Data Scientists

A World of Data

Connecting the dots…

What is a Data Scientist?

A Pioneer

Who works with business leaders to solve problems by understanding, preparing, and analyzing data to predict emerging trends; provides recommendations to optimize results; augments human intelligence

Quantitative Training

Typically has training in quantitative discipline such as mathematics, statistics, operations research, machine learning, deep learning or econometrics; they use a variety of data and analytics tools and languages

Business Acumen

Has business acumen to understand the business problem and to influence strategic choices through data in creating and deploying the solution

Effective Communications

Effectively communicates findings and recommendations to business leaders using strong communication, visualization and storytelling skills

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Why is Data Science Important?

"Hiding within those mounds of data is knowledge that could change the life of a patient or change the world."

Atul Butte, Stanford University

Problem Solving

To reimagine and solve the most challenging problems with new data science capabilities

Monetized Data

To leverage and monetize data for competitive advantage

Improved Forecasting

To improve the accuracy and value of forecasts

Unique Insights

To discover unique, actionable insights to help transform the future of work

Optimized Results

To enable the enterprise to optimize results and drive value

Risk Management

To predict, reduce and mitigate risk across operational processes

     17 December 2019

IBM

Why is Certification for Data Scientists Needed?

Data Scientists work on mission critical issues …

…the wrong approach or flawed analysis from an inexperienced or inadequately trained data scientist can have catastrophic consequences

Enterprises need to make sense of massive amounts of data

Data Scientists must use a disciplined method-based approach to solution development

Skilled data scientists significantly improve results

Data Scientists need to have a breadth and depth of skills and experiences

Shortage of data science talent and lack of standards increases risk

An independent review of qualifications and experiences by peer certified data scientists mitigates the risk

IBM

Certification Drives Value

IT Skills and Salary Report on the Value of Certification

BENEFITS FROM CERTIFIED PERSONNEL

Benefits	North America	Latin America	EMEA	Asia-Pacific	Worldwide
Meets client requirements	45%	62%	54%	53%	51%
Closes organizational skill gaps	46%	30%	36%	45%	42%
Troubleshooting issues takes less time	35%	53%	42%	42%	40%
Gives us an edge over competitors	35%	37%	42%	38%	38%
Projects are completed faster	31%	56%	37%	45%	38%
Boosts productivity	33%	30%	32%	39%	34%
Products and services are deployed quicker	22%	41%	26%	29%	26%
Reduces employee turnover	28%	15%	19%	15%	22%
Makes hiring easier	21%	15%	16%	13%	17%
Reduces direct or indirect expenses	11%	26%	20%	15%	16%

Source: 2018 IT SKILLS AND SALARY REPORT

Certified Team Members

Faster to

✓ Troubleshoot Issues

✓ Complete Projects

Have

✓ **fewer skills gaps**

Drive

✓ **Drive Economic Benefit**

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Professional Certification from The Open Group

The Open Group is ...

A global consortium that enables the achievement achievement of business objectives through technology standards.

With more than 600 member organizations. We have a diverse membership that includes customers, systems and solutions suppliers, tool vendors, integrators and consultants, as well as academics and researchers across multiple industries.

Vision

Mission

Strategy
Platform

Programs

Our Vision:
Boundaryless Information Flow™ achieved through global interoperability in a secure, reliable and timely manner

The Open Group is ...

