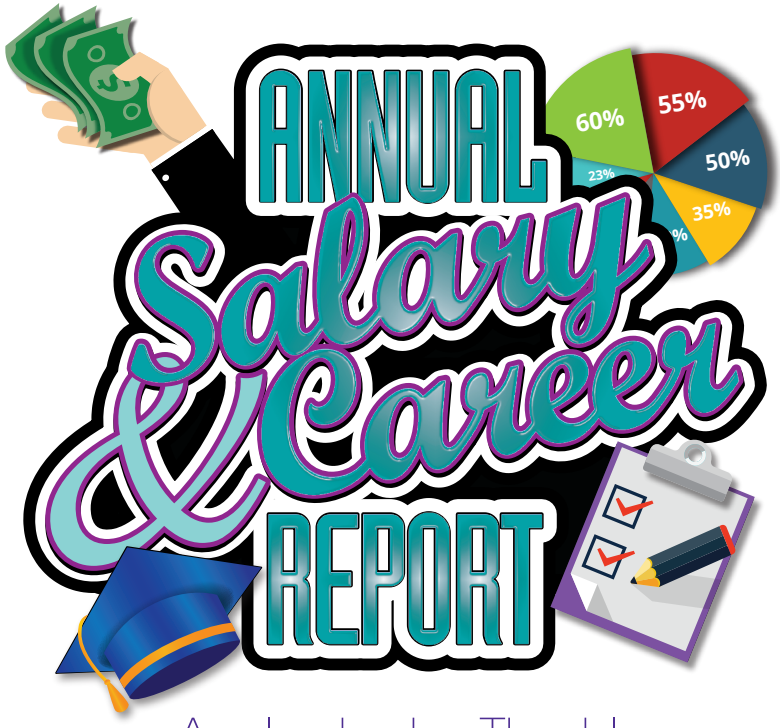
LEAH SCULLY | Staff Editor



An Industry That Is Content, But

SPECIALIZED SKILLS CAN'T HURT

More than 1,500 fluid-power engineers and professionals from across the country participated in the *Hydraulics & Pneumatics* 2016 Salary and Career Report, providing insight about changes in the industry, compensation, and overall job satisfaction. The average annual salary increased by 3%—which has been the average income increase since 2014, according to consulting firm Towers Watson—for a final amount of $95,167. While 49.4% of respondents report an increase in salary since last year, 37% said theirs stayed the same.

Nearly 90% of respondents recommend fluid-power engineering to the young professional. Some claim that fluid-power skills and knowledge are in high demand in various industries from mobile equipment to aerospace, and will open opportunities for technician, engineering, and sales careers. Others recognize it as a niche industry where skilled workers will most often find a role, but should only pursue one if they have a passion or affinity for fluid power. Only 74% think that the potential for salary advancement is as promising as it was five years ago.

Others recommend that fluid-power engineers develop skills in other areas that are becoming increasingly integrated into fluid-power systems. These include skills in industrial electronic controls, PLC programming, and BUS/Ethernet communications. One design and development engineer says, "Instead of just recommending hydraulic components, a big part of my job is designing and developing the control software to work with the hydraulics."

The survey also measures the industry's participation in the Internet of Things (IoT), in which machinery and components may output continuous data for monitoring or collaborative behavior with other machines. Although more than a third of respondents say their companies are replacing older devices with interconnected ones, only 34% of this sample looks for engineers that can help develop products for the IoT. Half say their company hires systems engineers, and a quarter says their company hires digital specialists. In addition, only 33% of companies that adopt interconnected devices provide training for IoT systems, which may feed into one of the longstanding challenges of engineering: staying current on new and emerging technologies.

Nearly half of respondents say their company currently outsources work, mostly because they lack in-house services and want to make use of existing engineering resources. Three quarters of respondents say their companies participate in onshore outsourcing, while a quarter reports outsourcing to India, and 11% to China. The most outsourced work is manufacturing and assembly, followed by CAD/CAE, and software engineering/development.

The sample is split into thirds when it comes to optimistic, pessimistic, and neutral outlooks on the health of the economy. "Election year brings uncertainty with company spending. I think it will be a harder year for companies to invest in machinery until a clear path is known from the government on taxes/spending," says one commenter.

COMPENSATION

Average Salaries

Seeing a large jump in average salary as compared to previous years, an indication the market is improving.

