# The Journey of Learning

## Connecting continuous learning to the rapid pace of change as the workplace accelerates

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# 1. Executive Summary

The pace of change in the workplace today is rapidly accelerating. It is essential to lean in and leverage the power of continuous learning to keep pace with this change.

IBM enables continuous skill and knowledge adaptation through planned and self-directed learning. We are seeing unprecedented learning energy and are observing employees who are investing in their lifelong learning journey with a sincere level of autonomy and commitment to skills growth. This active role in learning is paramount to IBM's learning culture, in terms of the focus we maintain across all levels to build personal mastery and create an individual commitment to drive IBM's organizational mission and values.

This point of view paper frames continuous learning into 2 key discipline areas by which young and senior tenured professionals can cultivate those critical skill sets to thrive and continuously transform in an ever-changing work environment.

Finally, IBM takes an entrepreneur spirit seriously – as we evolve as a learning organization; we understand the necessity of a new and emerging focus on curiosity. We will share our most recent research in terms of how IBM data scientists and IBM developers use curiosity to drive client satisfaction; and deliver the most complex and innovative technical solutions in the world.

# 2. Key take-aways

The key take-away from this POV is to frame an enterprise approach using discipline areas as an inflection point for lifelong learning, and as an intellectual roadmap to internalize and achieve continuous learning goals.

This practical approach helps employees understand the continuous journey of learning; to develop autonomy, set goals, and realize the full potential of their inner curiosity.

This white paper provides an Action Guide for individuals across the organization as an inspiration to set goals for lifelong learning.

Our IBM research in 2020 revealed keeping an open mind in a job role is the most fundamental needed attribute of curiosity. Our research also found that client satisfaction was among the 3 top drivers which make IBMers curious. And finally,  over 70% of those who participated in our research said the way in which they build curiosity skill is to learn outside their comfort zone.

# 3. Discipline framework

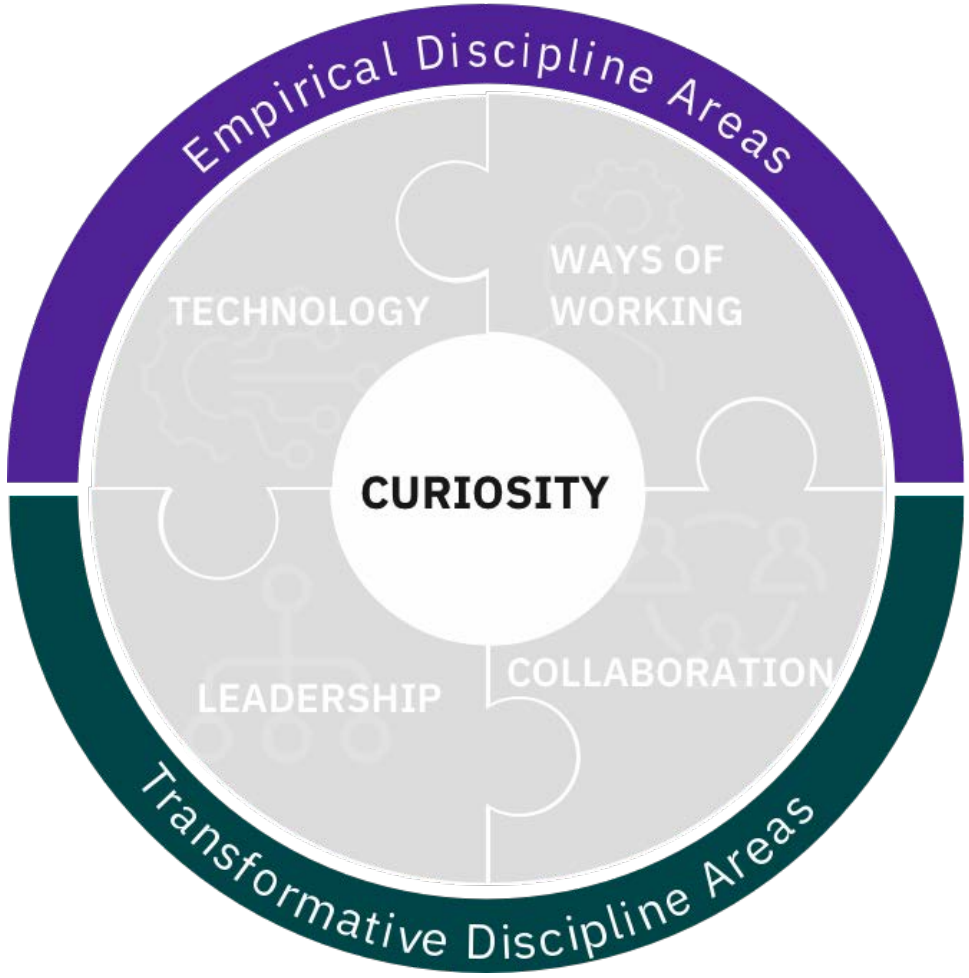
The continuous learning discipline framework is constructed by grouping study areas into 2 discipline areas: empirical and transformative.

The **empirical discipline** develops skills related to scientific topics & cognitive reasoning which is gained through practical experience.

The **transformative discipline** develops skills related to sensory and mastery models which is applied throughout the lifecycle of a product solution, consulting engagement, strategic delivery, or employee engagement.

Framing continuous learning under disciplinary areas, such as empirical and transformative, help organizations understand the breadth and depth by which employees not only must gain skills, but how they must inter-weave these skills to reach an autonomous approach to life long learning.

Let's take a look at how each of these discipline areas, breaks into quadrants of focus areas; and we'll discuss the way in which curiosity is in the center across all focus areas.



# 3. Discipline framework

The continuous learning discipline framework has 4 major quadrant areas:

**1. Technology** – frames those technical areas which provide the foundation and groundwork for all professional areas leading to 2025.

- Artificial Intelligence
- Cloud
- Security
- Sensor Technology (IoT)
- Quantum

**2. Ways of Working** - focuses on how we behave as a trusted partner to co-create, manage, and deliver solutions to achieve business goals.

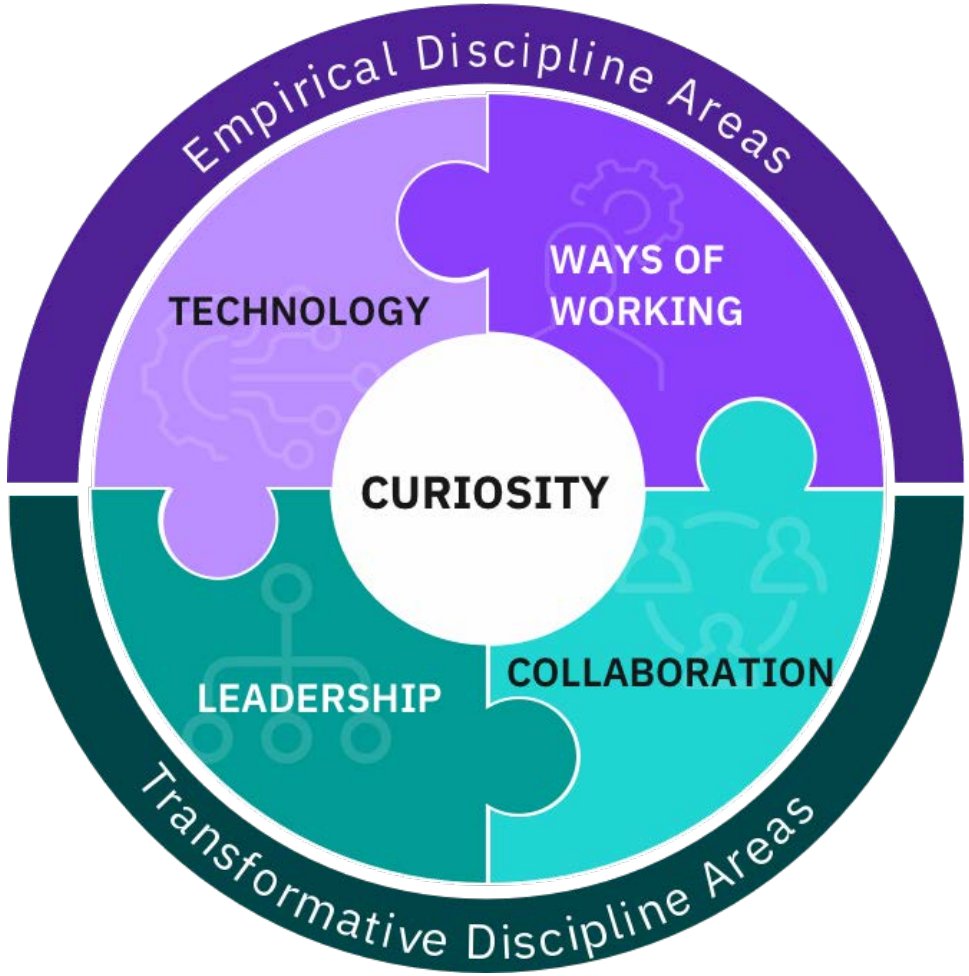
- Design thinking
- Agile
- Offering management
- Client service mindset
- Trusted advisor

