

TEACHING NOTE

IBM at the Crossroads

Structure of the Case

At the beginning of the case we find Virginia Rometty, CEO of IBM, reflecting on the company's declining revenues and its ability to adapt to changes in its environment. We learn that she played a major role in helping to develop and implement Sam Palmisano's aggressive strategy to increase profit margins, especially in the face of competitive hardware and software pricing. Following some strategic missteps in the personal computer market, Palmisano vowed that IBM would never be left behind again; in that spirit, he led IBM's transformation from a multinational company with world-wide operations to a more seamless global enterprise. In 2015, the third year of Rometty's tenure as CEO, she wonders, *Is it time for further changes at IBM? Should IBM adapt to disruptive cloud computing and data analytics, or will the current strategy of offering customers integrated solutions continue to work?*

The next section of the case provides readers with a historical overview of IBM's successes, failures, and redemptions, followed by brief insights of the lives of past CEOs, including Lou Gerstner who positioned IBM to get back in the game after the largest single-year corporate loss in U.S. history. ("The Louis Gerstner Era"). Gerstner reversed a previous decision to split IBM into multiple business units, deciding instead that IBM's strength lay in its ability to provide "integrated solutions." He rebuilt the company around three strategic pillars: the development of a broad computer services unit, a move to more "open systems," and the embracing of a "networked world" view of computing. IBM's breadth and integrated service platform provided a significant advantage in the new Internet environment, and IBM quickly emerged as a leader in e-business.

Sam Palmisano, a life-long IBMer, assumed the helm in 2003 and continued the process of transformation begun by his predecessor ("The Sam Palmisano Era"). He boldly pushed the company into solution-driven consulting, services, and software, retaining only the highest margin components of hardware. Palmisano developed IBM's current strategy and helped it to regain a solid foundation and financial performance before handing the reins to CEO Virginia Rometty in 2012 ("The Virginia Rometty Era"). Rometty is facing increased competition and sees IBM's future being tied more and more to the disruptive technologies of cloud computing, data analytics, and systems of engagement.

Cloud computing ("IBM's Cloud Initiative") is driving an IT industry shift from a product-oriented platform to a service-oriented platform, redefining prior boundaries. For example, hardware makers must choose between supplying servers to cloud service providers or becoming service providers themselves. IBM made its first foray into the cloud in 2007. The "Blue Cloud" was a combination of

software and hardware components through which IBM sought to provide customized, cloud-based services for its clients. The company expanded into Cloud Computing Centers in 2008, to enable its clients to transition to virtualized data centers. Later that same year, it added cloud consulting and technology services, as well as a cloud-based certification program. It also announced an alliance with Google to promote educational and commercial cloud-based services. The companies hoped that IBM's reputation would drive the sale of Google Apps, while IBM would provide the necessary infrastructure and services. In its efforts to maintain its reputation as a "reference point" in the industry, IBM has staked some kind of initial claim on almost every emerging cloud front.

Data analytics ("IBM's Data Analytics Initiative") resulted from firms having more information available than ever before. For example, it is estimated that Walmart collects more than 2.5 petabytes of data every hour. As a result, IBM, SAS, and other firms are lining up to help customers use the data they amass. Data analytics, also called Big Data, examine the growing amount of data firms collected to identify patterns or other relevant information so that managers can make better decisions. The business implications of data analytics can be compelling. For example, Netflix analyzed its subscriber data to develop its hit show "House of Cards." With appropriate data analytics platforms, firms can boost sales by making relevant recommendations to customers, increasing efficiency of operations, and reducing fraud. In 2009, IBM moved into data analytics with a massive advertising campaign to promote the idea of building a "smarter" planet. IBM has embraced social media and enjoyed a huge marketing success by having its computer Watson compete on *Jeopardy!*, the television game show.

Systems of engagement ("IBM's Systems of Engagement Initiative") leverage the cloud and data analytics with mobile technology to make information available at the right time and the right place to make a difference. At IBM, consultants monitor the IT landscape and can tailor solutions to client needs with the goal of helping organizations rapidly create value from IT investments.

In 2015, Rometty doubled down on the current strategy with a \$4 billion investment in "strategic imperatives," which included cloud computing and data analytics. However, increased profits and sales growth from those areas have not offset declining revenues and IBM's stock price. Will continuing the current strategy meet current competitive demands, grow revenues, and enable Rometty to avoid being the CEO that failed IBM?

