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RESEARCH

SEMICONDUCTOR TECHVISION

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SEMICONDUCTORS ARE AT THE VERY HEART OF TECHNOLOGY DEVELOPMENT

Overview: Key Semiconductor Industry Trends

The automation trend, including the Internet of Things, presents a big opportunity for the semiconductor industry, as demand for related technologies has grown rapidly.

In particular, the automotive industry (including self-driving cars) is a key investment area for semiconductor companies, as demand generated from advanced driver assistance systems, electric drive systems, in-vehicle infotainment systems, etc. is expected to soar.

Ongoing IoT adoption across industries has lead to a widened customer base for semiconductor companies. It is vital that semiconductor companies work intimately with related customer segments to enable new solutions.

Semiconductor companies will need to adapt their business models even more to allow greater partnering / solutions development with both their new and existing customers.

Semiconductor companies must make huge investments in new designs and materials, as they attempt to keep pace with Moore's Law, while the viability of this theory remains in question.

FOR SEMICONDUCTOR COMPANIES , 3 OF ACCENTURE'S OVERALL 2017 TECH VISION TRENDS STAND OUT AS MOST IMPORTANT

TREND 1
AI IS THE NEW UI

TREND 2
ECOSYSTEM POWER PLAYS

TREND 3
WORKFORCE MARKETPLACE

TREND 4
DESIGN FOR HUMANS

TREND 5
THE UNCHARTED

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HIGHLIGHT: KEY FINDINGS

AI may not appear dramatically different than any other technology to semiconductor companies, but they need to better understand the potential of AI in their customers and partner interface(s).

Semiconductor companies recognize the transformational change that digital ecosystems bring to their industry more than the average cross-industry player. Yet, they have not yet fully recognized how their engagement in ecosystems will drive competitive advantage.

Semiconductor companies have not fully realized their customers' needs and what to do with these insights. Improving these capabilities would enable them to more easily partner with their customers, or to more easily engage them in emerging ecosystems.

Many customers of semiconductor companies are disrupting the old and entering new industries / markets; but semiconductor companies have yet to fully realize the potential of these opportunities.

Semiconductor companies do not see 'lack of skills' as an urgent challenge, compared to other global technology industry players.

AI IS THE NEW UI: EXPERIENCE ABOVE ALL

Artificial intelligence (AI) is becoming a key digital spokesperson for companies. Moving beyond a back-end tool for the enterprise, AI is taking on more sophisticated roles within technology interfaces. From autonomous driving vehicles that use computer vision, to live translations made possible by artificial neural networks, AI is making every interface both simple and smart—setting a high bar for how future interactions will work. It will act as the face of a company's digital brand and as a key differentiator. AI will become a core competency that demands C-level investment and strategy.

Semiconductor Perspective:
Semiconductor companies are, of course, at the heart of all technology development. AI may not look as dramatically different than any other technology to semiconductor companies, but they need to better understand the potential of AI in their customers and partner interface(s).

SEMICONDUCTOR COMPANIES HAVE NOT YET REALIZED THE FULL SCALE OF THE TRANSFORMATION THAT AI ENABLES
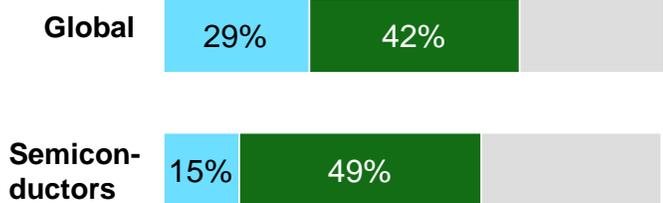
With a broadening customer base that comes with the overall digitization, semiconductor companies will need to rethink their customer operations. AI could become very useful in this process, but semiconductor companies do not yet regard this as a strong imperative.