**3. Leadership** – concentrates on core essentials of driving organizational change and transformation through culture and reinvention. Leadership traits such as agility and engagement allow organizations to thrive and accelerate strategic imperatives.

- Entrepreneurial mindset
- Resilience
- Engagement and inclusion
- Agility
- Transparency and trust

**4. Collaboration** – reflects competency areas which enable individuals to collaborate and demonstrate team leadership to deliver excellence, communicate effectively, contribute to problem solving, and apply virtual technology to scale and drive efficiencies.

- Leading teams
- Communication
- Problem solving
- Virtual technologies





# 3. Discipline framework: **Technology**

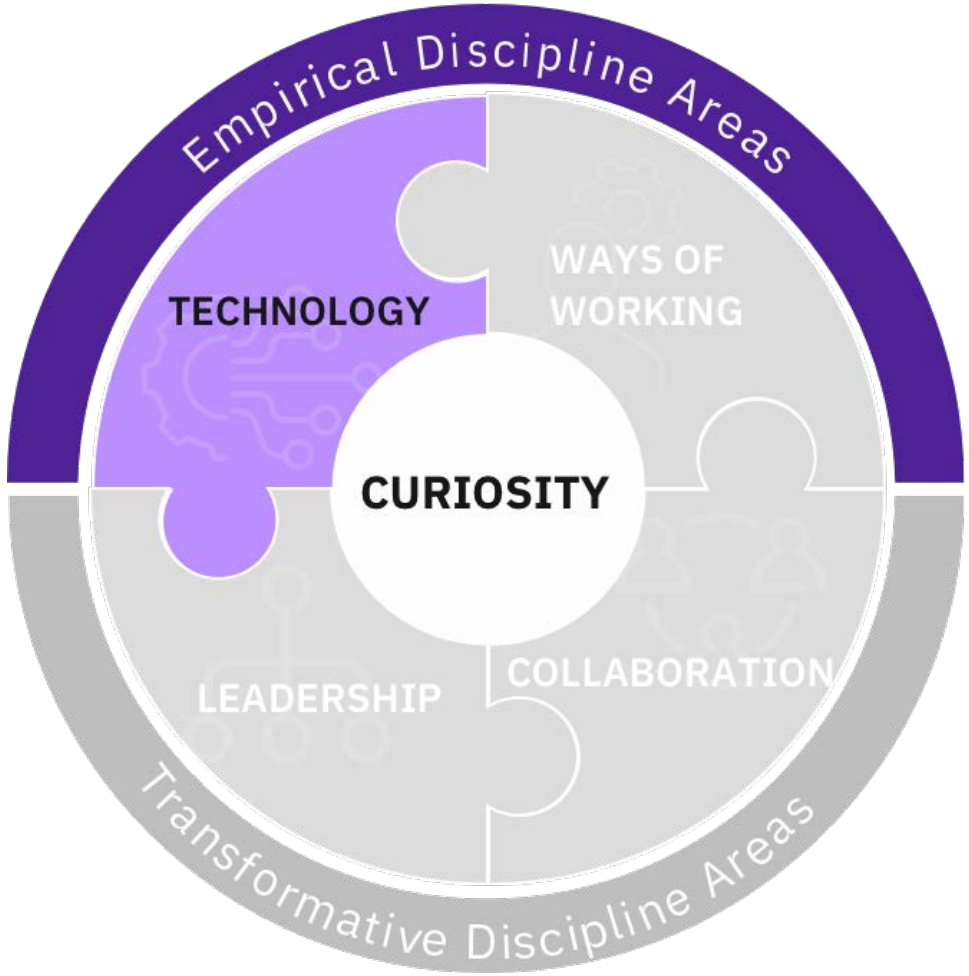
Technology is a focus area whereby the commitment to continuous learning is incredibly important. Technology tends to shift and change every 7 to 21 days. IBM helps employees build their skills in 3 imperative areas to drive our strategy; and they are AI, Cloud, and Security. Within each of these domains, there are skills (for example, architecture design) which apply across all 3 areas.

Technology as a focus area is paramount for professional certification.

The following list is a high-level sample of technology skills most sought after; and can be used to set goals in a continuous learning career conversation.

## Technology high level skills:

- Statistics, physics, logic and algorithm
- Data science
- Programming
- Neural networks, Bayesian networking, and robotics
- Digital applications, machine learning, deep learning
- Prescriptive and predictive data modeling
- Architecture design



# 3. Discipline framework: **Ways of working**

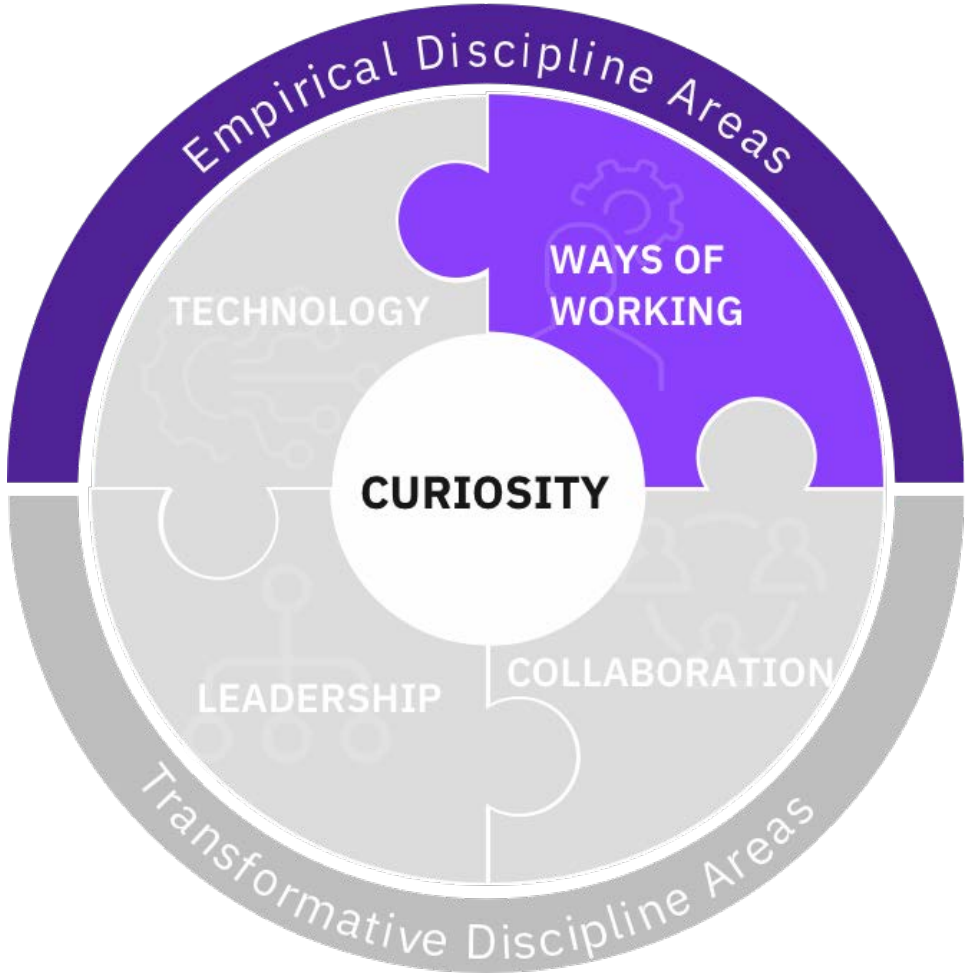
There is a prevailing relationship between technology and delivering to client expectations; we see this view translate as ways of working. To truly deliver and gain from the use of technology, employees must be prepared to work and learn to be nimble, pragmatic and comfortable with ambiguity.

