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Skills Compass Report 2023

Strategic skills planning for upskilling and reskilling the workforce

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Foreword from the Burning Glass Institute and Coursera

For many years we've been observing that jobs and organizations have been trending towards disruption, upheaval, and accelerated change. COVID-19 has dramatically increased the speed at which technology is fundamentally changing business. One major effect of this is on the rate of disruption for jobs. The World Economic Forum predicts that 85 million jobs will be displaced by 2025, which means they just simply won't exist due to algorithms or new technologies. More shockingly, 40% of what organizations now deem core skills will change by 2025.

At Coursera and the Burning Glass Institute we know how challenging it can be for leaders and organizations to predict, adjust, and plan for upheavals such as the one we're currently experiencing. More specifically, we know how difficult skill planning and creating a talent planning strategy for organizations can be.

Coursera and Burning Glass Institute share a deep belief in the power of learning to bridge the gap between talent and opportunity in an increasingly challenging market — and both organizations could see that few effective tools have been available to help companies make informed decisions about how and what learning opportunities to pursue. That is why Coursera and the Burning Glass Institute came together — to bridge that gap and create the 2023 Skills Compass Report.

Collectively, we analyzed millions of job listings and the data of over one million learners to generate insights on over 50 skills through the lens of how long it takes to acquire a skill, skill value, and skill longevity. We created a framework and synthesized our learnings into the creation of skill categories that allow for leaders to use these categories to help guide their build or buy learning strategies.

The 2023 Skills Compass Report has been created to help leaders build meaningful learning programs and skill planning strategies by helping define and prioritize skills requirements by understanding the intersection of time to skill, skill value, and skill longevity, inform their build vs. buy learning strategy to design more effective learning programs, drive digital literacy to upskill and reskill talent, and justify the ROI for specific skills to help leaders resource strategic learning initiatives.

We're so excited to have embarked on this journey together and our hope is that the 2023 Skills Compass Report will provide organizations and leaders with actionable guidance for skills planning in these challenging times.

Trena Minudri

Chief Learning Officer, Enterprise Coursera

Matt Sigelman

President, the Burning Glass Institute

The Challenges of Skills Planning Today

Finding the right path through uncharted territory

Navigating uncertainty is the challenge of the moment for learning leaders everywhere. As organizations rethink their talent strategy in a post-pandemic era, there's an opportunity to find new solutions to complex problems.

One of the biggest challenges is the accelerating shift in the distribution of jobs and how quickly top skills are shifting for jobs overall. In 2022, The Burning Glass Institute found that while 53 industries in the U.S. have seen employment grow by 10%, nearly 100 industries lost more than 10% of jobs.

Skills challenges aren't just a matter of shifting industry segments. Even for employees who haven't changed industries, the average job in the U.S. has seen 37% of its top skills replaced just over the past five years. Workforce skills have to evolve, whether it's because of industry shifts or the acceleration of skill replacement within a job.

Learning leaders face high expectations

In the face of these shifts, the expectations for learning leaders haven't changed. They are charged with building meaningful, impactful learning programs that:

Drive business outcomes for the company's most strategic initiatives by prioritizing budget and aligning skill development with their needs.

Demonstrate the ROI of learning through effective measurement and prioritization of the most impactful learning outcomes.

Close the most critical skill gaps by creating urgency within the organization and motivating employees to learn.

Creating effective learning programs requires balancing a complete view of today to navigate to a more skilled tomorrow. A complete view is difficult for some organizations, though. As the Head of Learning & Design at a leading cloud provider said, "Only certain people have access to that (skills or learning) data. Some of it's not being shared."

A lack of data, whether through lack of access or not having data at all, creates gaps in credibility. As learning leaders try to bring together cross-functional teams to drive skills planning, they are forced to lean on their instincts — or the loudest voices in the room — to guide critical skills development decisions.

The absence of data also holds back strategic skills planning from demonstrating ROI for the organization. This leaves a learning leader with a tricky balance of showing ROI as programs are being budgeted, funded, and developed.

Becoming a Strategic Talent Partner

Building a proactive future state for skills planning

Transitioning from reactive to data-driven, proactive skills planning requires a new approach to discovering, prioritizing, and investing in needed skills development.

