The Future of Healthcare is Business Model Innovation

Creating the only sustainable competitive advantage by Owning the Disease

June 2013
The Warning

This message will create tension
Warning regarding this message

C R A Z Y

USE JUDGMENT, ACUMEN, AND SKILL TO HARNESS THE IMPACT OF THIS MESSAGE

TENSION, PRESSURE, STRESS, STRAIN, AND GENERAL UNEASE
Is this crazy enough?

“We are all agreed that your theory is crazy. The question that divides us is whether it is crazy enough to have a chance of being correct.”

Niels Bohr
Nobel Laureate
Quantum Mechanics
String theory outlines the role of tensions, energy and structure in the universe
Your response to the tension message determines the innovative outcome

String Theory

Tension + Energy = Structure

My Message

Tension = a gap between the status quo and desired better outcome that is large, important, and difficult to close

Your Response

Maladaptive
Adaptive
Creative

Innovation Outcome

Status quo/Failure
Incremental Tech Innovation
Radical BM Innovation
Your response to the tension message determines the innovative outcome

String Theory

Tension + Energy = Structure

My Message + Your Response = Innovation Outcome

Tension = a gap between the status quo and desired better outcome that is large, important, and difficult to close

Maladaptive
Adaptive
Creative

Senseless Bureaucracy
Mindless Management
Mindful Leadership
Your response dictates the type of leadership and the innovative outcome

Mindful leadership – creative tension

Foresees failure and pain in the future and acts in the absence of current events and bring the pain forward to enable creativity and radical innovation across the organization to transform the business model

Mindless management - adaptive tension

Waits for events to create failure and pain and then adapts to ameliorate them through lean six sigma improvements and incremental innovation within the existing business model

Senseless bureaucracy – maladaptive tension

Waits for events to create failure and pain but then applies the same failed approaches hoping for a different outcome, defined as insanity
The Message

We are not ambitious enough for radical innovation
We are not ambitious enough ... decrease healthcare costs by over 50%
Over 50% reductions clearly seem possible...

The $2.7 Trillion Medical Bill
Colonoscopies Explain Why U.S. Leads the World in Health Expenditures

By ELISABETH ROSENTHAL | Published: June 1, 2013

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Avg. U.S. Price</th>
<th>Canada</th>
<th>Switzerland</th>
<th>Spain</th>
<th>New Zealand</th>
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<td>Angiogram</td>
<td>$914</td>
<td>$35</td>
<td>$655</td>
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<td>Colonoscopy</td>
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<td>Hip replacement</td>
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<td>Lipitor</td>
<td>$124</td>
<td></td>
<td></td>
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<tr>
<td>M.R.I. scan</td>
<td>$1,121</td>
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Source: 2012 Comparative Price Report by the International Federation of Health Plans. The average prices shown for colonoscopies do not include added fees for sedation by an anesthesiologist, a practice common in the United States, but unusual in the rest of the world. The additional charges can increase the cost significantly.
The Creative Response for Radical Innovation thru Mindful Leadership

Business Model Innovation (BMI)
The case for Business Model Innovation

**Becoming**
Why do we need to change the way we innovate among medical technology companies and **BECOME** different organizations?

**Knowing**
What is business model innovation and what tools and processes should we use to **KNOW** what to do?

**Doing**
How do we innovate business models in practice by transforming all dimensions of what we **DO** in our business models?
Becoming

Why do we need to change the way we innovate among medical technology companies and BECOME different organizations?
SMAC is changing the rules in healthcare
Demanding disruptive business models and threatening survival

New value propositions
New care delivery models
More customized solutions
Greater portability, security, access
More freedom, transparency, choice
Social – volume to value

We demand the same value experience in healthcare as elsewhere

Where have you read reviews for hospitals, doctors, insurance companies, pharmacies, or drug/medical device companies? (Select all that apply)

- Consumer Reports
- Blog or social media site
- Government source
- Yelp
- Angie’s List

n = 483

<table>
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<tr>
<th>Age</th>
<th>18–24</th>
<th>25–44</th>
<th>45–64</th>
<th>65+</th>
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<tr>
<td>30%</td>
<td>53%</td>
<td>28%</td>
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<td>46%</td>
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<tr>
<td>48%</td>
<td>16%</td>
<td>52%</td>
<td>9%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Source: PwC Health Research Institute Consumer Survey, 2012
Mobile – places to spaces
90% reduction in price creating business model disruption