Average Salary in 2016

$95,167

$5,682
Average bonus

$6,268
Average stock options

$6,308
Average other options

Salary Changes

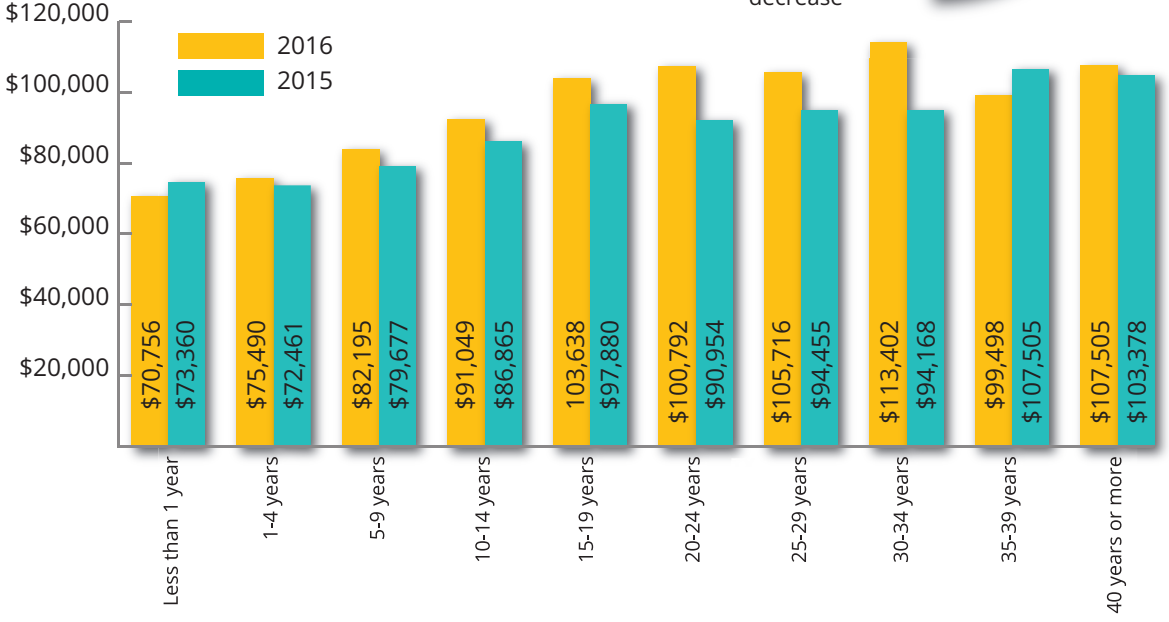
37.6%
Salary stayed the same

49.4%
Saw salary Increase

13%
Saw salary decrease

Salary by Experience

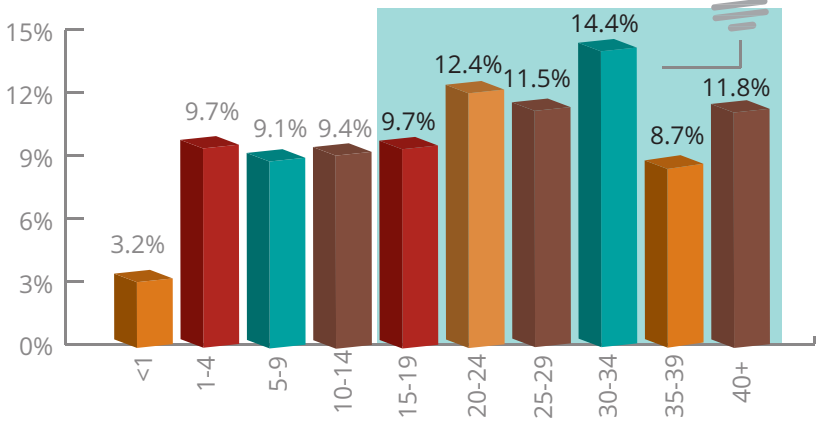
Compensation increased by 1.22% since 2015. In general, compensation in the fluid power has not changed significantly since last year.