Through testing and feedback with learning leaders, they agreed that a strategic approach needed to encompass:

- **Defining and prioritizing skills requirements** for the business, with a strategic understanding of skill value, time, and longevity.
- **Informing a build-versus-buy skills development strategy** so organizations can design more-effective learning programs.
- **Building a centralized approach** to high-priority tech and data skills with insights into the longevity and market value of cloud computing, engineering, data, AI, ML, statistics, and more.
- **Justifying the ROI** for specific skills to resource strategic learning initiatives.

Coursera interviewed learning leaders to understand how organizations could make the shift and found three pain points.

Learning leaders said that they needed new sources of data-led insights to help them gain an in-depth understanding of a skill's **value** to the organization, the **time** it takes to build those skills, and the **longevity** of these skills. As they told Coursera, all three of these help organizations make decisions that prioritize building the right skills at the right time.

These three dimensions — what Coursera and the Burning Glass Institute define here as **time-to-skill, skill value, and skill longevity** — ultimately help organizations understand how to deliver strategic skills planning.

Time-to-skill

Time-to-skill is defined by how long it takes an average person to acquire a particular skill. It's calculated by analyzing the amount of education, industry experience, and corporate learning needed, based on data from millions of job postings. For learning leaders, time-to-skill also informs the amount of time investment they should expect if they choose to create programs that build those skills.

Skill value

Skill value is defined primarily by the wage it attracts in the open job market. Knowing how much it costs to hire someone with a particular skill helps organizations identify which skills are best to upskill internally and which are best to hire for, based on financial investment and prioritization of the organization.

Skill longevity

Skill longevity is defined by how long a particular skill is expected to last over the course of time. Skill longevity is primarily driven by how static or foundational some skills like teamwork or leadership are versus more transitory skills like TensorFlow or cryptography. Learning leaders can use skill longevity to understand how durable their investment will be in skill building.

The intersectionality of time, value, and longevity to skills planning

While it's critical to understand each dimension individually, bringing all three skills dimensions together can create the clarity learning leaders need to plan skills development effectively.

Informing 2023 Skills Development Planning: Strategic, Data-Driven Insights on the Current State of Skills

An introduction to the Burning Glass Institute and Coursera's Skills Compass

The Burning Glass Institute and Coursera collaborated to develop Skills Compass, a pragmatic, quantifiable, and contextual look at the state of skills today.

Skills Compass defines the most common skills needed in organizations across the three dimensions of time-to-skill, skill value, and skill longevity and quantifies them so learning leaders can best prioritize, invest, and deploy key skills in their organization.

How the Burning Glass Institute and Coursera quantified each dimension

Skill dimension	How the dimension is calculated
Time-to-skill	Averaging years of minimum education and minimum years of experience for each skill based on 2021–2022 job listing data from Lightcast and averaging hours to learn based on Coursera learner data.
Skill value	Leveraging millions of processed job vacancies from 2021–2022 where the skills were present in job postings, based on data from Lightcast Calculating the median salary of the skill from Lightcast job ads data
Skill longevity	Comparing the rate of overlap between the 100 most similar skills in 2017 and 2021 for skills

When analyzing the results, the skills we measured across the three dimensions fell into five distinct groups that demonstrate the most effective tactical approach learning leaders can take when building skill development programs.

1. **Solid Investment**
2. **Quick Dividend**
3. **Enduring**
4. **Adaptive**
5. **Commodity**

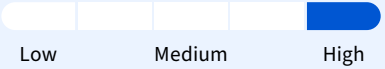
Knowing whether a skill is a Solid Investment versus a Commodity gives learning leaders a framework to make proactive decisions when it comes time to upskill or reskill their people.

Solid Investment

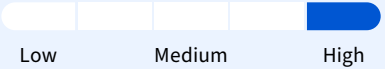
While the cost and time it takes to acquire these skills is going to be high, their longevity is also high. The payoff for skills in this group is often as long as a person's entire career. Historically, these are the skills that are ripe for reskilling and redeploying talent for the long term.

Skills like risk management and project management stand out as being particularly durable and costly to develop, while not being quite as expensive to hire for.

