DATA LITERACY PROGRAM

Developing a data literate workforce

A strategy and framework for the enterprise

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Strengthen data literacy for a competitive edge

By 2020, revenues from big data and analytics products and services will eclipse $200 billion. Since 1993, we've been helping customers making those investments explore their data. Make connections they never knew existed. Sharpen their competitive edge in an aggressive global economy.

But for many, there's a major stumbling block. Our research shows only 24% of business decision makers, from junior managers to the C-suite, feel fully confident in their ability to read, work with, analyze and argue with that data—the fundamental skills that define a person's data literacy.

The good news is that the majority (78%) said they would be willing to invest more time and energy into improving their data skillset. But what's the best way to turn that interest into action?

What is data literacy?

Data literacy is the ability to read, work with, analyze and argue with data regardless of your role, skill level, or the BI tools you use.

Improving data literacy hones your decision-making skills. You learn to ask the right questions of your data, interpret your findings and take informed action.

We're committed to creating a data-literate world that can transform business and improve society. As part of that vision, we want to share our six-step approach to developing a dynamic data literacy program across your organization. A program that will give all your people the power to freely explore all your data.

The goal: to transform your businesses in ways that put you in the lead, and help you build loyalty in a workforce energized and empowered by your investment in their professional development.

[1]https://tdwi.org/articles/2017/05/04/big-data-and-analytics-spending-projected-to-soar.aspx

[2]The research was conducted by Censuswide on behalf of Qlik between August 2017 – February 2018. The research surveyed 7,377 business decision-makers (junior managers and above) across Europe, Asia and the U.S. For the full report, visit qlik.com/data-literacy-report.

Where does data literacy start? At the top.

A Chief Data Officer (CDO) is the ideal candidate to lead and advocate for your data literacy initiative. A CDO who is expert in, and enthusiastic about, working with data can inspire the organization to embrace a culture of data literacy. And when it's embedded in the CDO's own mission, potential resistance to a data literacy program is greatly reduced.

If you don't have a CDO, your champion can be the highest-ranking person who understands and believes in the value of data literacy. This may include a VP of Analytics—but could also be a data scientist, business analyst or business user. The key is passion for the mission.

Your champion should enlist at least one member from the C-suite to be an advocate for the data literacy program. Win them over by presenting the power of the program to increase the Return on Investment already made by the company in data initiatives.

Building data literacy increases the ranks of those looking for opportunities to improve business. The goal of a data literacy program is to improve everyone's ability (and motivation) to read, work with, analyze and argue with data – not just data scientists. The more people who are data-literate, the more impact your business will see: real business changes that lead to real business results.

What is a Chief Data Officer (CDO)?

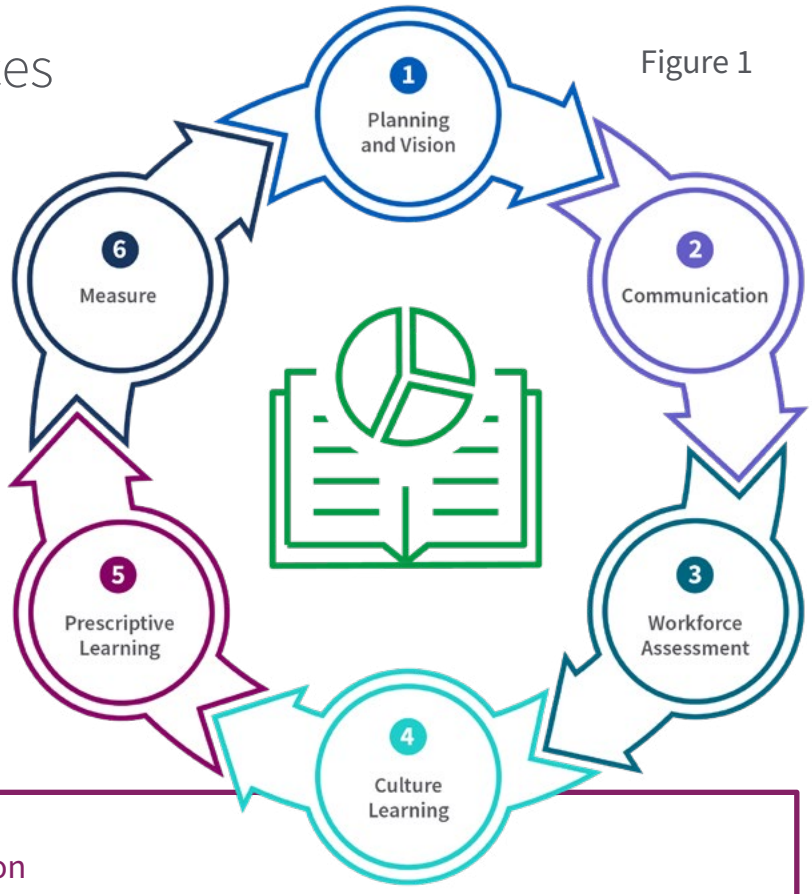
"…the chief data officer oversees a range of data-related functions that may include data management, ensuring data quality and creating data strategy. He or she may also be responsible for data analytics and business intelligence, the process of drawing valuable insights from data…"

