

# The Key to Faster, Lower Cost, and More Efficient Research

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Learn how IEEE *Xplore* improves  
ROI for technology development.

## Today's engineers work in challenging circumstances that require:

- ▶ Keeping up with rapidly growing industry knowledge as technology changes.
- ▶ Increasing levels of productivity to keep up with market and company demands.
- ▶ Finding inspiration for new and game-changing innovation.

These challenges can directly impact business performance.

### So, how can organizations improve ROI? By providing researchers with better tools.

According to a study of more than 750 technology professionals in more than 10 industries, the IEEE *Xplore* digital library was identified as an important tool that improves productivity and encourages innovative thinking among high-salary technical specialists.

## About the IEEE *Xplore* Digital Library



Online gateway to trusted research



Expert-authored journals, conference papers, standards, eBooks, and educational courses



More than 4.5 million documents



Powerful search tools



## CHALLENGE SOLVED

# Keeping up with a rapidly growing amount of knowledge

The amount of available knowledge is exploding as data storage and computing power grow and technology for sharing and accessing information improves.

Engineers, scientists, and technology professionals need access to an extensive collection of published content that includes both new and previously published research. Without access to these findings, they are less productive and often waste time repeating efforts.

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# 90%

of the world's data was  
created in the past two years

Source: Forbes



## Use Case: Expanding Technology Knowledge

An R&D systems engineer at a major telecommunications company was pulled into a project that required him to learn about topics to which he had not yet been exposed, a common occurrence. He was asked to present information about “decision-making under uncertainty” for an artificial intelligence project using a Monte Carlo tree search, a class of algorithms that uses random simulations to solve problems.

He used IEEE *Xplore* to quickly discover a large body of relevant technical research to educate himself on the topic and make a sound presentation outlining the state of the technology. This helped the team successfully move the project to the next stage.

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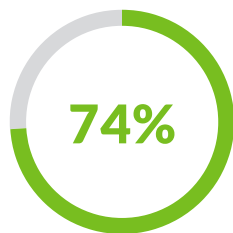
**It’s a great research and search tool. Searching the web directly, via Google or another generic search engine, is usually not productive.”**

—R&D SYSTEMS ENGINEER AT  
TELECOMMUNICATIONS COMPANY

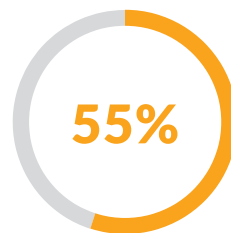
## Top 3 Benefits of IEEE *Xplore*

ACCORDING TO RESEARCHERS, ENGINEERS, SCIENTISTS, AND TECHNOLOGY PROFESSIONALS

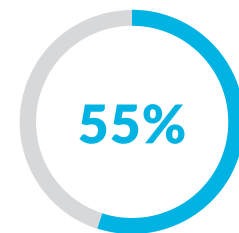
Source: IEEE *Xplore* User Survey



Keeping up to date



Avoids reinventing the wheel



Increases productivity

## CHALLENGE SOLVED

### Staying productive under more demanding conditions

Modern products are more complicated because they combine mechanics, electronics, and an ever-growing amount of software. At the same time, development timelines are growing shorter as companies rely on speed-to-market to gain competitive footing. And budgets? They need to be managed to drive the highest ROI.

But when researchers can quickly find the information they need, it can improve ROI. **Two-thirds** of survey respondents say IEEE *Xplore* greatly reduces research time, with many indicating that it cuts their project time in half. When this happens:

- ▶ Projects move faster, development pipelines accelerate, and new products and features get to market sooner.
- ▶ High-investment resources—technical professionals—spend less time searching for knowledge and more time applying knowledge for innovation.

### Engineers: How Workplace Conditions Are Changing

55%

say the pace of engineering is constantly increasing

53%

say they are required to do more with less

84%

say budgets are not increasing

Source: 2018 Pulse of Engineering Survey

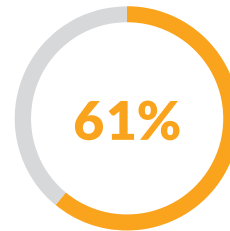


## IEEE *Xplore* Users Say...

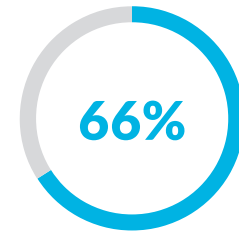
Source: IEEE *Xplore* User Survey



I can find the research I need in less than an hour.



