DevOps Institute
ADVANCING THE HUMANS OF DEVOPS

Global Upskilling IT 2022
Upskilling IT is a Professional and Organizational Imperative

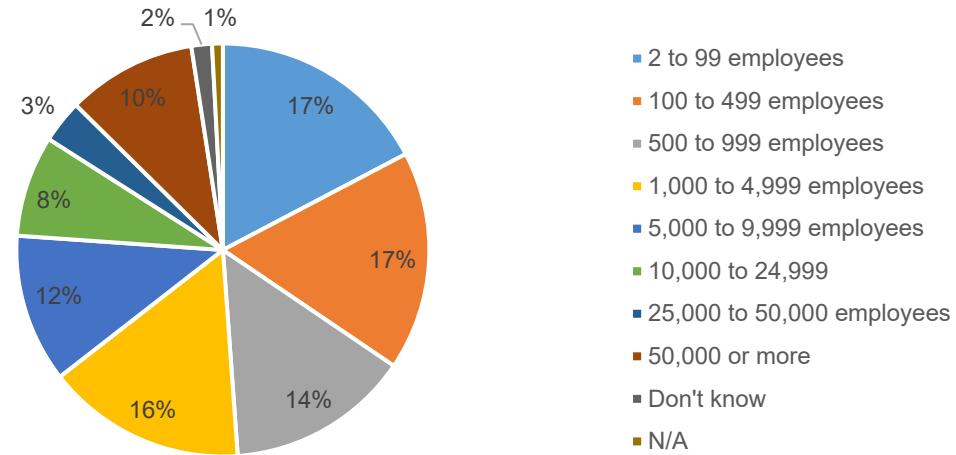**Eveline Oehrlich**
Chief Research Officer

Demographics
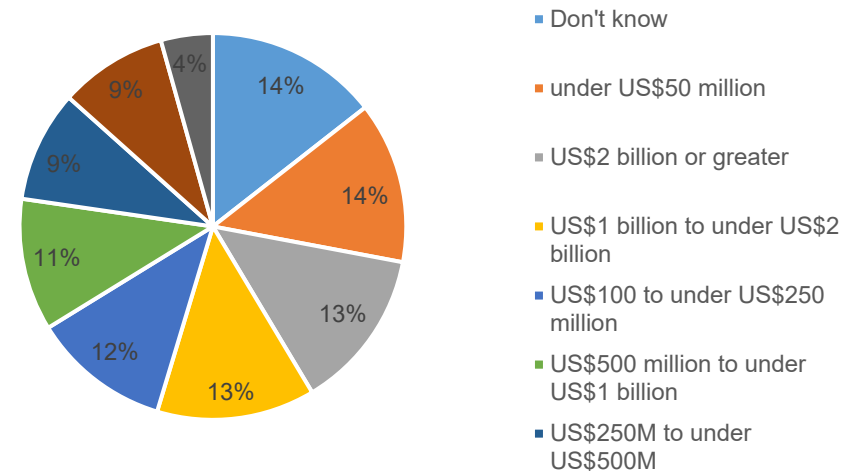
2,476 Global respondents

Over 58,000 data points

120 Countries participated

4 years running

Company Size of Survey Respondents

- 2 to 99 employees — 17%
- 100 to 499 employees — 17%
- 500 to 999 employees — 14%
- 1,000 to 4,999 employees — 16%
- 5,000 to 9,999 employees — 12%
- 10,000 to 24,999 — 8%
- 25,000 to 50,000 employees — 3%
- 50,000 or more — 10%
- Don't know — 2%
- N/A — 1%

Company Revenue of Survey Respondents

- Don't know — 14%
- under US$50 million — 14%
- US$2 billion or greater — 13%
- US$1 billion to under US$2 billion — 13%
- US$100 to under US$250 million — 12%
- US$500 million to under US$1 billion — 11%
- US$250M to under US$500M — 9%