- Ambulatory Surgery Center
- Hospital
- Physician Office
- Physician Pocket
- Consumer

Societal
Technology
Economic
Political

Product Disruption

3rd Party Pay
Consumer Pay

Business Model Disruption

$199
$2,999
$9,999
$14,999
$9,999
$2,999
$199
$99
$99

PwC
Analytic – general to individual

Shortage of critical talent for Big Data and personalized medicine

Source: PwC Health Research Institute Human Capital Survey, 2012
Cloud – analog to digital
Enabling and demanding new business models
Agent – institution to consumer

All business models must address a new customer, the consumers

Patient drivers to adopt mHealth

1. Reduce own healthcare costs
2. Convenient access to provider
3. Ability to obtain information
4. Greater control over own health

Access to a greater choice of applications
Access better quality healthcare
Manage a particular medical condition
Manage aspects of my life from my mobile phone
Encouragement from my healthcare provider
Encouragement from my healthcare payer

China
India
U.S.
Knowing

What is business model innovation and what tools and processes should we use to KNOW what to do?
# Case Study: Fitbit’s evolving business model

## Illustrative Example: Fitbit

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>2008</th>
<th>2009-2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
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<tbody>
<tr>
<td>Consumers</td>
<td>Consumers (Backlog after launch led to black market)</td>
<td>Consumers</td>
<td>Consumers Employers - Autodesk, MGH Partners - HealthVault (PHR), LoseIt (weight loss), Runkeeper</td>
<td>Consumers Employers - Coinstar Tokyo Electron PracticeFusion Partners - Earndit (rewards), Aetna Carepass, SparkPeople</td>
<td>Consumers Employers - Cerner, Asurion Partners - SleepDebt, Walgreens (rewards)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product &amp; Capabilities</th>
<th>Fitbit Classic Accelerometer wireless/wearable Web interface (manual tracking)</th>
<th>Fitbit Ultra New colors (style) New hardware Altimeter Stop watch Mobile app More metrics Sync with apps</th>
<th>Fitbit One Fitbit Zip Improved functionality</th>
<th>Fitbit Aria (scale)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Value Prop &amp; UX</th>
<th>Consumer - “Cool”, convenient, reliable, cheap</th>
<th>Employer - Saves money, reduces premium, Increases engagement</th>
<th>Premium - Cheap, reliable, accurate</th>
</tr>
</thead>
</table>

| Economic Impact | $2M raised | $9M raised | $12M raised | $30M - $300M val. |
Business model innovation requires answering several questions

1. How can we systematically analyze and evaluate business models?

2. How do we account for the dynamic interrelationships between elements?

3. How do we make sense of the relationships within the broader ecosystem?

4. How do we align our business model to the external environment?
PwC’s BMI framework simplifies business model innovation by systematically addressing all elements

PwC Business Model Innovation (BMI) Framework

Dimensions

- Capability Inputs “What to do”
- Stakeholders “Where to play”
- Benefit Outputs “How to win”
- Economic Impact “Why do it”

Components:

- Features
- Relationships
- Partners
- Use cases
- Cost Structure
- Resources
- Activities
- Stakeholders
- Experience
- Value Proposition Benefits
- Capabilities
- Channels
- Revenue Streams

- Profit Margin
We apply simulation to BMI to fail fast, frugally and frequently

Simulation has mostly been used for operational, strategic and financial modeling— but must be applied to the critical problem of business model innovation.
Simulation tools use system dynamics to model the interrelationships between and among every element.

*Illustrative Example: Channels*
Comprehensive ecosystem maps analyze the evolving relationships within digital health
The BMI Simulator integrates a wide range of curated external data to align business models with the external environment.
The BMI Simulator leverages experience in simulating complex operational, strategic, and financial issues across healthcare sectors

