RETHINK, REINVENT, REALIZE.

How to successfully scale digital innovation to drive growth

METALS & MINING

accenture

INTO THE NEW

THE IDEA:
FIND INDUSTRY X.0 BEST PRACTICES!

OUR PREMISE AND RESEARCH QUESTION

When it comes to digital transformation, scaling innovation pilots is critical.

Yet many clients tell us that they are struggling with this very step – and feel that they might get stuck with "piecemeal projects" that don't deliver significant value.

Can we find key best practices that could help them overcome their challenges, and drive real change, for real new growth?

GLOBAL SURVEY AT-A-GLANCE

METALS & MINING AT-A-GLANCE

n=1,350
companies with
1bn+ in revenue

60%
C-suite respondents

13 industries
and **17** countries

n=72
companies with
1bn+ in revenue

65%
C-suite respondents

13
countries

Source: Accenture 2019 Industry X.0 Survey

THE RESULT:
IT'S ALL A MATTER OF MANAGEMENT!

OUR KEY FINDINGS

Companies are scaling more than 60 percent of all digital POCs, but only about one out of ten companies are doing it successfully.

What's the difference?
The leading 13 percent manage their scaling efforts differently.

Following the **four best practices** of these "Champions" is a recipe to **succeed at innovating for digital transformation**.

A SURPRISE!
(we didn't expect to find that many companies trying to scale!)

THE REASON TO READ!
(these best practices are what readers will come for)

Source: Accenture 2019 Industry X.0 Survey

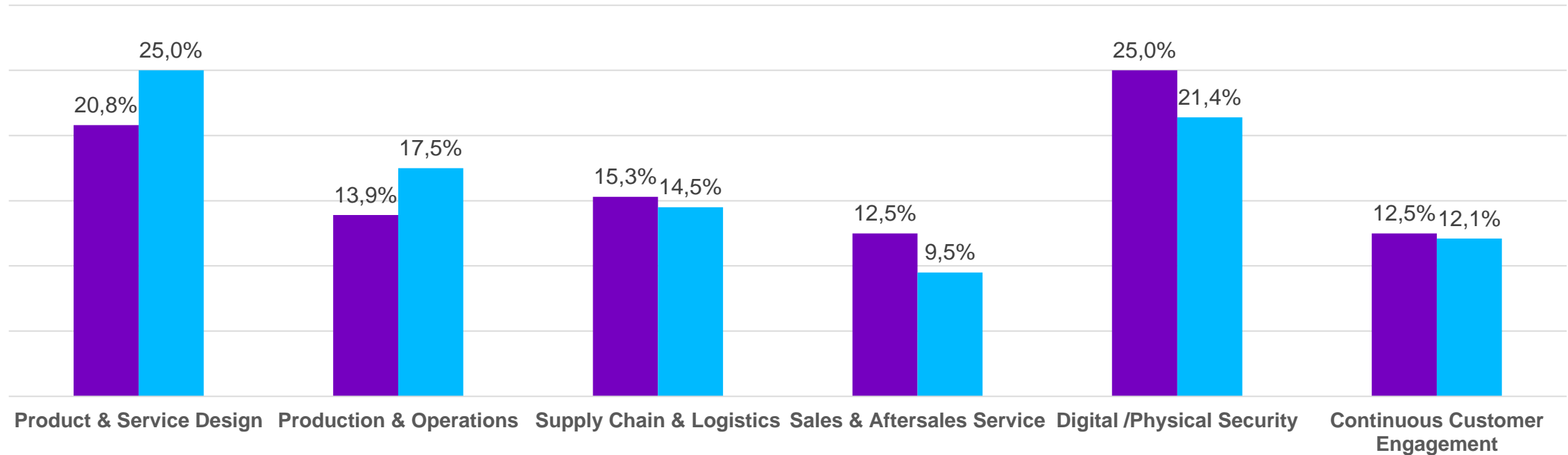**Q:** WHAT'S THE CURRENT STATUS IN SCALING DIGITAL INNOVATION?

A: THINGS ARE SPEEDING UP – IN SURPRISING WAYS.

WORKPLACE SECURITY AND PRODUCT/ SERVICE DESIGN ARE TOP INNOVATION PRIORITIES FOR METALS & MINING

Digital/ Physical Security is an obvious priority for Metals & Mining companies. Design is a close second as companies focus on improving the quality and properties of the end product
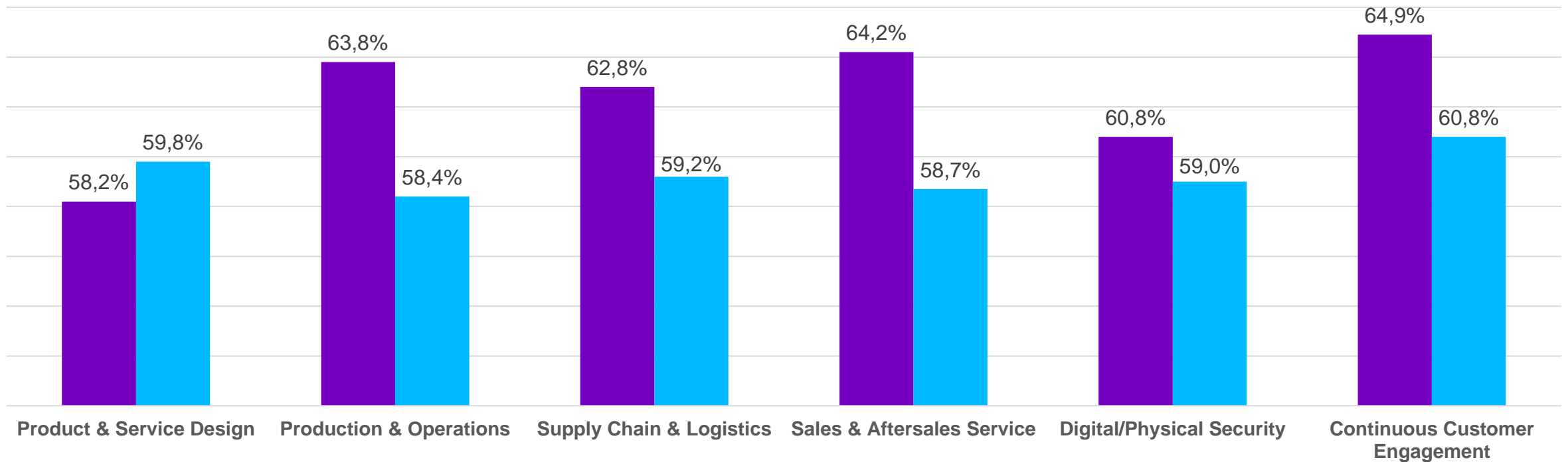
INNOVATION PRIORITY*

Bar chart comparing Metals & Mining vs Cross-Industry innovation priorities:

Category	Metals & Mining	Cross-Industry
Product & Service Design	20,8%	25,0%
Production & Operations	13,9%	17,5%
Supply Chain & Logistics	15,3%	14,5%
Sales & Aftersales Service	12,5%	9,5%
Digital /Physical Security	25,0%	21,4%
Continuous Customer Engagement	12,5%	12,1%

■ **Metals & Mining** ■ **Cross-Industry**

* "innovation priority" = percentage of respondents who are prioritizing digital innovation in these business areas

Source: Accenture 2019 Industry X.0 Survey

METALS & MINING COMPANIES ARE SCALING DIGITAL POCs ACROSS BUSINESS FUNCTIONS

Investments in digital platforms for improved data integration with trading partners, is indicative of the high scaling intensity towards customer engagement

SCALING INTENSITY*

Chart data:

Business Function	Metals & Mining	Cross-Industry
Product & Service Design	58,2%	59,8%
Production & Operations	63,8%	58,4%
Supply Chain & Logistics	62,8%	59,2%
Sales & Aftersales Service	64,2%	58,7%
Digital/Physical Security	60,8%	59,0%
Continuous Customer Engagement	64,9%	60,8%

