, risks, and upside a new ecosystem contains. Each perspective yields insights not obtainable with the others. Particularly for the range of economic and government actors in the global health market, the growing reality is that many people present with complex symptoms and multiple illnesses, driving the need for more holistic solutions that will in turn change human resource, financing, service delivery, information technology, and legal policy. System dynamics modelling is used here to bring expertise together to define the market opportunity, position the master value proposition, and then manage its cycle of evolution. The system dynamics model is not mathematical so much as it is integrative; it organizes the marketplace and fits together multiple and varied data flows to build strategic understanding on a big scale. It makes the different actors distinguish *how* they are looking from *what* they are looking at, and provides common ground for collective action [8]. New business planning, implementation, and feedback are all designed from this shared marketspace.

While market-based transformation can be a more powerful force than government action in making evolutionary leaps to new ways of doing things, a market-enabling structure has to precede market making, which is the purview of government. A new business ecosystem will trigger change that affects a large swath of society, and creating symbiosis with those who create government policy is critical at the outset. The economic downturn has revealed that structural supports traditionally assumed to exist separately from, and prior to, the market are becoming ever more intertwined with and exposed to market forces. In the United States, there are 46 states facing budget shortfalls that may total $350 billion within the next two years, and the unravelling labour market promises more imbalances that will steadily accumulate and reinforce each other [9]. Worldwide, the tax raising and spending powers of governments is under severe stress, a potent example of what it means to share a fate. For the beleaguered pharmaceutical industry whose relationship with governments has become increasingly adversarial, this is an opportunity to re-shape the preferences and institutional supports that influence the dynamics for their business. It could begin with a new market solution to improve outcomes for diabetes.

A New System of Markets in Diabetes

The latest WHO estimate for the number of people with diabetes worldwide is 171 million. This figure is likely to double by 2030. Overall, direct costs of diabetes range from 2.5% to 15% of annual health care budgets, depending on local diabetes prevalence and the sophistication of available treatment. The costs of lost production may be as much as five times the direct healthcare cost [10]. Population growth, unhealthy diets, obesity, and sedentary lifestyles are all contributing factors, as they are for many other diseases and medical conditions, including cardiovascular disease. There is no shortage of "awareness" about these risk factors: they are communicated by entire galaxies of providers, educators, advocacy groups, NGOs, employers, government bodies, and companies marketing health products, including vitamins, devices, consumer packaged goods, and insurance. There are five classes of drugs that all control blood sugar effectively, each supported by distinct promotional claims, marketing and sales campaigns, and data flows from medical publications and research studies worldwide. There are more than 150 drugs for high blood pressure.

Risk factor alignment through market alignment. Changing outcomes for diabetes and the direction of its epidemiology will come from strategy that closes the gap between knowledge and action, not by adding more products and pieces supported by even more isolated data feeds, technology applications, and disparate promotional claims. A new market solution for diabetes health will organize an industry environment within a new health ecosystem that becomes a new standard of care. The role of government shifts from administrator to "mediator" between system components.

For illustrative purposes, examples of keystones to link together and design a new health system could be Pfizer, General Mills, GE Healthcare, and Apple Computer. Each operates in multi-billion dollar market segments with lines of business that have direct application to diabetes health: drugs, nutrition, infrastructure technology, and content aggregation and design. Each has a leadership position and access to resources. The master solution -- a new billion-dollar growth platform for the keystone players -- can be positioned as a clean slate 'bolt on' to existing health systems, or as a service innovation that providers and integrated delivery networks can use for competitive advantage. It would also respond to the rising demand for new standards of care and health-related information from a multitude of constituencies (Fig. 2).