The trusted advisor is one who has exceptional and target knowledge; and who has earned a seat at the table who provides insight and trusted advice. These skills emerge and deepen over time in terms of how we engage with our teams and our clients on a professional level.

Finally, there is a sticky connection to IBM's Client Service Method in applies an approach to heighten client engagement and loyalty. This approach embodies elements such as responsibility, balance, ownership, adaptability, and delivery.

## Ways of working high level skills:

- Experimentation and interconnections for function and purpose
- Formulating operations and planning
- Logical and systems thinking
- Deep interpersonal skills
- Critical thinking



# 3. Discipline framework: **Leadership**

IBM at its core, is renowned for its leadership – we have evolved and emerged over the last 10 decades to have the world's finest and highly revered executive officers within our company.

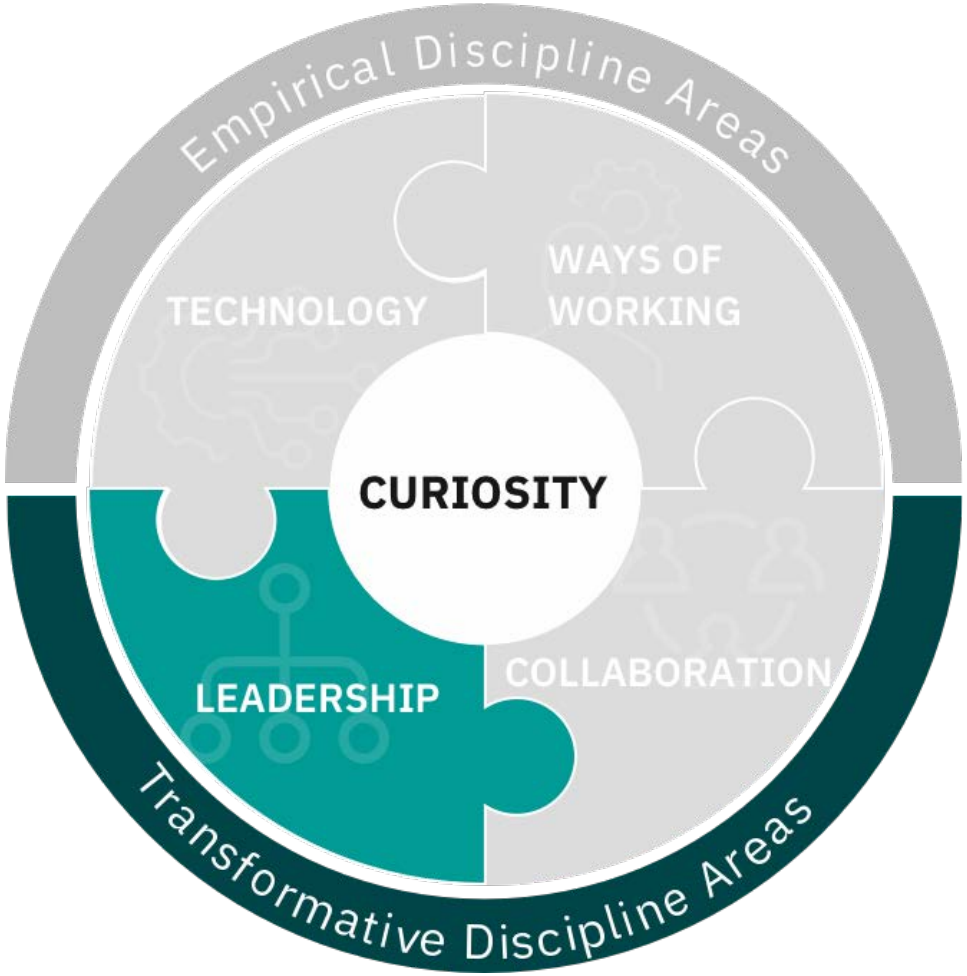
One of our core offerings is IBM's Personal Leadership Edge, which at the most fundamental level is about how you, as an individual, show up as a leader – and how your team sees you in terms of positive, negative, or having no impact.

During challenging or times of pressure, we need continuous learning and growth in leadership topics – so that we as individuals always show up as our best.

An entrepreneur mindset allows us to be open to challenges, aim for speed over elegance and entrust our capabilities to lead in adverse and sometimes difficult times. Knowing how to weave skills which allow us have agility, resiliency, and transparency will provide a true foundation to thrive in a rapid and often changing workplace.

## Leadership high level skills:

- Helping teams be pragmatic and comfortable with ambiguity
- Adaptation
- Communicating with clarity and purpose
- Mindfulness
- Nimble and confidence to reach goals and take risks
- Awareness and deep knowledge of ourselves at an individual level
- Work as play





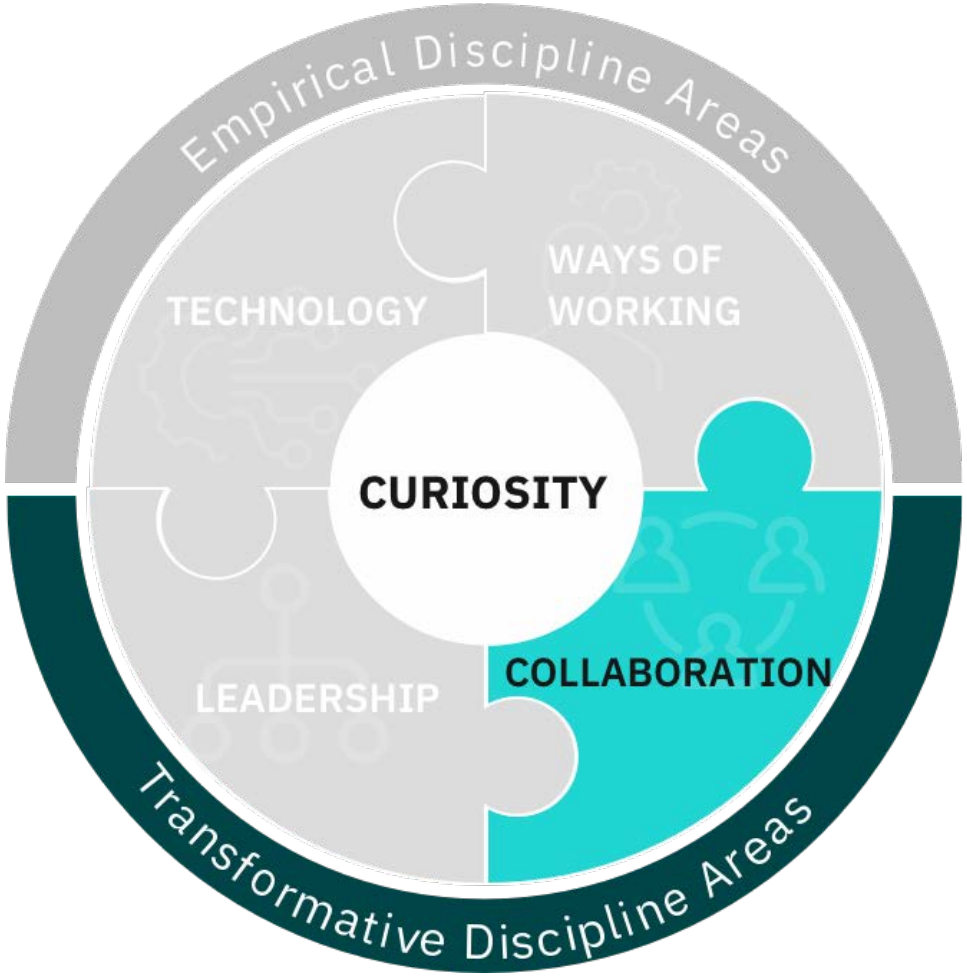
# 3. Discipline framework: **Collaboration**