Legend: ■ Metals & Mining ■ Cross-Industry

* "scaling intensity" = ratio of avg. number of proof of concepts scaled to avg. number initiated in each business function, across discrete and process industries.
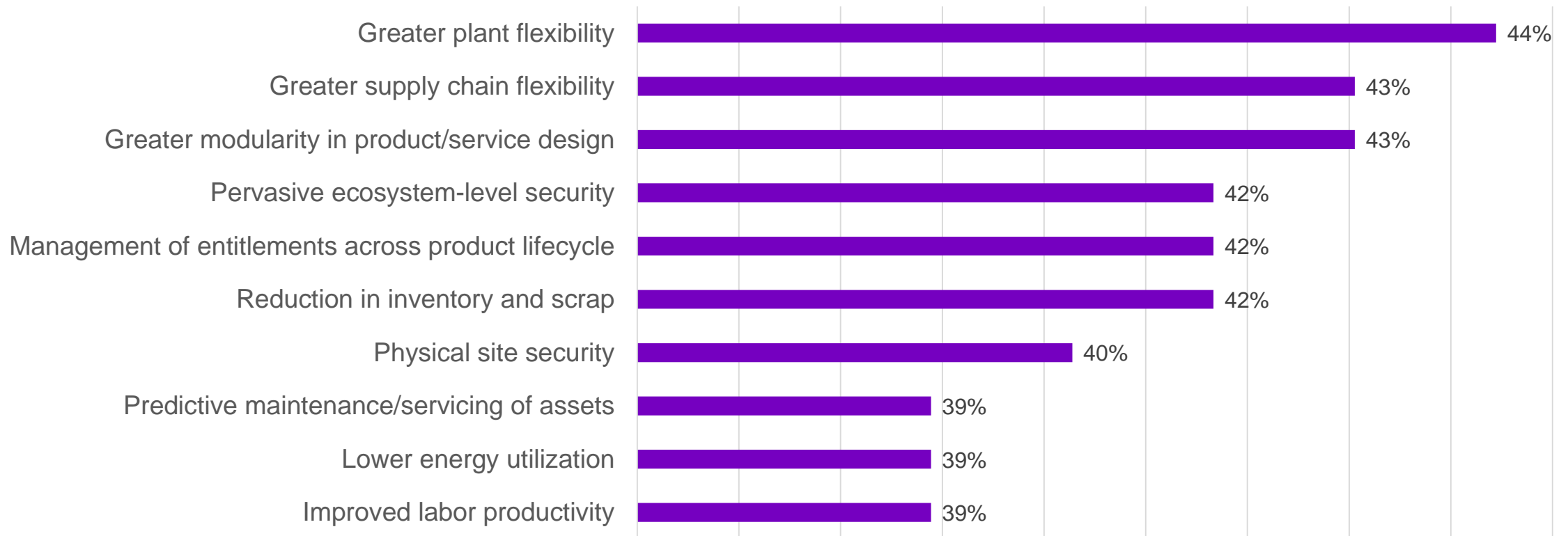
Source: Accenture 2019 Industry X.0 Survey

METALS AND MINING COMPANIES RECOGNIZE THE NEED FOR INNOVATING AT SCALE TO:

Continuously engage with their customers, and

Improve **product or service lifecycle management.**

PLANT AND SUPPLY CHAIN FLEXIBILITY ARE KEY OUTCOMES FOR METALS & MINING COMPANIES...

Top 10 outcomes targeted by Metals & Mining companies through scaling of digital POCs

Outcome	%
Greater plant flexibility	44%
Greater supply chain flexibility	43%
Greater modularity in product/service design	43%
Pervasive ecosystem-level security	42%
Management of entitlements across product lifecycle	42%
Reduction in inventory and scrap	42%
Physical site security	40%
Predictive maintenance/servicing of assets	39%
Lower energy utilization	39%
Improved labor productivity	39%

% of respondents who achieved this outcome

Source: Accenture 2019 Industry X.0 Survey

...AND THEY ARE CHOOSING BIG DATA ANALYTICS, MACHINE LEARNING & CLOUD TO DRIVE THESE OUTCOMES

Top 3 technologies leveraged to facilitate scaling, by function

	PRODUCT & SERVICE DESIGN	PRODUCTION & OPERATIONS	SUPPLY CHAIN & LOGISTICS	SALES & AFTERSALES SERVICE	DIGITAL/ PHYSICAL SECURITY	CONTINUOUS CUSTOMER ENGAGEMENT
AI/AI-powered Automation			RANK 3	RANK 2		RANK 3
AI Assistants				RANK 1		
3D printing					RANK 2	
Mobility						
IIOT Sensors & Transmitters	RANK 1				RANK 3	
Immersive Experience						
Industrial Robotics		RANK 2				
Big Data Analytics	RANK 2	RANK 3	RANK 1			
Digital Twin						
Cloud					RANK 1	RANK 1
Blockchain						
Autonomous Vehicles						
Machine Learning/Deep Learning	RANK 3	RANK 1	RANK 2			
Quantum Computing						RANK 2
Cyber Security Protocols				RANK 3		

Source: Accenture 2019 Industry X.0 Survey

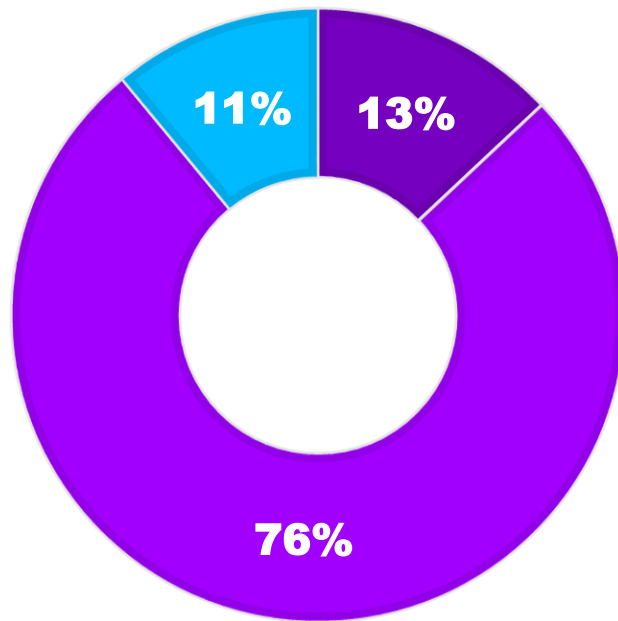**Q:** WHAT ABOUT SCALING SUCCESS – DOES EVERYONE SEE IT?
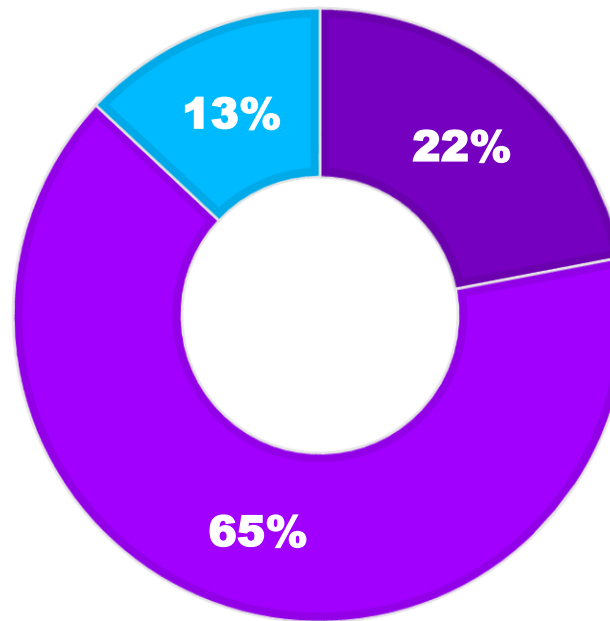
A: NO. SOME COMPANIES RACE AHEAD, OTHERS STRUGGLE.

SO, WHO'S SCALING THE BEST?

The Metals & Mining industry has fewer percentage of Champions compared to the global average

METALS & MINING

11% 13%
76%

CROSS-INDUSTRY

13% 22%
65%

CHAMPIONS
Earn RODI higher than industry ROIC and industry RODI; scale more than 50% of their digital Proof-of-Concepts

CONTENDERS
Earn RODI lower than industry ROIC and lower than industry RODI; scale more than 50% of their POCs

CADETS
Earn RODI lower than industry ROIC and lower than industry RODI; scale less than 50% of their POCs

*Percentage of champions in each geography = 100 x (The number of champions in a particular geography)/(Total number of companies surveyed in that particular geography)

**Percentage of champions in each industry = 100 x (The number of champions in a particular industry)/(Total number of companies surveyed in that particular industry)