DevOps Institute IT Skill Framework: Capabilities

Human Skills	This skill capability includes emotional intelligence, psychological safety, dynamic learning, transformational leadership, The Three Ways, happiness at work and diversity and inclusion.
Process and Framework Skills	This skill capability includes a variety of different frameworks and processes applied within IT organizations.
Automation Skills	This skill capability includes software engineering and support automation, the ability to understand process flow and the reengineering of tasks, processes and procedures with the goal to replace manual processes, tasks or events with automation.
Technical Skills	This skill capabilities includes a variety of technical skills in topics such as elastic infrastructure, containers, microservices, APIs, serverless, DevOps toolchains, open source and security management.

# DevOps Institute IT Skill Framework: Capabilities (cont.)

Leadership Skills	This skill capability includes leading, coaching, guiding, decision making.
Business Skills	This skill capability includes business acumen, financial management, marketing, sales.
Cognitive Skills	This skill capability includes analytical capabilities, quantitative and statistical knowledge, statistics, data modeling, knowledge in Artificial Intelligence and Machine Learning.
Digital Skills	This skill capability includes digital fluency and a high level understanding of digital systems and requirements.

Key Findings High Level

- **Insufficient IT resource skills are a huge challenge across the globe.**

- **Addressing technical debt must be paired with addressing talent debt.**

- **Upskilling is a professional and organizational imperative.**

Top Three Challenges For IT Organizations Today

Legend:
- Budget and Funding Issues
- Insufficient Skills or Resources
- Managing Technical Debt and/or Avoiding Technical Debt

Americas
- 44%
- 32%
- 38%

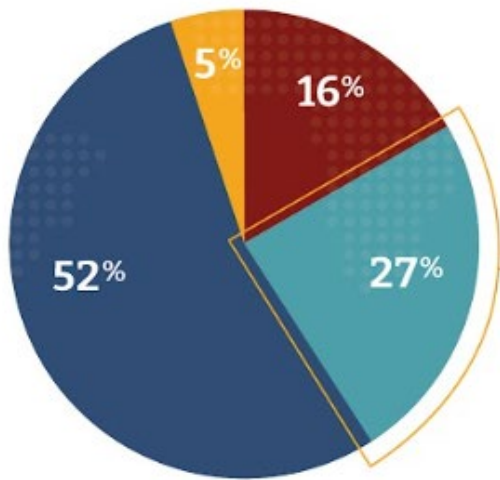**APAC**
- 33%
- 45%
- 32%

EMEA
- 41%
- 41%
- 36%
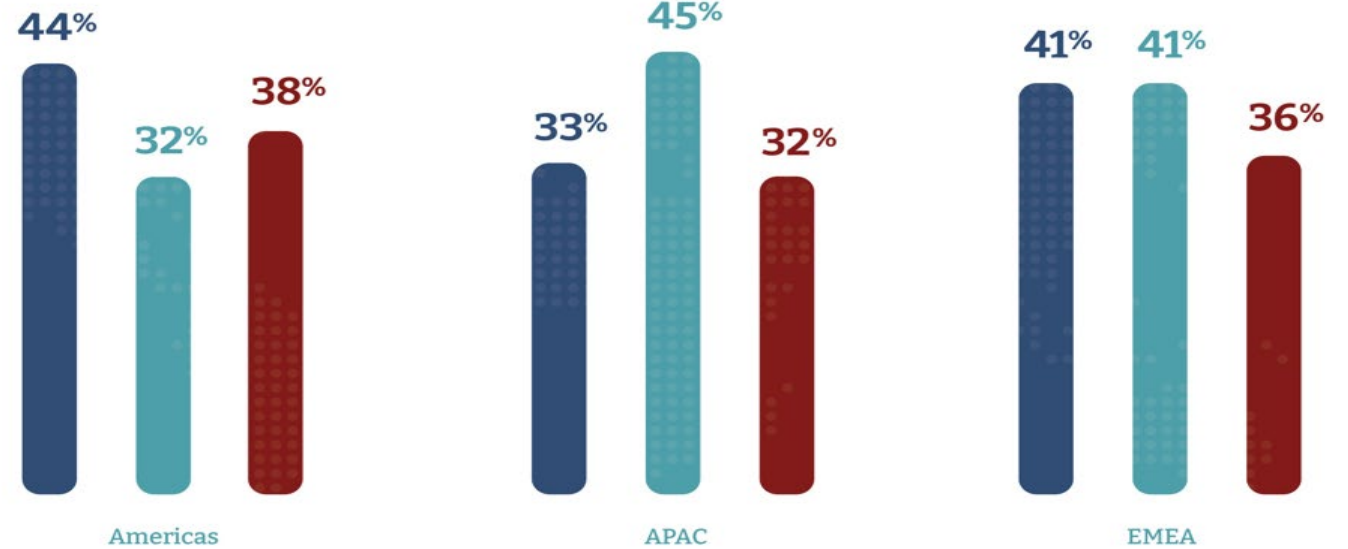
QUESTION
What are the TOP THREE challenges your enterprise IT organization is currently facing?