Without IEEE *Xplore*, finding relevant information would take hours longer (for some, days).



My research project time requirements can be reduced 25% to 75%.

## Cost-Saving Calculation: Average Engineer Salary

Source: IEEE-USA Salary Survey 2018



9 hours a week gathering and analyzing external information =  
59 working days per year<sup>1</sup>



With the average engineer's salary of \$143,000,\* approximately  
\$32,450\* is allocated to time spent on research



By reducing research time by half, companies can yield approximately  
\$16,225\* savings per year, per technical employee

<sup>1</sup> McShae, Jo. (2016). The Information Workflow of Engineers

\*US Dollars

## CHALLENGE SOLVED

### Fostering inspiration for new discovery

Markets and consumers are rewarding innovation. This is playing out in many industries.

One example is companies that specialize in smart sporting equipment, which incorporates advanced software-based technologies, such as analytics and augmented reality, into traditional equipment designs. This segment is growing much faster than the sporting goods industry as a whole: 51% growth is anticipated globally from 2014 to 2021, vs. 3% from 2016 to 2020.<sup>2</sup>

Companies that want to use innovation to gain more market share, or enter new markets, benefit when their engineers have access to insights and research that inspire creative thinking.

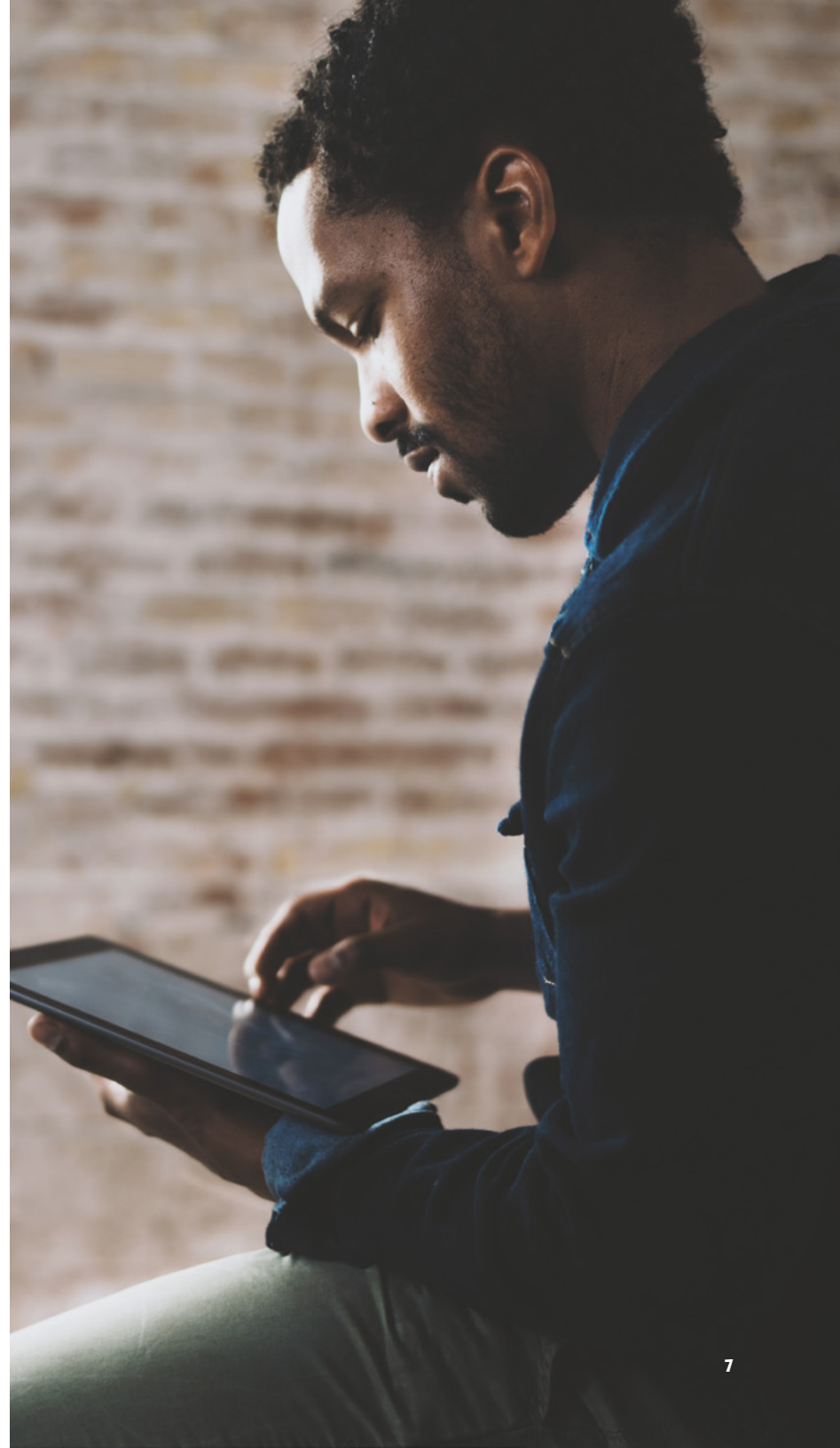
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# 60%