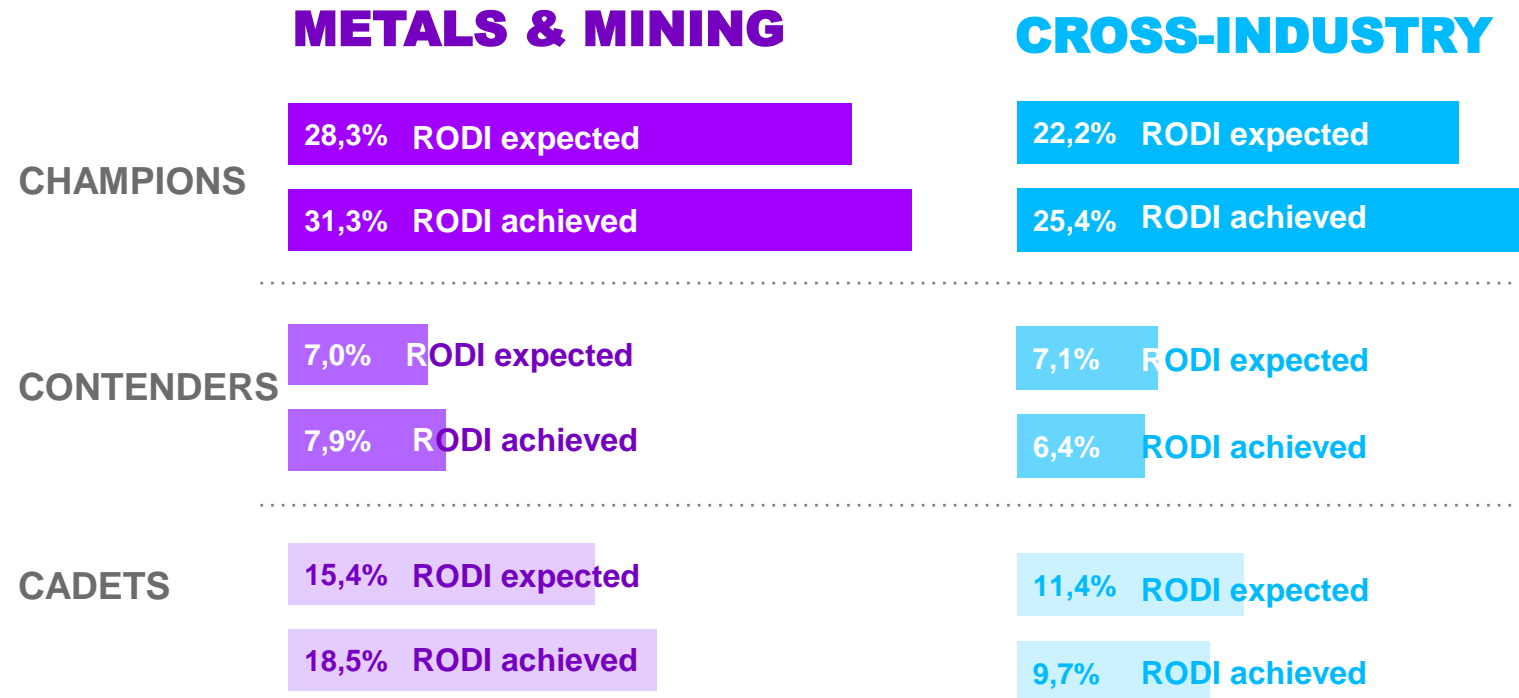Source: Accenture 2019 Industry X.0 Survey

METALS & MINING CHAMPIONS SET THEMSELVES HIGHER "RODI" TARGETS AND ACHIEVE THEM TOO.

Metals & Mining Champions achieved over 4 times the RODI clocked by Contenders; proving that its not how much you scale, but how you scale that matters.

METALS & MINING

CROSS-INDUSTRY

Returns on Digital Investment (RODI)

RODI = Returns on Investment (Net Gain/Total Investment) from scaled digital POCs across all the key business functions.

We asked executives about the average RODI they expected before scaling digital POCs, and the RODI they finally achieved.

CHAMPIONS

28,3% RODI expected
31,3% RODI achieved

22,2% RODI expected
25,4% RODI achieved

CONTENDERS

7,0% RODI expected
7,9% RODI achieved

7,1% RODI expected
6,4% RODI achieved

CADETS

15,4% RODI expected
18,5% RODI achieved

11,4% RODI expected
9,7% RODI achieved

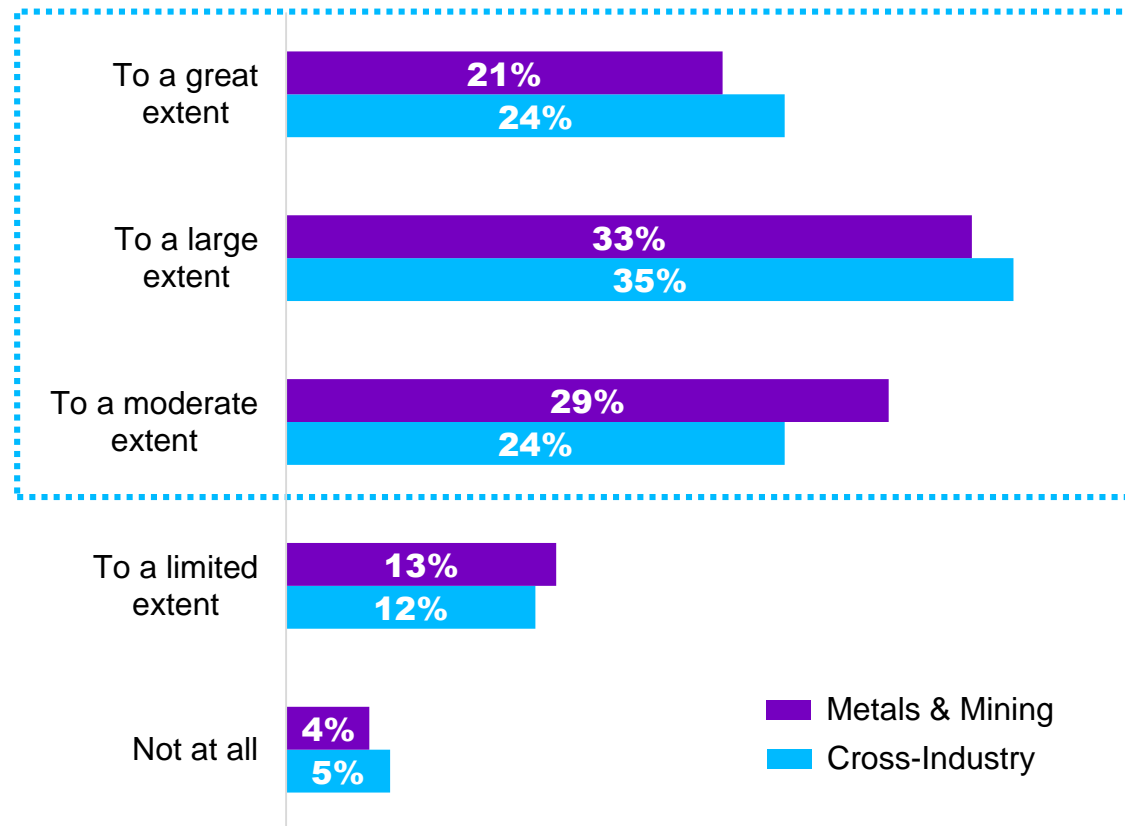Source: Accenture 2019 Industry X.0 Survey

Q: WHAT'S STOPPING CONTENDERS AND CADETS FROM BECOMING CHAMPIONS?

A: LIKE CHAMPIONS, CONTENDERS AND CADETS TOO FACE ALIGNMENT AND INFRASTRUCTURE DEFICITS. WHILE CHAMPIONS OVERCOME THESE, OTHERS CONTINUE TO GRAPPLE WITH THEM.

SECURING FUNDING FOR DIGITAL REINVENTION PROJECTS FROM THE BOARD IS STILL NOT EASY

EXTENT TO WHICH SECURING FUNDING FROM THE BOARD FOR DIGITAL REINVENTION IS A CHALLENGE

	Metals & Mining	Cross-Industry
To a great extent	21%	24%
To a large extent	33%	35%
To a moderate extent	29%	24%
To a limited extent	13%	12%
Not at all	4%	5%

■ Metals & Mining
■ Cross-Industry

RANK	KEY REASONS WHY BOARDS OF METALS & MINING COMPANIES REFUSE TO FUND DIGITAL REINVENTION
1.	Inadequate ROI from digital investments
2.	Failure to scale digital proofs of concept (POCs) in the past; Shortage of and difficulty in accessing digital skills; Budget shortage for capital investments
3.	Poor understanding of digital reinvention within Top Management; Lack of a clear digital roadmap
4.	Lack of a digital-native mindset among Board members
5.	Foreseen immaturity of technology