Solving for 'Market Interoperability':
A New Industry Ecosystem in Diabetes (Illustrative)

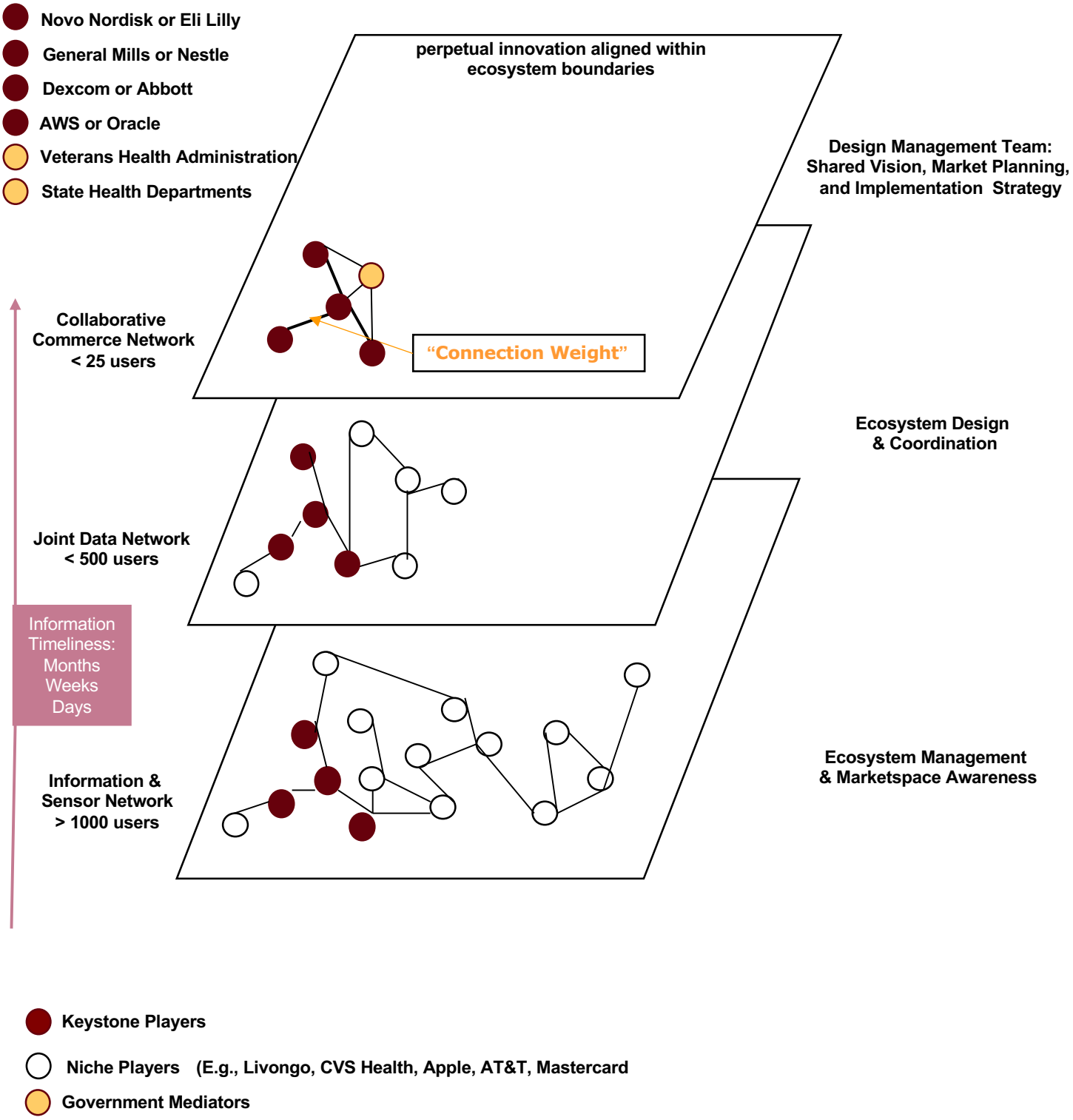
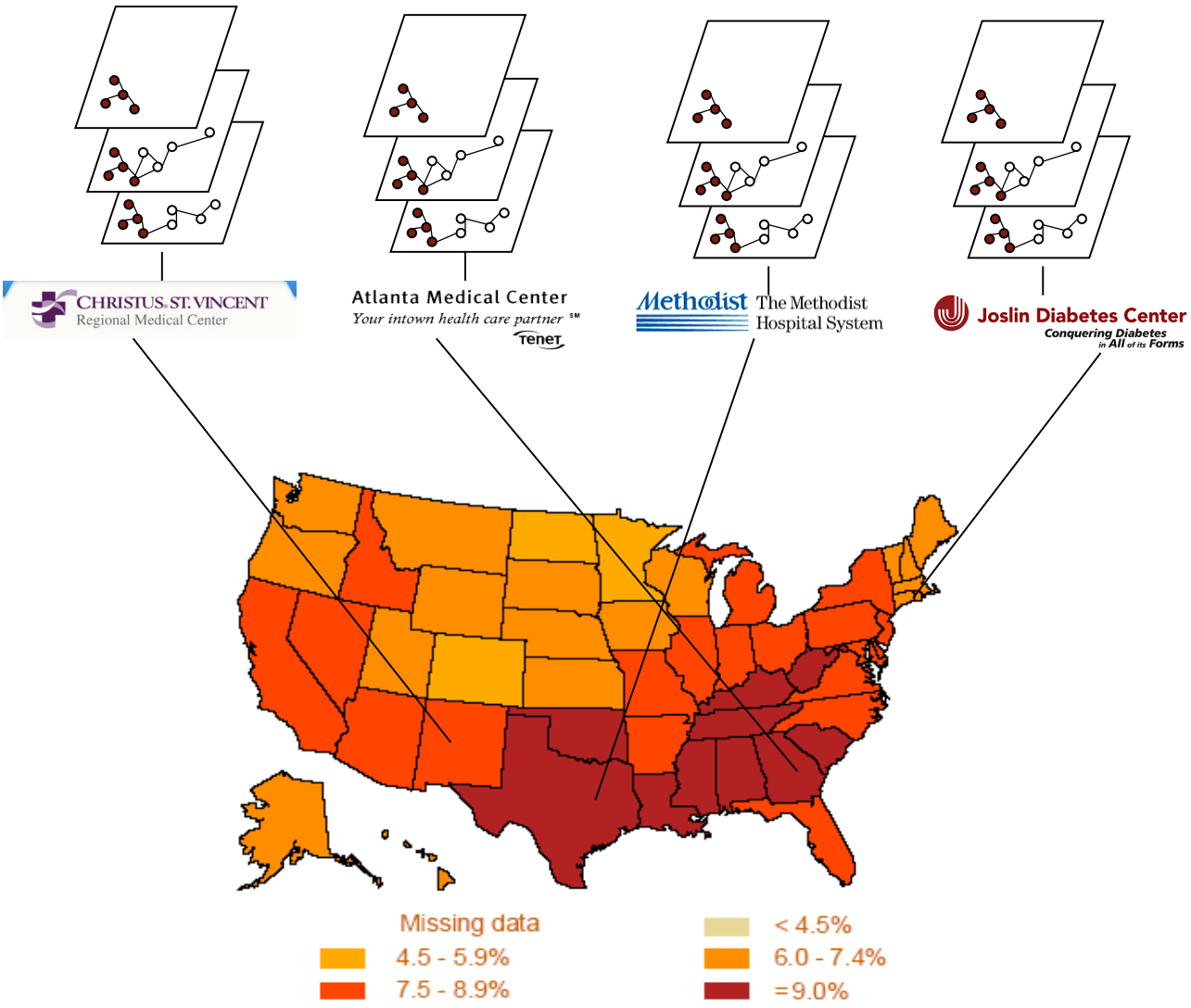


