ESSENTIALS OF
Management Information Systems 13e
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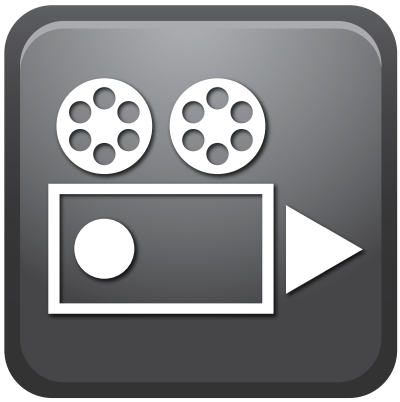
CHAPTER 3 INFORMATION SYSTEMS, ORGANIZATIONS, AND STRATEGY

CASE 2

NBA: Competing on Global Delivery With Akamai OS Streaming



SUMMARY The NBA uses Akamai's global streaming video service to reach customers and strategic partners in Asia, Europe, the Middle East, Africa and North America with high quality video streams of NBA rich media content and programs.

Akamai Customer Testimonial: NBA

URL http://www.youtube.com/watch?v=OZkyz-gChnI; L=6:09

CASE The National Basketball Association (NBA) is the leading professional basketball league in the United States and Canada with 30 teams. The NBA is one of four North American professional sports leagues. The other leagues are the Major League Baseball, the National Football League, and the National Hockey League. While focused on the North America, the NBA has a large international following and is televised in 212 countries and 42 languages around the world.

Increasingly, fans want and expect high quality game videos, RSS feeds, widgets, and Fantasy leagues. NBA.com has an inventory of over 400,000 digital assets, including 15,000 videos. Last year, there were over 850 unique visits to NBA.com from 20 countries.

Akamai Technologies, Inc. (NASDAQ: AKAM) is a company that provides a distributed computing platform for global Internet content and application delivery. Akamai is headquartered in Cambridge, Massachusetts. The company was founded in 1998 by MIT gradu-

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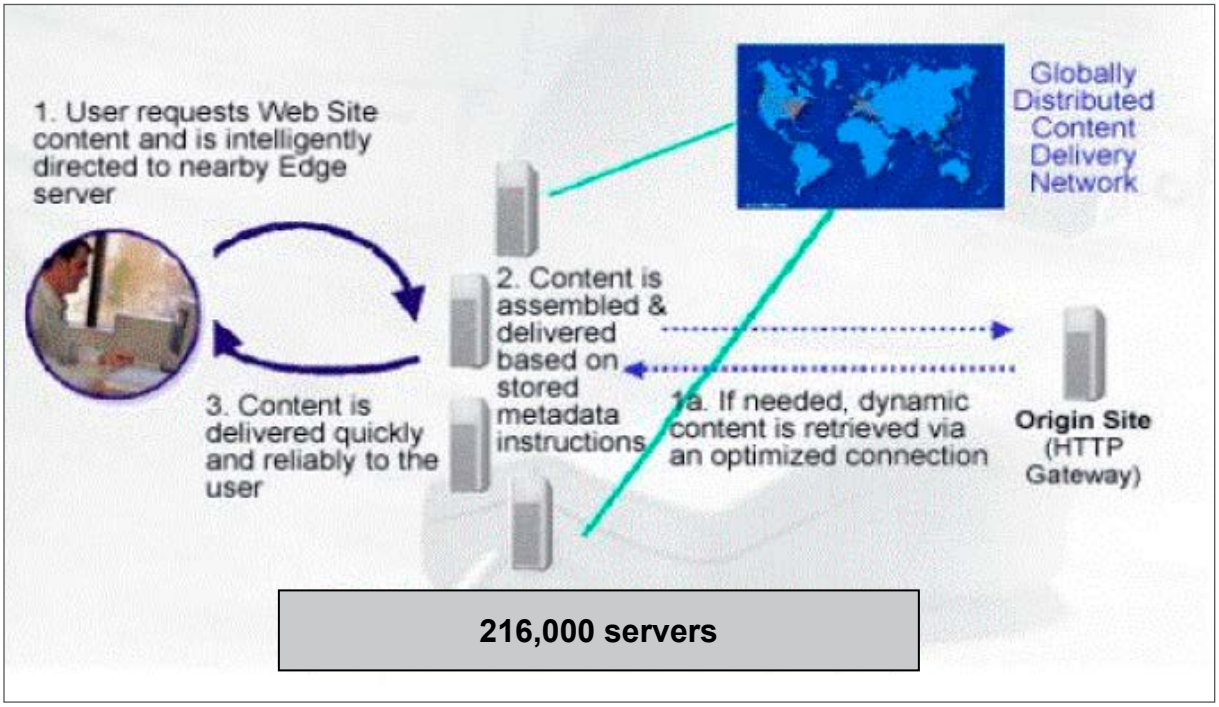
ate student Daniel Lewin, along with MIT Applied Mathematics professor Tom Leighton and MIT Sloan School of Management students Jonathan Seelig and Preetish Nijhawan. Leighton still serves as Akamai's Chief Scientist, while Lewin was killed aboard American Airlines flight 11 which was crashed in the September 11 attacks of 2001. Akamai is a Hawaiian word meaning smart or intelligent.