Suggested Questions

ANALYSIS: FOCUS ON INTERNAL AND EXTERNAL ENVIRONMENT

1. Perform an industry analysis for each of IBM's top market segments: services, software, and hardware. Are these attractive industries? Why or why not?
2. Looking at IBM's resources, capabilities, and competencies, can IBM gain (and sustain) a competitive advantage? Why or why not?

FORMULATION: FOCUS ON BUSINESS, CORPORATE OR GLOBAL STRATEGY

3. Describe IBM's strategic shifts over the last 20 years. What lessons can be learned?
4. What are IBM's business- and corporate-level strategies today?

*IMPLEMENTATION: FOCUS ON RECOMMENDATIONS
AND HOW TO EXECUTE THEM*

5. How should IBM position itself to take advantage of current technology trends? Should IBM focus on a particular segment or try to maintain vertical integration?
6. What should IBM's offensive and defensive plan look like?

Suggested Answers

ANALYSIS: FOCUS ON INTERNAL AND EXTERNAL ENVIRONMENT

1. Perform an industry analysis for each of IBM's top market segments: services, software, and hardware. Are these attractive industries? Why or why not?

See Exhibit TN-1 for an analysis based on Porter's five forces (industry) for each of IBM's three primary market segments. The information is drawn from information in the case supplemented with identified sources. A key to the color coding is as follows:

- **Yellow** indicates the force is considered moderate
- **Orange** indicates the force is rated as strong
- **No color** indicates a favorable condition

In general, all three segments continue to grow, but at different rates. In 2013, the growth of IT services was expected to increase from 2.2 percent to more than 5 percent for 2015 and 2016 with higher growth rates for cloud and mobile computing.¹ Slow, but steady growth is also expected in software and hardware. An advantage for IBM is that clients increasingly expect IT consultants to be able to implement recommendations.

With respect to software, incumbent firms face a high threat of new entrants and widely-available, low-cost substitutes. Writing software code requires technical capability, but little capital, while the Internet provides a ready distribution channel. Meanwhile, the traditional model of charging high licensing fees is being challenged by ready access to legal substitutes, such as open-source and web-based software (not to mention illegal software piracy).

The major threat to the hardware segment is high interfirm rivalry. High fixed costs in a highly competitive and fragmented market create extreme price pressures, driving most major players to outsource at least part of their manufacturing processes to Asia (where labor costs are significantly cheaper).

The strongest threat in the services sector is the power of suppliers, due to firms' dependence on hiring and retaining technically skilled staff and the need for differentiated hardware and software. Many large firms like IBM mitigate this threat by backward integrating and providing their own components. However, IBM has recently divested its server and chip businesses. Meanwhile, size and brand recognition provide significant protection against the threat of new entrants, interfirm rivalry, and buyer power. Companies may choose to hire and train their own service staff in-house, but this can be a costly and labor-intensive alternative.

It is also important to consider the potential impact of the cloud, big data and analytics, and systems of engagement on each of these three industry sectors. The combined effect of current environmental changes is likely an increase in the demand for computing services and consulting services to design and integrate them. However, if firms adopt public cloud, it will likely have a negative impact on both hardware and software providers. Infrastructure-as-service allows companies to outsource their hardware needs, eliminating the need for large capital outlays for data servers and other large pieces of equipment. Similarly, platform-as-service and software-as-service decrease the costs and increase the accessibility to a wider variety of software alternatives, reducing the need to pay costly, upfront licensing fees. In effect, a public cloud converts portions of the current hardware and software industries into service opportunities, increasing the overall attractiveness of the services sector.

Financing is a valuable complement to IBM's software, services, and hardware activities (see Case Exhibit 9), adding value when offered in tandem.

Sources:

IBM services market share: <https://www-03.ibm.com/press/us/en/pressrelease/41960.wss>

IBM software strengths:

<https://www-03.ibm.com/press/us/en/pressrelease/43565.wss>

<https://www-03.ibm.com/press/us/en/pressrelease/43703.wss>

Overall software market leaders: <http://www.gartner.com/newsroom/id/2696317>

IT hardware market growth: <http://www.statista.com/statistics/203393/global-market-forecast-of-it-hardware-from-2007-to-2015/>

2. Looking at IBM's resources, capabilities, and competencies, can IBM gain (and sustain) a competitive advantage? Why or why not?