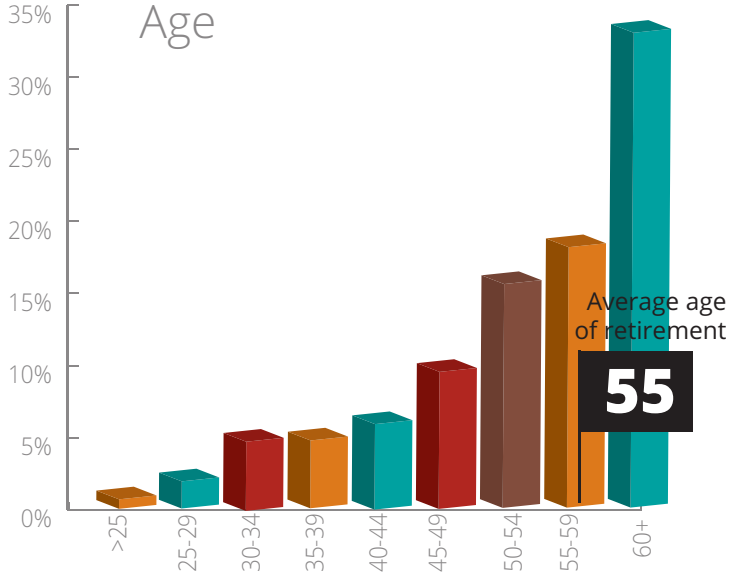
THE TYPICAL ENGINEER

In 2016
68%
of engineers have
15+ years of experience

Years in the Profession



Age

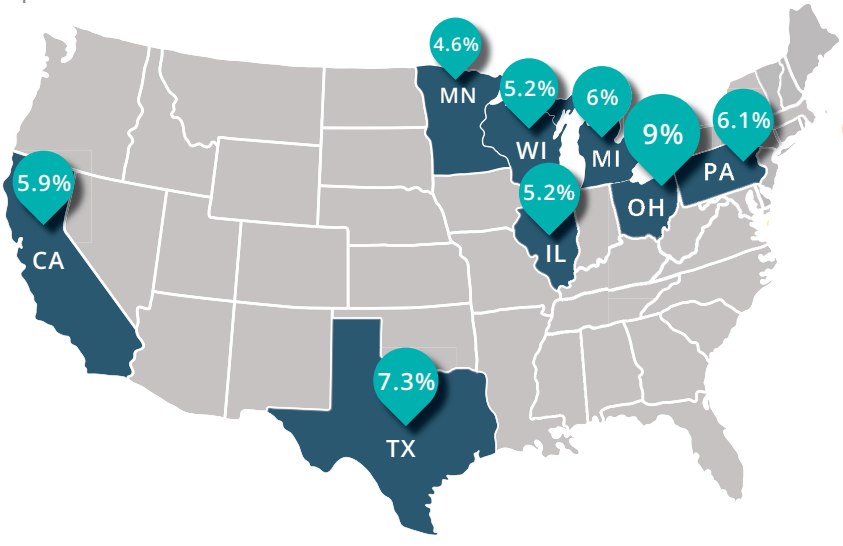


Typical engineer quotes:
How have your design responsibilities changed as technology has advanced?

"I perform more analysis because the tools are so good and readily available. I do my own solids modeling and drafting as the organizations have become very lean and I perform a wider variety of tasks."

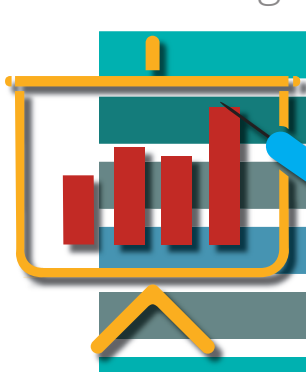
"The integration of electronics to the automation process involved learning computer languages and programming PLCs as well in keeping up with new technologies for cost effective solutions. Our machines do not require much automation or PLCs, and the most I've had to learn lately is programming variable frequency drives."