Source: Accenture 2019 Industry X.0 Survey

ALIGNMENT CHALLENGES AND PARTNERSHIP DEFICITS ARE OF PRIMARY CONCERN

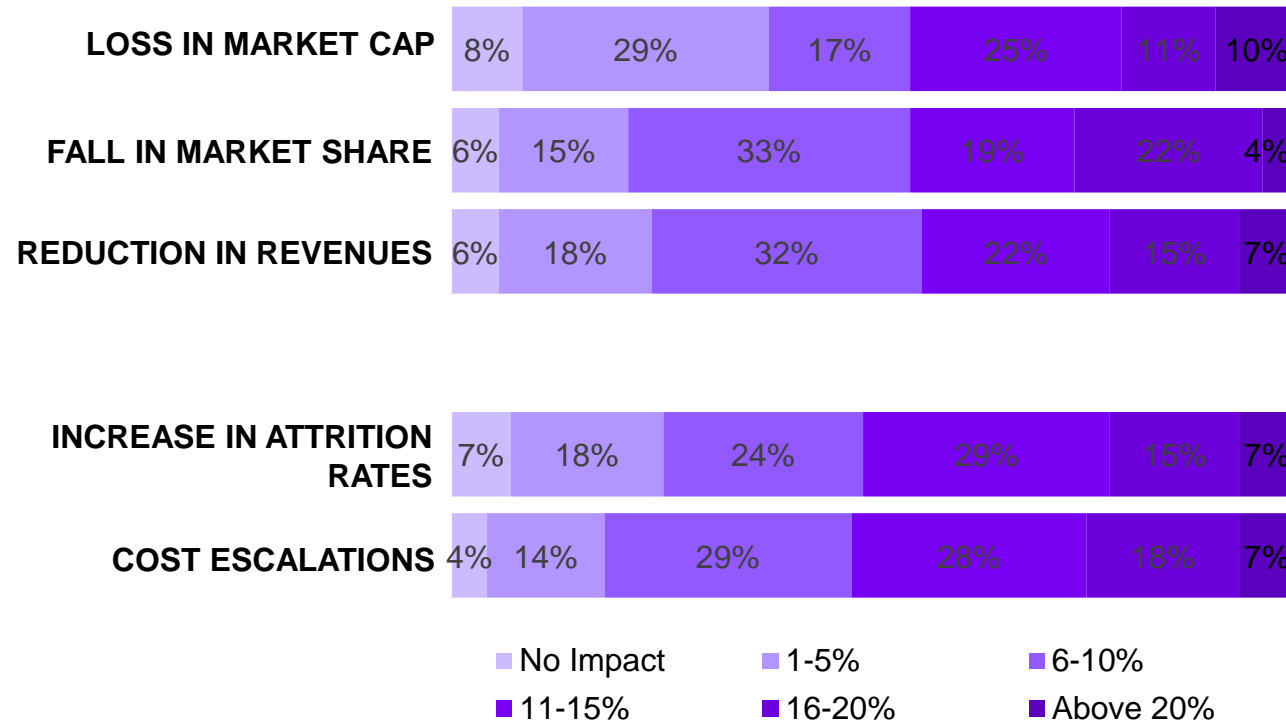**Metals & Mining executives' top picks* for "biggest challenges to scaling digital POCs"**

Legend: ■ Biggest challenge ▥ Second biggest
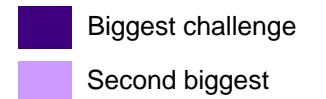
CHAMPIONS (CH), CONTENDERS (CT), CADETS (CA)	PRODUCT & SERVICE DESIGN			PRODUCTION & OPERATIONS			SUPPLY CHAIN & LOGISTICS			SALES, AFTER SALES SERVICE			DIGITAL / PHYSICAL SECURITY			CONTINUOUS CUSTOMER ENGAGEMENT		
	CH	CT	CA	CH	CT	CA	CH	CT	CA	CH	CT	CA	CH	CT	CA	CH	CT	CA
Inability to align top and middle management to innovate customer value		Second			Second				Second						Biggest			
Inability to align top management view on 'digital value'											Biggest					Second		
Inability to align talent pools and IT assets across key business functions		Biggest													Second			
Inadequate infrastructure to integrate services and products to drive experiences in the 'new'	Second								Biggest		Second							
Lack of partnerships to build a high-quality unified view of the customer and their needs								Biggest									Biggest	Biggest
Insufficient processes/metrics to assess ROI on digital technology investments	Biggest												Biggest					

* other options which weren't picked and often included: "Inability to align to in-house innovation systems/architecture with agile digital ecosystems", "Lack of skills to innovate with digital technologies and platforms," "Lack of skills to identify and articulate business case for digital," "Absence of culture to design, develop and deliver digital business models," "Absence of culture to stimulate cross-functional innovation with digital," "Absence of culture to drive on-time innovation of monetizable customer experiences", "Lack of partnerships to bridge digital gaps across processes," "Inadequate metrics to systematically track digital investments"
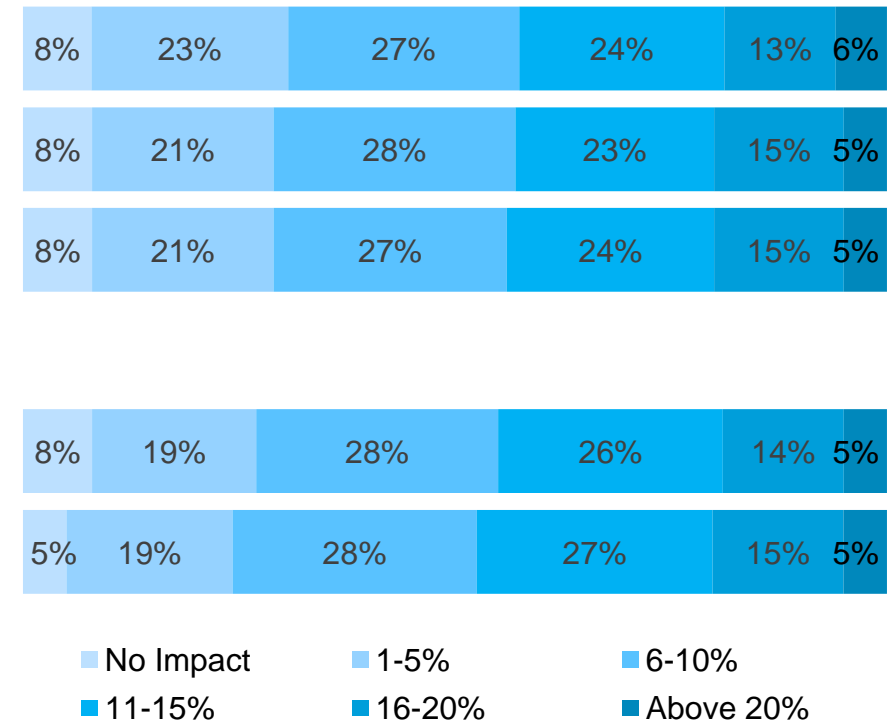
Source: Accenture 2019 Industry X.0 Survey

WHAT DO COMPANIES STAND TO LOSE IF THEY FAIL TO ADDRESS THESE CHALLENGES?

Over 70% of Metals & Mining leaders fear significant escalations in cost (>5%) alongside losing market share (>5%), if they fail to overcome organizational challenges
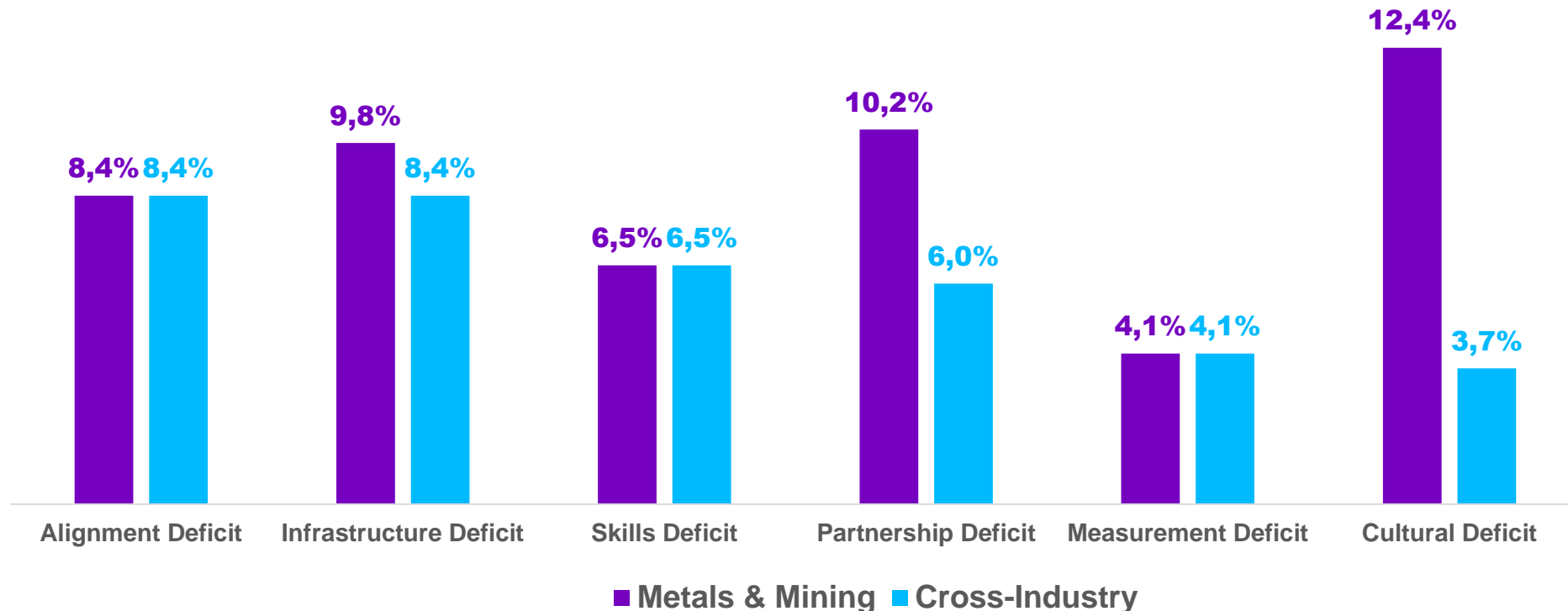
METALS & MINING

	No Impact	1-5%	6-10%	11-15%	16-20%	Above 20%
LOSS IN MARKET CAP	8%	29%	17%	25%	11%	10%
FALL IN MARKET SHARE	6%	15%	33%	19%	22%	4%
REDUCTION IN REVENUES	6%	18%	32%	22%	15%	7%
INCREASE IN ATTRITION RATES	7%	18%	24%	29%	15%	7%
COST ESCALATIONS	4%	14%	29%	28%	18%	7%

CROSS-INDUSTRY

	No Impact	1-5%	6-10%	11-15%	16-20%	Above 20%
LOSS IN MARKET CAP	8%	23%	27%	24%	13%	6%
FALL IN MARKET SHARE	8%	21%	28%	23%	15%	5%
REDUCTION IN REVENUES	8%	21%	27%	24%	15%	5%
INCREASE IN ATTRITION RATES	8%	19%	28%	26%	14%	5%
COST ESCALATIONS	5%	19%	28%	27%	15%	5%

Legend: ■ No Impact ■ 1-5% ■ 6-10% ■ 11-15% ■ 16-20% ■ Above 20%

Source: Accenture 2019 Industry X.0 Survey

HOW MUCH CAN COMPANIES GAIN IF THEY OVERCOME THESE DEFICITS?

