Technology

Kevin Wright
Program Director, IBM
Adjunct Professor, Duke, NC State

Marketing

Solutions
Kevin Wright, IBM, Program Director, Enterprise Process Simplification

<table>
<thead>
<tr>
<th>Current Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Newly formed group whose mission is to create an integrated toolkit for IBM’s process simplification efforts.</td>
</tr>
<tr>
<td>• Adjunct Professor, Duke University, NC State</td>
</tr>
<tr>
<td><strong>Education</strong></td>
</tr>
<tr>
<td>• BSEE (Ohio University)</td>
</tr>
<tr>
<td>• MS Computer Integrated Systems (Lehigh University)</td>
</tr>
<tr>
<td>• MBA (Duke)</td>
</tr>
<tr>
<td><strong>Job Assignments (25+ yrs)</strong></td>
</tr>
<tr>
<td>(IBM, General Electric)</td>
</tr>
<tr>
<td>• Services, Development, Quality, Manufacturing, Procurement, Marketing, Test, Programmer, Project Management, Business Area Management, New Offerings Development, Extreme Blue Site Manager, Corporate Strategy</td>
</tr>
<tr>
<td><strong>Technologies</strong></td>
</tr>
<tr>
<td>• Semiconductors, Automotive, Personal Computers, Power Supplies, Keyboards, Software, Emerging Business Development, Technology Services</td>
</tr>
</tbody>
</table>
Technology Marketing Solutions

**Real-Time Translation Services**

**Goal:** Enable innovative business designs for global integration by removing barriers to effective communication, collaboration and expansion of commerce.

- **Speech Translator**
- **Early Laptops**
- **New Science**
- **BTO**
- **CIM**

**Emerging Business Opportunities**

Identifying and nurturing new business opportunities within the enterprise.

- **Original PC**
- **PC for Home**

**Example**
Approach / How to Benefit

- Lots of information
- Giving you a lot of information so you can see the big picture
- Will post charts if you want to go back and look at in more detail
- **Goal is to take a way 3-4 major thoughts and principles you can apply in your various endeavors**

- **Quiz at end : what are the 3-4 major thoughts**
I am here to give you a different perspective?

Count the number of passes made by

1. White Team
2. Black Team
The Classic Divide

Technology / Business
### Technology and Business

<table>
<thead>
<tr>
<th>Business People Think Technology People are:</th>
<th>Technology People Think Business People are:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Naïve about business</td>
<td>• Technically uninformed</td>
</tr>
<tr>
<td>• Paralysis by Analysis</td>
<td>• Shoot from the hip</td>
</tr>
<tr>
<td>• Facts first, then decisions</td>
<td>• Decision first, then facts</td>
</tr>
<tr>
<td>• Intelligent but narrow</td>
<td>• Flashy but shallow</td>
</tr>
<tr>
<td>• Pessimists</td>
<td>• Optimists</td>
</tr>
<tr>
<td>• Poor talkers</td>
<td>• Poor listeners</td>
</tr>
<tr>
<td>• Long winded and complex</td>
<td>• Overly simplistic and too net</td>
</tr>
<tr>
<td>• When the ship is sinking, they are still “drilling holes”</td>
<td>• When the ship is sinking, they are never in sight</td>
</tr>
<tr>
<td>• “Winging it” is a sin</td>
<td>• “Winging it” is life</td>
</tr>
<tr>
<td>• THEY ALL LOOK ALIKE !</td>
<td>• THEY ALL LOOK ALIKE !</td>
</tr>
</tbody>
</table>
The Future Belongs to Individuals Who Are *Adaptable*

*RISEING ABOVE THE GATHERING STORM*

Throughout modern economies, advantages accrue to individuals, governments, and companies that are adaptable, forward-looking, knowledgeable, and innovative.
Adaptable, Forward-Looking, Knowledgeable, Innovative

Economics and Social Sciences
Business Anthropology
Organizational Change & Learning
Business and Management

Science and Engineering
Industrial and Systems Engineering
Computer Science & Info. Systems
Math and Operations Research
What Skills Should a Services Thought Leader Have?

- **I. Theoretical & Practical Foundations**
  - 1. Concepts & Questions
  - 2. Tools & Methods

- **II. Disciplines & Expert Thinking**
  - 3. History & Evolution: Economics & Law
  - 4. Customer: Marketing & Quality Measure
  - 5. Provider: Operations & Productivity Measure
  - 6. Authority: Governance & Compliance Measure
  - 7. Competitor: Design & Sustainable Innovation Measure
  - 8. Privileged Access: Anthropology & People Resources
  - 9. Owned Outright: Engineering & Technology Resources
  - 10. Shared Access: Computing & Information Resources
  - 11. Leased/Contract: Sourcing & Organization Resources
  - 12. Future & Investment: Management & Strategy

- **III. Professions & Complex Communication**
  - 13. Mindset & Entrepreneurship

T-shaped professionals are aware and in high demand because they have both depth and breadth.