Figure 2

Regionalized Market Approach:
Design and Deploy Multiple Health Ecosystems for Diabetes
Customized for Regions, IDNs, Centers of Excellence, Accounts



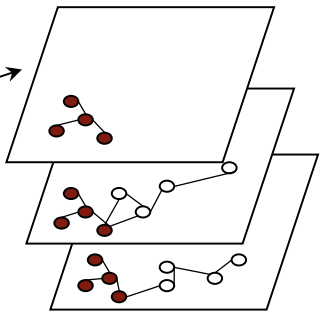
Age-adjusted Percentage of U.S. Adults Who Had Diagnosed Diabetes
2007

Source: CDC's Division of Diabetes Translation.
National Diabetes Surveillance System (available at: http://www.cdc.gov/diabetes/statistics)

Figure 3

Strategic Vision for a Global Market Scope
Create New Health Ecosystems Worldwide

System-Level Performance Measures
- Health outcomes (population level)
- Resource utilization (direct and indirect)
- Economic performance (state and country)
- Market dynamics (ecosystem components)
- Emergence (innovation and ideas)



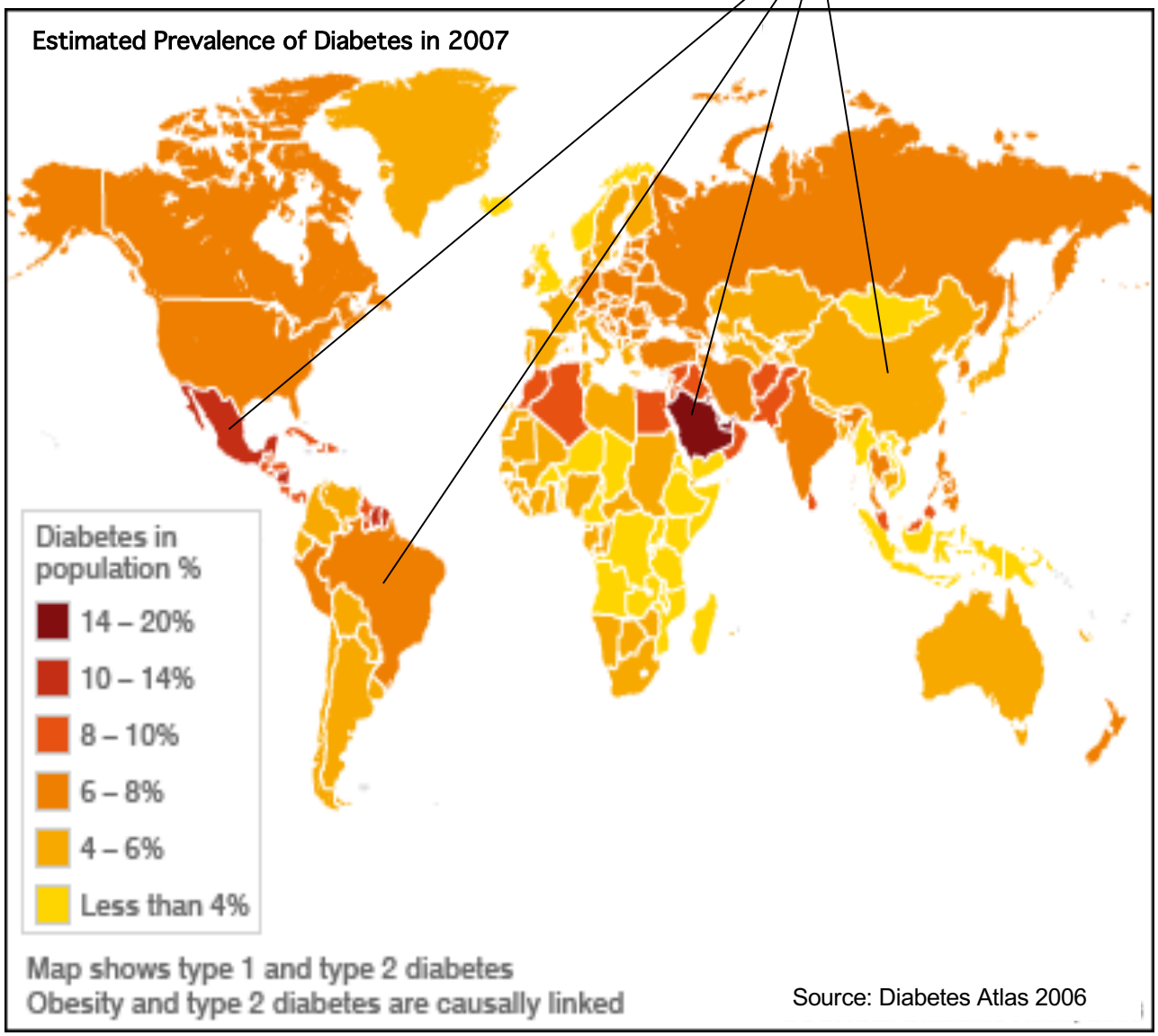


Figure 4

Systemic Collaboration

The shape and texture of most mainstream economic theories reflects a two-sided view of market exchange. Competition between economic systems takes the form of competition between agents within those systems, not between the systems themselves [11]. The actions of government and the foundations for law, built over centuries, have reseeded the grass for this playing field, and the teams who play on the pitch are assumed to know the rules. The role of policy is not to participate in the game, but to manage it, to make sure the parts are prevented from destabilising the whole, and the whole is prevented from destabilising the parts. But the international system in which all businesses and governments now find themselves poses something new entirely. Legal institutions have not kept pace with technology. Government is realizing that it is not separate from the market. Markets are less two-sided than they are *N*-sided, involving connections and interactions between global networks of buyers and sellers. The game has clearly changed.

A system-level problem requires a system-level solution. This white paper introduced an approach for pharmaceutical companies to create a new value proposition around the idea of health ecosystem design. It focused on diabetes as an opportunity for commercial model innovation, illustrating how an ecosystem-centered approach can create space for new growth and improve health outcomes. While all manner of business partnerships happen around co-promotion agreements and other linear sorts of deals, the conceptual frame presented here goes much wider, providing context to design a market where its structures and rules for interaction are conceived simultaneously. New billion-dollar