N= 1,875

Opportunities for Upskilling in 2022

48% of organizations could use upskilling programs

Legend (left):
- Yes
- Currently Developing One
- No
- Don't Know

Legend (right):
- Implementation and deliver tailored learning journeys
- Assessment stage of tailored learning journeys for meeting the needs
- Design stage of portfolio of upskilling initiatives
- Adjustment of learning journeys for impact

Left pie chart:
- 52%
- 27%
- 16%
- 5%

Right pie chart — STAGE:
- 41%
- 28%
- 22%
- 6%

QUESTION

Does your organization have a formal upskilling (training) program for IT team members?

N= 1,142
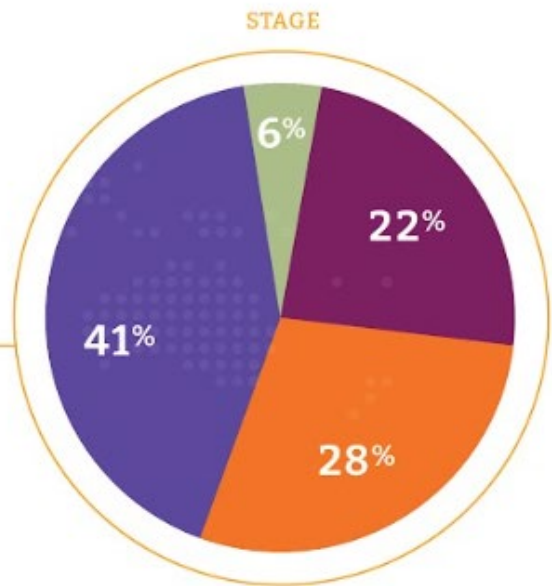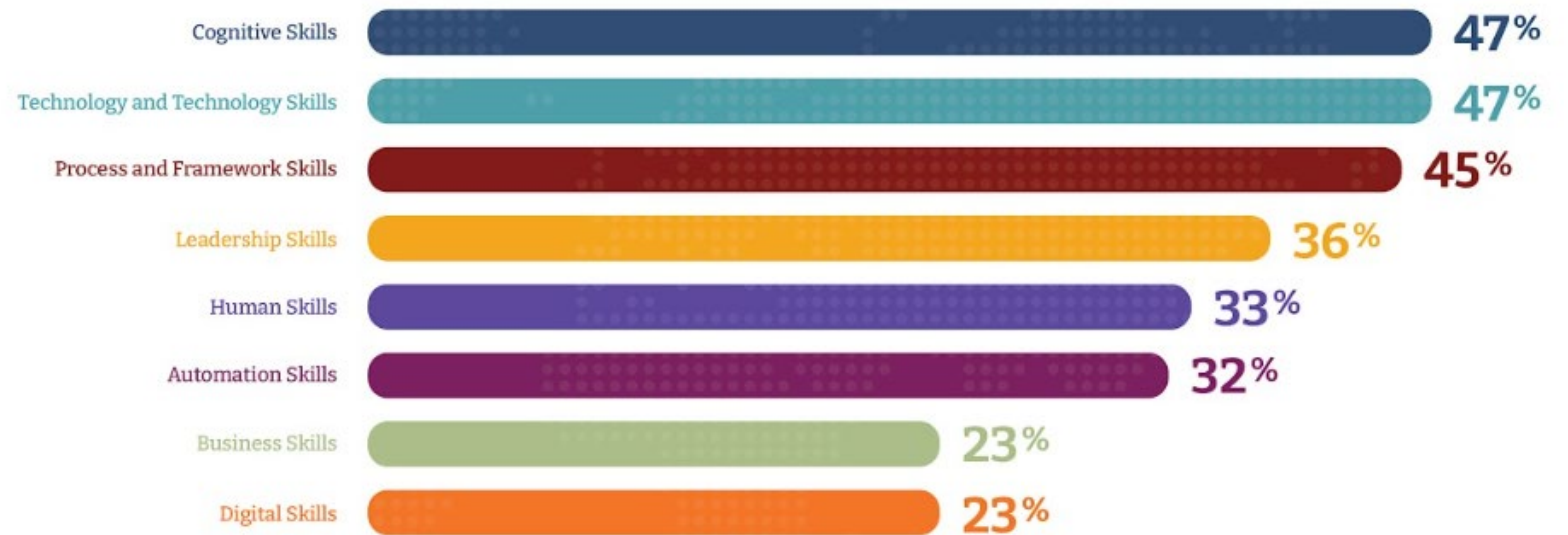
QUESTION