Interacting with others of varying expertise and industry knowledge is paramount for the working professional. In order to understand, empathize, and collaborate to accomplish outcomes across the matrix organization for any measure of success.

Techniques in communication such as asking questions, and inspiring to be a reflective practitioner, paves the way for high performance teams and engagement across all discipline areas described throughout this point of view.

## Collaboration high level skills:

- Interpersonal skills
- Leading virtual teams
- Empowering teams
- Fostering cooperation
- Critical thinking
- Root cause analysis
- Virtual collaboration tools such as Mural, Slack, and Trello
- Negotiation





# 4. Curiosity: at the heart of the matter

By 2025 organizations will rely heavily on key integration of digital assets managed broadly by artificial intelligence, workflows on the cloud, and security oversight.

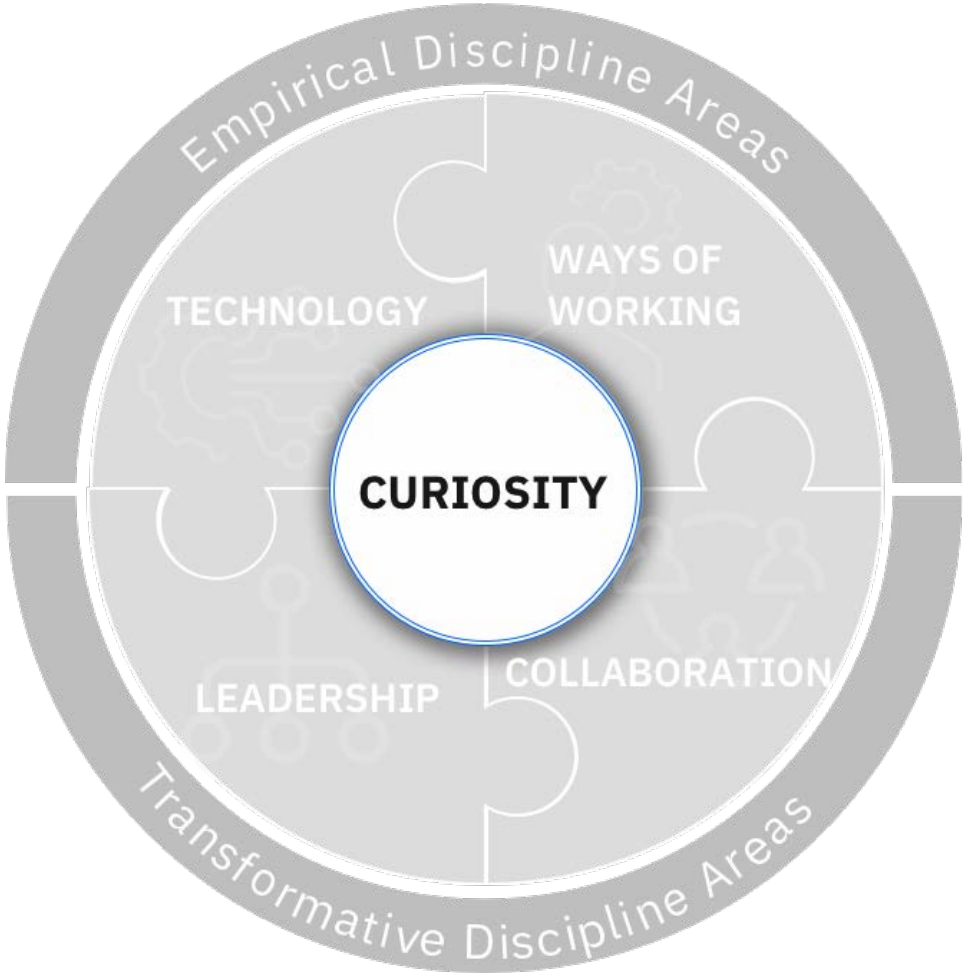
To navigate and build expertise in this path, employees must activate and leverage one of the most centralized and universal skill – curiosity. Our CEO, Arvind Krishna shares his leadership perspectives by holding CEO office hours with IBMers across the globe. This platform provides an unprecedented opportunity for employees to ask questions on any topic. During a recent session, a question came in from an IBMer about advice for career progression. The top 3 points of our CEO's advice were: 1) hone communication skills, 2) understand how you add value to any position; and 3) evolve your curiosity.

To understand at a deeper level the attributes of curiosity, our Team set out to review the literature on attributes of curiosity. We were a bit surprised to find nebulous evidence on defining what it meant to be curious; and moreover – found very little on what it meant to apply or develop curiosity in the context of performing a job role.

This led us to conduct our own internal research to validate attributes of curiosity in terms of its necessity to perform one's role and to answer the question around how one goes about developing and maturing curiosity over time. We were curious.

IBM Learning conducted research in 2020 across professional communities representing the data scientist and developer profession.

The metrics we collected combine quantitative and qualitative data on key attributes of curiosity, how to mature curiosity, and how curiosity is applied in the context of the job role.  Our methods were survey and focus groups, respectively.



# 4. Curiosity: at the heart of the matter

The survey we distributed across professional communities yielded an amazing return – over 725 responses were collected.

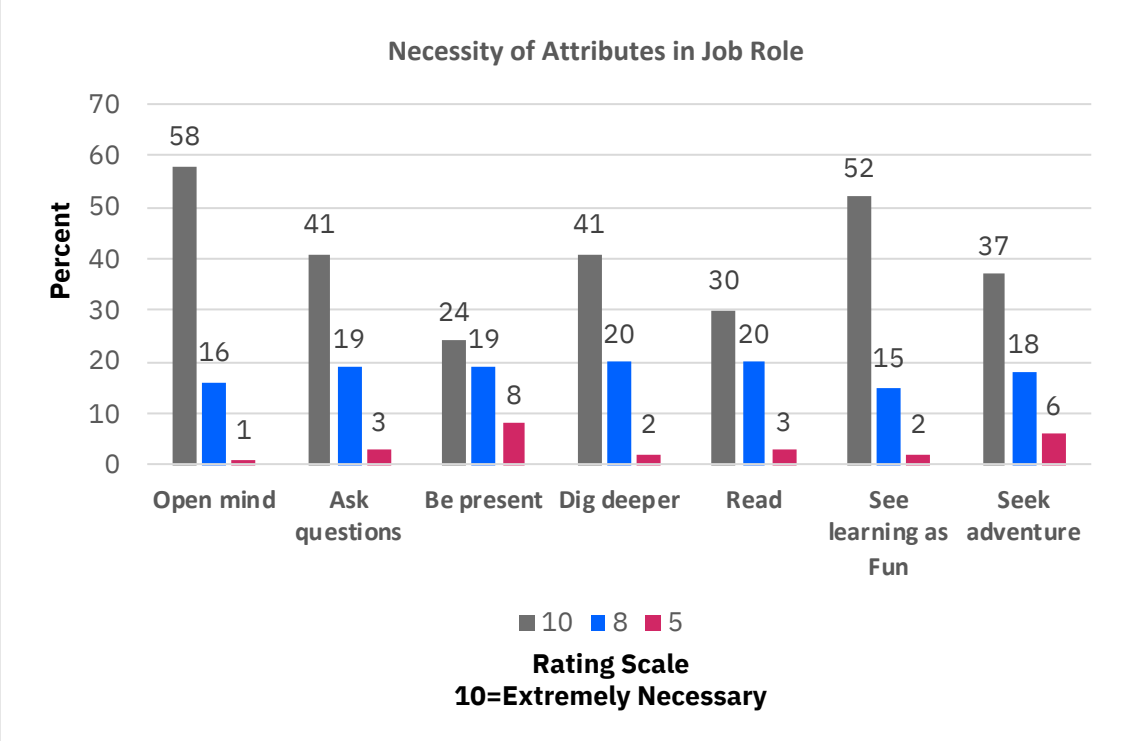
Of these responses, 58% were data scientists and 42% were developers.