Akamai's primary service is provided by its proprietary EdgeNetwork. Akamai transparently mirrors content—sometimes all content, including HTML and CSS, and sometimes just media objects such as audio, graphics, animation, and video—from customer servers. Large firms deliver their content to over 200,000 Akamai servers in 110 countries. These local Akamai servers cache (store) this content awaiting local demand. Akamai's network is

AKAMAI'S GLOBAL CONTENT DISTRIBUTION SYSTEM



intelligent enough not to distribute content to a local server until and unless there is local demand.

When you click on an online video at NBA.com, the domain name is the same, but the IP address points to an Akamai server rather than the NBA server. The Akamai server is automatically picked depending on the type of content and the user's network location.

Akamai's EdgePlatform is one of the world's largest distributed computing platforms. The benefit is that users can receive content from whichever Akamai server is closest to them or

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has a good connection, leading to faster download times and less vulnerability to network congestion or outages. The Internet was never designed to handle large volumes of video simultaneously streaming from a single corporate server to all Internet devices. However, this content can be sent to the "edge" of the network where Akamai servers are located, and on a local or regional basis, stream this content on demand from local servers. Akamai's 216,000 distributed servers allow it to monitor global Internet traffic patterns, attacks on the Internet, and latency (delays caused by excessive Internet traffic).

In addition to image caching, Akamai provides services which accelerate dynamic and personalized content and streaming media. Akamai's personalization product is called EdgeScape, a geolocation service. Much Web content delivered by Akamai is personalized to the user's location and Internet service types. This allows Akamai's customers to gain insight into where end users are coming from and what kind of Internet service they are using. Armed with this knowledge they can customize Web content for individual end users through a wide range of criteria, making their site more relevant and compelling to everyone who visits.

For instance, Akamai knows your:

Internet service provider:	Verizon_Trademark_Services_LLC
Country Code:	US
Region Code:	NY
City:	NEWYORK
Area code:	212
Latitude:	40.7128
Longitude:	74.0092
County:	NEWYORK
Time zone:	EST
Network:	verizon
Throughput:	vhigh

Akamai Stream OS is another service that runs on Akamai's EdgePlatform. It enables the NBA to get more from its media by providing a simple, automated solution for managing more than 500,000 media assets, assigning business policies, and publishing content to multiple distribution channels. NBA.com and NBA Mobile reached a combined 16.7 billion page views and 4.2 billion video views in 2015. The NBA's new Game Time mobile app set a new record with 7.5 million global downloads in 2015.

- Since implementing Akamai Stream OS, NBA.com's traffic has increased exponentially, with over 35M unique users in 222 countries accessing NBA Web content each mont.

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- Akamai's suite of products has helped the NBA reach record traffic levels, with over 90 million unique global users per month, while effectively maintaining employment and infrastructure costs.
- The reach and stability of Akamai's network have allowed the NBA to grow advertising revenues by 500 percent since 2001.

VIDEO CASE QUESTIONS

1. Using Porter's competitive forces model, analyze the NBA's market situation. How does the use of Akamai help the NBA compete in this market?
2. Using Porter's generic strategies model, what do you think is the NBA's overall strategy or strategies?
3. Why is it important that all fans in the world have the same experience?
4. Why is it important that individual franchise owners can build, manage, and distribute on the NBA platform their own content?
5. The word "partnership" appears several times in the video. Who are the NBA's partners? How does the concept of a strategic ecosystem apply to the NBA's partnership strategies?