Top Work Locations in 2016

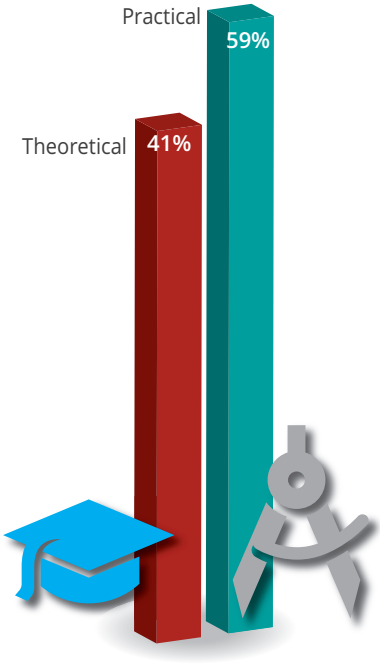


Education

How Engineers are Keeping Up

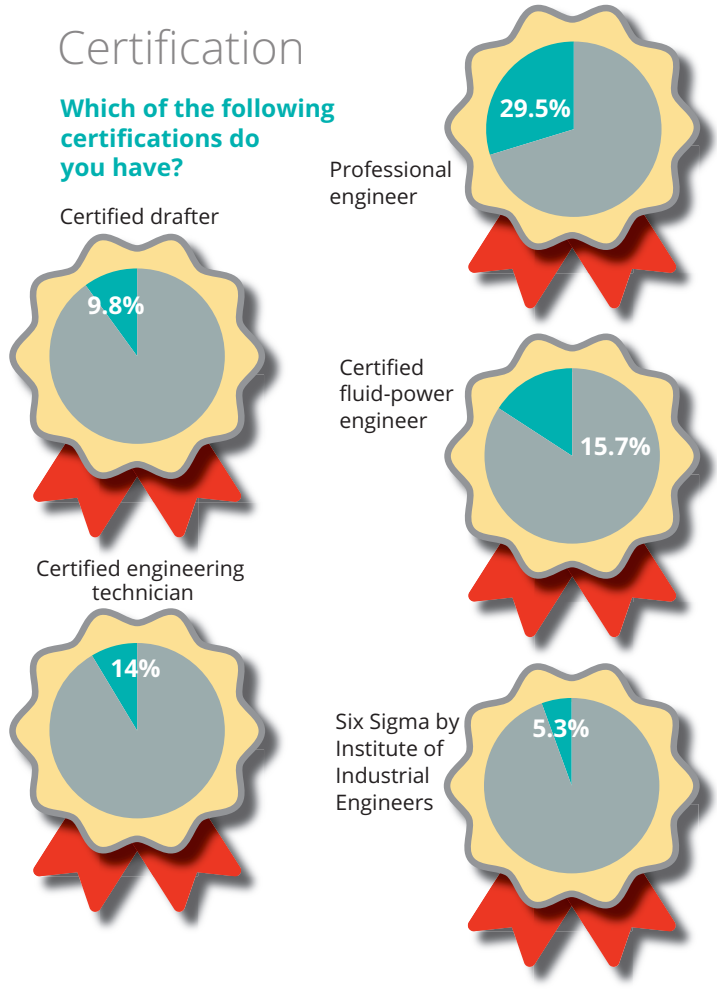


Educational Training (Theoretical vs. Practical)



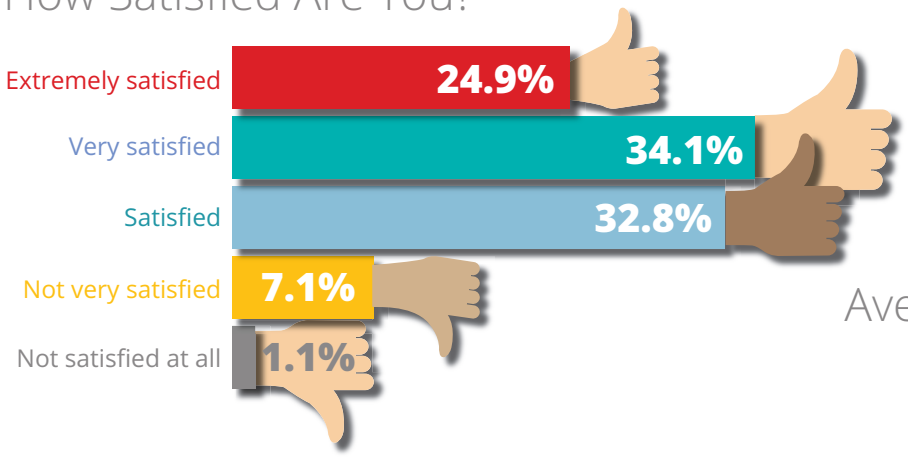
Certification

Which of the following certifications do you have?

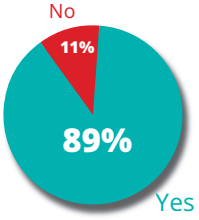


JOB SATISFACTION

How Satisfied Are You?