Semiconductor companies do not agree as strongly on the wider implications of AI as companies in other industries do

In the next three years, the majority of organizations in my industry will deploy AI interfaces as their primary interface for interacting with customers
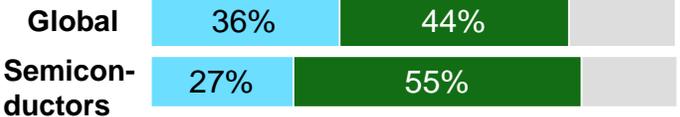
	Strongly Agree	Agree
Global	31%	43%
Semiconductors	21%	42%
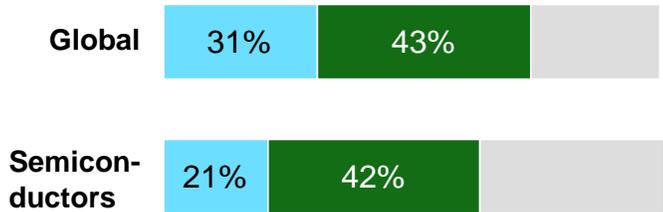
AI is capable of becoming the face of our organization or brand

	Strongly Agree	Agree
Global	29%	42%
Semiconductors	15%	49%

■ Strongly Agree ■ Agree

AI is creating a new era of computing, rapidly moving from mobile-first to AI-first

	Strongly Agree	Agree
Global	36%	44%
Semiconductors	27%	55%

Our organization is prioritizing ease of use and simplicity in the user interface to ensure a more human-like experience

	Strongly Agree	Agree
Global	32%	46%
Semiconductors	21%	61%
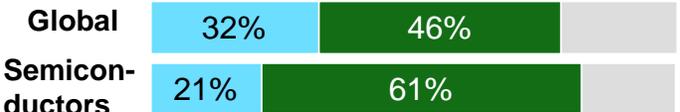
AI will accelerate technology adoption throughout my organization

	Strongly Agree	Agree
Global	35%	44%
Semiconductors	21%	39%
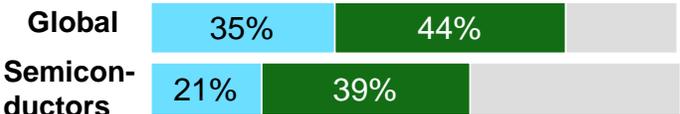
Organizations will increasingly compete on the ability to make technology fade, or appear invisible to the customer

	Strongly Agree	Agree
Global	31%	44%
Semiconductors	12%	58%

Source: Accenture's Tech Vision survey 2017. Global respondents: n=5,466 Semiconductor respondents: n=33
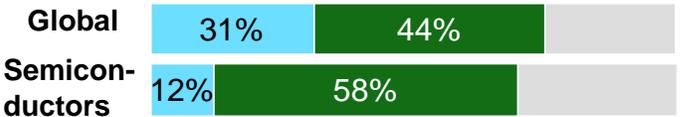
ECOSYSTEM POWER PLAYS: BEYOND PLATFORMS

Companies are increasingly integrating their core business functionalities with third parties and their platforms. But, rather than treat them like partnerships of old, forward-thinking leaders leverage these relationships to build their role in new digital ecosystems, which is instrumental to unlocking their next waves of strategic growth. As they do, they're designing future value chains that will transform their businesses, products, and even the market itself.