At what stage is the upskilling program today?

N= 1,142

The Biggest Skill Gaps:
Cognitive, Technoloy and Process and Framework Skills

Skill	Percentage
Cognitive Skills	47%
Technology and Technology Skills	47%
Process and Framework Skills	45%
Leadership Skills	36%
Human Skills	33%
Automation Skills	32%
Business Skills	23%
Digital Skills	23%

QUESTION

Recent research indicate skill shortages within IT enterprise organizations today and predict skill gaps in the future. In which of the following areas is your IT enterprise organization already experiencing skill gaps? (Select all that apply)

N=1,722

Top 5 Must-Have IT Skill Capabilites

Essential IT Must-Have Skill Capabilities for IT Organizations

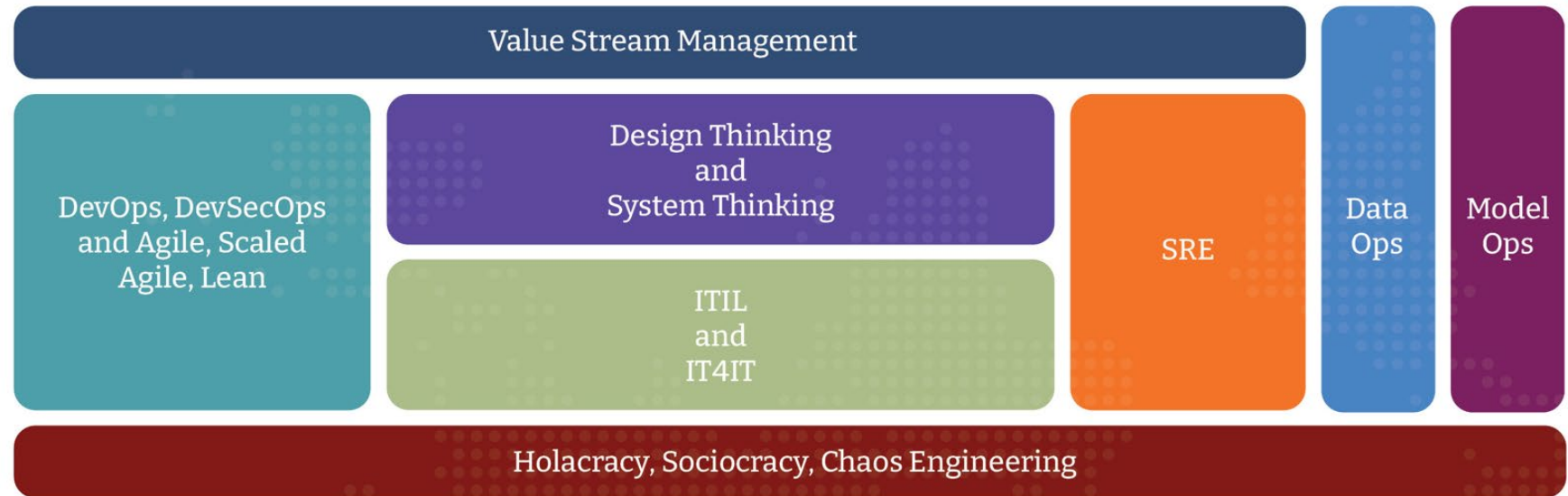| Skill	Percentage
Process and Framework Skills	57%
Human Skills	54%
Technical Skills	52%
Automation Skills	49%
Leadership Skills	49%