Courtesy of Jean Paul Jacob
Service science is different, because it integrates…
Many say that “service science is just ___ <see list of disciplines below> ___”
Most like general systems theory (abstract) and systems engineering (applied)

Most disciplines specialize…
Service science integrates

Service system entities are dynamic configurations of resources…
• people,
• technology,
• organizations,
• shared information
• etc
Services Thought Leadership Requires Integration Across Many Disciplines

Service Marketing, Operations, and Management
Operations Research and Management Science
Industrial & Systems Engineering, Control Theory
Information Sciences and Systems Engineering
Management of Technology and Innovation
Computer Science, Distributed AI, CSCW
Computational Organization Theory
Social and Cognitive Science
Economics & Jurisprudence
Game Theory and Mechanism Design Theory
Management of Information Systems
Organization Science, Complexity Management Theory
Business Informatics and Document Engineering
Business Anthropology and Learning Organizations
Decision Science and Knowledge Management
Human Capital Management & Incentive Engineering
Quality, Six Sigma, Statistics, Process Optimization
Computer Aided Market Engineering

Service Science
Trap: Customers Don’t Want Products or Services
Commercials: the Window Into Business Direction
Trap: Products Become the Only Focus

Products are cool ... right?

• When we say “innovation,” we immediately think of products

• The best business schools teach “new product development” and “service management”

• Google shows a 99 ½-to-1 dominance of products over services
  • “new product development” returns 427,000 hits
  • “new service development” returns 4,290 hits
**Services Dominate Spending in Many “Product Categories”**

In many industries today, the sale of a product accounts for only a small portion of overall revenues. Providing services to customers is where the real money is. This exhibit shows the distribution of revenues in three industries.

<table>
<thead>
<tr>
<th></th>
<th>Personal Computers</th>
<th>Locomotives</th>
<th>Automobiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>annual cost of PC use: $6,259</td>
<td>total annual cost of rail operations: $29 billion</td>
<td>average annual household expenditure: $6,064</td>
<td></td>
</tr>
<tr>
<td>100%</td>
<td>network administration</td>
<td>yard operations, railroad administration, other</td>
<td>other</td>
</tr>
<tr>
<td>80%</td>
<td>network technical support</td>
<td></td>
<td>finance</td>
</tr>
<tr>
<td>60%</td>
<td>network equipment</td>
<td>train operations</td>
<td>repair</td>
</tr>
<tr>
<td>40%</td>
<td>nonproductive operations by end user (downtime, file management, etc.)</td>
<td>infrastructure</td>
<td>insurance</td>
</tr>
<tr>
<td>20%</td>
<td>administration</td>
<td></td>
<td>gas</td>
</tr>
<tr>
<td>0%</td>
<td>technical support</td>
<td>locomotive services</td>
<td>used car purchase</td>
</tr>
<tr>
<td></td>
<td>desktop hardware</td>
<td>locomotives</td>
<td>new car purchase</td>
</tr>
</tbody>
</table>

**Total Expenditure**
- **Personal Computers**: 5X product costs
- **Locomotives**: 21X product costs
- **Automobiles**: 5X product costs

Source: GartnerGroup, Association of American Railroads, Federal Highway Administration Office of Highway Information Management. Railroad expenditures are for Class 1 railroads.
Furthermore, there are no pure goods or pure services

Customers want outcomes, or “solutions” … and compelling solutions mix tangible and intangible elements

Many NPD tools are simply a poor fit for services

Service innovation is amorphous. The science is just emerging, especially as compared to a mature discipline such as new product development.

New Product Development vs. Service Innovation

- Product platform design
- User interaction design
- Product prototyping
- Pricing models
- Production planning

- IT platform design
- Customer experience design
- Service prototyping
- Business model development
- Service delivery

Robust tools and methods exist, such as QFD and conjoint analysis. These tools are just beginning to be understood.
Example: Personal transportation solutions

We know how innovation works for goods.

But what tools and methods guide innovation here?