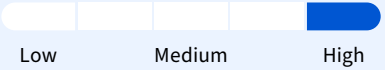
Time-to-skill



Skill value



Skill longevity



Key skills include:

- Scrum (Software Development)
- Project Management
- Risk Management
- Algorithms
- Java (Programming Language)
- Big Data
- Python (Programming Language)
- Agile Methodology

Who are the skills in this category for?

Anyone, from individual contributors to mid-career leaders, can use and apply skills in this category.

When should skills in this category be built?

These skills take time to develop, so planning for major projects, internal mobility initiatives, or career development is critical for success.

How should these skills be developed?

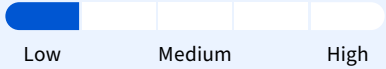
These skills can't be developed on the fly. Instead, these are long-term investments that are costly to hire for or develop. Operationalizing them through formal development programs and being selective about the timing and selection of learning opportunities will help organizations properly prioritize.

Quick Dividends

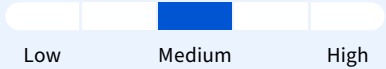
These skills still have medium to high longevity like Solid Investment skills, but skills in this category are also unique because they are often less expensive to learn than they are to hire for. Historically, these skills can be built on an as-needed basis because the time-to-skill is generally low.

For example, Salesforce and data structure skills are technical skills that can pay dividends over many years and are less difficult to learn.

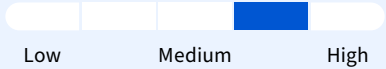
Time-to-skill



Skill value



Skill longevity



Key skills include:

- Negotiation
- Planning
- Budgeting
- Organizational Development
- Salesforce
- Data Structures
- Data Analysis
- Visual Design
- SAS (Software)
- Cost Estimation

Who are the skills in this category for?

Quick Dividend skills are perfect for mid-career or senior individual contributors or managers, but they can also be deployed selectively to entry-level roles.

When should skills in this category be built?

When employees are being elevated into leadership roles, many of these skills are critical, but learning leaders tell us that they aren't always developed during that time.

How should these skills be developed?

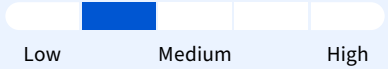
For budding leaders and mid-career to senior-level individual contributors, having on-demand access to growing these skills helps build the appropriate business mindset. These skills also appear across many job categories, so an up-to-date library of these skills ensures everyone who needs growth in this area can get it.

Enduring

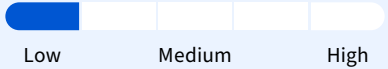
Enduring skills are characterized by having extremely high longevity. The difference between Enduring and other skills is that these are often extremely low-cost to either hire for or develop. Historically, these are skills that have been long-established or have evolved slowly.

Investing in skills like teamwork or research comes with a high ROI, especially since they can be fairly quick to acquire while still having high longevity.

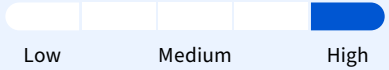
Time-to-skill



Skill value



Skill longevity



Key skills include:

- Teamwork
- Communications
- Writing
- Public Relations
- Microsoft Excel
- Critical Thinking
- Problem Solving
- Research
- Graphic Design
- Web Design
- Search Engine Optimization
- Brand Management
- Social Media
- Statistical Analysis
- Digital Marketing
- Computer Networks
- Geographic Information Systems

Who are the skills in this category for?

These skills are for everyone. They are foundational and critical to interpersonal skills that are built over, and last for, an employee's entire career.

When should skills in this category be built?

Enduring skills need to be part of a regular training cadence so that people can continually improve. When it is identified as a weakness or something that should be worked on, an opportunistic approach can work as well.

How should these skills be developed?

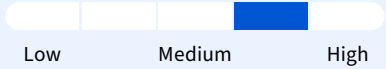
Constant access to resources that build these foundational skills is needed across the entire business. Nearly every other skill is built on this category of skills, so they need an evergreen home and placement in every learning program. Given the importance of these skills, measurement and refreshing training ensure they stay strong.