Simulation in Healthcare

<table>
<thead>
<tr>
<th>Strategic</th>
<th>Payor</th>
<th>Provider</th>
<th>Life Sciences</th>
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<tr>
<td>Payor</td>
<td>Payor</td>
<td>Provider</td>
<td>Life Sciences</td>
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<tr>
<td>Strategic</td>
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<td>Regulations</td>
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<tr>
<td>• Customer Well</td>
<td>• Product Sales</td>
<td>• Strategic Planning</td>
<td>• New product launch</td>
</tr>
<tr>
<td>Being Programs</td>
<td>• Payer Contracting</td>
<td>• Innovative Partnerships</td>
<td>• Virtual R&amp;D</td>
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<tr>
<td>Operational</td>
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<td>R&amp;D</td>
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<tr>
<td>• Claims</td>
<td>• Patient Access &amp;</td>
<td>• Ancillary Service</td>
<td>Manufacturing</td>
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<tr>
<td></td>
<td>Throughput</td>
<td>Operations</td>
<td>• Clinical Trials</td>
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<td></td>
<td>• Ancillary</td>
<td></td>
<td>• Safety &amp; Risk</td>
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<td></td>
<td>Service</td>
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<tr>
<td>Financial</td>
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<tr>
<td>• Provider</td>
<td>• Billings /</td>
<td>• Payer Contracting</td>
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<tr>
<td>Payments</td>
<td>Claims</td>
<td></td>
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<tr>
<td>• Provider</td>
<td></td>
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<td>• Insurance Payers</td>
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<td>Contracts</td>
<td>• Enrollment</td>
<td></td>
<td>• Marketing</td>
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<td>• Enrollment /</td>
<td>/ Fulfillment</td>
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<tr>
<td>Fulfillment</td>
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</table>
The BMI Simulator enables de-risking of business model innovation through scenario analysis

**Inputs**

**Scenario 1**
- Basic Offering to Track Activity
- Simulation Variables:
  - Channels: Awareness through Company, Distribution through 10 Retailer websites & stores
  - Direct-to-consumer
  - Pricing: $99.95 one-time, product sale

**Scenario 2**
- Premium Offering to Manage & Educate on Activity
- Additional Simulation Variables:
  - Channels: Awareness through Company, Distribution though Company, After-sales support
  - Direct-to-consumer
  - Pricing: $5 per month, subscription

**Scenario 3**
- Partnership with 5 large Employers to Track, Manage & Educate on Activity
- Additional Simulation Variables:
  - Channels: Awareness though Partner, Distribution through Company, After-sales support
  - Direct-to-Business
  - Pricing: $2.50 per member per month
Design, simulate, and iterate a business model using a collaborative, evidence-based approach

1. **Discuss goals and context**
   - What are our goals for business model innovation?
     - Revenue / profitability
     - Market share
     - Strategic aims

2. **Outline vision**
   - What are we aiming to deliver?
     - Use cases
     - Buyers / users

3. **Configure business model**
   - How do we configure the business model to deliver that vision?
     - Value proposition
     - Capabilities
     - Features
     - Activities
     - Channels/Partners
     - Revenue model

4. **Simulate impact**
   - What is the expected impact of that configuration?
     - Adoption
     - Revenue
     - Profitability

- **Approach**
  - Workshops based on company context
  - Workshops informed by BMI Landscape
  - Workshops informed by BMI Landscape
  - BMI Simulator

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Eisai - Belviq • Enabling "Owning Obesity" with the Business Model Innovator

PwC
Doing

How do we innovate business models in practice by transforming all dimensions of what we do in our business models?
Market forces require business models to move beyond products and pills to “Owning the Disease”

Market Trends

- **Low-single digit growth** due to market penetration, maturing technology, and increased competition
- **Focus on outcomes** among consumers, CMS, and insurers, with unwillingness to pay for incremental technology improvements

“Owning the Disease”

- **Outcomes-Based Solution**
  - Solution must be value-based around a given medical condition to facilitate outcomes-based payment

- **Ecosystem**
  - Requires an integrated, interoperable ecosystem of relationships, technologies and services for a seamless solution

- **Comprehensiveness**
  - Appropriately configured end-to-end solution across the entire care continuum
"Owning the Disease" is a complex adaptive systems based approach that delivers solutions.
Top 10 Things to Know about Owning the Disease

1. *Expanding the value proposition* for clients is the crucial part of owning the disease. This requires both a more focused effort on innovation and a greater tolerance for risk and failure.

Value beyond the product or pill
Top 10 Things to Know about Owning the Disease

2. Concern about *destroying cultures* that have been successful is merited, but owning the disease ultimately entails the creation of a new, convergent culture to generate new sources of value for clients.
Top 10 Things to Know about Owning the Disease

3. Owning the disease entails **breaking down silos** to better understand a customer’s total needs while decreasing the complexity in providing solutions.