Proficiency levels were proportionately distributed across beginner and intermediate level, while fewer respondents were at the mastery level (39% beginner, 44% proficient, 16% mastery).

Because the research was nebulous when it came to listing or defining curiosity, IBM Learning created an outline of characteristics and defines it as 8 key attributes:

1. Willing to be wrong
2. Keeping an open mind
3. Asking a question never asked before
4. Being present – shutting off phones and never multitasking during conversations
5. Digging deeper – never taking anything for granted
6. Read diverse readings
7. Seeing learning as fun
8. Seeking adventure

We **validated these attributes**, in the context of performing a role, by asking respondents to rate, on a scale of 1 to 10, (where 1 is never necessary, and 10 is extremely necessary) the 8 attributes according to necessity for your job. The following is a **percentile** of responses for both the data scientist and developer role.





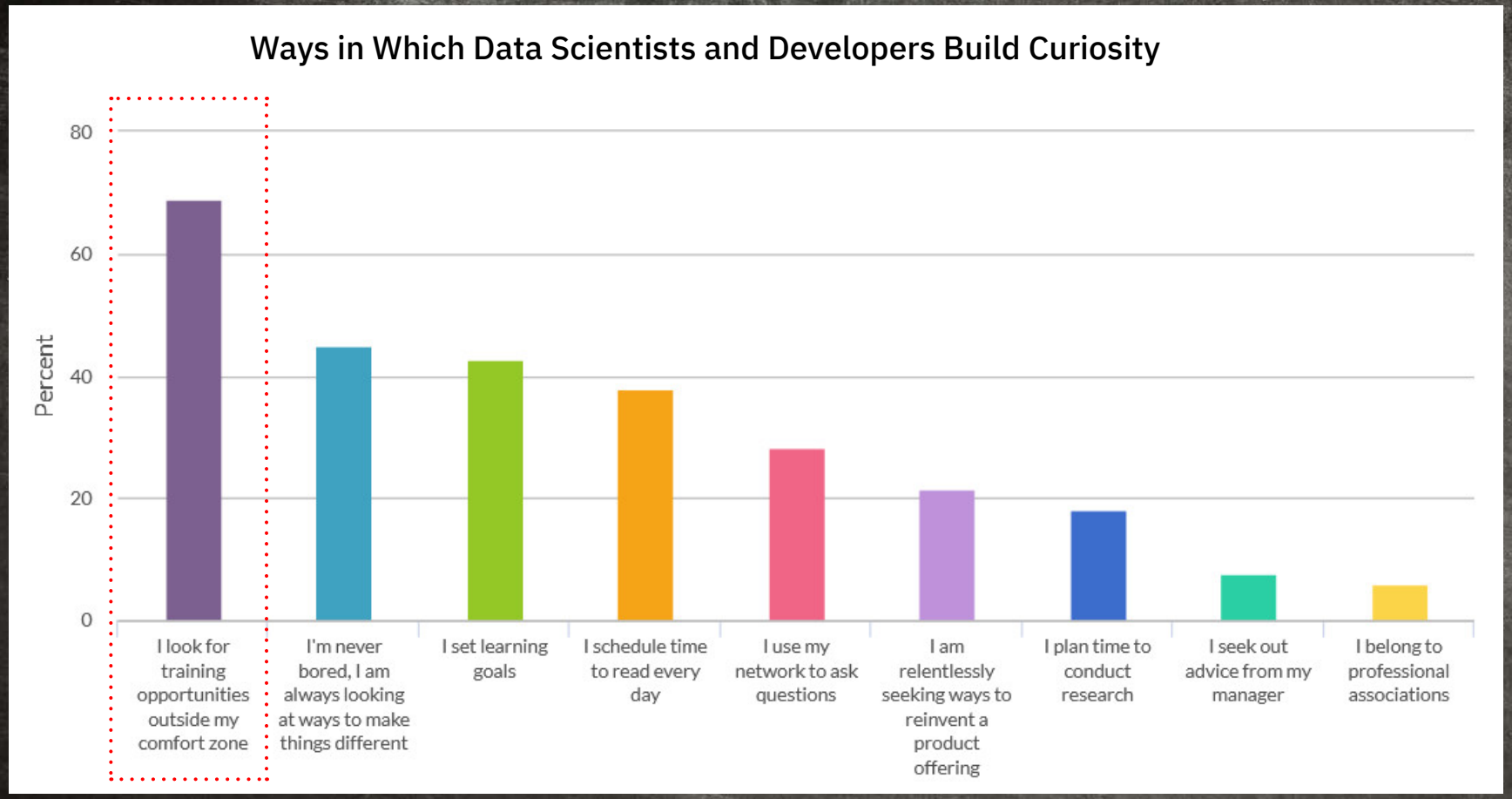
# 4. Curiosity: at the heart of the matter

We asked in what ways do you build curiosity related to the context of your role.

The data showed a unanimous response in terms of learning – we saw that over 65% of respondents look for learning opportunities outside of their comfort zone.

We will build on this at the end of this chapter; whereby we see this as supporting evidence for the continuous learning framework.

The breadth of the framework in terms of technology, ways of working, collaboration, and leadership – are indeed focus areas which absolutely can provide learning outside a comfort zone and moreover, put forward the perfect blend of skills to invoke curiosity.




**Later in this chapter, we present qualitative data to support what learning outside a comfort zone means. The last chapter in this POV shares the criticality of establishing learning goals; and this data shows over 40% build curiosity by setting learning goals.**

# 4. Curiosity: at the heart of the matter

We then wanted to know at a deeper level, what types of issues or ideas in the context of a job role for data scientists and developers – what sparks or causes curiosity?