…in a recent report on the new title, Gartner called it a "strategic planning assumption" that 90 percent of large organizations will have a chief data officer by 2019.

Source: Zetlin, Minda, "What is a chief data officer? A leader who creates business value from data," CIO, October 25, 2017.

Six steps to a best practices data literacy program

Figure 1



Regardless of the size or focus of your business, you can develop a data literacy program by following the steps illustrated in Figure 1. Let's discuss them in the order you would follow when first establishing the program. Longer term, you will repeat the cycle to grow the program across the organization.

Step 1. Planning and Vision

Putting in place a strong data literacy program starts with a formal discussion between people charged with leading data initiatives and strategies in your organization.

The agenda should define three critical aspects of the program.

Participants:

The size of your organization will help determine who should take part in the initial data literacy program. If you're a smaller business, your entire organization may take part. For larger businesses, targeting specific individuals, teams, or departments may be a more useful strategy.

Make sure that initial participants already play a role in data-driven decisions and are good communicators. Their enthusiasm in working with data will help advance the data literacy program as you bring on additional groups.

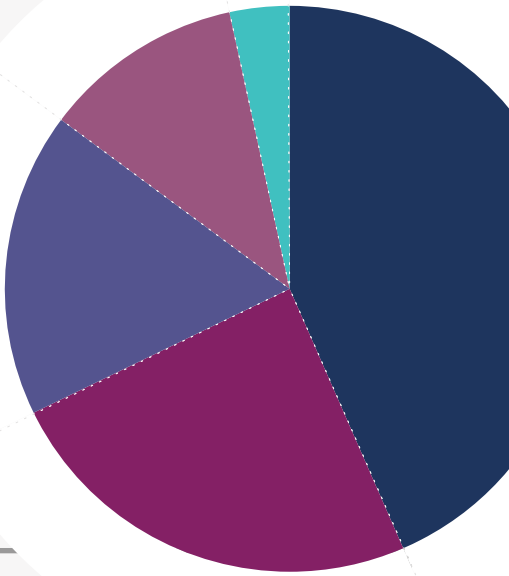
Funding:

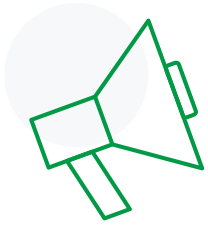
Get your funding approved from the top. You can lobby to include the program in the budget for business intelligence, change management or other data initiatives. Alternatively, propose a separate budget dedicated to establishing and supporting the data literacy program.

Adopting our six-step approach can help you stay within budget by eliminating false starts and missteps that can drive up costs. Look for cost saving techniques like those described in the section on "Getting started with data literacy". For example, use online modules for building data literacy, available at no charge.

Timeframe:

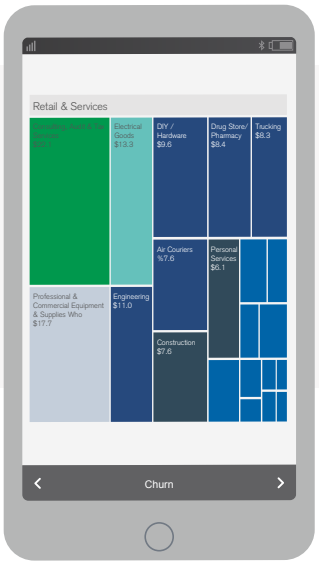
Set a target date for having your data literacy program defined and in place. As a guideline, we have typically found the first three of our recommended steps can be completed within three months (discussion, communication and assessment). The remaining steps (cultural learning, prescriptive learning and measurement) can begin the month following assessment. Your best bet for rapid adoption of the program is to allow participants to build their skills within their work day. You'll be far more successful adjusting their workloads than expecting them to devote non-work hours to skill-building.