Metals & Mining companies have the opportunity to achieve sizeable increase in RODI, if they focus on cultural and partnership deficits

INCREMENTAL RODI POTENTIAL IF DEFICIT IS OVERCOME

Deficit	Metals & Mining	Cross-Industry
Alignment Deficit	8,4%	8,4%
Infrastructure Deficit	9,8%	8,4%
Skills Deficit	6,5%	6,5%
Partnership Deficit	10,2%	6,0%
Measurement Deficit	4,1%	4,1%
Cultural Deficit	12,4%	3,7%

■ **Metals & Mining**   ■ **Cross-Industry**

Source: Accenture 2019 Industry X.0 Survey

Q: HOW DO CHAMPIONS OVERCOME THESE CHALLENGES AND SCALE THEIR DIGITAL INNOVATIONS?

A: WITH 4 SPECIFIC BEST PRACTICES.

1.

DEFINING THE VALUE THAT GUIDES INNOVATION EFFORTS

Champions assess the opportunities before them, and narrow in on the market opportunities they want to pursue. They then use that clarity to communicate with middle management and direct their innovation efforts to secure expected returns.

2.

FOCUS ON INTERNAL CHANGE AND EXTERNAL VALUE

Champions prefer a measured approach to blend organizational change with digital transformation initiatives, creating what we call an ambidextrous organization. With a clear view of the customer value, managers and employees are less likely to feel blindsided by a digital learning curve that is too steep.

3.

4.

BUILD IN-HOUSE INNOVATION FACTORIES WITH TARGETED INFLUENCE

Champions recognize the enormity of integrating rapidly advancing technologies, along with talent and assets, back into their organization. In line with their ambidextrous approach, they take the vital step to re-rig the core of their organizations, seeding and growing new digital innovations organically within organizational boundaries.

MAP KEY INNOVATION ENABLERS TO APPROPRIATE BUSINESS FUNCTIONS

Most manufacturers use the same enablers to drive innovation, such as software applications to support operations, or analytics platforms to generate better insights. However, Champions alone are masters at matching the support to the function that needs it most and will use it best.

Q: IS THERE A **ROADMAP** TO MATURE AS AN ORGANIZATION TOWARDS SUCCESSFULLY SCALING DIGITAL INNOVATION?

A: YES THERE IS...

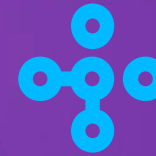# ... WE HAVE BUILT ONE LEVERAGING FIVE KEY ORGANIZATIONAL LEVERS

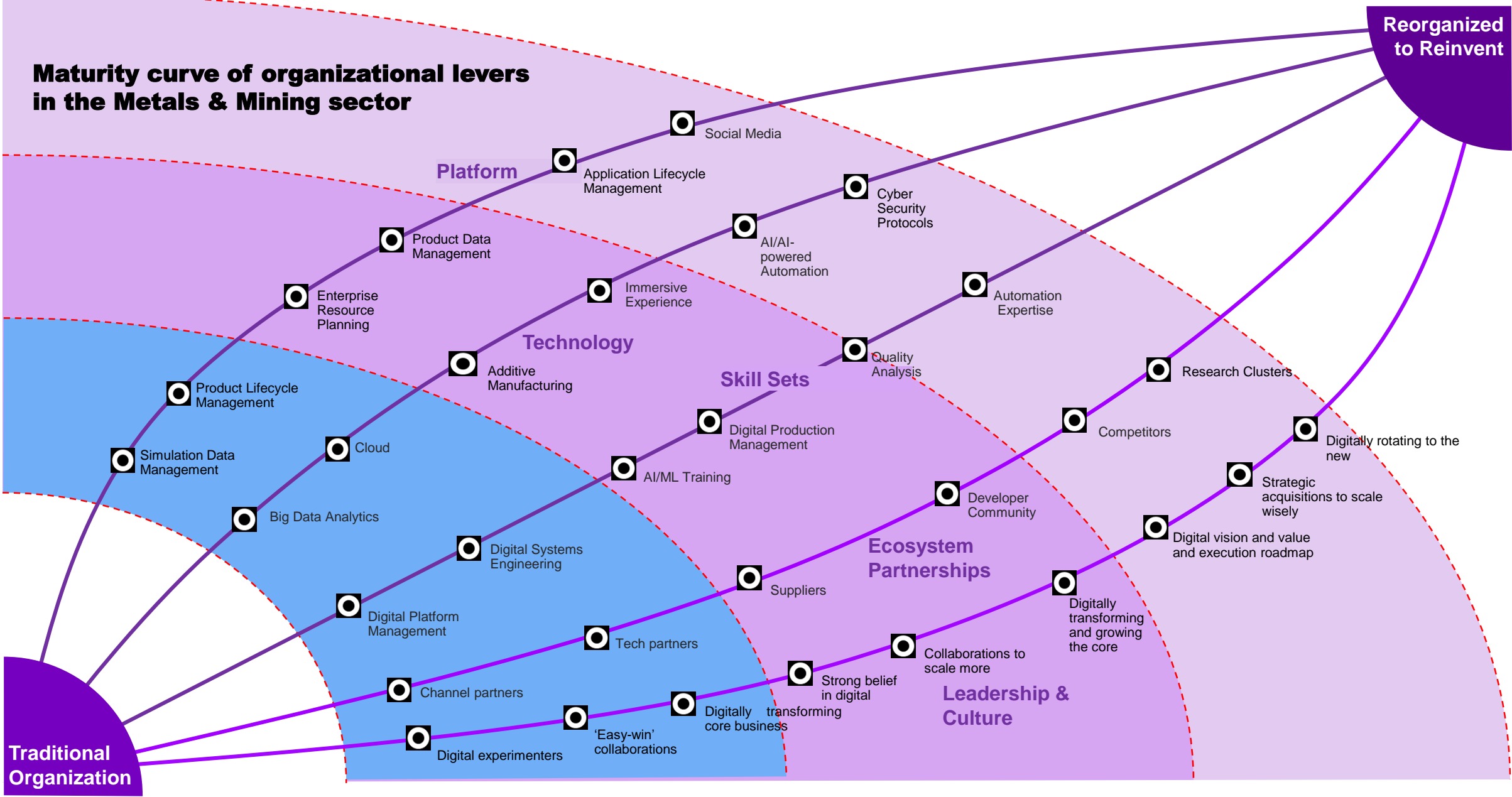**LEADERSHIP & CULTURE**
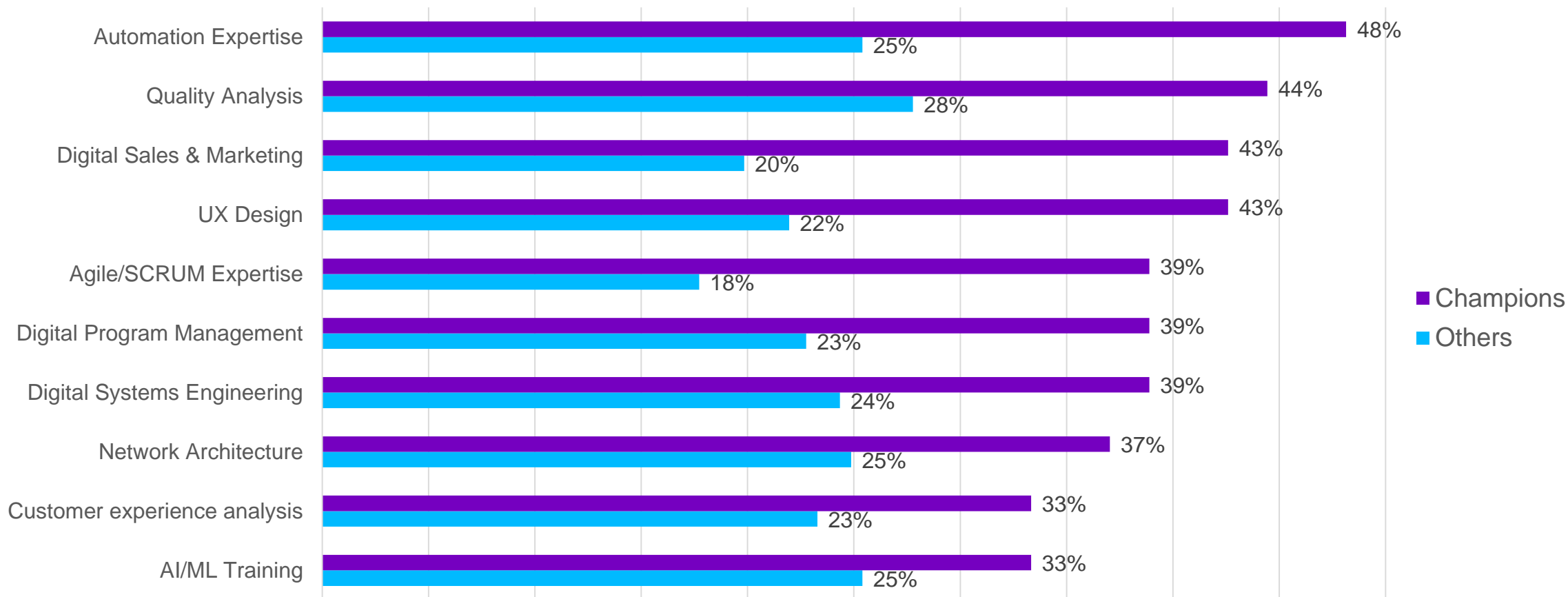
ECOSYSTEM PARTNERSHIPS