600+ Memberships signed in 46 Countries
Staff and local partners in 12 Countries

Australia
Austria
Belgium
Brazil
Canada
China
Colombia
Croatia
Czech Republic
Denmark
Egypt
Finland
France
Germany
Hong Kong
India
Ireland
Israel
Italy
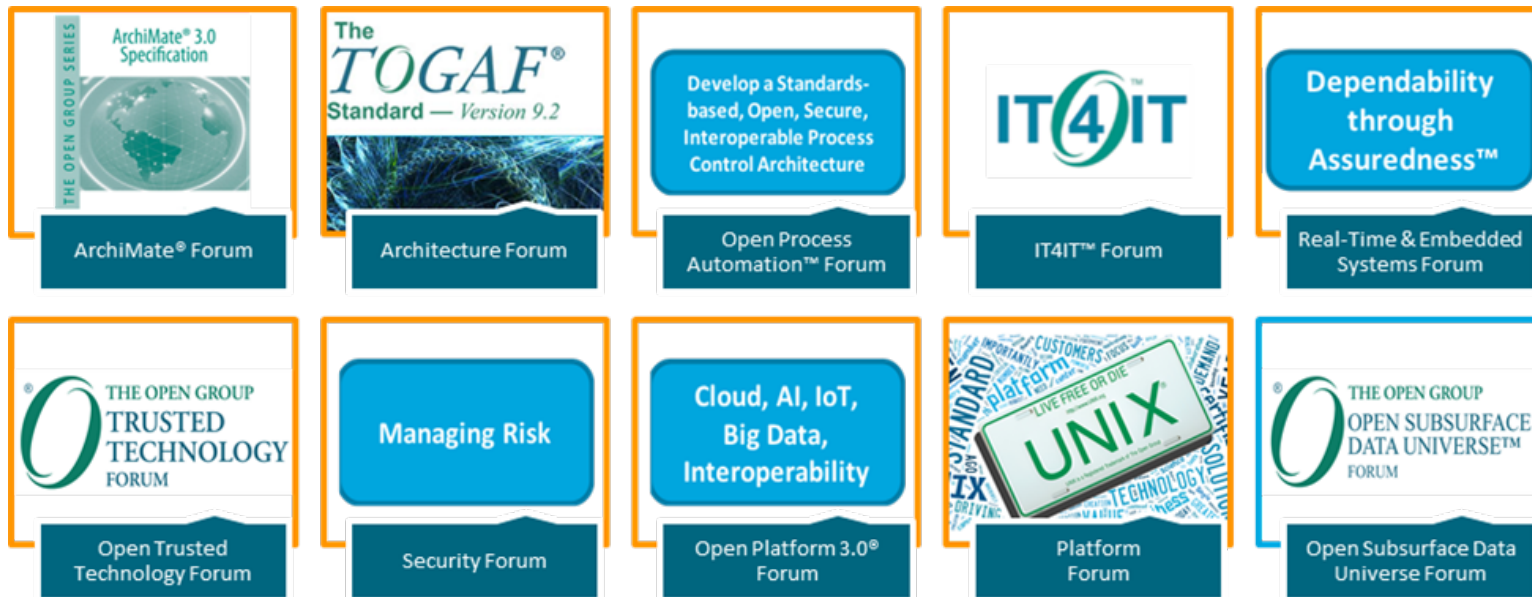Japan
Kenya
Luxembourg
Malaysia

Mexico
Netherlands
New Zealand
Nigeria
Norway
Peru
Philippines
Poland
Portugal
Romania
Saudi Arabia
Singapore
Slovakia
South Africa
Spain
Sweden
Switzerland
Taiwan
Turkey
United Arab Emirates
Uruguay
UK
USA

Forums of The Open Group

ArchiMate® 3.0 Specification — ArchiMate® Forum

The TOGAF® Standard — Version 9.2 — Architecture Forum

Develop a Standards-based, Open, Secure, Interoperable Process Control Architecture — Open Process Automation™ Forum

IT4IT — IT4IT™ Forum

Dependability through Assuredness™ — Real-Time & Embedded Systems Forum

THE OPEN GROUP TRUSTED TECHNOLOGY FORUM — Open Trusted Technology Forum

Managing Risk — Security Forum

Cloud, AI, IoT, Big Data, Interoperability — Open Platform 3.0® Forum

UNIX — Platform Forum

THE OPEN GROUP OPEN SUBSURFACE DATA UNIVERSE™ FORUM — Open Subsurface Data Universe Forum

The Open Group Industry Verticals & Consortia

Industry Verticals

Consortia

(Gated US-Only due to Export Controls pertaining to US DoD and their supplier base)