Step 2. Communication

Get off on the right foot by preventing miscommunication and rumor. Craft a thoughtful communication plan that lets people know from the start why you are putting a data literacy program in place. Don't lead with the more detailed how and what of the program. Present the benefits to participants themselves. Data literacy will bring the excitement of discovery and more empowerment to the job they do now—but it will also advance their careers through professional development.



Be transparent about the program from the very beginning. Assure everyone that benefits will extend across the organization as the program rolls out—not just to initial participants. Make it clear that leadership is solidly behind the program because of its importance to the overall success of the business.

Once people are familiar with why a data literacy program is being put in place, you can share the details of the program through your organization's established communication channels. Celebrate the program's progress so the entire organization is aware of how participants' jobs are more exciting. Make it clear that the data literacy program is not a one-time hit but a dynamic part of the organization's growth.

Step 3. Workforce assessment

If you are the leader of a team participating in the program, don't rely on preconceptions or assumptions about team members' current comfort level with data literacy.

Introduce participants to this online self-service tool (thedataliteracyproject.org/assessment). It is accessible 24/7 at no cost.

The responses to this assessment will describe their comfort level in terms of four data personas reflecting different levels of data literacy: Data Aristocrats, Data Knights, Data Dreamers and Data Doubters. These personas are described in greater depth in the section below on "Workforce assessment: Introducing data literacy personas."

For each persona, there is a prescriptive learning roadmap an individual can follow, with immediate benefits in helping them do their current job more effectively—and prepare for the next step in their career.

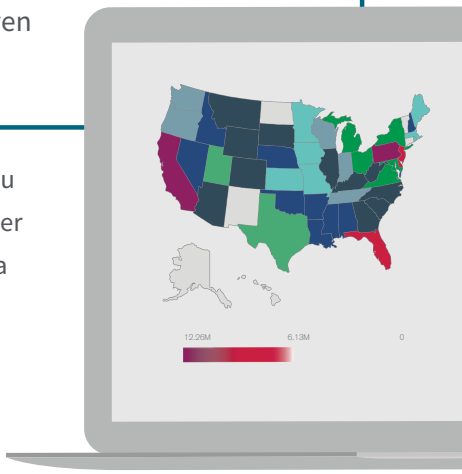
Teams and individuals should take this assessment in the first 90 days of initiating the data literacy program. Anyone in the organization with interest in data literacy can take it, not only those actively participating in the data literacy program. It's a great way to promote wider awareness of the program.

Take the assessment

Click here to launch our online self-service assessment to find out which persona maps best to your current level of data literacy. There is no cost to take the assessment. We believe in the power of data to transform business and improve society.

Step 4. Cultural learning

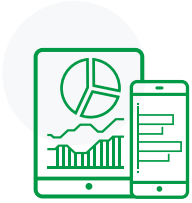
Establishing a data literacy program should be approached like other forms of change management, not as an overwhelming sea change to the way your business works. Improving data literacy takes place through cultural learning, woven into the existing culture over time as it proves its value.



Your data literacy program will directly affect cultural learning in those participating. But you can spread the learning outside the program by something as simple as promoting the greater use of data in meetings. Point to examples of current decision-making processes where data use is a requirement. Show that cultural learning has already begun in your organization.

These resources can help your campaign:

- Online Module: A Culture of Data Literacy
- Qlik® Instructor-Led Learning: Foundation of Data Analytics which covers cultural learning
- Book: "Data Fluency: Empowering your Organization with Effective Data Communication"



Step 5. Prescriptive learning

The prescriptive learning roadmaps presented later in this document aren't rigid lesson plans. Informed by hundreds of engagements with customers, roadmaps offer a "buffet" of resources from which each person can choose according to their learning style and the time they have available in their day.

Designed according to the needs of Data Aristocrats, Data Knights, Data Dreamers and Data Doubters, roadmaps help ensure that no learner feels lost trying to absorb a concept for which they have not been prepared. Or bored by wasting time on skills they have already mastered.

It's worth repeating that the success of a data literacy program depends largely on incorporating learning time consistently in daily schedules, whether it's one or four hours a week. Learners need to know that the organization believes data literacy is important in the execution of their job.