of executives and managers  
say IEEE *Xplore* encourages  
innovative thinking

Source: IEEE *Xplore* User Survey

<sup>2</sup> Smart Sports Equipment Market Forecast, Trend Analysis & Competition Tracking: Global Market Insights 2017 to 2022, Fact.MR



## Use Case: Inspiring Creative Solutions

A systems engineer for a large defense company needed information on antenna radiation. Specifically, he needed to determine the best process for testing an array antenna and recording the measurements. He used IEEE *Xplore* to find a document on near-field testing and learned how to conduct the testing on a benchtop instead of in the field.

Not only was the near-field testing option easier and faster for the engineer, the option saved the customer thousands of dollars by reducing test time and eliminating potential delays from uncontrollable outdoor factors such as traffic and weather.

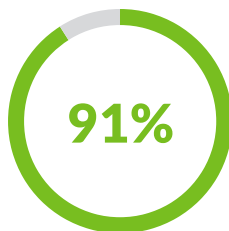
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**This article gave good information on how to address the problem, how to set up the test, and the math needed to get an accurate result. This is exactly the type of information I needed.”**

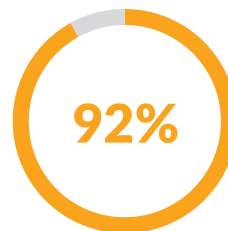
—SYSTEMS ENGINEER AT  
DEFENSE COMPANY

## IEEE *Xplore* Users Say...

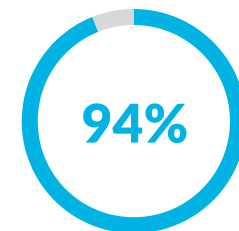
Source: IEEE *Xplore* User Survey



IEEE *Xplore* consistently helps me accomplish my primary project objective.



My job performance and company performance will benefit from continued access to IEEE *Xplore*.



I will recommend keeping an IEEE *Xplore* subscription to my boss or supervisor.





**IEEE Xplore<sup>®</sup>**  
Digital Library

## Are You Ready for Better ROI?

Becoming a more cost-effective and innovative company can be challenging, but a smart investment can often make a big difference to both the top and bottom lines of research-driven companies.

For technical professionals, IEEE Xplore benefits include:

- **Easy access** to a comprehensive research library
- **Increasing productivity** to meet demanding conditions
- **Finding inspiration** for game-changing innovation
- **Higher ROI** by enabling more efficient and effective research processes

See what IEEE Xplore has to offer your bottom line. Learn more about subscription options for your company at [innovate.ieee.org](https://innovate.ieee.org).

INVEST IN SMARTER RESEARCH