Semiconductor Perspective:
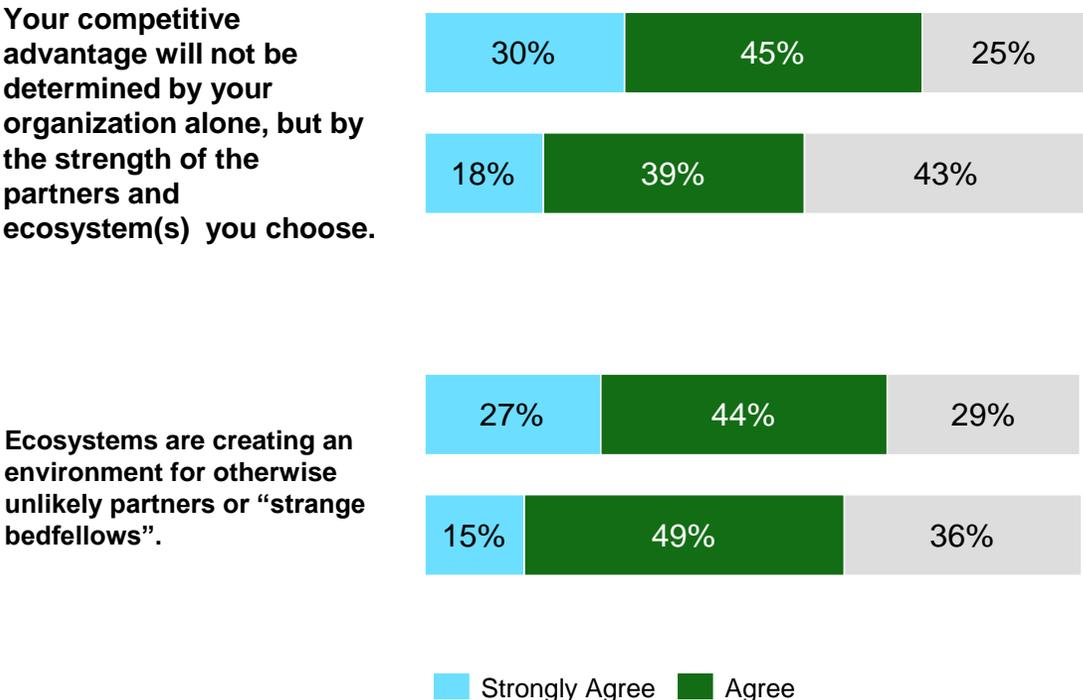More than the average cross-industry player, semiconductor companies recognize the transformational change that digital ecosystems bring to their industry. Yet, they have not yet realized the potential of their engagement in ecosystems, which can drive competitive advantage. By not full engaging in ecosystems, semiconductor companies risk missing the opportunities to better connect with and understand their end-user needs.

SEMICONDUCTOR COMPANIES ARE FULLY AWARE OF THE IMPACT OF DIGITAL ECOSYSTEMS, BUT THERE IS LIMITED EVIDENCE OF TO ENGAGE WITH THEIR PARTNERS

It is absolutely natural for semiconductor companies to understand the importance of getting into the relevant ecosystem and they should consider it to be on their primary agenda.
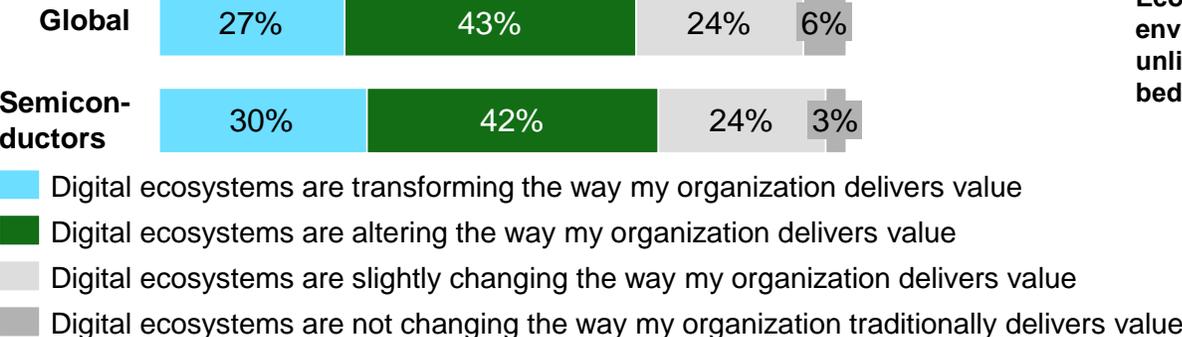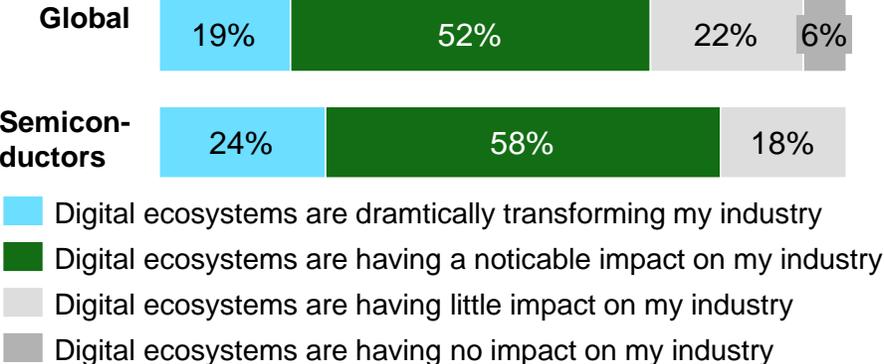
Engaging and getting closely embedded with a wide variety of stakeholders of the ecosystem would give semiconductor companies stronger links to and better understanding of the activities close to their end-users.