Learning, not training

Try not to use the word "training" in communicating about a data literacy program. The word can suggest yet another drain on getting daily work done. Instead, promote the direct benefits of learning about data literacy – why it can improve the way they work and advance them professionally.

Step 6. Measurement

The initial discussion of a data literacy program should define the kinds of metrics that will be used to evaluate the program and justify its extension with positive trends, data usage, number of courses completed, certifications awarded, etc.

Decide how frequently progress should be measured and make sure positive results are widely celebrated. When trends are not favorable, turn disappointments into stepping stones for improvement by quickly holding a "post mortem" that identifies what went wrong (and what went right).

Keep cycling through the steps

As teams cycle through your data literacy program, continue to repeat the six steps we have presented. Each iteration should improve and extend your data literacy program so that both individuals and the organization benefit. Consider building an introduction to data literacy into your new hire on-boarding, so cultural learning starts from day one.

Refresh discussions on data literacy every 6-12 months, celebrating successes of your program but also incorporating innovations that may build more value into the program, like gamification, and ensure a positive feedback loop.

Above all, maintain transparent communications on the data literacy program. Stay current with new developments in technology and techniques as more organizations learn to lead with data. As cultural learning in data literacy deepens and spreads across the organization, watch your competitive edge sharpen and enjoy a workforce that's energized, empowered--and loyal.

Workforce assessment: Introducing data literacy personas

In step 3, we discussed the importance of determining the initial comfort level of each program participant with data and data literacy.

In our experience, people typically fall into one of four types of data literacy personas—from the most highly skilled Data Aristocrat to the least trained, even skeptical, Data Doubter. Data Knights and Data Dreamers falling between them.

Take the assessment

Click here to launch our online self-service assessment to find out which persona maps best to your current level of data literacy.

Data Aristocrat: The most data literate employees have advanced skillsets and experience in data analytics—some may even be data scientists. Support their continued learning in storytelling, algorithms and the latest methodologies for data analytics. Help Data Aristocrats develop skills in leadership and mentoring, so they can serve as evangelists and mentor others in helping your organization lead with data.

Data Knight: Driven to become more data literate, Data Knights are eager to further their skills in data science, algorithms and statistical analysis. With an eye to progressing to Data Aristocrat, Data Knights are also looking to further their leadership, mentoring and overall business skills. Enhance their storytelling skills to demonstrate the power of data literacy.

Data Dreamer: Data Dreamers are still in the beginning stages of data literacy, having recognized the benefits of working with data in their current roles. They need foundational learning in data and analysis as well as critical and analytical thinking. They can then build on this foundation with skills in advanced analytical concepts, visualization and storytelling.

Data Doubter: Data Doubters are often skeptical of the value of data-driven decisions and processes. They need to see the benefits of using data to validate intuition and tribal knowledge on which they typically rely. Awareness training is pre-requisite to overcoming barriers to change. Doubters need to understand they can leverage their existing strengths as they begin foundational work in data literacy. It is part of their role, not a burdensome add-on. Attention to this persona is critical to preventing roadblocks that can derail the successful roll-out of a data literacy program.

Each of these personas has a different set of requirements to smoothly advance their data literacy learning and empowerment. In the next section, we present individualized roadmaps for skill building with a “buffet” of resources for developing data literacy in each persona to its full potential.

Roadmaps for data literacy learning and empowerment

The charts in this section map the appropriate learning resources to key target skillsets for each persona in developing a higher level of data literacy.

Learning resources for Data Aristocrats

Target Skillset	Desired Outcomes	Learning Resources
Leadership	Develop into leadership roles within companies	• Book: "Start with Why"
Mentoring	Leadership and mentoring of other employees	• Book: "The Mentor's Guide: Facilitating Effective Learning Relationships" • Book: "One Minute Mentoring"
Communication & Charisma	Public speaking Communication across teams	• Public speaking course/book • Book: "The Charisa Myth: How Anyone Can Master the Art and Science of Personal Magnetism" • Book: "How to Have Confidence and Power in Dealing with People" • Book: "How to Win Friends and Influence People"
Statistic and analytical skills	Continuous study of statistics and trends in the industry Keep up on predictive modeling, data science, etc.	• Podcast: "Data Skeptic" • Website: www.coursera.org • Website: www.datacamp.org • Website: www.udemy.com
Coding	Development of coding skills, such as R, python, etc. Might already have a skillset built, but need to continuously learn and improve	
Continuous learning on visualization and storytelling	Ensure development of latest tool for building advanced visualizations Advanced storytelling	• Qlik Continuous Classroom learning paths: Business Analyst, Data Architect and System Administrator • Book: "The Story Factor: Inspiration, Influence, and Persuasion through the Art of Storytelling" • Book: "Resonate: Present Visual Stories that Transform Audiences"
Other		• Blogs: https://blog.qlik.com/jordan-morrow/ • Webinar: "Data Science Central – Bridging the Gap" • Webinar: Forrester – "Using Data Literacy to Build an Insights-Driven Culture" • Data Analytics Qlik Certification