Healthcare Forum

Exploration Mining Metals and Minerals Forum

FACE Consortium

Sensor Open Systems Architecture (SOSA™) Consortium

From Membership to Standards, and Standards to Certifications

The Open Group Members

→

Forums and Work Groups

→

Standards
- STANDARDS
- BODIES OF KNOWLEDGE
- GUIDES
- MODELS
- WHITEPAPERS

→

Certifications
- PROFESSIONALS
- PROCESSES
- PRODUCTS
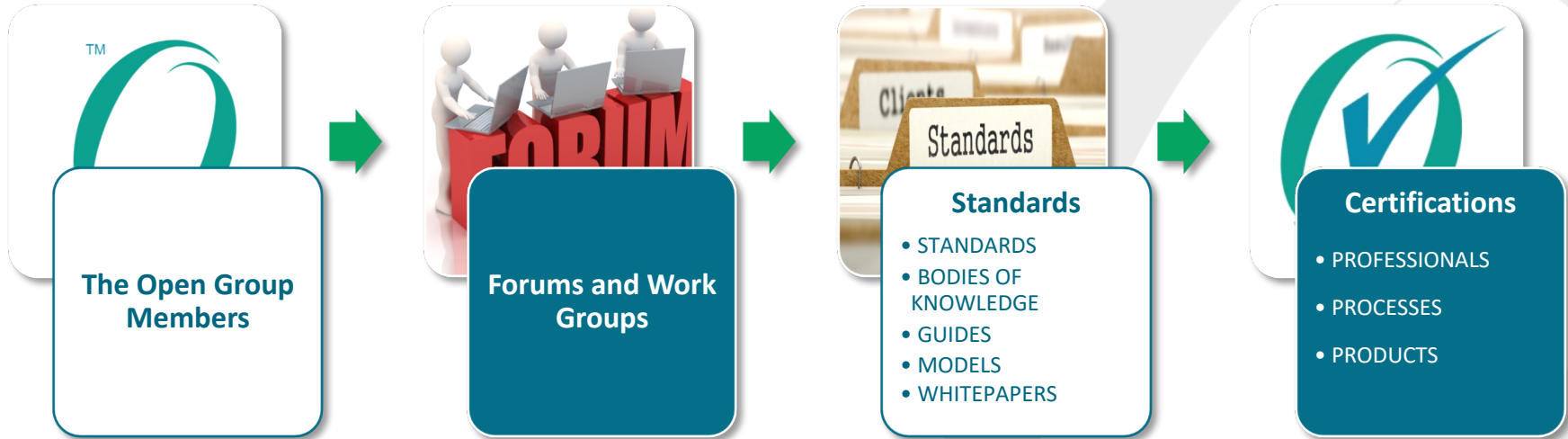
- The Open Group Certifications are created based on the Standards produced by our members.
- The standards are rigorously produced and peer reviewed by acknowledged leaders in their fields, ensuring our certifications are based on industry accepted best practices and expertise.

Professional Certification

The Open Group Certification Programs

> *"For IT professionals, The Open Group Certifications are a globally recognized, credible and portable validation that you have the knowledge, skills and expertise required."*

The Open Group Certification Programs consists of two types of certifications -

- **Knowledge Based Certification**
  - based on knowledge gained through training courses or self study

- **Experience Based Certification**
  - certification awarded based on assessment criteria aligned to specific professions

The Open Group Professions Program (Experience Based)

- Provides an objective, reliable measure of candidate capabilities and qualifications

- Ensures a more efficient and successful recruiting process with consistently positive results

- Enables organizations to formalize and recognize career progression

- Helps identify the best candidates for critical roles and responsibilities

The Open Group Professions Program currently contains three professions -

- **Open Certified Architect (Open CA)**
- **Open Certified Technical Specialist (Open CTS)**
- **Open Certified Data Scientist (Open CDS)**

Candidates can achieve certification at three levels -

- **Certified**
- **Master Certified**
- **Distinguished**

Certification is awarded through experience based profiles assessment by recognized industry experts within the appropriate field.