Global | 19% | 52% | 22% | 6% |

Semiconductors | 24% | 58% | 18% |

- 🟦 Digital ecosystems are dramtically transforming my industry
- 🟩 Digital ecosystems are having a noticable impact on my industry
- ⬜ Digital ecosystems are having little impact on my industry
- ⬛ Digital ecosystems are having no impact on my industry

Your competitive advantage will not be determined by your organization alone, but by the strength of the partners and ecosystem(s) you choose.

| 30% | 45% | 25% |

| 18% | 39% | 43% |

Global | 27% | 43% | 24% | 6% |

Semiconductors | 30% | 42% | 24% | 3% |

- 🟦 Digital ecosystems are transforming the way my organization delivers value
- 🟩 Digital ecosystems are altering the way my organization delivers value
- ⬜ Digital ecosystems are slightly changing the way my organization delivers value
- ⬛ Digital ecosystems are not changing the way my organization traditionally delivers value

Ecosystems are creating an environment for otherwise unlikely partners or "strange bedfellows".

| 27% | 44% | 29% |

| 15% | 49% | 36% |

🟦 Strongly Agree 🟩 Agree

Source: Accenture's Tech Vision survey 2017. Global respondents: n=5,466 Semiconductor respondents: n=33

DESIGN FOR HUMANS: INSPIRE NEW BEHAVIORS

Technologies are shaped to adapt to us. The new frontier of digital experiences includes technology designed specifically for individual human behavior. Business leaders recognize that, as technology shrinks the gap between effective human and machine cooperation, accounting for unique human behavior expands not only the quality of experience, but also the effectiveness of technology solutions. This shift is transforming traditional personalized relationships into something much more valuable: partnerships.

Semiconductor Perspective:
In all aspects, semiconductor companies have not fully realized their customers' needs and what to do with these insights. Improving these capabilities would enable semiconductor companies to more easily partner with their customers, or to more easily engage in emerging ecosystems.

IN ALL ASPECTS, SEMICONDUCTOR COMPANIES HAVE NOT FULLY REALIZED THEIR CUSTOMERS' NEEDS AND WHAT TO DO WITH THESE INSIGHTS

Improving these capabilities would enable semiconductor companies to more easily partner with their customers, or to more easily engage in the emerging ecosystems.
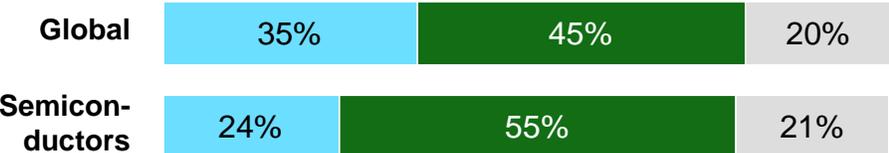
Understanding customer objectives gives our organization insight into growth opportunities.