Learning resources for Data Knights

Target Skillset	Desired Outcomes	Learning Resources
Mindset	Develop skills within critical and analytical thinking Develop skills within decision literacy	•Podcast: "Freakonomics" • Podcast: "More or Less" • Book: Freakonomics Series (especially "Think like a Freak") • Book: "The Demon-Haunted World—Science as a Candle in the Dark"
Leadership	Study of leadership principles and development Learn own weaknesses and develop skills	• Book: "Start with Why" • Book: "Drive: The Surprising Truth about What Motivates Us"
Communication	Learn and develop skills within data vocabulary and fluency Communicate across horizontals and verticals to spread the message of data literacy	• Public speaking course/book • Book: "How to Win Friends and Influence People"
Statistic and analytical skills	Continuous learning of statistics and trends within the industry Keep up on predictive modeling, data science, analytical methodologies, etc.	• Qlik ILT: Foundation of Data Analytics • Podcast: "Data Skeptic" • Book: "Naked Statistics" • Book: "The Signal and the Noise: Why So Many Predictions Fail – But Some Don't"
Coding	Continuous learning and study of code needed to stay on top of job For beginners, develop and learn coding and beginning statistical languages.	
Continuous learning on visualization and storytelling	Learn skills within data storytelling Develop and acquire skills within visualization building	• Qlik Continuous Classroom Tracks: Business Analyst, Data Architect and System Administrator • Book: "The Story Factor: Inspiration, Influence, and Persuasion through the Art of Storytelling" • Book: "Resonate: Present Visual Stories that Transform Audiences"
Other		• Blogs: https://blog.qlik.com/jordan-morrow/ • Webinar: "Data Science Central – Bridging the Gap" • Webinar: Forrester – "Using Data Literacy to Build an Insights-Driven Culture"

Learning resources for Data Dreamers

Target Skillset	Desired Outcomes	Learning Resources
Mindset	Develop skills within critical and analytical thinking Develop skills within decision literacy	• Video: Decision Intelligence with Cassie Kozyrkov • Book: "The Demon-Haunted World—Science as a Candle in the Dark"
Leadership	Study of leadership principles and development Learn own weaknesses and develop skills	• Book: "First, Break All the Rules" • Book: "How to Win Friends and Influence People" • Book: "Drive"
Communication	Learn and develop skills within data vocabulary and fluency Develop the ability to communicate plans and thoughts regarding data	• Public speaking course/book • Book: "How to Win Friends and Influence People"
Statistic and analytical skills	Begin study of statistics and analytical concepts and trends Study basic knowledge and understanding of analytics	• Qlik ILT: Foundation of Data Analytics • Podcast: "Data Skeptic" • Book: "Naked Statistics" • Book: "The Signal and the Noise: Why So Many Predictions Fail – But Some Don't"
Coding	Develop beginner skills and understanding with regard to coding	
Continuous learning on visualization and storytelling	Develop beginning skills in visualization building Learn basic charts and their purposes	• Qlik Continuous Classroom Tracks: Business Analyst, Data Architect and System Administrator • Book: "The Story Factor: Inspiration, Influence, and Persuasion through the Art of Storytelling" • Book: "Resonate: Present Visual Stories that Transform Audiences"
Other		• Blogs: https://blog.qlik.com/jordan-morrow/ • Webinar: "Data Science Central – Bridging the Gap" • Webinar: Forrester – "Using Data Literacy to Build an Insights-Driven Culture"