QUESTION

How would you rate the importance of the following major skill categories for modern IT enterprise organizations in the future? (Select less important, important, critical)

N= 1,789

Must-Have Process and Framework Skills

Conceptual Model: The Must-Have Operating Models
(aka Process and Frameworks) of the Future

Value Stream Management

DevOps, DevSecOps
and Agile, Scaled
Agile, Lean

Design Thinking
and
System Thinking

ITIL
and
IT4IT

SRE

Data
Ops

Model
Ops

Holacracy, Sociocracy, Chaos Engineering

QUESTION

How would you rate the importance of the following operating models within the IT
enterprise organization in the future? (Select less important, important, critical)
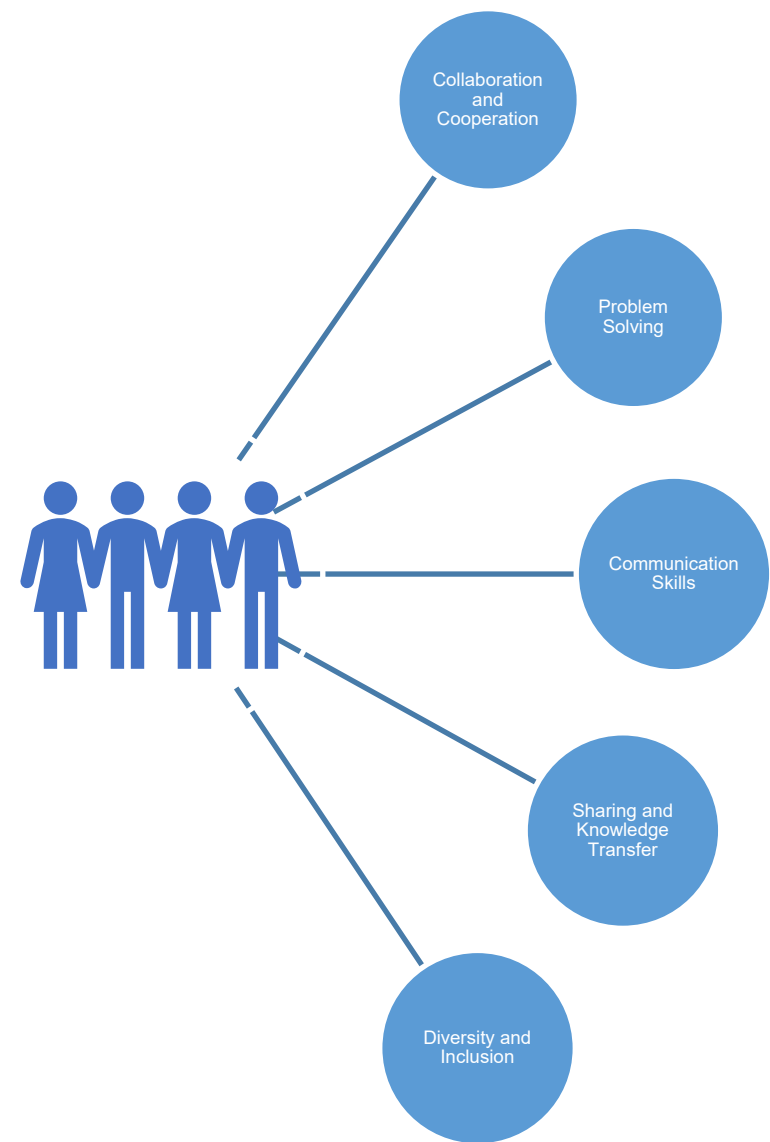
N= 1,512