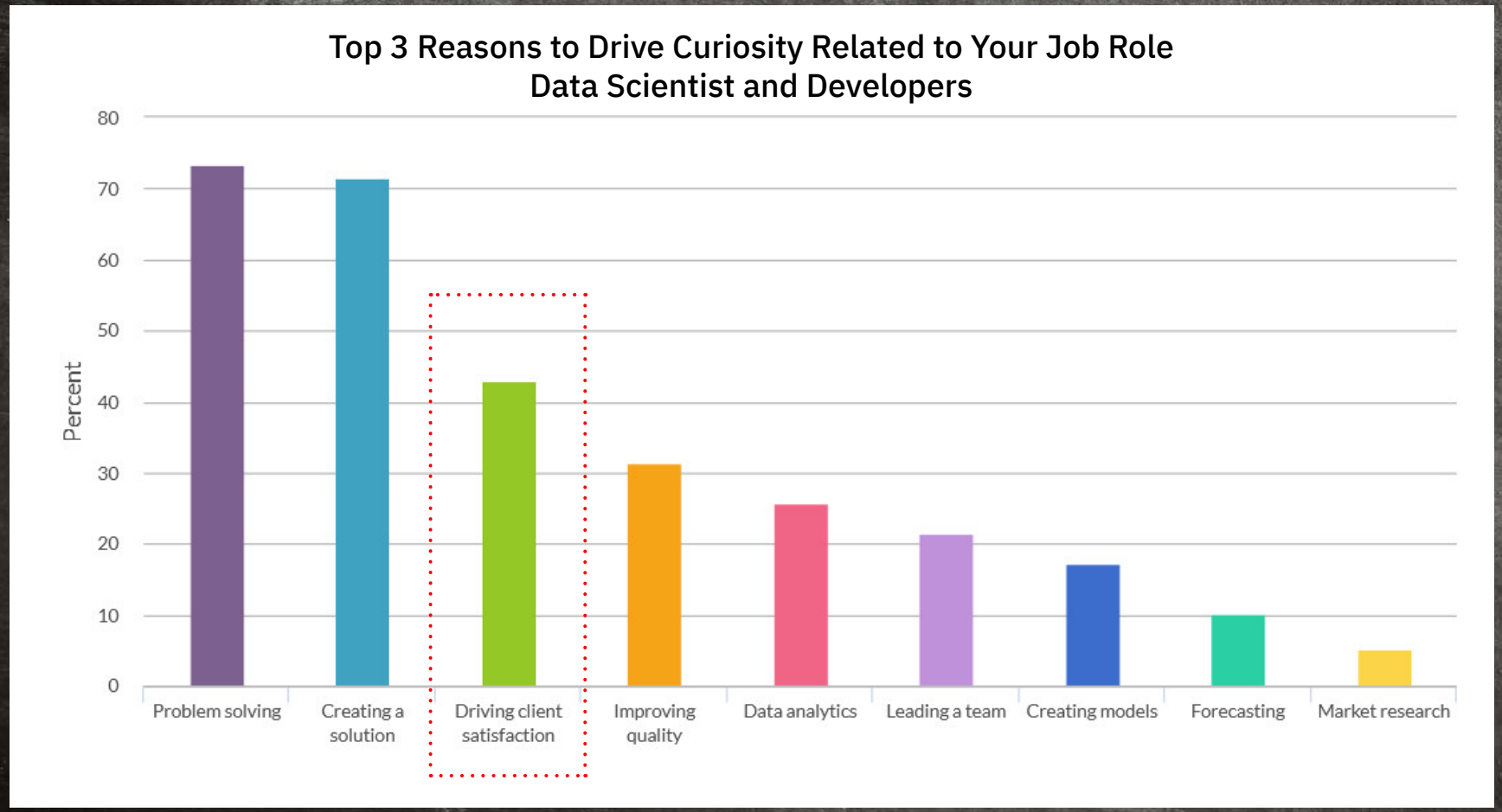
In these results, we saw an unprecedented response to show client satisfaction was among the top 3 reasons for driving curiosity within the context of a job role.

We saw that over 40% of survey respondents reported client satisfaction as a driver for curiosity.

Focus groups were used to understand this response at a deeper level.

To facilitate the focus groups, IBM Learning had over 120 IBMers enroll in a 4-week Curiosty@IBM event. We invited participants around the globe to ask 3 basic questions:

1. Why does **client satisfaction** drive curiosity?
2. What does learn **"outside your comfort zone"** mean?
3. How do you **build curiosity**?





# 4. Curiosity: at the heart of the matter

To foster a culture of curiosity, learning must support a few key elements. These elements, are tied together in terms of how IBMers view their level of curiosity and ability to build curiosity.

First, learning must never be boring – curious employees find exploration as key. Secondly, learning must be fun – and we're not speaking about gamification. Rather, curious employees need to stretch and explore those areas not yet found – so therefore, the expectation around learning is that it must challenge the imagination and be flexible enough so that it is viewed as a source to help solve business problems.

And finally learning must provide an opportunity to fail safe; meaning curious employees see curiosity and learning as a symbiotic relationship. They feel you need to look at new challenges as an opportunity to fail; and if you're not willing to fail you won't be in the right mindset to learn. Curious employees see curiosity and learning as hand-in-hand attributes – they feel the more curious you are the easier it is for learning to be fun because for these employees; they see this as an adventure.

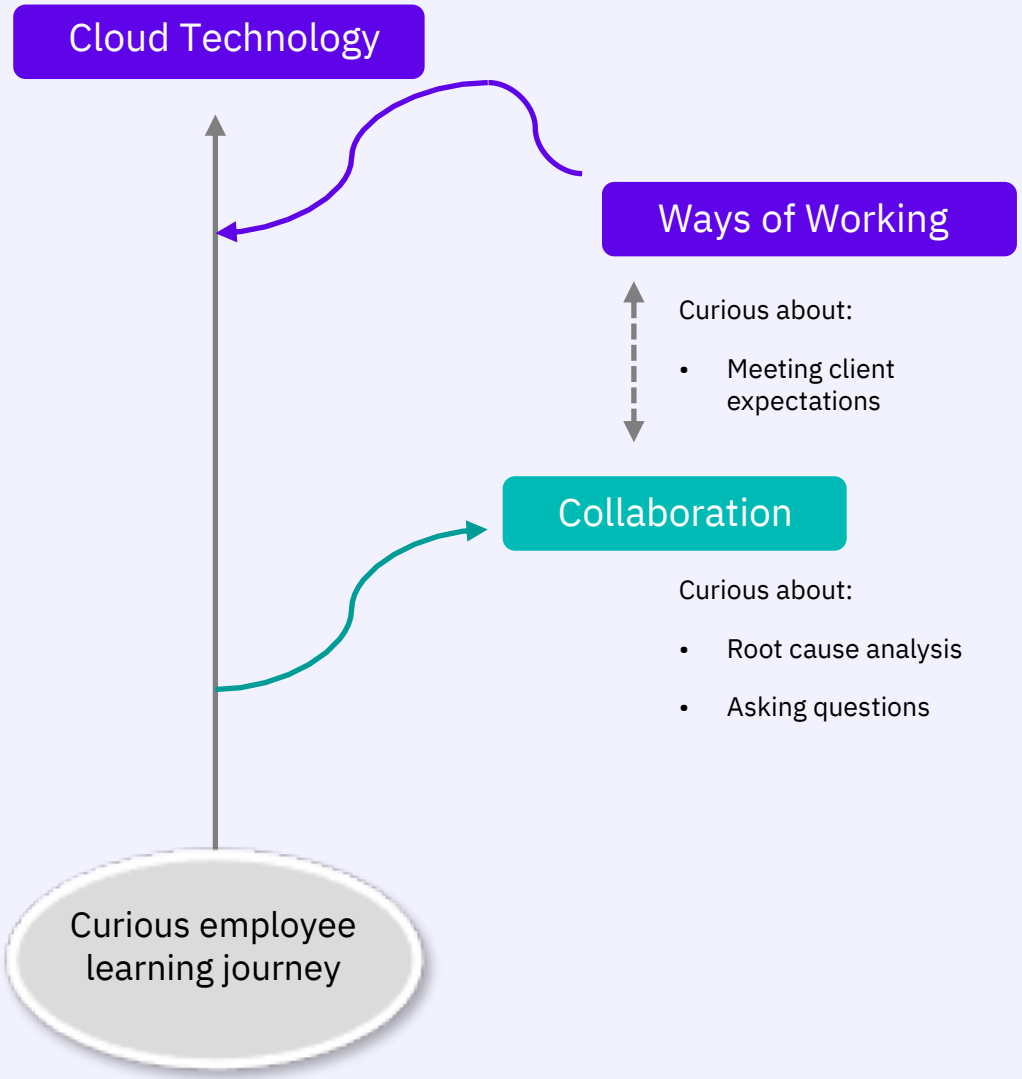
# 4. Curiosity: at the heart of the matter

The discipline framework presented earlier has 4 focus areas: technology, ways of working, collaboration, and leadership. The framework provides an unmatched tactic to foster a culture of curiosity if learning plans are built in such a way to support this methodology.