Experience Based Certification Process Overview

The Certification process for The Professions Program is designed to objectively assess whether a candidate meets pre-defined assessment criteria for each profession.

- A candidate completes their milestone packages, and submits them to either their Accredited Certification Partner, or in the case of direct candidates, The Open Group

- The Packages are initially reviewed and if complete, an Assessment Board is assembled

- The Assessment Board reviews and conducts an interview to assess the candidate against the assessment criteria

- Re-apply to be re-certified after 3 years
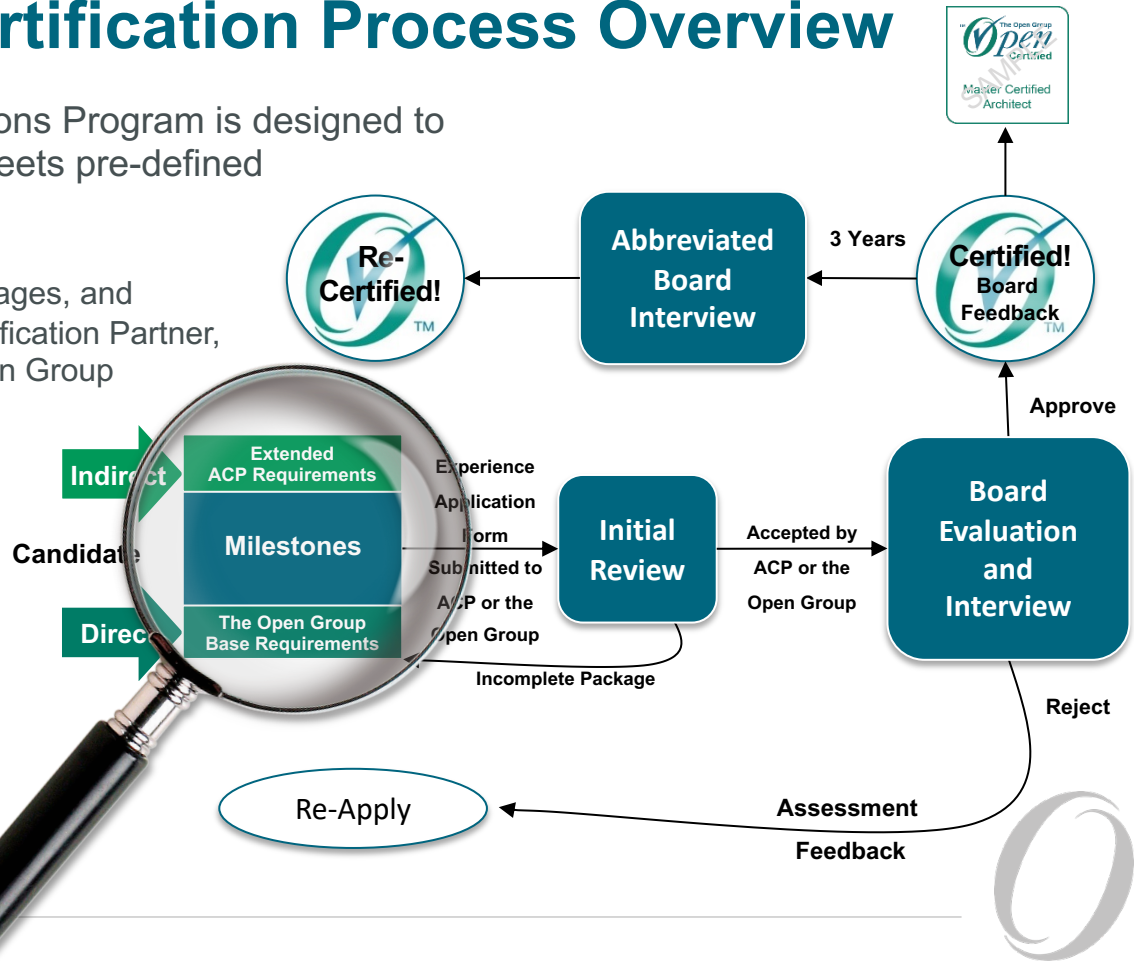
A Stepwise Path to Certification

A candidate submits 5 application forms to obtain the appropriate Milestone Badges, which are individually assessed.