Adaptive

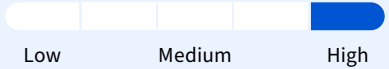
These skills are costly to hire for and costly to acquire, but unlike the Solid Investment skills, Adaptive skills don't have the same level of longevity. Historically, these skills have been the most difficult to quantify due to their rapid evolution and changes.

Skills like Swift or Network Security require constant updating and education to stay ahead of the changes in these skill types. Adaptive skills also take a long time to build when reskilling.

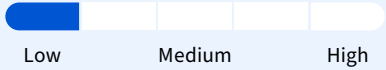
Time-to-skill



Skill value



Skill longevity



Key skills include:

- DevOps
- Microsoft Azure
- Econometrics
- Software Architecture
- Data Architecture
- Cryptography
- Natural Language Processing
- Agile Product Development
- TensorFlow
- Marketing Analytics
- Machine Learning
- Swift (Programming Language)
- Network Security
- Artificial Intelligence

Who are the skills in this category for?

These skills are for people in a specialized job or for those who are pursuing reskilling into specialized roles.

When should skills in this category be built?

While these skills are costly, they also require constant attention and updates for learners because skill longevity is very low as well. Even if an organization hires people with these skills, they need to stay up to date.

How should these skills be developed?

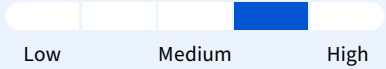
Learning academies, where people can dive deep into the latest and greatest skills in data and technology, are the best place to invest. The key is identifying the right people and the skills on which they absolutely need to stay updated on so that organizations can manage their budgets.

Commodity

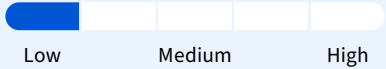
Commodity skills are often widely acquired and inexpensive to obtain through hiring. Historically, these are skills that have been around for many years and are adopted on a widespread basis.

Skills like financial forecasting or CSS are standardized by industry, so specialized company training is either limited or unnecessary.

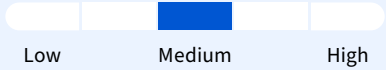
Time-to-skill



Skill value



Skill longevity



Key skills include:

- Web Development
- Financial Forecasting
- Tableau (Business Intelligence Software)
- Database Design
- Business Analysis
- Stata
- SPSS (Statistical Software)
- HTML5
- Business Intelligence
- Data Mining
- JavaScript (Programming Language)
- Cascading Style Sheets (CSS)

Who are the skills in this category for?

These skills are typically for entry-level roles or, if needed, upskilled alongside other complementary skills when necessary.

When should skills in this category be built?

Skills in this category can be built when onboarding or at the time of assignment for special projects, if there is a deficiency.

How should these skills be developed?

These skills can be built using career academy types of programs. Another option is hiring or outsourcing when these skills are needed because there are many contractors or available talent with these skills in the market.

Report Summary

Until now, few effective tools have been available to help companies make informed decisions about which learning opportunities to pursue, how to pursue them, and how to weigh tradeoffs. As we've seen, it's not enough to just consider what skills are important or trending — but to be able to align learning investment with the talent and business strategy within an impactful timeframe. This report closes that gap by identifying specific proactive steps learning leaders can take to become strategic talent partners.

It all centers on strategic, data-backed skills *planning* built on a clear understanding of three critical factors of skills *development*:

1. How long it takes to acquire a skill
2. How much value a skill adds to the company
3. How long a skill will hold its value for the company

Those three critical factors determine which of four categories a skill falls into: solid investment, quick dividend, enduring, adaptive, or commodity. With this level of rich insight into skills development, learning leaders have a framework that will help them:

- Better inform their build-versus-buy learning strategy
- Design more effective learning programs
- Drive data, tech, and soft skills to upskill and reskill talent

No silver bullet exists for driving change, building resilience, or future-proofing an organization. Still, learning leaders must prove ROI for putting resources into the right learning initiatives at the right time. Ultimately, leaders who apply a strategic, data-backed strategy to skills planning and development will drive optimal choices, even amid sub-optimal conditions. Ultimately, learning leaders who apply a strategic, data-backed strategy to skills planning and development will be able to prove the ROI for putting resources into the right learning initiatives at the right time.