Recommend Engineering



Average Hours per Week

40.5

Reasons Engineers Would Leave the Profession

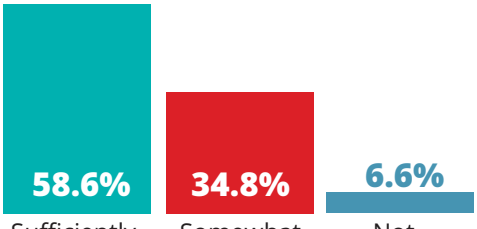
36.6% Try something different

28.7% Pursue other opportunities

24.2% Make more money

17.6% Ready to retire

Feeling Challenged



Most Important Factors in Job Satisfaction

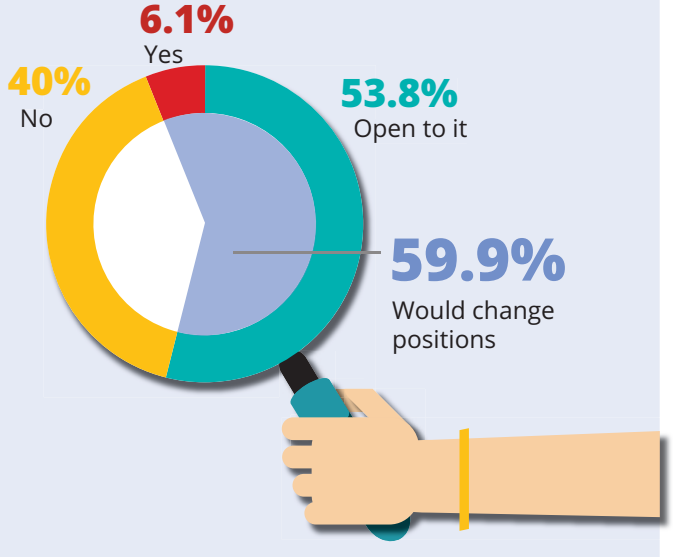
Challenges
The challenges that accompany the design of new products

Research
Researching potential design solutions

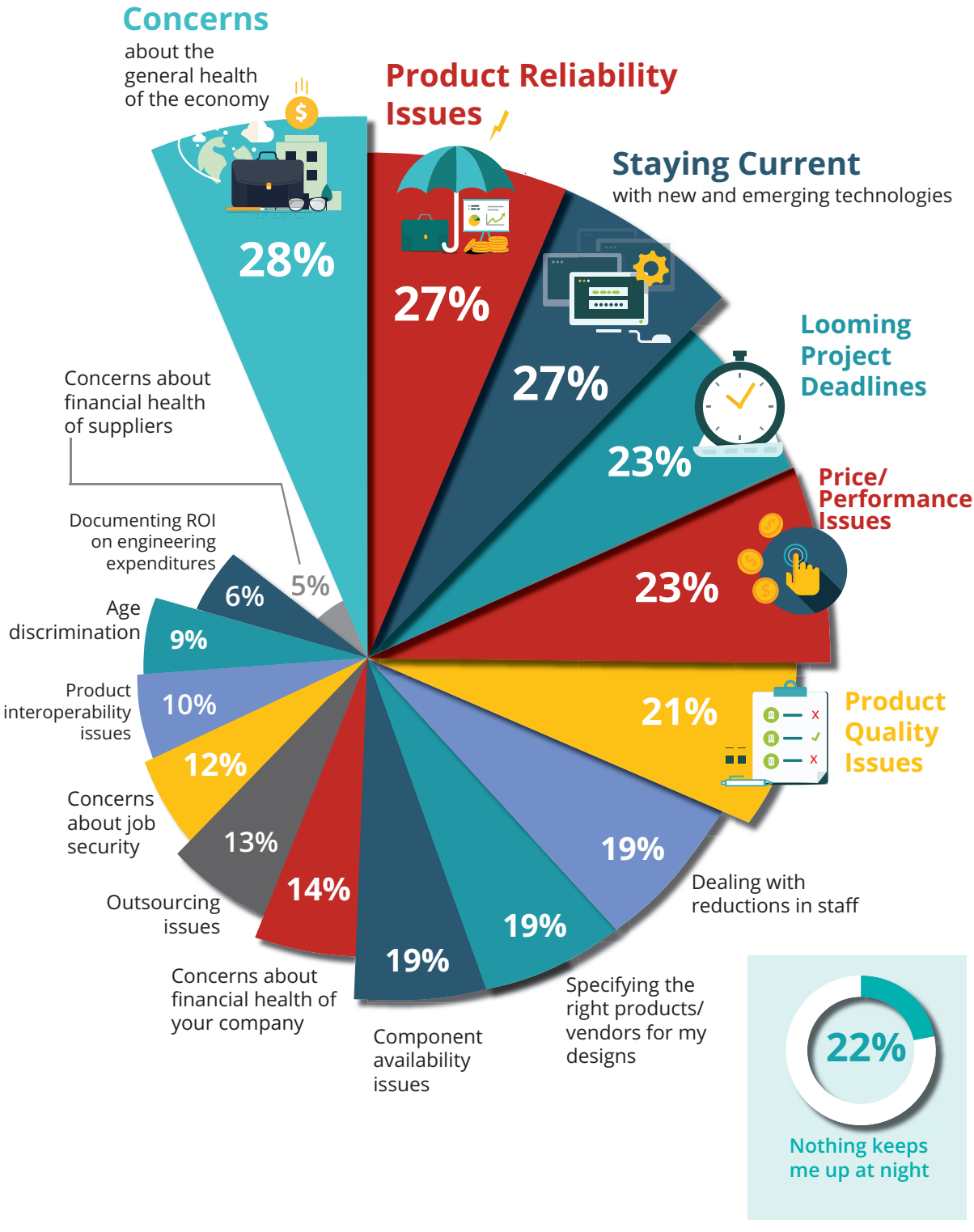
Compensation
The compensation you receive for the work that you do