SKILLSETS

TECHNOLOGY

PLATFORM

Maturity curve of organizational levers in the Metals & Mining sector

CHAMPIONS

CONTENDERS

CADETS

Reorganized to Reinvent

Traditional Organization

Social Media

Platform

Application Lifecycle Management

Cyber Security Protocols

Product Data Management

AI/AI-powered Automation

Enterprise Resource Planning

Immersive Experience

Automation Expertise

Technology

Additive Manufacturing

Skill Sets

Quality Analysis

Product Lifecycle Management

Research Clusters

Digital Production Management

Simulation Data Management

Cloud

AI/ML Training

Competitors

Digitally rotating to the new

Big Data Analytics

Developer Community

Strategic acquisitions to scale wisely

Digital Systems Engineering

Ecosystem Partnerships

Digital vision and value and execution roadmap

Digital Platform Management

Suppliers

Digitally transforming and growing the core

Tech partners

Collaborations to scale more

Leadership & Culture

Channel partners

Strong belief in digital transforming core business

Digital experimenters

'Easy-win' collaborations

Digitally transforming core business

Source: Accenture 2019 Industry X.0 Survey

24

TOP 10 SKILL SETS FOR METALS & MINING CHAMPIONS

Automation expertise along with Quality Analysis are critical skills to build and scale digital POCs

Skill	Champions	Others
Automation Expertise	48%	25%
Quality Analysis	44%	28%
Digital Sales & Marketing	43%	20%
UX Design	43%	22%
Agile/SCRUM Expertise	39%	18%
Digital Program Management	39%	23%
Digital Systems Engineering	39%	24%
Network Architecture	37%	25%
Customer experience analysis	33%	23%
AI/ML Training	33%	25%

■ Champions
■ Others

% of Metals & Mining respondents saying "Very Important"

Source: Accenture 2019 Industry X.0 Survey

TOP 5 PARTNERSHIPS FOR METALS & MINING CHAMPIONS

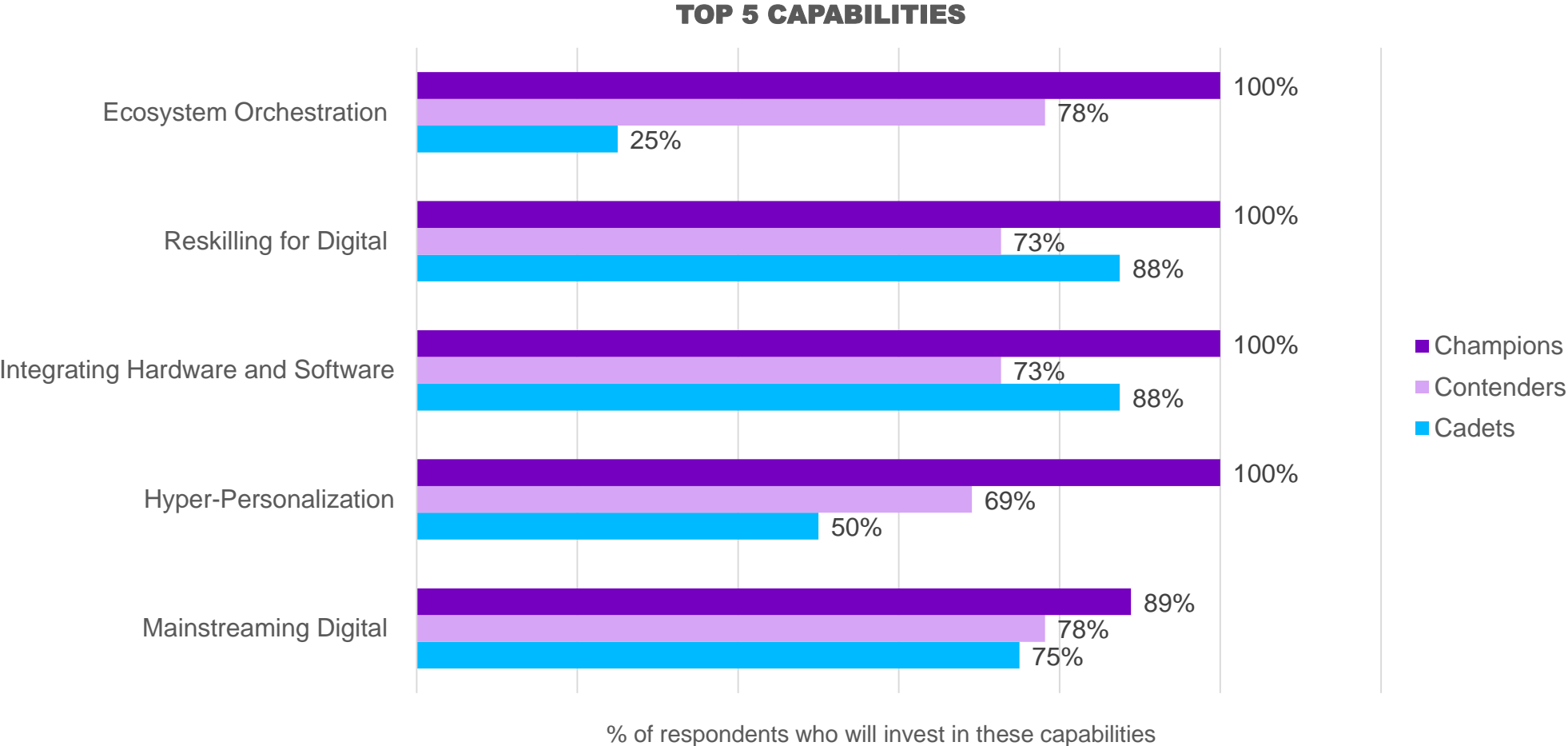**Research Clusters and Competitors are critical partnerships to build and scale digital POCs**

Research Clusters — Champions 37%, Others 21%
Competitors — Champions 35%, Others 22%
Developer Community — Champions 31%, Others 26%
Sustainability Experts — Champions 30%, Others 21%
Tech Partners — Champions 30%, Others 26%