The VRIO framework (see Exhibit TN-2) is a useful tool for analyzing a firm's resources and capabilities and determining its source of strategic competitive advantage.

The case provides several examples of IBM's tangible (first grouping) and intangible (second grouping) resources and capabilities (see Exhibit TN-3). IBM has several valuable and tangible resources, such as \$8 billion in cash and investments on hand (see Case Exhibit 4), patents, a global presence, and a wide breadth of product and service offerings. While these are all costly and/or difficult to imitate, only the patents and portfolio breadth are rare. The degree to which they are organized to capture value is more difficult to determine, although the company's global presence has declined from 2009 (see Case Exhibit 6).

Not surprisingly in a knowledge- and service-based industry, IBM's intangible resources and capabilities tend to satisfy more of the VRIO criteria. All are valuable, and all but the company's open-systems perspective and experience in multiple cloud sectors are rare (many other large competitors like Google and Amazon have also pursued a wide variety of cloud-based initiatives). IBM's strategic leadership, corporate reputation, expertise in large dataserving computers, and ability to provide integrated solutions are also costly/difficult to imitate. IBM has led development of data analytics and received significant media attention for Watson's performance on *Jeopardy!*

Thus, IBM has multiple resources and capabilities that pass the first three criteria. The question facing the strategy team is how best to organize these assets to create a sustainable competitive advantage. Importantly for IBM, the ability to provide innovative and integrated IT solutions (combining expertise in services, software, and hardware) is rare, but competition is increasing and it is not clear whether IBM is organized to meet demands for achieving desired revenue growth in cloud computing, big data and analytics, and systems of engagement.

FORMULATION: FOCUS ON BUSINESS, CORPORATE OR GLOBAL STRATEGY

3. Describe IBM's strategic shifts over the last 20 years. What lessons can be learned?

As part of their analytical process, IBM's strategic leaders should take stock of lessons learned from two previous strategic shifts in the IT industry: the fall of mainframes, the rise of the Internet, and the combined forces of cloud computing, data analytics, and systems of engagement.

Fall of mainframe computing. IBM relied on a vertically integrated strategy through the 1970s, building all of its key components like processors, operating systems, peripherals, and databases in-house. As a result, the company was able to capture high margins, capitalizing on its technical prowess, reliability, and outstanding service—even when its technology was not cutting edge. IBM's mainframes dominated the industry with a 70 percent market share, dwarfing competitors such as NCR, General Electric, and Honeywell.

Once among its greatest assets, IBM's size and industry dominance caused it to underestimate the power and speed of the computer revolution that started when Steve Jobs and Steve Wozniak put together the first Apple personal computer in 1976. IBM's initial disdain for personal computers gave Apple and other emerging competitors an unchallenged, five-year window in which to perfect their new technology. After it finally introduced its own version of the PC in 1981, IBM made several more blunders, including outsourcing the operating system and microprocessors for its new machines from Microsoft and Intel (leading to the emergence of the Wintel standard) and selling its 20 percent equity stake in Intel in the mid-1980s.

IBM's vertically integrated strategy no longer provided a competitive advantage in the new PC era. PCs could be sold in a variety of retail outlets, eliminating the need for a highly trained sales force. Data processing centers were no longer essential, as PCs had their own memory and processing systems inside. Nor was there a need for IBM to maintain these machines, as businesses increasingly internalized the service function and hired their own computer technicians. Instead, the new open standard created opportunities for multiple layers of value-adding activities in which IBM did not have superior capabilities. Different companies quickly assumed the lead in specific segments: Intel in microprocessors, Microsoft in operational systems, Novell in networking, HP in printers, and so forth. IBM never caught up. By 1993, IBM had experienced the largest single-year corporate loss in U.S. history and was forced to reduce its staff by more than 250,000 workers.