EMPLOYMENT OUTLOOK

Actively Seeking a New Position



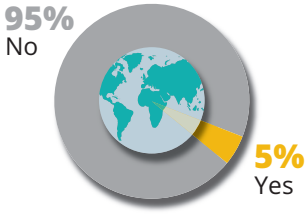
2016
WHAT'S KEEPING ENGINEERS UP AT NIGHT?



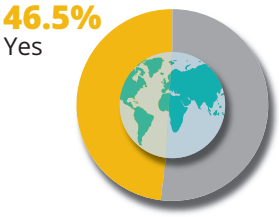
Nothing keeps me up at night

OUTSOURCING

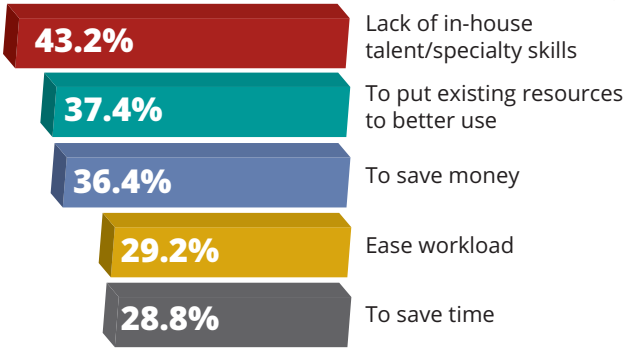
Planning to Outsource?



Currently Outsourcing?