	Strongly Agree	Agree	
Global	39%	43%	18%
Semiconductors	27%	42%	31%
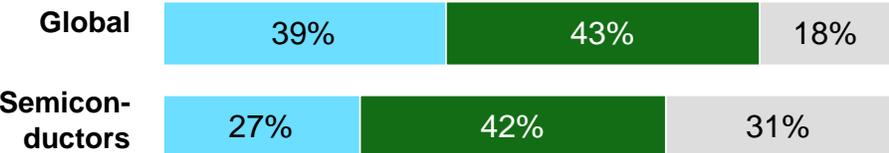
Despite an increase in the amount of customer data and insights available, our organization struggles to fully understand the customer's needs and goals.

	Strongly Agree	Agree	
Global	30%	40%	30%
Semiconductors	46%	33%	21%
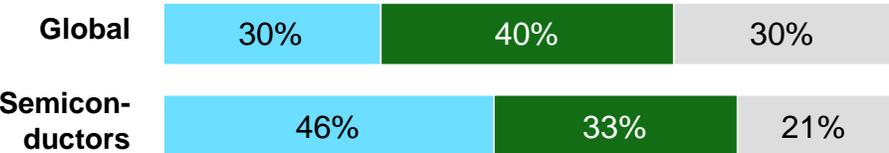
By understanding customers' objectives and designing tools to meet those objectives, organizations transform from provider to partner.

	Strongly Agree	Agree	
Global	35%	45%	20%
Semiconductors	24%	55%	21%

■ Strongly Agree ■ Agree

Source: Accenture's Tech Vision survey 2017. Global respondents: n=5,466 Semiconductor respondents: n=33

THE UNCHARTED: INVENT NEW INDUSTRIES, SET NEW STANDARDS

Businesses are not just creating new products and services; they're shaping new digital industries. From technology standards, to ethical norms, to government mandates, in an ecosystem-driven digital economy, one thing is clear: a wide scope of rules still needs to be defined. To fulfill their digital ambitions, companies must take on a leadership role to help shape the new rules of the game. Those who take the lead will find a place at or near the center of their new ecosystem, while those that don't risk being left behind.

Semiconductor perspective:
Many customers of semiconductor companies are disrupting the old and entering new industries / markets; but, semiconductor companies have yet to fully realize the potential of these opportunities.

CUSTOMERS OF SEMICONDUCTOR COMPANIES ARE DISRUPTING THE OLD AND ENTERING "NEW" INDUSTRIES; BUT SEMICONDUCTOR COMPANIES HAVE YET TO FULLY REALIZE THE POTENTIAL OF THESE OPPORTUNITIES

Semiconductor companies should be aware of what's going on with their end customers and fully participate in the development of new applications, business modules as the shift to the "NEW" happens.

My organization is entering entirely NEW digital industries that have yet to be defined (areas such as but not limited to digital health or automated driving that weave disparate industries together)

Global	30%	43%	27%
Semiconductors	15%	52%	33%

Source: Accenture's Tech Vision survey 2017. Global respondents: n=5,466 Semiconductor respondents: n=33

WORKFORCE MARKETPLACE: THE FUTURE OF WORK HAS ALREADY ARRIVED

Driven by a surge of on-demand labor platforms and online work management solutions, legacy models and hierarchies are being dissolved and replaced with open talent marketplaces. This resulting on-demand enterprise will be key to the rapid innovation and organizational changes that companies need
to transform themselves into truly digital businesses.

Semiconductor Perspective:
Semiconductor companies do not see lack of skills as an urgent challenge compared to other global technology industry players; hence, they do not see the access to high-demand skills as a key benefit of using freelance workers to the same extent that other companies do. They are also not as concerned with extending innovation into their workforce or with corporate bureaucracy stifling productivity.