Rise of the Internet. In contrast, IBM was among the first companies to embrace the rise of the Internet. Then-CEO Gerstner recognized that integrated solutions were essential to helping customers navigate the complexities created by this new technology, and reversed a predecessor's decision to split the company into 13 "Baby Blues." Next, he initiated a broad computer services unit that sold bundles of hardware, software, consulting, and maintenance services. He also made a conscious decision to move to "open systems" so that the company's hardware and software would be compatible with those produced by competitors. This time, the open strategy worked, as it was consistent with IBM's capability in providing big dataserving computers that could connect heterogeneous software and hardware and get them to work together effectively. By 1995, IBM formed an Internet division to focus the entire company around providing Internet-based services. IBM actually coined the term "e-business" in a massive advertising and marketing campaign launched in 1997, well in advance of both its competitors and the dot-com boom of 1999.

Combined forces of cloud computing, data analytics, and systems of engagement. Under CEO Virginia Rometty, the environment that IBM confronts has continued to change and drive competition from additional fronts. This has led to reduced revenue in traditional areas and investment in pursuing work to leverage a return to computing power on servers (cloud), accumulation of large amounts of data (big data and analytics), and interaction with systems and other users on mobile devices (systems of engagement). However, growth in these areas has not offset decline in current areas.

Lessons learned. Comparing IBM's responses for these previous shifts illustrates several important lessons for dealing with environmental change:

- Companies should analyze the effects of any potential discontinuities on the effectiveness of their business models.
- Changes in the external environment can cause competencies (for example, IBM's breadth of offerings) to become rigidities, and vice versa.
- Open standards create multiple layers of value-adding activities, but should only be adopted when these activities are consistent with the company's capabilities.
- Reducing complexity for the business customer is an important criterion for success.
- Even if a company misses one turn of the innovation cycle, there is still hope to survive and get back in the game.

4. What are IBM's business- and corporate-level strategies today?

IBM continues to apply a differentiated business-level strategy, striving “to create higher value for customers than the value that competitors create, by delivering products or services with unique features while keeping cost at the same or similar levels.” The company leverages three main value drivers in order to differentiate itself from its competitors:

- Customization—providing customized technology solutions for its clients
- Service—supporting all business value chain activities
- Complements—providing systems support and financing in addition to software and consulting services

Under then-CEO Sam Palmisano, IBM positioned itself as a solution-driven consulting, services, and software company (see Exhibit TN-1). As a result, IBM's corporate-level strategy is best classified as related linked. No single division generates more than 70 percent of firm revenues, and there are loose linkages between the different business segments (see Case Exhibit 9). CEO Virginia Rometty continues to follow this strategy where IBM strives to create corporate relatedness, or economies of scope, by transferring its core competencies across a full range of client-based services.

At the corporate level, IBM has also used acquisitions and divestitures to reconfigure its portfolio of businesses. Notable examples are:

- Acquisition of PricewaterhouseCoopers for \$3.5 billion in 2002
- Acquisition of Rational Software for \$2.1 billion in 2002
- Sale of IBM's PC division to Lenovo (a Chinese company) in 2004
- Sale of IBM's server business to Lenovo in 2014
- Paying Global Foundries to take its money-losing chip business in 2014

From 2003 to 2007, IBM spent a total of \$11.8 billion on 54 acquisitions, including 36 software and 18 services companies. IBM has also invested heavily in internal research and development. For example, in 2002, the company announced a \$10 billion program to develop infrastructure technology to provide supercomputer-level resources on demand. In 2015, IBM is investing over \$4 billion with the majority of funds going to strategic initiatives to grow revenue of areas with higher profit.

IMPLEMENTATION: FOCUS ON RECOMMENDATIONS AND HOW TO EXECUTE THEM

5. How should IBM position itself to take advantage of current technology trends? Should IBM focus on a particular segment or try to maintain vertical integration?

Historically, IBM's competitive advantage has been its ability to provide integrated solutions (making the complexities of the cloud simple) for large enterprises. Although it launched a public cloud

facility in Raleigh, North Carolina in 2010, IBM's emphasis has been on building private or hybrid clouds for clients. This allows IBM to provide clients a system of engagement to enable the mobile access to firm data. Further, the cloud enables the process of big data and analytics to be done centrally with IT infrastructure. This means that client data storage and analysis needs to enable data collection and processing that can be scaled to allow for growth. Typically, customers basically utilize IBM's infrastructure software and hardware to create flexible capacity; IBM runs the technology for the firm, but the firm still has to purchase IBM servers and software.