For example, in the data we presented earlier we saw that when asked about the top 3 reasons that drive curiosity; we heard client satisfaction is 1 of the top 3. During our focus group sessions, we asked why client satisfaction. We found, unanimously that employees need to know how to meet their client's expectation: the people side of the equation and fostering a trusted advisor approach to business problems is paramount to their role. Let's review top answers to these three questions:

## Why does client satisfaction drive curiosity?

1. Opportunity to learn about the people side of designing a solution
2. Want to understand a client's point of view, why they are thinking the way they are
3. Want to know more about adaptability – what is the environment by which clients are working in and how does our solution fit in.





# 4. Curiosity: at the heart of the matter

The data on how curious employees learn curiosity skills showed in our research that over 70% learn outside of their comfort zone. We asked data scientists and developers in our focus group sessions what this meant, and overall – how do they build curiosity. Here's what they had to say:

## What does "learning outside your comfort zone" mean for you?

1. Looking to the horizon of their job role because technology is changing so fast
2. Being able to answer challenges for methods in data analysis – eliminating your own bias or limitations from the solution
3. Zig-zagging in a career journey; willing to learn what's needed in unrelated positions to blend skills in a way that gives me breadth and depth in my role
4. Dealing with change is best done when you are part of it – recognize what may not be feasible actually is and take it on (growth and entrepreneur mindset)

## How do you grow curiosity as a skill?

1. Read, read, and read
2. Question every piece of information you receive
3. Use a stop and think approach
4. Anything new creates curiosity

## More, how do you grow curiosity?

1. Take time out of your role to learn things from different fields – keep your brain elastic
2. Curiosity is a matter of directing it
3. Follow forums to learn what is hot and what is not
4. Read, read, and read (did we mention this already?)



# 5. Multidisciplinary learning

Multidisciplinary (comprised of 2 or more disciplines) requires deep knowledge and is characterized by sharing from disciplines across boundaries. The results are grounded in ways of knowing and effective application.

Deep knowledge occurs as a result of a learner who is genuinely motivated by deep interest in one area; but learns across disciplines due to the critical integration points.

When we researched IBMers in terms of curiosity, one of the data points we uncovered was they like to learn beyond the "learning objectives" of a course – or outside a "learning path" prescribed. We found overwhelmingly, the data supports this idea of learning across domains and jumping from idea to idea during a learning experience.

This leads us to imagine an era of continuous learning which distributes assessments to gauge the multidisciplinary "aptitude" of a learner – and therefore to prescribe those adjacent and most appeasing levels to learn, collaborate and participate across boundaries leading to a more realistic application of competency areas.

# 6. The pace & benefits of continuous learning

The question is often asked, “what’s the right pace to be a continuous learning,” – or another way of asking is, “how do I quantify continuous learning?”

Continuous learning, though can be measured in many different ways, is not defined by consumption, nor is it characterized by number of degrees, credentials, or certifications. But rather, continuous learning is a growth mindset observed in one’s overall commitment, motivation, and drive to achieve.

Continuous learning never implies learning exhaustion – it does not imply a marathon of learning with a checker flag at the end.

Rather, continuous learning implies a journey, characterized by commitment. It is achieved step by step and at times, descriptive as a more, “walk in the park” than a marathon. Primarily driven by curiosity and marked by incremental knowledge.

Learning organizations, and to some extent, individual learners as well, prefer to have a benchmark to compare learning achievement. For this level of detail, employees at IBM average 77 hours per year.

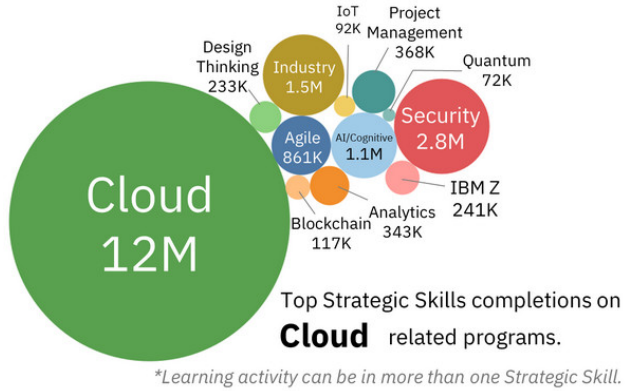
The Association for Talent Development (ATD) 2019 State of the Industry report, indicates on average employees used 34 hours per year on formal learning. The 2019 Training Magazine Industry Report reports 42 hours on average used by employees in 2019, down slightly from 2018 which was reported as 46.7.

## IBM 2019

### Hours by persona


### Hours by focus


### Course completions by interest




*Learning activity can be in more than one Strategic Skill.



# 6. The pace & benefits of continuous learning

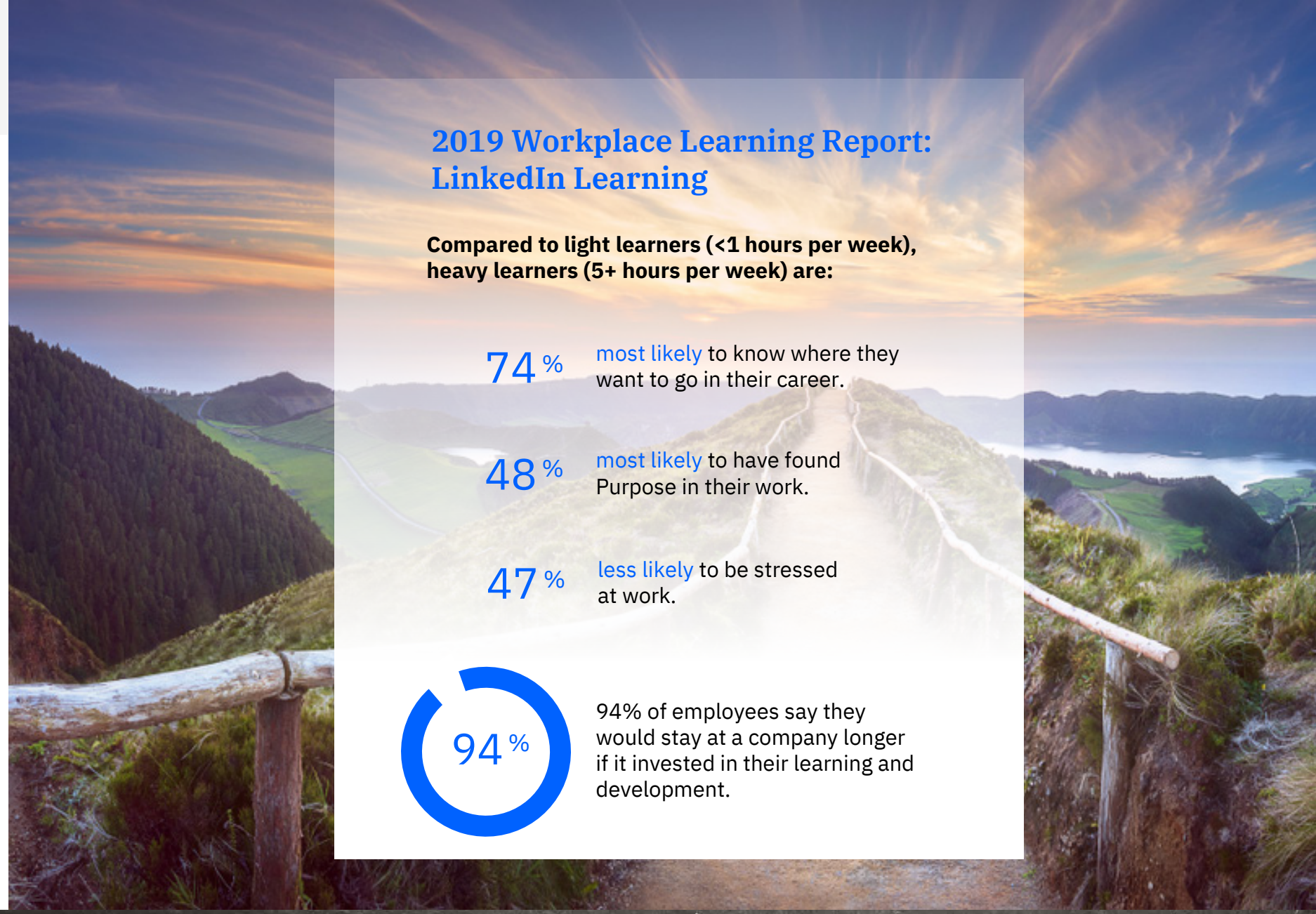
The reality of balancing work and life while investing in career mobility has long been a challenge to employees across the globe.