SEMICONDUCTOR COMPANIES DO NOT SEE 'LACK OF SKILLS' AS AN URGENT CHALLENGE, COMPARED TO OTHER GLOBAL TECHNOLOGY INDUSTRY PLAYERS

Semiconductor companies are not fully extending innovation into their workforce, which could be a future area of concern.
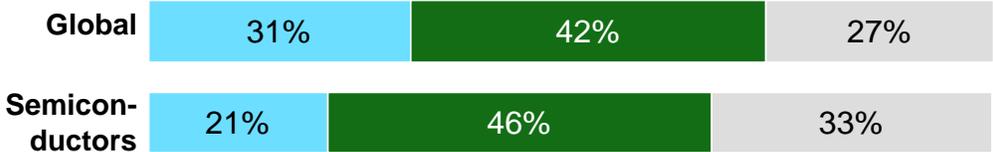
Benefit of using independent freelance workers: Access to high demand skills, knowledge and/or experience

Global	43%
Semiconductors	27%
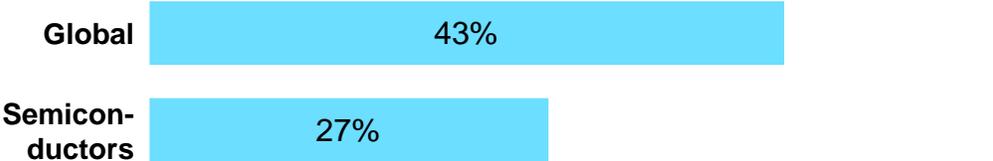
Organizations are under extreme competitive pressure to extend innovation into their workforce and corporate structure.

	Strongly Agree	Agree	
Global	31%	45%	24%
Semiconductors	21%	39%	39%
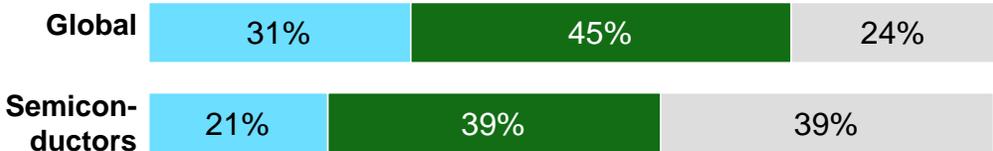
Corporate bureaucracies are stifling productivity and innovation.

	Strongly Agree	Agree	
Global	31%	42%	27%
Semiconductors	21%	46%	33%

Strongly Agree Agree

SURVEY DEMOGRAPHICS

31 COUNTRIES SURVEYED

ARGENTINA
AUSTRALIA
AUSTRIA
BRAZIL
CHILE
CHINA
DENMARK

FINLAND
FRANCE
GERMANY
INDIA
INDONESIA
IRELAND
ITALY

JAPAN
MALAYSIA
NORWAY
PORTUGAL
QATAR
RUSSIA
SAUDI ARABIA

SINGAPORE
SOUTH AFRICA
SPAIN
SWEDEN
SWITZERLAND
THAILAND
TURKEY

UAE
UNITED KINGDOM
UNITED STATES

JOB TITLE

- LINE OF BUSINESS HEAD (NON IT-RELATED): 8%
- CFO: 8%
- CIO/CHIEF MOBILITY OFFICER: 9%
- CMO: 8%
- COO: 7%
- CSO: 6%
- CTO/DIRECTOR OF TECHNOLOGY: 15%
- DIRECTOR, IT: 26%
- FUNCTION HEAD (NON IT-RELATED): 13%

REVENUE (USD)

- $500–999m: 6%
- $50bn+: 11%
- $20–49.9bn: 9%
- $10–19.9bn: 17%
- $6–9.9bn: 21%
- $1–5.9bn: 34%