Despite IBM's increased emphasis and \$4 billion investment in strategic imperatives related to cloud computing, big data and analytics, and systems of engagement, revenue growth in these areas have not offset declines in other areas. There are conflicting opinions on whether IBM will succeed.

- Positive: Analyst Timothy Green suggests IBM has a path to success in his MotleyFool comment (March 16, 2015): <http://www.fool.com/investing/general/2015/03/16/international-business-machines-corp-has-a-path-to.aspx>
- Neutral: JP Morgan analyst Mark Moskowitz is more neutral (March 2, 2015): <http://www.forbes.com/sites/ericsavitz/2013/01/14/j-p-morgan-cuts-emc-ibm-to-neutral-upgrades-hpq-fio/>
- Negative: Credit Suisse analyst Kulbinder Garcha maintains a strong underperformance rating of IBM shares (January 15, 2015): <http://247wallst.com/technology-3/2015/01/15/the-most-negative-ibm-analyst-case-remains-firmly-against-it/>

6. What should IBM's offensive and defensive plan look like?

Offense: Playing to its strengths, IBM's major strategic moves should include:

- Target large enterprises, and possibly cities and nations. IBM should focus on large-scale projects where its breadth and experience add unique value.
- Providing integrated services (such as private or hybrid clouds) that add value and reduce complexity for clients. Adopting open standards creates multiple layers of complexity, which represents an important business opportunity for IBM.
- Maintain leadership in big data and analytics and systems of engagement by investing in these areas and leverage increased data storage, data analysis, and data connectivity from mobile devices that result from cloud computing and enable IT investments that create value for clients.
- Maintain a strong network of partnerships that covers the full range of cloud components.

Defense: Given technological change and environmental uncertainty, IBM should maintain strategic flexibility by:

- Assessing its environment and how IBM's competencies fit and or need to be adjusted
 - Divest underperforming businesses
 - Invest in areas of growth
 - Form alliances with firms to complement IBM's strengths

- Analyzing the effects of potentially disruptive technology
- Rapidly developing and deploying IT solutions to obtain a first-mover advantage
- Engaging in scenario planning and formulating a road map for continued adaptation
- Making sure short-term actions are in alignment with long-term corporate goals

According to its Fourth Quarter 2014 earnings presentation, IBM's performance objectives include:

- Generate low single-digit revenue growth
- Growth initiatives and future expansion—shift investments and resources
 - In 2014, IBM divested its server and chip businesses.
 - In 2015, IBM is making a \$4 billion investment in strategic imperatives to ensure continued growth.
- Leverage a broad portfolio to deliver solutions to clients
 - Establishing key initiatives and partnerships

Additional Resources

1. "Behind Ginni Rometty's Plan to Reboot IBM," *The Wall Street Journal*, April 20, 2015; video: <http://www.wsj.com/articles/behind-ginni-romettys-plan-to-reboot-ibm-1429577076> (10:47). Accompanied by insightful *WSJ* article outlining IBM's current challenges.
2. "Systems of Record vs. Systems of Engagement," February 11, 2014; video: https://www.youtube.com/watch?v=u7AOB_ncEXQ (5:36). Geoffrey Moore who introduced the concept of systems of engagement discusses the difference between systems of engagement and legacy systems that he calls systems of record.
3. "IBM Watson: How It Works," October 7, 2014; video: https://www.youtube.com/watch?v=_Xcmh1LQB9I (7:53). Describes the difference between programming and cognitive computing employed by IBM's Watson.
4. "IBM's Watson on Jeopardy!," video: https://www.youtube.com/watch?v=WFR3lOm_xhE (3:52) A short clip of IBM's Jeopardy! demonstration.
5. "IBM Centennial Film," January 20, 2011; video: <https://www.youtube.com/watch?v=39jtNUGgmd4> (13:19). Featuring 100 people from age 100 down that identify IBM achievements the year they were born.
6. "Ginni Rometty Speaks," May 14, 2014; video: <https://www.youtube.com/watch?v=27iTKq4rtKE> (7:16). CEO Rometty discusses her plans for IBM's future growth.
7. IBM has its own channel on YouTube with content on multiple areas, including IBM Cloud, IBM Big Data and Analytics, and IBM social business. <https://www.youtube.com/user/IBM>.