2005 Peer Insight
Why Product Firms Are Looking to Services

Generate revenue
- Increased competition and more informed customers make it harder for firms to be profitable
- In many technology-intensive industries, Moore’s Law relentlessly commoditizes products and reduces costs, so revenues decline

Satisfy customer demand for services and solutions

Stay competitive
<table>
<thead>
<tr>
<th>Focus on products</th>
<th>Point</th>
<th>Counterpoint</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Continue to focus primarily on products. Invest in services as needed.”</td>
<td>It’s how you’ve always made money.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Customers see you as a product company, and seem satisfied with that.</td>
<td></td>
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<tr>
<td></td>
<td>It’s comfortable. You know how to do it. Also, you already have the processes and infrastructure to support a product-focused strategy.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Most of your revenue and profits come from products, not services.</td>
<td></td>
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<tr>
<td></td>
<td>Your gross margins for products are very high, and providing services might dilute them.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>There are a growing number of situations where products are being replaced by services. Your services might cannibalize some of your products.</td>
<td></td>
</tr>
<tr>
<td><strong>Point</strong></td>
<td><strong>Counterpoint</strong></td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>-----------------</td>
<td></td>
</tr>
<tr>
<td><strong>Increase the focus on services</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“Treat services as equal to products. In some cases, services might even be more important.”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Services can be developed faster and cheaper than products, which makes it easier to meet the needs of a rapidly changing market.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Services provide a new source of revenue and help drive significant product pull-through. They also tend to deliver higher margins, particularly in sectors where products have become a commodity.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Services make products more appealing by enabling complete solutions tailored to the needs of a particular sector or customer.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Services improve customer loyalty. Unlike products, services naturally involve frequent and ongoing contact after the sale, which helps build customer relationships. This is particularly important in a down economy, when many companies close their doors to sales people.</td>
<td></td>
<td></td>
</tr>
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</table>
Technology + Marketing = SOLUTIONS

- Download speed
- Price
- Industrial design
- Connect-ability
- User interface

Example...

...Steve Jobs

"Internet in your pocket"
Seth Godin's new book, *Purple Cow* is about transforming your business.
Solution Marketing: The process of defining, educating, and providing access to complete and integrated solutions that deliver customer value by helping customers solve their problems.
Marketing Plan

Target Market/Demographics: [Segment Description]
Distribution and sales channels
Pricing and positioning
Branding and strategic position
Media Mix: [Web Ads/Magazine Ads/Trade Shows/Billboards/TV/Radio]
Marketing and sales team development
Know Your Customers

Competitive edge based on cost (and price competition) is *not* always sustainable in the long term.

Product leadership is short-lived, too.

Technology moves fast and even products that are not overtaken are easily replicated.

Customer Intimacy is about long-term relationships, therefore provides *sustainable* advantages.

All three are important, but if you can only excel in one - then choose your focus:

see Treacy & Wiersema: ‘The Discipline of Market Leaders’
Market research / Market Intelligence

• Gathering information that can provide critical insights into consumer buying habits, needs, choices, and opinions. It helps the organization to implement the most suitable marketing mix for the success.

• Links the consumer, customer, and public to the marketer through information - information used to identify and define marketing opportunities and problems; generate, refine, and evaluate marketing actions; monitor marketing performance; and improve understanding of marketing as a process.

• Specifies the information required to address these issues, designs the methods for collecting information, manages and implements the data collection process, analyzes, and communicates the findings and their implications.”

American Marketing Association
Market research / Market Intelligence

Primary Research:
• Market surveys, telephonic interviews, questionnaires and focus group interviews.
• Directly contacting the customers.
• Customized according to the research requirements of the company.
• Utilizes sampling techniques and requires statistical methodologies.

Secondary Research:
• Processing data already collected by previous researchers. Using previous studies and findings such as reports, press articles and previous market research projects in order to come to a conclusion.
• Information as gathered by government agencies, trade associations, and other organizations.
• Less expensive than primary research, does not require new research methods.
• Main disadvantage: information may be old and obsolete and/or the earlier studies may not have conducted with the same objectives as required in the current situation.
Market Research: Many Factors to Consider

The Marketing Decision Environment

- The Consumer
  - Awareness & knowledge
  - Behavior, past, present and future
  - Demographics
  - Psychographics & other descriptors
  - Attitudes and opinions
  - Needs and wants

- The Marketing Mix
  - Product: including Brand Name, Packaging and Service
  - Promotion: including Advertising, P.R. and Personal Selling
  - Place: e.g. distribution
  - Price

- The Environment
  - Political & Legal
  - Internal
  - Stakeholders
  - Competitive
  - Economic
  - Cultural & Social
  - Technological & Physical

Source: Burke Institute
Successful Approach Requires Balancing Multiple Indicators

Right Controls at Right Time
Mind Your Ps

Solution Marketing Strategy + Services

The 4 P's

People

Process
Technical Segmentation Consideration Based on Needs

Must consider both needs and awareness of needs
Solutions Marketing – Business and Technical Messages

- “SOA architecture enables integration with legacy systems”
- “Shortens mortgage cycle time”
- “Increases profitability”
- “Helps your company”

Diagram:
- Technical Message: GeekSpeak - IT - Business Mgr. - CFO - Vague - Does it exist?
- Business Message: Low - High - Low - High

Example 35

CompSci 196
Solution Paradox: You Can Not Provide All

Customer: “Where can I learn more about it?”