INDUSTRY

- AEROSPACE & DEFENSE: 1%
- AIRLINES: 2%
- AUTOMOTIVE: 2%
- BANKING: 11%
- COMMUNICATION: 10%
- CONSUMER GOODS AND SERVICES: 10%
- ENERGY: 2%
- HEALTHCARE: 2%
- INDUSTRIAL EQUIPMENT: 10%
- INSURANCE: 10%
- LIFE SCIENCE: 6%
- PUBLIC SERVICES: 10%
- RETAIL: 10%
- SEMICONDUCTOR: 1%
- TECHNOLOGY: 2%
- UTILITIES: 10%
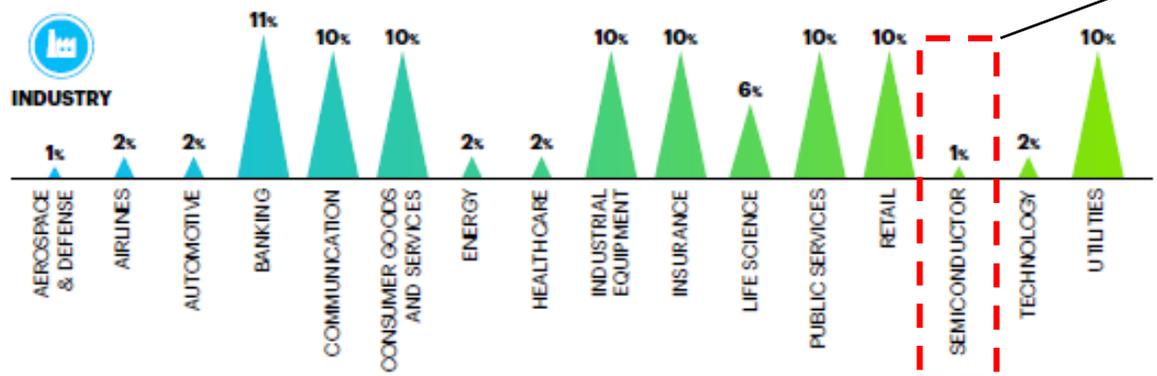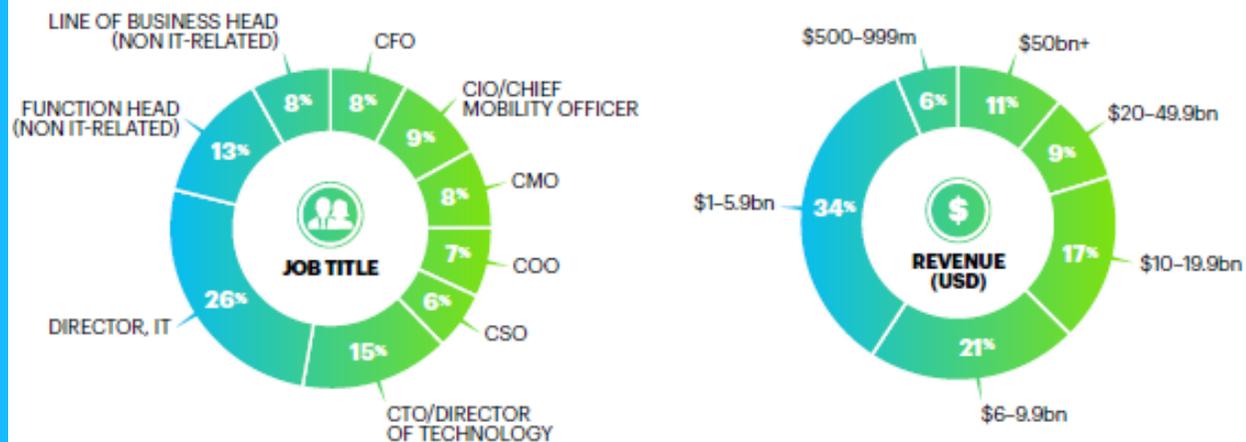
Semiconductor Industry
- # of respondents (n) = 33
- USA- 51%, China- 30%, Japan- 18%
- Revenue<$6bn- 48.5%, <$10bn- 30.3%, >$10bn- ~20%

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