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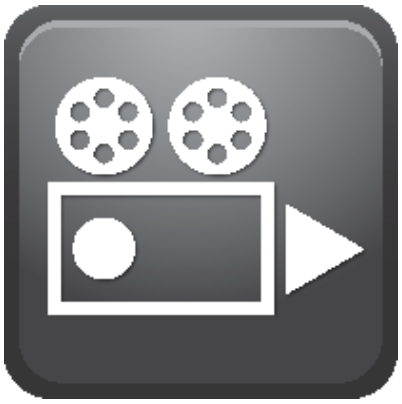
CHAPTER 3 INFORMATION SYSTEMS, ORGANIZATIONS, AND STRATEGY

CASE 1

GE Becomes a Digital Firm: The Emerging Industrial Internet



SUMMARY General Electric, one of the largest industrial manufacturing firms in the world, is attempting to transform itself into a software company, part of the Industrial Internet. In order to achieve this objective, GE will need to hire a new labor force, train a new management corps, develop new services that its customers will pay for, and create a new culture which is more collaborative, fast acting, and innovative. It will need to become a digital firm like other leading Internet firms such as Amazon, Google, Apple, and eBay.

GE's Jeff Immelt on digitizing in the industrial space McKinsey Company

URL https://www.youtube.com/watch?v=hMa5YHOInIc; L=10:49

CASE GE is one of the largest industrial manufacturing and engineering firms in the world, with revenues in 2016 of $120 billion. Founded in 1892 as an electrical equipment manufacturing firm producing generators designed by Thomas Edison and his Edison Machine Works Company, in 2017 it operates in 180 countries and has 333, 000 employees worldwide. GE's industrial business is managed in eight segments: power generation, energy management, transportation, renewable energy, transportation, aviation, appliances and lighting, oil & gas, and healthcare. GE manufactures generators, power plant and grid controls, locomotives, airplane engines, wind mills, kitchen appliances, and cat scan machines, along with over tens of thousands of other products from switches to industrial controllers, as well as

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consumer products. As it's current CEO remarked, "We make heavy things that take tons of capital to build, and last for 20 years."

Under CEOs Charles Wilson (1940-1950), and Reginald Jones (1972-1981), GE grew to become the largest industrial firm in the US and world based largely on its engineering and manufacturing expertise. Most of its products were sold in the US. In the process it became a conglomerate of heavy industry businesses that were difficult to manage efficiently by a large bureaucracy, that was expensive and slow. Nevertheless, its management training for very large Fortune 500 firms was considered world class, and was the training ground for many senior managers throughout America.

Jack Welch (1981 to 2000) succeeded Jones and began simplifying GE's corporate structure, selling manufacturing businesses that were not dominant in their markets, and reducing headcount. He became known as "Neutron Jack" for eliminating so many employees but leaving the buildings intact. Facing slower growth in the US market for heavy machinery, Welch moved aggressively to turn GE into a financial services company, in part by providing financing for customers who bought its heavy machinery, but also by expanding into other loan and leasing activities typical of banks. Welch added a new division to GE's roster of businesses called GE Capital. Welch reduced investment in the remaining industrial businesses, focusing instead on financial products and services that required less capital to operate and maintain. At the time, it was thought financial services could spike GE's revenues and profit, increase its share price, and return GE to the ranks of "growth companies."

In 2005 half of GE's profits were coming from GE Capital, and GE itself had grown away from its industrial base to become an unregulated financial services firm (a so-called "shadow bank"). By 2007 GE had become one of the top ten largest financial institutions in the United States, and the largest non-bank financial institution. Because it was not a chartered US bank, it was not regulated by the Federal Reserve or other federal agencies. It could take risks that regulated banks could not. And it did take these risks.

The financial crisis of 2007–2008 ended the scenario of GE becoming primarily a financial services firm. It's leases and loans declined in value as its customers could not make their payments on leases and loans. It could no longer borrow money to finance loans and leases without paying exorbitant interest rates. GE lost its triple A credit rating. In short, GE Capital was close to failure. In 2008, the federal government bailed out GE Capital by insuring $139 billion in GE debt in an effort to prevent the collapse of GE Capital, and stabilize the financial system of the United States. Warren Buffett lent GE Capital $3 billion in cash to weather the storm caused by underperforming loans, and falling revenues at GE Capital. In 2008, in part because of Federal Reserve and congressional pressure (the Dodd-Frank Act), GE began to sell off its GE Capital division. By 2016 GE had sold most of its financial businesses, and that business now accounts for only 9% of GE's revenue and profits. Soon it will entirely disap-

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pear. Without GE capital it was unclear how GE could return to being a fast growing firm, and its stock price suffered after 2008.