Top 5 Human Skill Gaps

The Biggest Human Skill Gaps:
Collaboration and Cooperation, Creativity and Entrepreneurship and Interpersonal Skills

Skill	Percentage
Collaboration and Cooperation	35%
Creativity and Entrepreneurship	33%
Interpersonal Skills	31%
Flexibility and Adaptability	29%
Multitasking	27%

Top 5 Must-Have Human Skills

Collaboration and Cooperation

Problem Solving

Communication Skills

Sharing and Knowledge Transfer

Diversity and Inclusion

Global Must-Have Human Skills Heat Map

56% Collaboration and Cooperation	52% Communication Skills	51% Diversity and Inclusion	49% Interpersonal Skills	46% Thought Leadership and Innovation	41% Empathy	37% Risk-Taking
54% Problem Solving	52% Sharing and Knowledge Transfer	50% Flexibility and Adaptability	48% Personal Value Commitment	43% Creativity and Entrepreneurship	40% Mindfulness	36% Multitasking

QUESTION

How would you rate the importance of the following human skills within the IT enterprise organization in the future? (Select less important, important, critical)

N= 1,547

Top 5 Must-Have Technical Skills

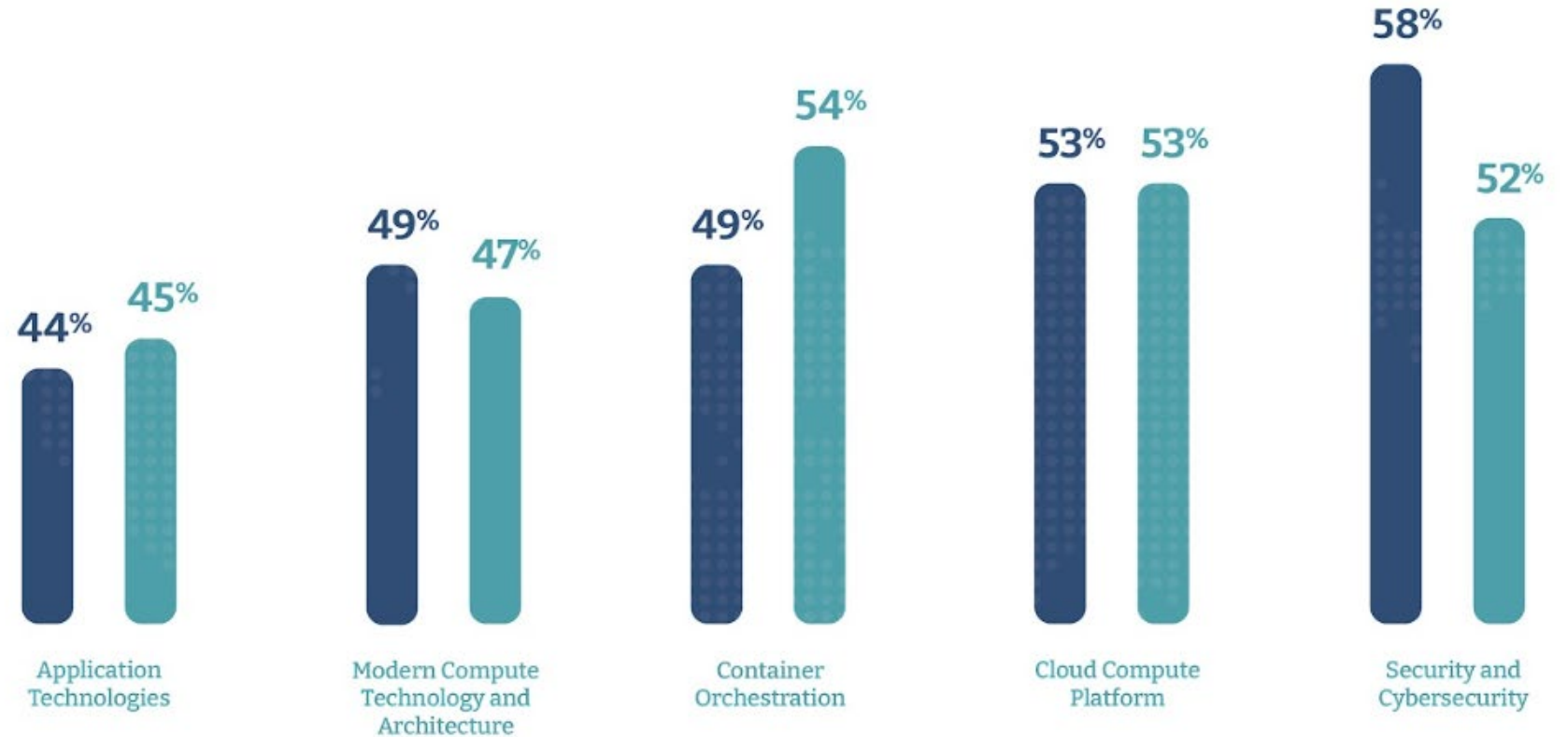| Skill	%
Security and Cybersecurity	54%
Cloud Compute Platform	54%
Container Orchestration	52%
Modern Compute Technology and Architectures	48%
Application Technologies	45%

QUESTION

How would you rate the importance of the following technical skills within the IT enterprise organization in the future? (Select less important, important, critical)

N= 1,580

Leaders and Individual Contributors Agree on Technical Skills

Legend:
- Individual Contributors
- Leaders

	Application Technologies	Modern Compute Technology and Architecture	Container Orchestration	Cloud Compute Platform	Security and Cybersecurity
Individual Contributors	44%	49%	49%	53%	58%
Leaders	45%	47%	54%	53%	52%

Top 5 Must-Have Automation Skills

Continuous Integration (Build and Test Automatically) — **56%**

Continuous Deployment — **53%**

Continuous Delivery — **52%**

Continuous Testing — **51%**

DevSecOps, SecOps, Continuous Security — **50%**

QUESTION

How would you rate the importance of being familiar with the following IT Automation tools within the IT enterprise organization in the future? (Select less important, important, critical)

N= 1,498

Top Leadership Skills

Skill	
Diplomacy	**55%**
Trust Building	**51%**
Empowerment	**50%**
Influencing People and Culture	**49%**
Visionary	**49%**
Managing Organizational Change	**46%**
Risk-Taking	**42%**

QUESTION

How would you rate the importance of the following leadership skills within the IT enterprise organization in the future? (Select less important, important, critical)