Silos stifle cross functional innovation
4. **Scale matters** in owning the disease – but not in the way many expect. Some large organizations may find it difficult because they are too complex, too divided into silos and unable to leverage resources.

Configuring scale for success is key
Top 10 Things to Know about Owning the Disease

5. Owning the disease changes a business model from selling products and services to selling solutions. As a result, the mix of revenues will gradually shift to a roughly equal split between products and services, where information will become the key differentiator and driver.

Information will differentiate products/service
Top 10 Things to Know about Owning the Disease

6. Owning the disease can involve controlling a channel so that the company becomes the essential conduit and platform through which others sell their products.

Creating an innovation platform for others
Top 10 Things to Know about Owning the Disease

7. **Information strategy drives** owning the disease. As value in healthcare migrates from things to information, organizations that harness data most effectively will have a competitive advantage.

As size decreases information value expands
Top 10 Things to Know about Owning the Disease

8. Owning the disease is not a diversification play. Instead, it is focused on integration and cooperation to bring an integrated solution to the customer, whether that is the patient or the provider.

Integrated total solutions need not be owned.
Top 10 Things to Know about Owning the Disease

9. When *focused on the provider* as the customer, it may be easier to own the disease in small, focused segments rather than large diseases in which patients have co-morbidities and multiple needs and where owning the disease must be *focused on the end consumer*.

Can be either provider or patient focused
Top 10 Things to Know about Owning the Disease

10. **Analytics are the “secret sauce”** to owning the disease. The challenge in creating analytics is obtaining the comprehensive sets of underlying data needed for study.

Comprehensive data sets are key to Big Data
Mindful leadership must be willing to pay the PRICE to innovate business models

Predict the risks customers face in their business or consumers face personally and provide solutions to mitigate and manage them: Leveraging SMAC to predict, prevent and manage risk is the primary purpose of big data-based strategies. BMI simulation de-risks business models.

Run an innovation operating model: Most organizations limit innovation to R&D; to own the disease; companies need an innovation operating model that requires innovation to emerge and develop across and throughout the enterprise.

Incentivize people to do the right thing: Employees must be rewarded for always telling the truth even if it does not result in sales. Incentives need to focus on selling solutions (which often will include products and services from others).

Converge programs, products and services into solutions on a common platform: This requires co-creating and delivering solutions with partners on a common platform, and applying a comprehensive BMI framework to design and simulate converged offerings.

Expand the value proposition: Companies must put themselves in their customers’ shoes. Customers do not want to buy products and services; they want problems solved, pain points and waste removed and new opportunities for healthy lives.
Questions & Answers
Chris Wasden, EdD, MBA – Managing Director, PwC Global Healthcare Innovation Leader

Dr. Wasden is PwC’s Global Healthcare Innovation Leader. Chris helps clients transform their businesses and create new, high growth commercial opportunities through the application of innovative technologies in information, biological, physical, and material sciences. He advises clients across the healthcare ecosystem in accelerating the volume, velocity and value of their innovative efforts through Enterprise Innovation and by applying the Innovation Lifecycle Management Framework.

Based in New York, Dr. Wasden assists clients in Discovering, Incubating, and Accelerating innovations in technology, process, business model, distribution, and marketing to enable them to enter, create, and transform markets. He has a background in investment banking, has held senior executive-level positions at public and private companies, and is an inventor and entrepreneur. He is the named inventor on 20 issued and pending patents and has been involved in nine startup companies.

Dr. Wasden has a doctorate in human and organizational learning from George Washington University in Washington, DC, an MBA from the UCLA Anderson School, and a bachelor’s degree in accounting and Asian studies from Brigham Young University in Provo, Utah.

Owning the Disease II: Adapting strategies into successful business tactics
Healthcare Unwired – New business models delivering care anywhere
Medical Technology Innovation Scorecard – The race for global leadership
The Changing Face of Medical Technology Innovation (In Vivo)
Owning the Disease – A new transformational business model for healthcare (In Vivo)
The New Gold Rush – Prospectors are hoping to mine opportunities from the health industry
If Innovation isn’t’ Measured can it be Managed – How universities manage innovation
Decoding Innovation’s DNA – Can innovation be disciplined without killing it?
Innovation – How discipline and failure take you beyond novelty
Demystifying Innovation – Take down the barriers to new growth