Learning resources for Data Doubters

Target Skillset	Desired Outcomes	Learning Resources
Mindset	Overcome the mindset of "gut feel" or "we've always done it this way" and utilize critical and analytical skills Develop skills within critical and analytical thinking Develop skills within decision literacy	• Podcast: "Freakonomics" • Podcast: "More or Less" • Book: Freakonomics Series (especially "Think like a Freak") • Book: "The Demon-Haunted World—Science as a Candle in the Dark"
Leadership	Learn and start to develop strong leadership skills, or continue to build off the skills already developed here	• Book: "First, Break All the Rules" • Book: "How to Win Friends and Influence People" • Book: "Drive"
Communication	Develop the ability to properly communicate fears and holdups with data, but being willing to listen actively Learn and develop beginning skills within data vocabulary and fluency	• Book: "How to Win Friends and Influence People"
Statistic and analytical skills	Start to learn and develop very basic understandings of statistic and analytical skills and their use/need in business Begin study of statistics and analytical concepts and trends Study basic knowledge and understanding of analytics	• Qlik ILT: Foundation of Data Analytics • Podcast: "Data Skeptic" • Book: "Naked Statistics" • Book: "The Signal and the Noise: Why So Many Predictions Fail – But Some Don't"
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Getting started with data literacy

At Qlik, we believe in the power of data to transform business and improve society. We have designed a program that helps raise the level of data literacy in any organization that wants to lead with data. You do not need to be a Qlik customer to benefit from this program, nor do you need to purchase any products from Qlik. With the exception of some instructor-led learning, the program offerings are provided without charge.

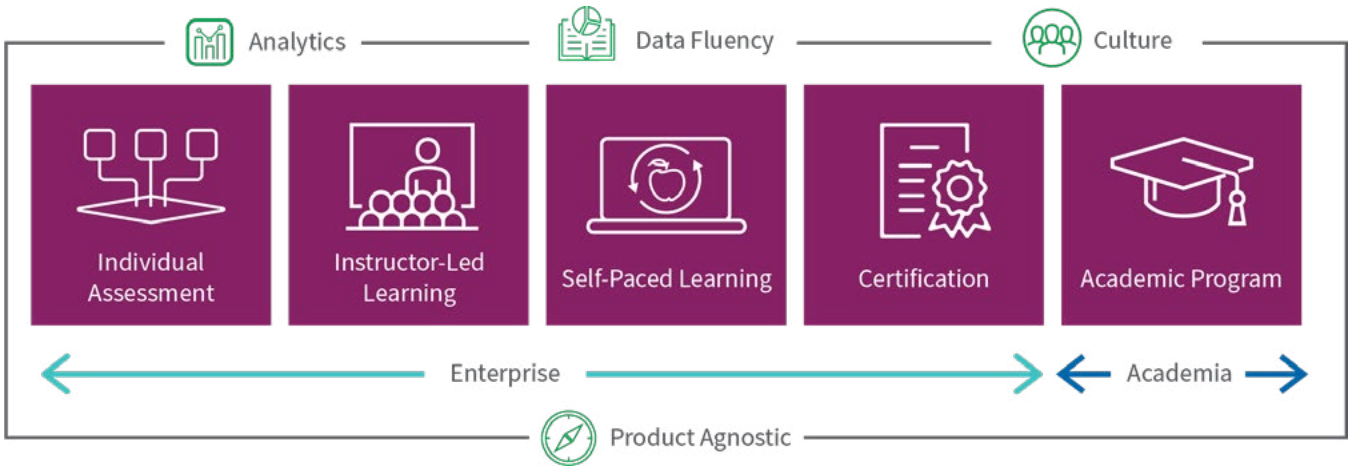
The learning we provide is product agnostic. It's built around widely adopted data, analytics and statistical concepts that can be used in any context and with any BI tool.

Our program is designed to empower everyone with the ability to confidently understand, analyze and use data, whether their work is in business, attend school or work in a non-profit organization.

Preparing students to enter today's workforce?

A recent study showed that a mere 21% of 16-24-year-olds are data literate.

The Qlik Academic Program provides students, professors and researchers at both nonprofit and non-for-profit accredited universities with free Qlik software and learning resources, including resources on data analytics and data literacy. It also includes free access to the Qlik Continuous Classroom.



For more information and to get started, visit **qlik.com/getdataliterate.**

About Qlik

Qlik is on a mission to create a data-literate world, where everyone can use data to solve their most challenging problems. Only Qlik's end-to-end data management and analytics platform brings together all of an organization's data from any source, enabling people at any skill level to use their curiosity to uncover new insights. Companies use Qlik to see more deeply into customer behavior, reinvent business processes, discover new revenue streams, and balance risk and reward. Qlik does business in more than 100 countries and serves over 48,000 customers around the world.

qlik.com