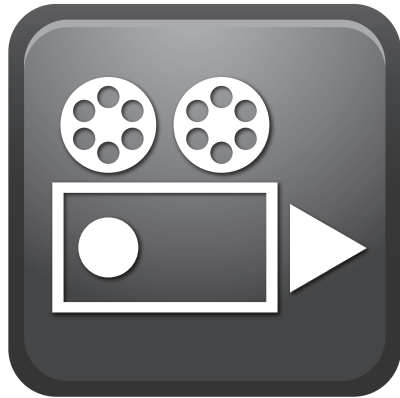


Management Information Systems 16e

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CHAPTER 12 ENHANCING DECISION MAKING

CASE 1 PSEG Leverages Big Data and Business Analytics Using GE's Predix Platform



SUMMARY

PSEG is one of the largest electrical and gas utilities in the United States, and the largest utility in New Jersey where it is headquartered. PSEG operates a fleet of power generation units, and several thousand miles of electrical lines and gas lines in the northeast region. Maintaining these facilities at peak operational efficiency requires an extraordinary amount of data on how individual generator plants and transmission links are actually operating. PSEG has turned to General Electric's Predix platform to monitor its machines and processes in an effort to optimize their performance, predict when machines and processes will fail, and initiate predictive maintenance programs before they fail. GE refers to its platform as an important part of the Industrial Internet.

(1) Brilliant Machines: GE's Predix Internet Platform

URL <https://www.youtube.com/watch?v=6mb0gnBUmNk>; L=3:36

(2) PSEG Uses Predix to Produce More Power

URL <https://www.youtube.com/watch?v=WFsmJfVWCHk>; L=2:35

CASE Public Service Enterprise Group (PSEG) is a 113 year old diversified energy company with headquarters in New Jersey where it began in 1903 as a state-wide energy firm at the beginning of the electrical era. It was formed in 1924 by combining more than 400

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gas, electric, and transportation companies into a single firm. PSEG operates as two subsidiaries: PSE&G (Public Service Electric and Gas) is a regulated utility that provides electric transmission and electric and gas distribution to residential, commercial and industrial customers in its service territory. It's service territory in 2016 extends throughout the northeast, from Connecticut, to Pennsylvania, New York, and New Jersey. PSEG's Power subsidiary is a wholesale supplier of energy including nuclear, fossil, and renewable facilities which it owns, in whole or in part, and operates. The Power subsidiary uses a diverse mix of fuels from gas (46%), nuclear (28%), coal (18%), oil (7%) and solar (1%) to generate over 12,000 megawatts of energy to the Northeast residential and commercial customers. Power is one of the top twenty power producers in the country. PSEG operates five nuclear reactors, four solar farms, multiple gas fired units, and two coal powered generating plants. In 2018 PSEG had annual revenues of \$9.1 billion, \$1.5 billion in earnings, and 13,000 employees. The company serves 3.3 million electric customers, and 1.8 million gas customers. It's electrical transmission lines stretch out over 1700 miles, and it operates over 1,000 miles of underground gas lines.

PSE&G has received awards for being the most reliable utility in the Northeast, named to the Dow Jones Sustainability Index for meeting economic, environmental, and social criteria, and the Star of Energy Efficiency Award for making New Jersey apartments and hospitals more energy efficient.

The business success of power utilities depends on their ability to deliver safe and reliable service to millions of customers, even under extreme conditions. Weather events, from hurricanes to blizzards, can disable facilities and create a public crisis in transportation, health, and business firms through the service area. Equipment failures at generating and distribution facilities can lead to major public health hazards and business disruption throughout the service area. Operating equipment at less than optimal levels is a risk to their revenues and profitability. Utilities face price competition from other power suppliers in the country who can sell their power into annual state power auctions. The safety and reliability of service requires a precise understanding of the condition of power generating and distribution machinery.

PSEG like other utilities is an industrial process business at the heart of an industrial society that is required to manage millions of things in order to succeed. Welcome to the Internet of Things (IoT)!

Predix is an industrial operating system and platform created by General Electric. Predix is at the heart of General Electric's program to expand its business into an industrial services business based on sensors, big data, analytics software, and cloud computing. Predix promises to help industrial process companies manage their processes and millions of machines and parts in an optimal, safe, and efficient manner. GE calls Predix a platform for the Industrial Internet.

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Video 1 provides a brief overview of Predix, focusing on efficiency of operations, and maintenance of machinery. Video 2 describes how PSEG is using Predix to optimize its processes through better management decision making.

**VIDEO CASE
QUESTIONS**

1. What are the three key elements of Predix?
2. What benefits does Predix promise to deliver to business firms and managers?
3. What is “predictive maintenance.” Why is it important?
4. How can PSEG use Predix to optimize the efficiency of its wind farms?
5. What is the Industrial Internet? How does it differ from the Internet we are accustomed to using?

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