Reasons for Outsourcing



CONCERNS

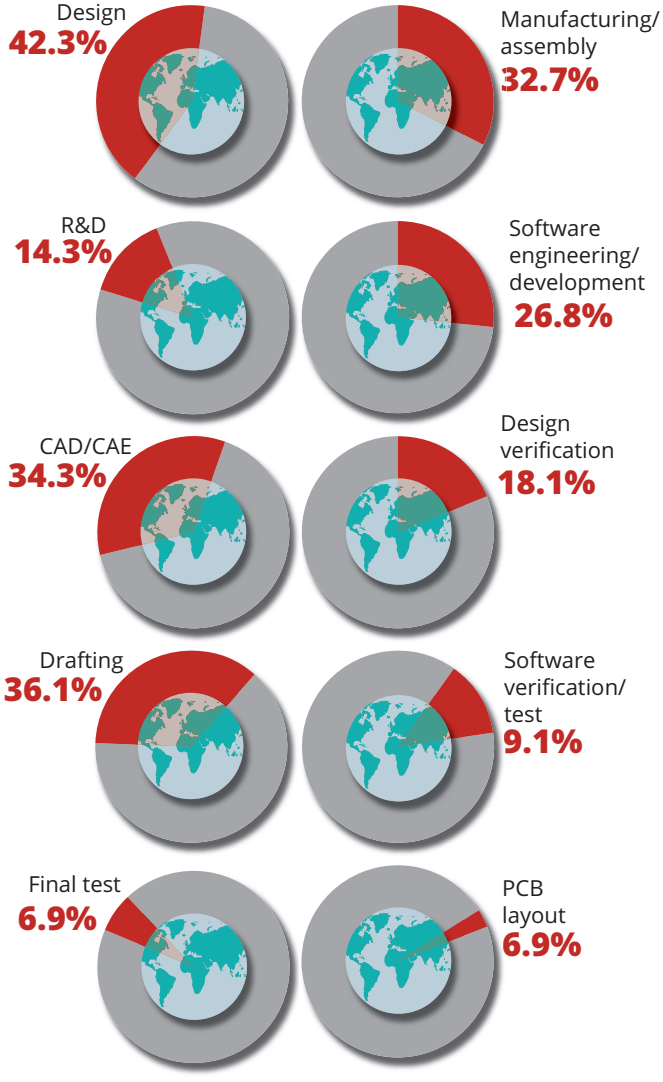
Resources **Time** **Funding**

Top Concerns at Work

(on a scale of 1-10)

Insufficient people resources to get the job done	6.85
Time-to-market pressures	6.3
Insufficient funding for my design projects	6.14
Inability to adequately test product designs	6.13
Competitive market pressures	6.08
Having to compromise my design approaches	6.00
Lack of design management direction	5.58
Second sourcing for the components specified	5.18
Politics at work	5.15
Shrinking product life cycles	5.14
Management is taking company in wrong direction	4.78
Seniority issues	4.00

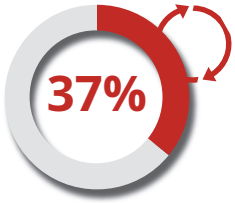
Work Being Outsourced



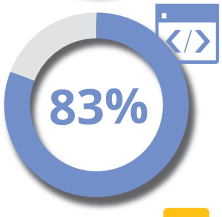
THE INTERNET OF THINGS (IoT)

My Company is...

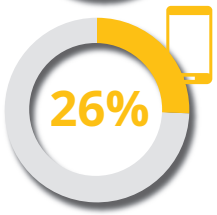
Looking for engineers to help develop IoT products



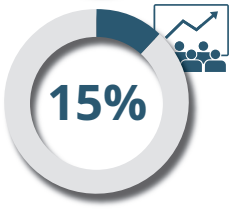
Replacing older devices with interconnected devices



Upgrading computer security (firewalls, computer logins)



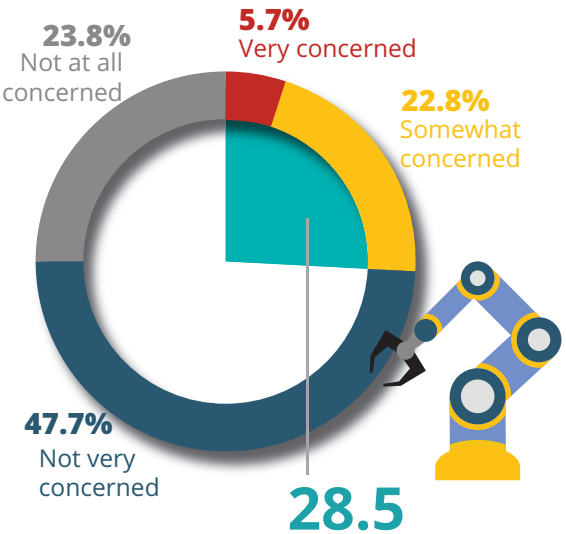
Using mobile devices for IoT data purposes (system failures, data collection)



Providing IoT systems training

Artificial Intelligence

How concerned are you that artificial intelligence will replace large amounts of people in the workforce?