8. IBM has two Facebook pages devoted to its activities:

- a. Cloud: <http://www.facebook.com/IBMCloud>.
- b. Big Data: <https://www.facebook.com/IBMbigdataanalytics>

Contact your local representative from McGraw-Hill Education (<http://shop.mheducation.com/store/paris/user/findltr.html>) for information about access to financial analysis spreadsheets.

EXHIBIT TN-1 An Analysis of IBM Based on Porter's Five Forces

NOTE: Light yellow indicates the force is considered moderate

Orange indicates the force is rated as strong

No color indicates a favorable condition

| | Threat of New Entrants | Power of Suppliers | Interfirm Rivalry | Power of Buyers | Threat of Substitutes |
|-----------------|---|--|--|---|--|
| Services | <ul style="list-style-type: none"> Increasing growth may attract new entrants. Easy to enter on small scale, either by starting new business or spin-off from existing firm. Regulatory barriers vary depending on nature of service. Large incumbents have economies of scale, broader service offerings, and established reputations. | <ul style="list-style-type: none"> Suppliers include hardware and software providers; products tend to be highly differentiated. Technically skilled staff are an important input; turnover leads to high switching costs. Some larger companies backward integrate and provide their own components. | <ul style="list-style-type: none"> Anticipated growth of ~5 percent for 2015–2016 helps to mitigate rivalry. Fragmented market overall. IBM and Accenture are market leaders with several other major players. Services provided by large firms are essentially similar. Smaller companies are highly dependent on revenues generated. | <ul style="list-style-type: none"> Key buyers include governments and large businesses. Larger buyers exert stronger power. Brand recognition/reputation is an important factor in choosing service providers. Long-term contracts increase switching costs for buyers. Services provided are often essential to buyers. | <ul style="list-style-type: none"> Companies may choose to hire and train staff in-house. The cloud, big data and analytics, and systems of engagement create increased service opportunities and demand. |
| Software | <ul style="list-style-type: none"> Predicted growth attracts new entrants. Low capital requirements. Easy access to distribution channels. Strength of incumbents varies by segment; many have established client relationships and actively protect their intellectual property. Need for R&D investment or capital to acquire existing technologies. | <ul style="list-style-type: none"> Key suppliers are skilled software developers and makers of hardware. Sole suppliers of differentiated hardware can have significant power. Some firms backward integrate and train developers/manufacture hardware in-house. | <ul style="list-style-type: none"> IBM is consistently recognized as a leader in multiple categories of software, an area with multiple segments and firms. Microsoft is the overall leader and IBM fell to third place behind Oracle in 2013. Constant advances in technology increase rivalry, but anticipated growth ~5 percent mitigates rivalry. Additionally differentiation (e.g., types of end users) helps to decrease rivalry. | <ul style="list-style-type: none"> Key buyers are individual consumers, governments, and business end users. Switching costs can be high for industry-specific applications. Open-source code and interoperability decreases switching costs. Consolidation/large size increases buyer power. | <ul style="list-style-type: none"> Open-source software is a low-cost alternative; open-source producers generate revenues through service and maintenance. Others include free web-based software and pirated copies. Software-as-a-service via the cloud decreases costs and increases accessibility. |