Legend: ■ Champions ■ Others

% of Metals & Mining respondents

Source: Accenture 2019 Industry X.0 Survey
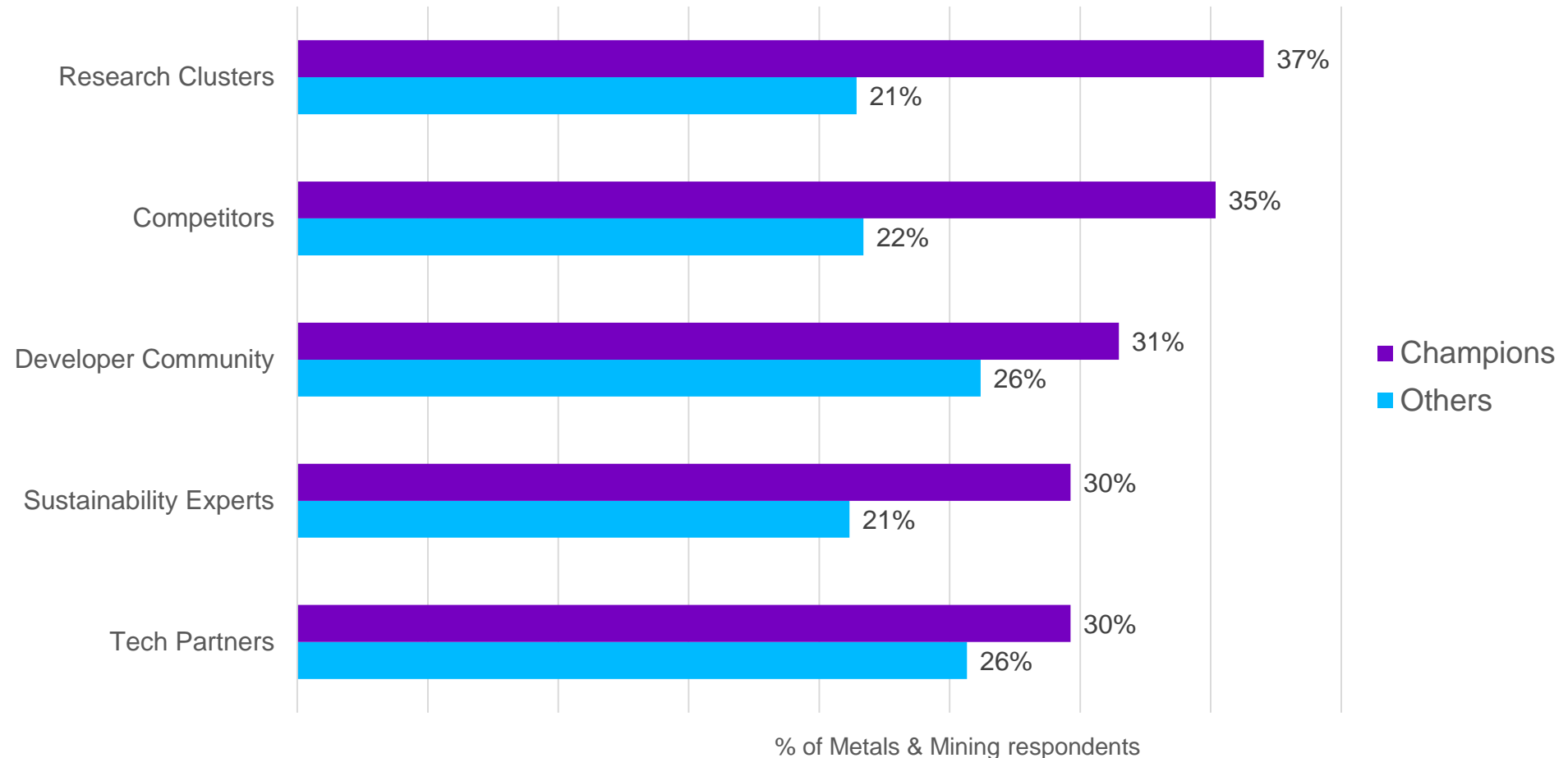
Q: WHAT CAPABILITIES DO METALS & MINING COMPANIES NEED TO BUILD AS THEY NAVIGATE ALONG THIS ROADMAP?

A: CHAMPIONS PRIORITIZE CERTAIN CAPABILITIES, AND INVEST HEAVILY IN THEM

EVERY CHAMPION WANTS TO INVEST IN ECOSYSTEM ORCHESTRATION

No wonder Research Clusters and Competitors are key partnerships for them

TOP 5 CAPABILITIES

Capability	Champions	Contenders	Cadets
Ecosystem Orchestration	100%	78%	25%
Reskilling for Digital	100%	73%	88%
Integrating Hardware and Software	100%	73%	88%
Hyper-Personalization	100%	69%	50%
Mainstreaming Digital	89%	78%	75%

Legend:
- Champions
- Contenders
- Cadets

% of respondents who will invest in these capabilities

Source: Accenture 2019 Industry X.0 Survey

Striving to scale your own innovations?

Get in touch!

Whether you are seeking to start new initiatives the right way, help with scaling those you already have—we are ready to help you improve your outcomes by putting our knowledge to work! Please reach out to **raghav.narsalay@accenture.com** or **aarohi.sen@accenture.com** at Accenture Research, or visit **accenture.com/scaling-innovation**

References:

David Abood, Aidan Quilligan, Raghav Narsalay, and Aarohi Sen (2019), Rethink, Reinvent, Realize, downloadable from here.

KEY CONTACTS

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Raghav Narsalay

Managing Director, global Research lead, Industry X.O
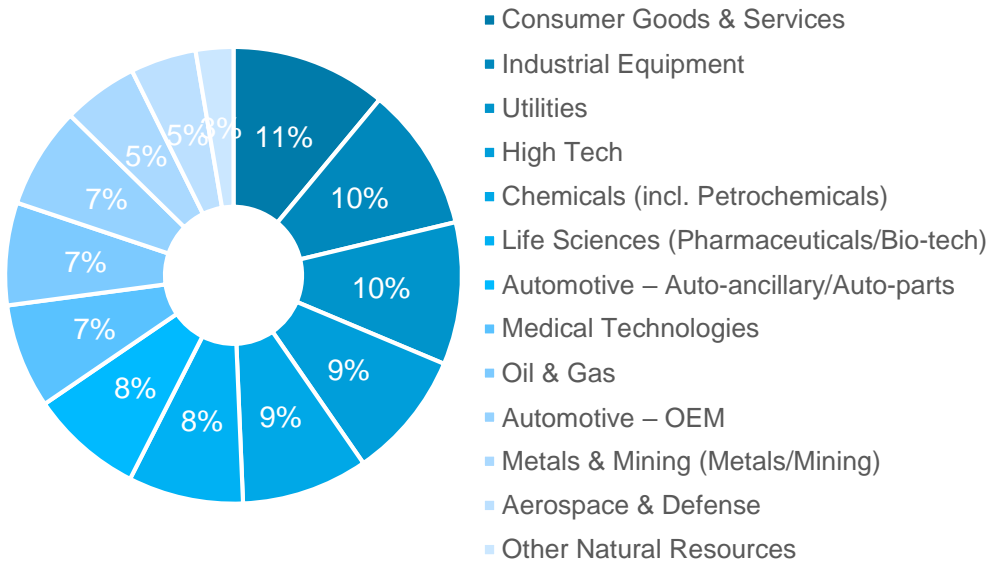raghav.narsalay@accenture.com

Aarohi Sen

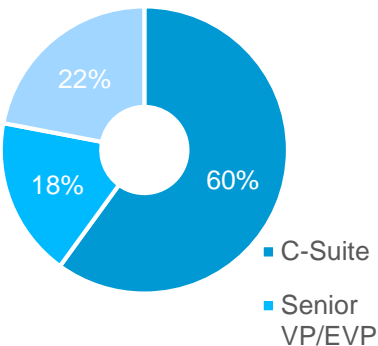**Principal, Thought Leadership, Industry X.O**
aarohi.sen@accenture.com

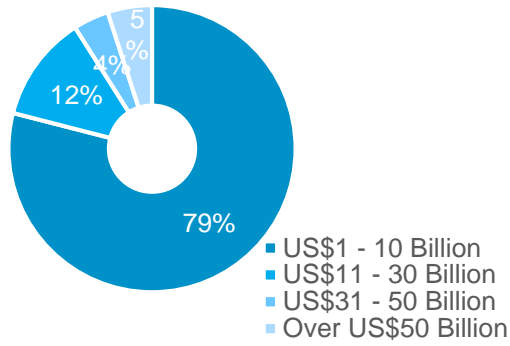# APPENDIX
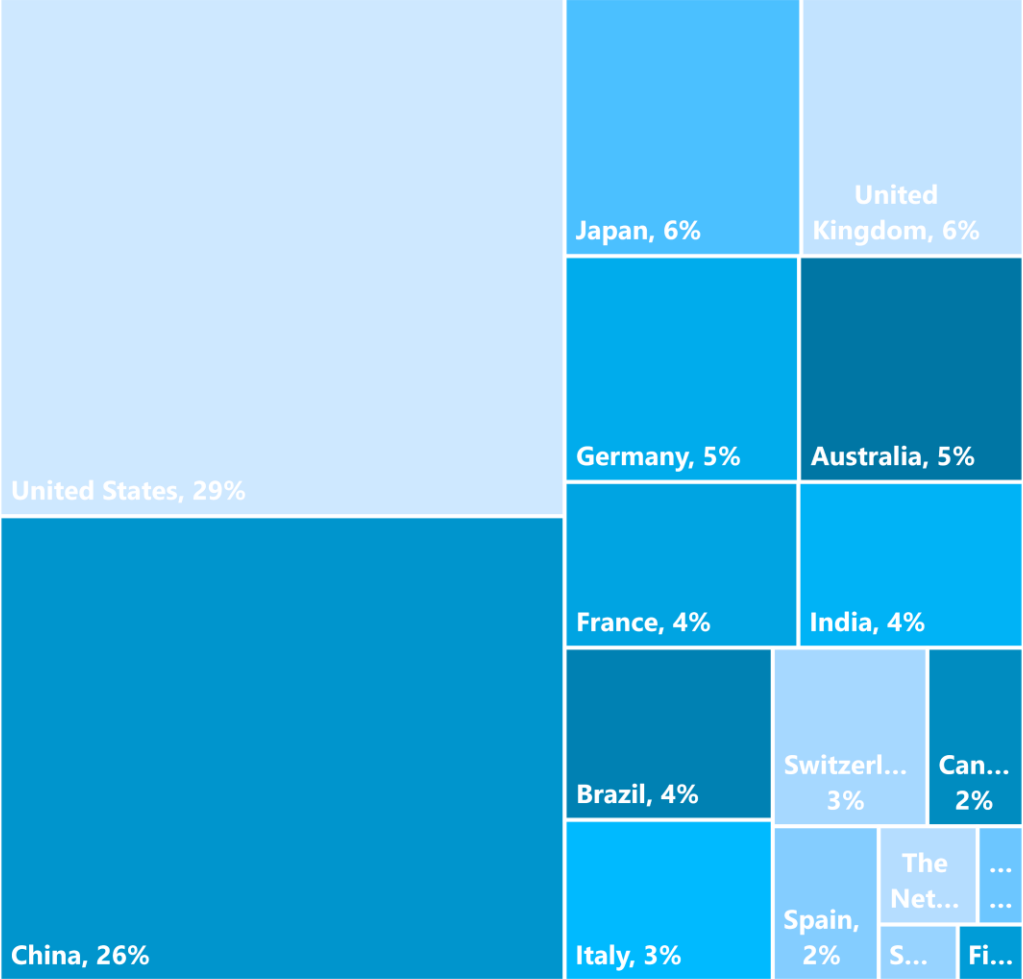
SURVEY DEMOGRAPHICS – OVERALL (N=1350)