growth platforms will come from architectural innovation: linking elements from the digital and the physical, and industry and government, in ways that have never been linked before. There are few precedents for collaboration of this scale and complexity. But the strategic shock from a world in transition should prompt changes in thinking and understanding, not minor tweaking at the edges. We need new capabilities, and to evolve the capacities of existing ones, to succeed systemically. New tactics, new techniques, and new concepts of operation will have to be prototyped and tested. New management skills to integrate thinking and decision-making will have to be established.

Strategy is all about using resources to influence direction. It seeks to control the environment. The new dimension to strategy and competition at a system level is a change in focus, from pieces and parts to new relationships and wholes [12]. The operating environment is radically different than what anyone has experienced before. It demands a different starting point. And it calls for losing a sense of self to create a broader system of which we are all a part.

- fin -

Endnotes

[1] J.F. Moore, *The Death of Competition, Leadership & Strategy in the Age of Business Ecosystems*, HarperCollins, New York: 1996.

[2] M. Iansiti and R. Levien, *The Keystone Advantage, What the New Dynamics of Business Ecosystems Mean for Strategy, Innovation, and Sustainability*, Harvard Business School Press, Boston: 2004.

[3] J.B. Batholomees, *Guide to National Security Policy and Strategy,* U.S. Army War College, Philadelphia: 2006.

[4] Thompson West legal research and publishing.

[5] M. Gagnon and J. Lexchin, "The cost of pushing pills: A new estimate of pharmaceutical promotion expenditures in the United States," *PLoS Med,* vol. 5, no. 1, 2008.

[6] I.Mur-Veeman and A. van Raak, "Comparing integrated care policy in Europe: Does policy matter?" *Health Policy,* vol. 85, 2008, pages 172-183.

[7] WHO World Health Report 2008.

[8] H.I.Linstone, "Multiple perspectives: concept, applications, and user guidelines," *Systems Practice,* vol.2, no.3, 1989, pages 307-331.

[9] E. McNichol and I. Lav, "State Budget Troubles Worsen," *Center for Budget and Policy Priorities,* February 10, 2009.

[10] World Health Organization diabetes fact sheet

[11] A.Shipman, *Transcending Transaction, The Search for Self-Generating Markets,* Routledge, New York: 2002.

[12] J.Singer, "Systems Marketing for the Information Age," *MIT Sloan Management Review*: October 01, 2006