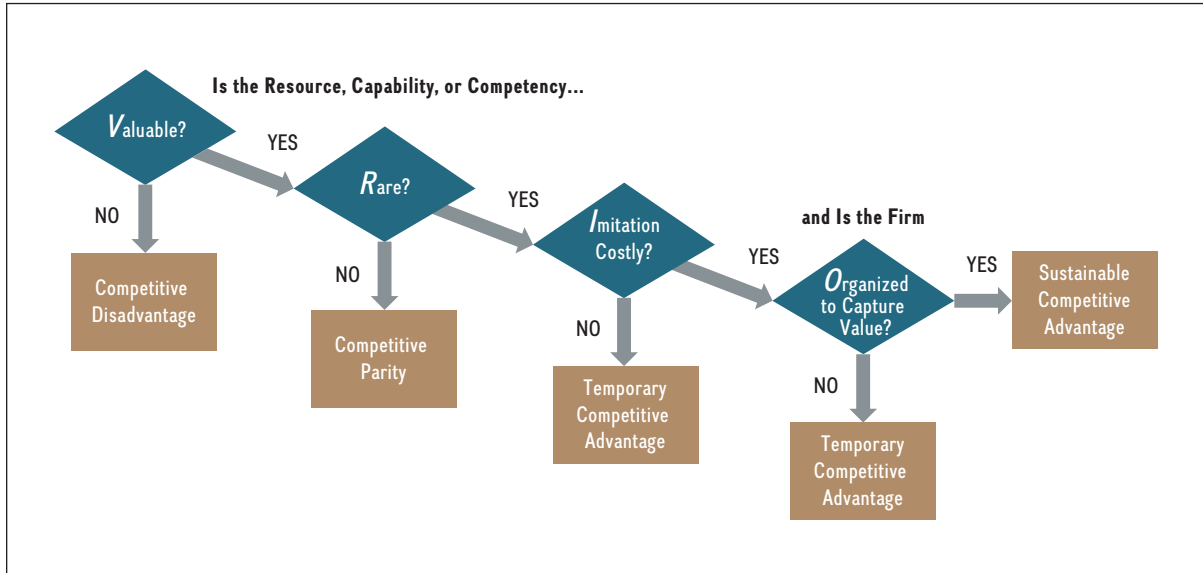
(continued)

EXHIBIT TN-1 (continued)

| | Threat of New Entrants | Power of Suppliers | Interfirm Rivalry | Power of Buyers | Threat of Substitutes |
|-----------------|---|---|---|--|---|
| Hardware | <ul style="list-style-type: none"> • Key entry barrier is technological capability and ability to stay on leading edge of technology curve. • Considerable R&D expenses require significant capital outlay; exacerbated by short product life cycles. • Larger firms benefit from economies of scale and access to investment capital. • Small-level entry is feasible if focused on specialized product group. • Incumbents protect proprietary information by defending patents. | <ul style="list-style-type: none"> • Key suppliers are electronic component manufacturers with low manufacturing costs. • Low product differentiation. • Low switching costs for basic components. • Most firms use multiple suppliers to reduce dependence. • Makers of sophisticated components have more power. | <ul style="list-style-type: none"> • IBM is not a significant player and has divested assets • Intense price pressures push firms to outsource to Asia. • Highly fragmented, but significant M&A activity. • High fixed costs increase rivalry, but steady growth mitigates it. | <ul style="list-style-type: none"> • Key buyers are end-use customers. • Fragmentation and diversity of buyers decreases power. • Low degree of differentiation among products. • Buyers are primarily concerned with quality and specifications, decreasing brand loyalty. • Larger and repeat buyers have stronger negotiating power. • Products purchased are critical to buyers' operations. • Long-term contracts increase switching costs for buyers. | <ul style="list-style-type: none"> • It may be possible to manufacture hardware in-house, but is likely to be more expensive. • Substituting labor for hardware is costly. • Certain products have no viable substitutes. • Public clouds likely to become a strong substitute, eliminating the need for companies to own their own hardware. |

Source: Courtesy of F.T. Rothaermel.

EXHIBIT TN-2 Applying the Resource-Based View: A Decision on Tree Revealing Competitive Implications



Source: Rothaermel, F.T. (2018), Strategic Management, 4th edition. Burr Ridge, IL: McGraw-Hill.

EXHIBIT TN-3 IBM's Tangible and Intangible Resources and Capabilities

| IBM's Resources and Capabilities ...are they? | Valuable V | Rare R | Costly to Imitate I | Organized to capture value O |
|--|---------------|-----------|---------------------------|------------------------------------|
| Strong financial position | • | | • | |
| Patents | • | • | • | ? |
| Global presence | • | | • | • |
| Breadth of offerings | • | • | • | ? |
| Presence in almost every emerging cloud front | • | • | • | |
| Strategic leadership (Rometty) | • | • | • | ? |
| Open systems | • | | | |
| Expertise in large data-serving computers | • | • | • | ? |
| Reputation | • | • | • | ? |
| Data analytics | • | • | • | ? |
| Ability to provide integrated solutions | • | • | • | ? |

Source: Courtesy of F.T. Rothaermel.

Endnotes

- 1 <http://searchitchannel.techtarget.com/feature/IT-consulting-market-outlook-Its-growing-but-slowly>