Beware “the Solution Paradox”

• The customer wants out-of-box offerings… ….but no one company can provide everything out of the box

• Even a fully integrated and “complete” solution cannot possibly solve all of a customer’s problems due to:
  – Unique environments
  – Specific industry requirements

Ask:
• Does the solution meet customer requirements?
• Is the message backed up by the solution?
Technology Marketing is different because its products…

... really change the way one is doing things

... need a lot of explanation
– benefits often not readily obvious
– difference to competition not readily obvious

... have a short product lifecycle
– today's technology might be out-paced tomorrow

... influence and penetrate life and its experiences

=> rethinking Marketing: New = Good, Credibility = important
Technology Marketing is different because its customers…

• Are skeptical and expect a dialogue
• Don’t have a lot of time to waste
• Can be well informed
• Are uncertain when dealing with new technologies
• Expect customized solutions at low price
Most importantly: Technology Marketing is different because its Products…

… really change the way you are doing things
We live in a world of accelerating change…
As measured by customer adoption rates of innovations
Favourable Characteristics of Technology Innovations

Innovations perceived as having greater:

- relative advantage  
- compatibility

- trialability  
- observability

- less complexity  
- familiarity

will be adopted more rapidly than others
Technology Adoption and Its Challenges

“Crossing Chasm”
From "change agent" to productivity improvement

- How much technical competence is necessary?
- Lack of appreciation

Translate a hot technology into a business benefit

Innovators  | Early Adopters  | Early Majority  | Late Majority  | Laggards

Geoffrey Moore 1995, 1999
2009 Category Life Cycle Placement

Source: Chasm Institute 2008 LLC.
Perspective: Avoid Lottery Mentality

There is room in the market for a device in between laptops and cell phones. But Palm Folio isn't it. It's too close to a laptop.

Winner Ray Lakin

“Wow, we have extra money in the bank!”
Newton Reception

Doonesbury by Garry Trudeau

IT'S A BOOK! IT'S A NEWSPAPER! IT'S A COMPUTER! IT'S EVERYTHING!

HOW EXCITING.

LOOK AT THAT... WHAT AN INTERFACE!

APPLE'S DONE IT AGAIN, KIM! YOU CAN USE THIS DEVICE FOR JUST ABOUT... OH, WOW!

WHAT NOW?

IT MAKES PERFECT SENSE! EVERY TIME!
Competition

Every morning in Africa a Gazelle wakes up.
It knows it must run faster than the fastest Lion
Or it will be killed.

Every morning in Africa a Lion wakes up.
It knows it must outrun the slowest Gazelle
Or it will starve to death
It does not matter whether you are a Lion
Or a Gazelle
When the sun comes up
You better be running
Outbound Elements of Technology Marketing

Characteristics of technology

Customer profiles

Communication content

Technology decision process

Communication channels / networks
Relative Advantage

= Degree to which a technology is perceived as “better”

- Measured in economic terms, but social prestige, convenience, and satisfaction are also important
- Objective advantages are not so important, it matters if an individual perceives the innovation as an advantage
Triability

\[ \text{Degree to which a technology can be experimented with on a limited basis} \]

- Technology is easier to adopt if it can be tried out in part, on a temporary basis, or easily dispensed with after trial.
- It’s a way to find out how it works under one's own conditions → it gives meaning to a technology

Proof Of Concepts are a common approach
Complexity

• It is the perception of the end user that counts for achieving public adoption.

• An innovation might look simple from the viewpoint of the developer.

Degree to which a technology is perceived as difficult to understand and use.
Compatibility

= The degree to which technology is perceived as being consistent with existing values, past experiences, and needs of potential adopters

- Technologies that are incompatible with values and norms will be adopted much slower because they require the adoption of a new value system.
Familiarity

A combination of past experiences and social conformity.

Often, it is the compatibility of a new technology to familiar social and individual concepts and not to existing technologies and processes.
Observability

= degree to which the results of a technology are visible to others

• Observing the advantages of a new technology increases the chance of adoption significantly.
• After some adopt, observability improves the diffusion effect, a critical component of technology transfer.
Figure 1.—Market-pull, technology-push and design-push are three approaches that allow introducing different degrees of radical innovation (5).