N= 1,141

Skill Journey Or Path

SOURCE
DevOps Institute

**Make the call:
Upskilling Is Essential Because...**

1. IT leaders must manage both technical debt and talent debt.
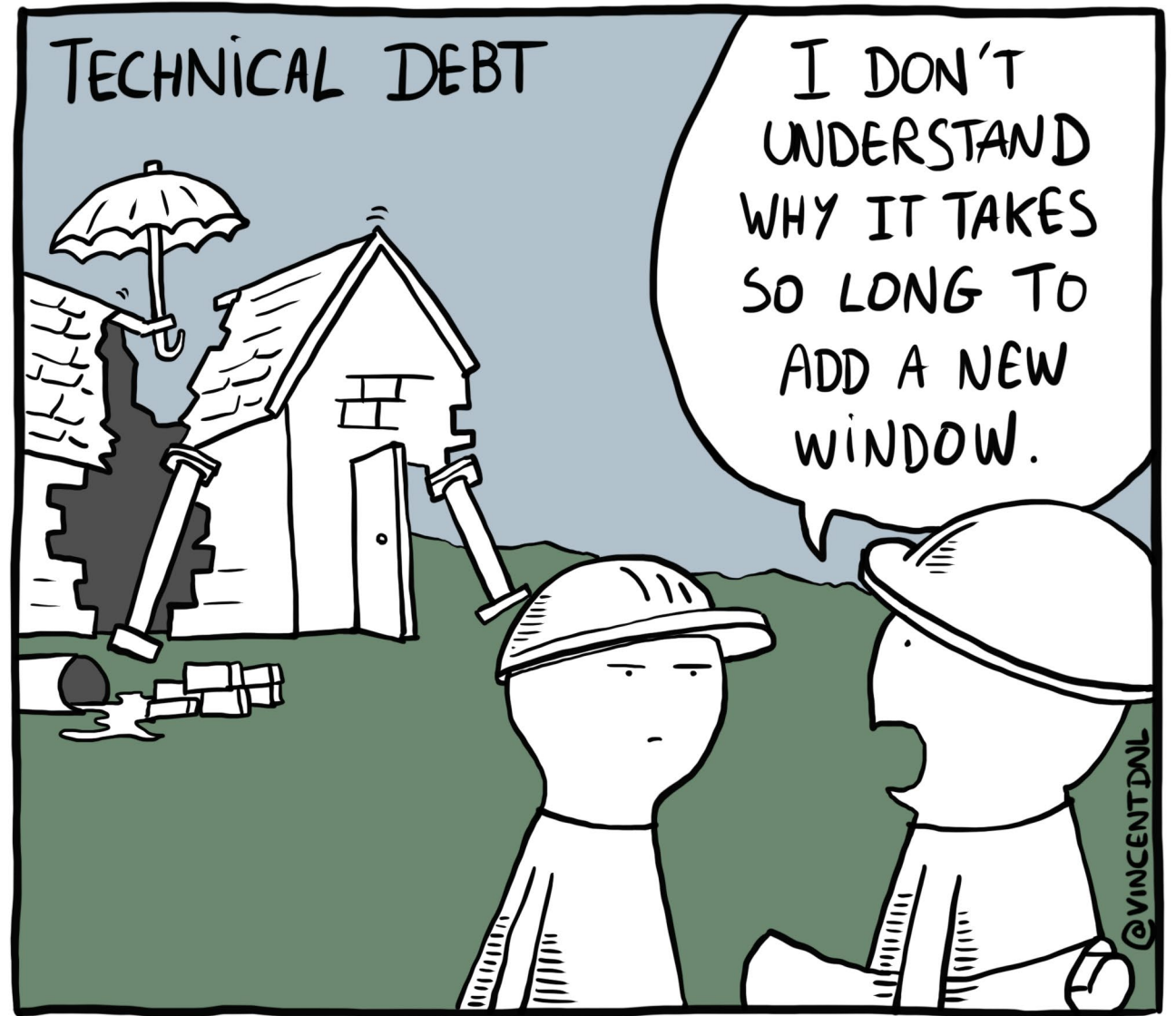
2. IT organizations must enable individuals to continously learn and grow to stay competitive and retain key skills – hiring from externally is difficult.

3. Individual must own and manage their career intentionally, thoughtful, and for now and the future.

4. Leaders must extend their mindset from training towards continuous learning... which is more than just allocating budget...and partner with those who can assist.