Similarly, most undergraduates and graduates juggle classroom, practicum experiences, time for coaching with a prized mentor, and time required to build a portfolio to secure employment.

All these are valid factors as blockers to learning time. However, the benefits of investing time for learning are real.

At IBM there is an indirect correlation between time invested in learning, and for those employees who qualify for professional level certifications.

This is amplified in a study published by LinkedIn, which reports those employees who spend more than 5 hours per week are more likely to have clarity in career goals, find greater purpose, and overall report feeling less stressed.



## 2019 Workplace Learning Report: LinkedIn Learning

**Compared to light learners (<1 hours per week), heavy learners (5+ hours per week) are:**

74% most likely to know where they want to go in their career.

48% most likely to have found Purpose in their work.

47% less likely to be stressed at work.




94% of employees say they would stay at a company longer if it invested in their learning and development.



# 7. Learning action guide: boost your learning goals

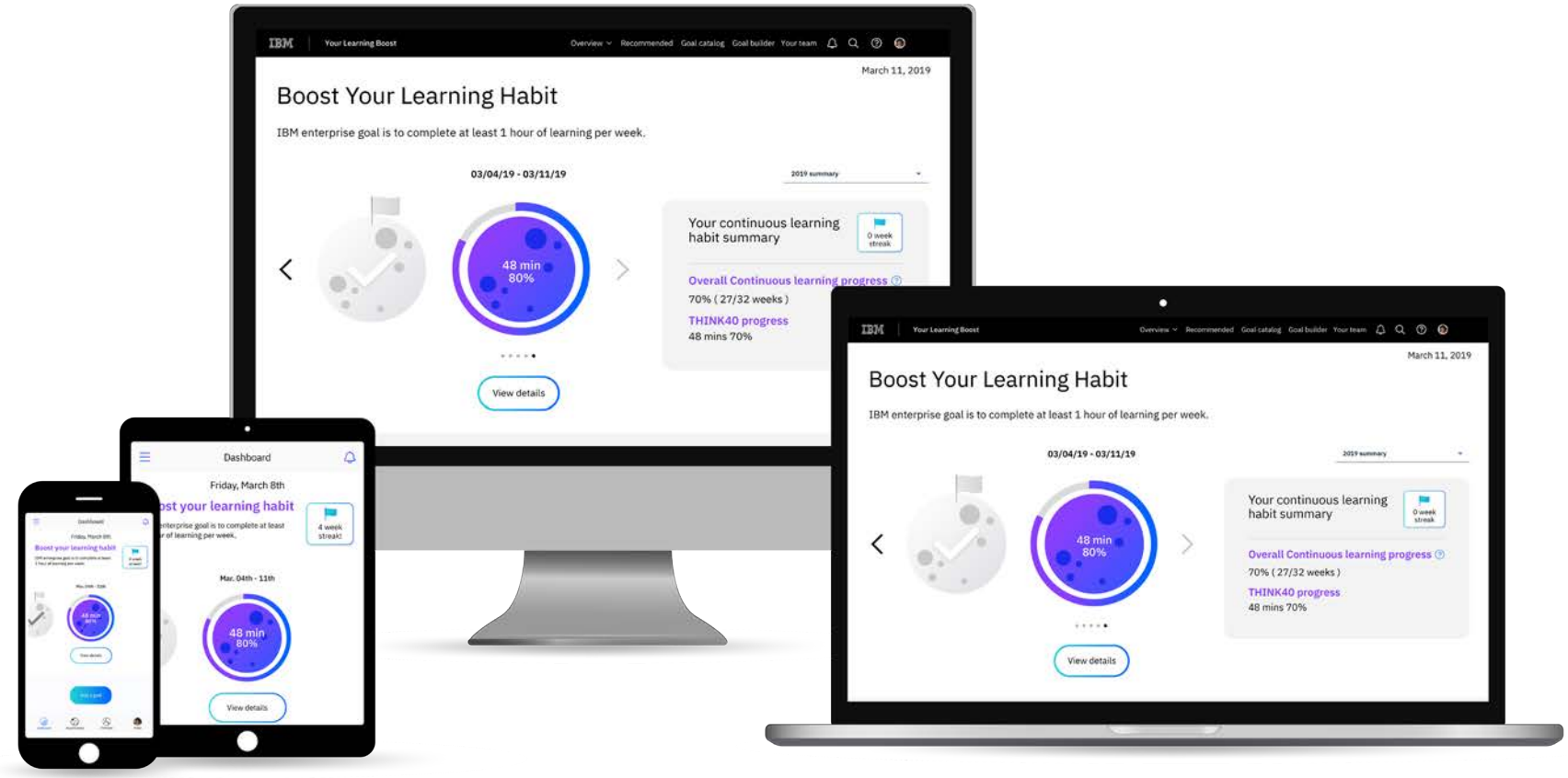
Having learners set their own goals and monitor their progress is most effective when learning and development organizations create a culture of continuous learning – rather than following prescriptive steps.

Learners need to understand where they are in their learning. Moreover, learners achieve more and do better when they feel they are in control of their learning. Robert Marzono found in a 2009 review of the research, goal setting produces a learning gain  of between 18 and 41%.

Goal setting must tap into opportunities to give autonomy, cultivate their interest (as we saw in the curiosity research) and alter their confidence level in a positive way.

The Learning Journey Action Guide is designed to help learners reflect on key focus areas.

This Action Guide can also be used to facilitate career conversations with a mentor.





# 7. Learning action guide: boost your learning goals

| Technology Learning Goals | Ways of Working Learning Goals | Leadership Learning Goals | Collaboration Learning Goals |
|---|---|---|---|
| **AI** | **Agile** | **Agility** | **Leading Teams** |
| **Future of Computing** | **Design Thinking** | **Entrepreneur mindset** | **Communication** |
| **Cloud** | **Trusted Advisor** | **Resilience** | **Problem Solving** |
| **Security** | **Client Service Mindset** | **Inclusion** | **Virtual technology** |
| **Notes** | **Notes** | **Notes** | **Notes** |

Career Discussion Priorities

# 8. Summary

A commitment to lifelong learning is paramount to keeping pace with today's rapidly changing workplace.

Organizing study areas into 2 discipline areas empirical and transformative, allow employees to understand the multidisciplinary approach to a continuous learning journey.

Curiosity is at the heart of the matter, impacting the way in which we approach problems, approach learning, and sustain a drive to learn and grow beyond a pre-defined career path.

Four key areas, technical, ways of working, collaboration, and leadership can be applied as a roadmap to configure a journey across broad segments and dynamics of the workplace.

To self-manage one's capability to contribute and lead cross-functional, multicultural teams, and complex projects, individuals must have a growth mindset and continuously invest time in learning.

# Resources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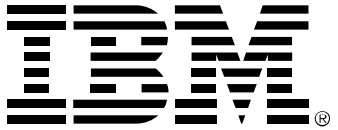



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