Create a Better Skills Planning Process with Coursera

Skills Compass can help every learning leader take a proactive skills development approach

The absence of data also holds back strategic skills planning from demonstrating ROI for the organization. This leaves a learning leader with a tricky balance of showing ROI as programs are being budgeted, funded, and developed.

In an uncertain business environment, learning leaders need strategic clarity on how to deliver vital, data-driven skills planning to their organization. With the Skills Compass, these leaders can apply insights from this report for reskilling, upskilling and deep skilling to ensure they are investing in the right skills with the right investment.

For organizations looking for an even more personalized approach, Coursera can partner with you to help guide the skills planning process further. With Coursera, learning leaders can easily build a skills transformation plan, deliver the right training at scale, and have the right tools for tracking skill development and industry benchmarking.

For each of the skill areas outlined above, Coursera offers a full-range of solutions that help employers effectively skill up their employee base.

Deep skilling — For the growth of in-depth learning and skills that take a longer time to skill and require reinforcement, Coursera has over 50 Professional Certificates and 3,000 Guided Projects that provide employees milestones and hands-on learning opportunities to increase skills proficiency and drive home learning.

Specialized training — When looking to upskill specialized individuals on skills such as machine learning, artificial intelligence, or other specific skills that require continual learning, consider the Data & Analytics Academy from Coursera, which includes cutting-edge content to drive faster business decisions.

Learning for everyone — For skills that are foundational or ubiquitous to the organization, including leadership skills, consider the Leadership Academy from Coursera. This Academy is designed for every employee looking to lead themselves, lead teams, lead organizations, and lead transformation.

Continuous learning — For any solution that is needed to drive continuous learning, Coursera has over 200,000+ Clips, bite-sized videos and lessons from world-class companies and institutions for more impactful learner engagement.

It’s easy to get started with Coursera.

Reach out to us today to see how Coursera can help you with your learning needs.

Get started

About the Contributors

Eric Karsten
Data Science Manager
Coursera

Eric Karsten leads the enterprise and employability data science teams, building a deep understanding of how education bridges the gap between learners and their career objectives. He also leads the Insights and Research vertical, partnering with external university and NGO researchers to use Coursera's data to answer questions about skills and labor markets. Eric holds an MA in economics and a BA in mathematics, both from the University of Chicago.

Matt Sigelman
President
The Burning Glass Institute

Matt Sigelman is President of The Burning Glass Institute, Chairman of Lightcast, and Visiting Fellow at the Harvard Kennedy School. The Burning Glass Institute advances data-driven research and practice on the future of work and the future of learning. Previously, Matt was CEO of Lightcast, the global authority on the talent market. Matt holds an AB from Princeton, an MBA from Harvard, and is a member of the Council on Foreign Relations.

Gad Levanon
Chief Economist
The Burning Glass Institute

Gad Levanon is Chief Economist at The Burning Glass Institute. He also teaches economics at NYU. Gad holds a PhD in economics from Princeton University, and as a native of Israel, he holds undergraduate and master's degrees from Tel Aviv University. From 1996 to 1998, he worked at the Israeli Central Bank, where he participated in the analysis of financial markets and monetary policy.

Nik Dawson
Economist
The Burning Glass Institute

Nik Dawson is an Economist at the Burning Glass Institute. Nik holds a PhD in Computational Economics and has conducted labor market research with the OECD and the United Nations, and he has worked as a data scientist for early-stage technology companies. Nik is also an Honorary Scholar at the University of Technology Sydney.

Alexandra Martin
Economist
The Burning Glass Institute

Alexandra Martin is a PhD candidate in Economics at the Massachusetts Institute of Technology. She is an applied macroeconomic researcher broadly interested labor markets and household finance. Previously, she served as a Senior Research Assistant at the Federal Reserve Board of Governors.

About Coursera

Coursera for Business is the complete, job-based skill development solution for empowering your teams with high-impact skills that drive innovation, competitiveness, and growth.

About The Burning Glass Institute

The Burning Glass Institute advances data-driven research and practice on the future of work and of workers. Situated at the intersection of learning and work, the organization collaborates with educators, employers, and policymakers to develop solutions that build mobility, opportunity, and equity through skills.

For more information visit **www.burningglassinstitute.org**.

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