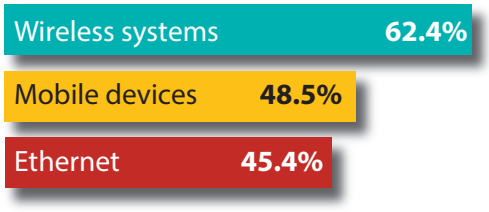


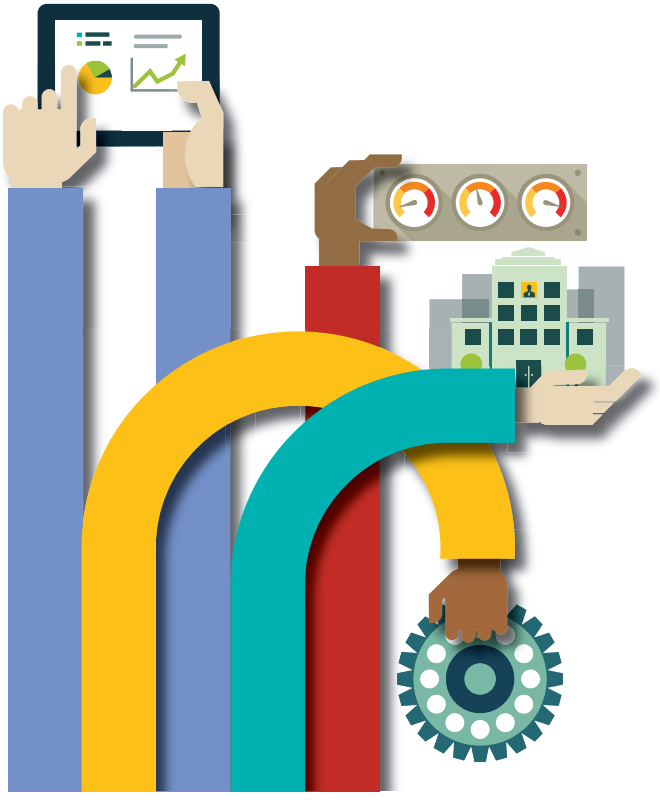
28.5

Are concerned about AI replacing them in the workforce

IoT Investing

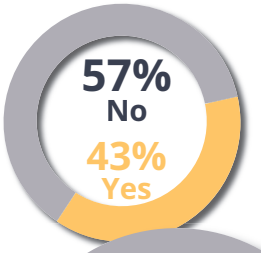
How has your company invested in IoT systems upgrades?



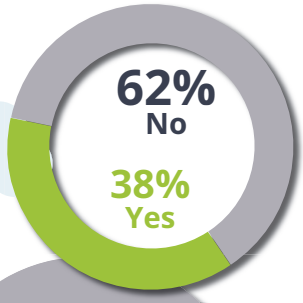


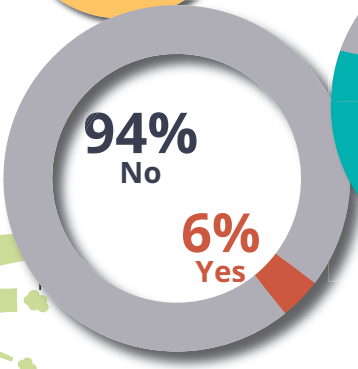
CLIMATE CHANGE

Are the new green initiatives affecting your design or manufacturing process?

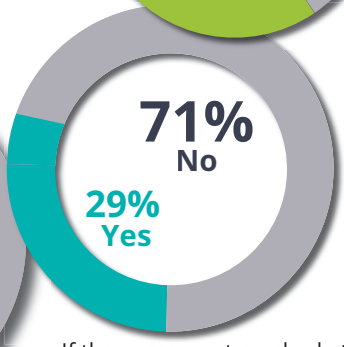


Is the market demanding low power requirements in your product design?



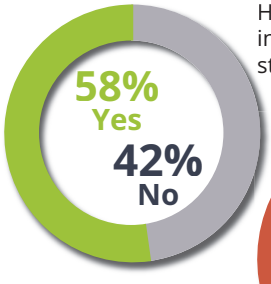


Do you feel threatened in your job security now that efficiency standards are changing?

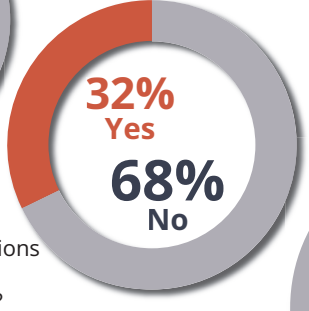


If the agreement reached at the Paris Climate Summit becomes legally binding, do you think it significantly influence your company's long-term strategy?

STANDARDS & REGULATIONS



Have standards and regulations in your industry become more stringent over the last year?



In your view, should standards and regulations be more stringent on software or hardware?

In your view, will stricter standards create more cases of companies cheating on standards?