In 2000 Jeffrey Immelt was chosen to succeed Jack Welch as CEO. Immelt took over when revenues from manufacturing were faltering due to global competition, and fluctuating demand for industrial products in the United States. There followed several years of falling profits, downsizings, and restructurings.

By 2008 it was clear to many inside GE, including the new CEO Immelt, and outside consultants, that GE was entering a new digital and knowledge-based world. In this new digital era, knowledge was just as valuable as machine tools, locomotives, and turbines. Half of the value of the S&P 500 stocks derives from intangible assets like patents, software, information, computing systems, innovation, and management expertise. Customers were increasingly asking GE to help them maintain and manage the complex machines they purchased from GE. This was especially true of its industrial customers in developing countries who wanted not just machines but also the expertise required to properly operate the machinery. By 2010 half of GE's revenues originated outside the United States in part because of Immelt's pursuit of off shore business to offset slow growth in the United States. GE is the second largest exporter in America, after Boeing.

Since the financial crisis, GE has revamped its strategy by increasing investment in its industrial manufacturing businesses, and increasing factory jobs in the United States. Analysts note that GE is "going back to the future" by investing heavily in manufacturing R&D. The products themselves are becoming increasingly sophisticated and digital. Developing these new products and services requires a new kind of employee than the past. Employees need to be trained in new materials, manufacturing techniques, and technologies many of which involved the Internet and digital technologies. GE's existing labor force were masters of material sciences and industrial engineering, but not software. The industrial world was becoming "digitized". Immelt's goal in 2016 was to become one of the top ten software companies in the world, focusing industrial software. He wants GE to become an apps company and a platform company.

After 2008 GE had to decide how to return to a solid growth rate. Developing foreign markets for its heavy machinery was one option. Emulating somehow the growth rates of digital Internet firms like Amazon, Google, Apple, eBay, and others was an attractive option. All these firms were service firms, not heavy manufacturers. They had all built "platforms", loosely defined as an ecosystem combining digital technology, software, the Internet, and services that attracted millions of consumers. Each of these firms were the dominant players in their markets. Services were growing far faster in the US economy than manufacturing. GE's expertise was mechanical engineering, not software engineering. To become high growth digital firm, GE would need a new labor force; GE's renown managers would have to learn how to manage software development, as well as factories, and become more innovative by inventing new services for its heavy industry customers. GE would need to define

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new digital products and services as part of a yet to be defined "digital industrial platform" that would dominate the marketplace. GE would have to become a software company while not ignoring its industrial origins or manufacturing base." It was unclear what services GE could sell to its industrial customers. GE needed a new corporate culture. It needed to become a faster, simpler company; eliminate a ponderous hierarchy, and thousands of pointless management meetings that delayed decision making.

No one has ever written a shop manual on how to transform a heavy industry firm like GE into a digital firm. Few know what a "digital firm" really is, let alone what Immelt calls the "industrial Internet." The video describes how Immelt envisions the transition to becoming a digital firm.

In June 2017 Immelt was replaced by the Board an a new CEO appointed under intense pressure from Wall Street investors who were not prepared to wait years for the results of Immelt's digital firm program. The new CEO slashed spending on the digital firm effort by $400 million although not totally ending the program. Making the transition to a digital firm turns out to be a very difficult task, and requires long term investments before results are generated.

VIDEO CASE QUESTIONS

1. What does Immelt mean by the "digitization of the industrial world" and "the industrial Internet?" What are the four central elements of the industrial Internet?
2. What were the three alternatives GE had for developing the hardware and software capabilities to become a digital firm?
3. Which option for developing its digital capabilities did GE choose and why?
4. Why does the new GE want to treat analytics as a company expertise just as it has always treated material science?
5. What example does Immelt use to illustrate the value of digital knowledge to GE customers?
6. What does Immelt mean when he says GE will become a "platform" and "app" company?
7. Why does Immelt believe GE will need to hire thousands of new people to achieve its goals of becoming a digital firm?
8. What is the "culture of simplification" that Immelt believes is needed at GE?

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