INDUSTRY

- Consumer Goods & Services
- Industrial Equipment
- Utilities
- High Tech
- Chemicals (incl. Petrochemicals)
- Life Sciences (Pharmaceuticals/Bio-tech)
- Automotive – Auto-ancillary/Auto-parts
- Medical Technologies
- Oil & Gas
- Automotive – OEM
- Metals & Mining (Metals/Mining)
- Aerospace & Defense
- Other Natural Resources

EXEC PROFILE

- C-Suite
- Senior VP/EVP

ANNUAL REVENUE

- US$1 - 10 Billion
- US$11 - 30 Billion
- US$31 - 50 Billion
- Over US$50 Billion

GEO-SPREAD

- United States, 29%
- China, 26%
- Japan, 6%
- United Kingdom, 6%
- Germany, 5%
- Australia, 5%
- France, 4%
- India, 4%
- Brazil, 4%
- Switzerl... 3%
- Can... 2%
- Italy, 3%
- Spain, 2%
- The Net...
- S...
- Fi...

SURVEY DEMOGRAPHICS – METALS & MINING (N=72)

GEO-SPREAD

EXEC PROFILE

25%
10%
65%

- C-Suite
- Senior VP/EVP
- VP/Director

ANNUAL REVENUE

8%
8%
3%
81%

- US$1 - 10 Billion
- US$11 - 30 Billion
- US$31 - 50 Billion
- Over US$50 Billion

China, 39%
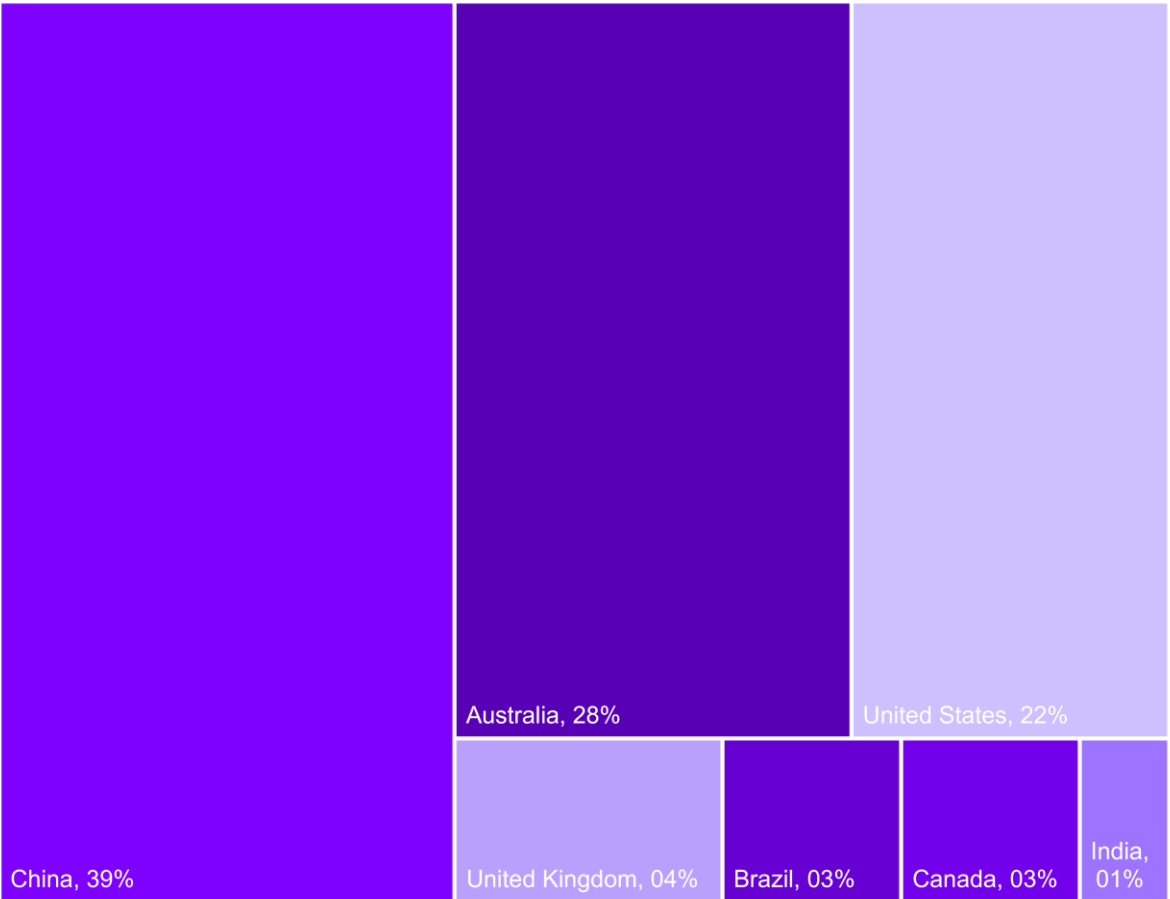Australia, 28%
United States, 22%
United Kingdom, 04%
Brazil, 03%
Canada, 03%
India, 01%
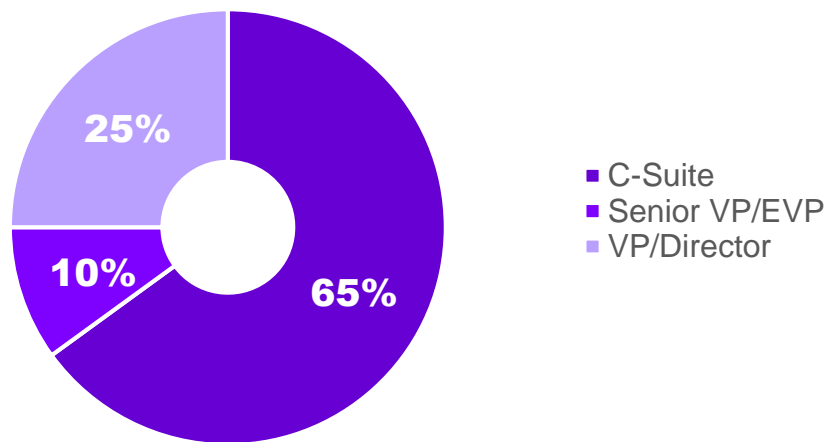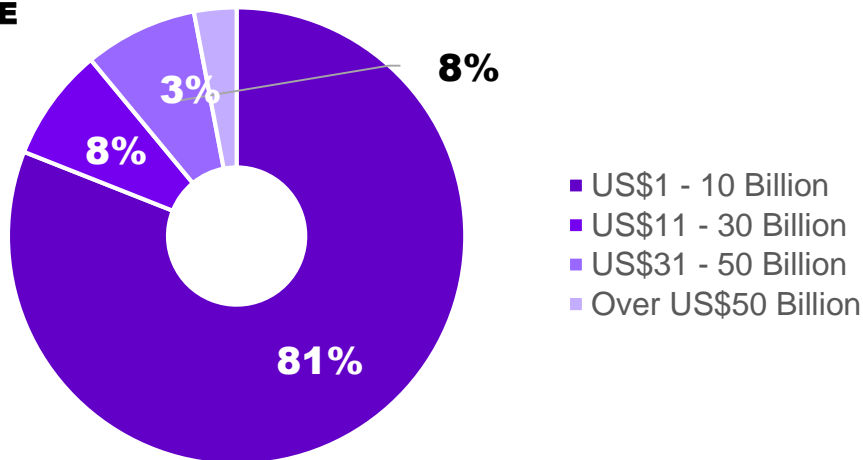
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