(in any order, and this does not have to be completed linearly)

- 1 x Professional Communication

- 1 x Professional Development

- 3 x Experience Profiles

Open Certified Data Scientist

- Open CDS has been developed out of a requirement of the IT sector, to verify that Data Scientist professionals have the qualities and capabilities required to produce effective analysis of data to the overall improvement of business.

The key skill and contribution Data Scientists bring to their organizations is the ability to integrate statistical, economic, and computer science techniques to address business problems.

Data Scientists develop statistical models; combinations of postulates, data and inferences designed to solve a business problem using formal methods to guide and drive the development of solutions.

https://certification.opengroup.org/opencds

» For more information or to register for certification go to:

- https://www.opengroup.org/certifications/certified-data-scientist-open-cds

IBM's Global Data Scientist Professional Certification

Maureen Norton, Global Data Scientist Profession Leader

I thought I was certified, I took the courses!

The New Data Scientist Certification is Experience-Based

Knowledge-Based

is different from

Experience-Based

Several data science certification or certificate courses are knowledge-based - you take a course or series of courses and are tested on the knowledge to earn a badge, certificate or certification.

There are many of these available.

Experience-Based certifications are earned through the application of those skills to business problems, have peer-reviewed projects, giveback and leadership requirements.

There are 3 Levels of Professional Data Scientist Certification.

IBM

IBM has implemented a certification model for Data Scientist which meets The Open Group standards.

IBM's implementation of this career model is accredited by The Open Group.

IBMers who are certified receive the equivalent level of certification from The Open Group.

This provides them with recognizable certification both internally and externally.

In first year ...

Became an Award Winning Certification

and ....

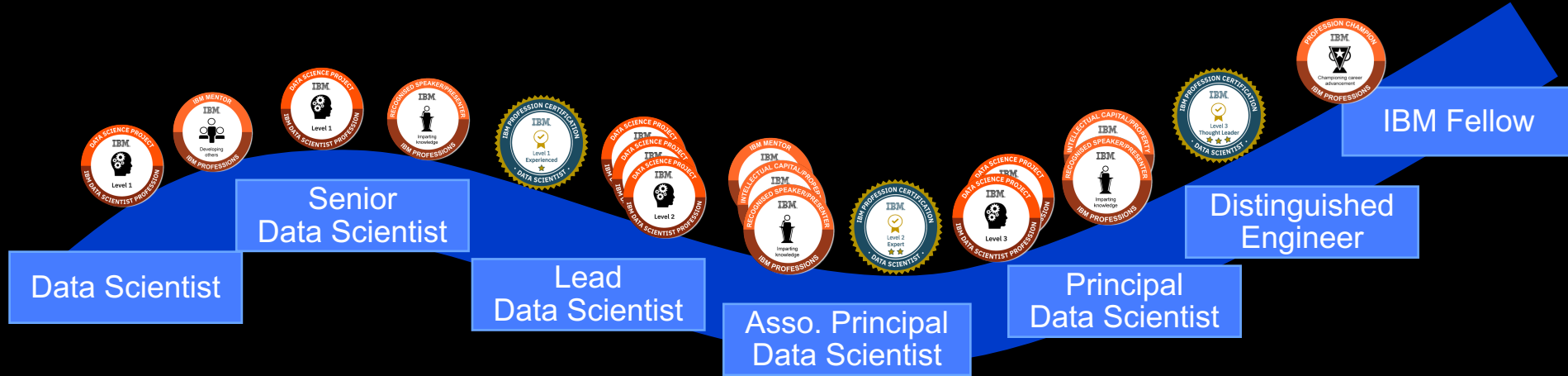Made the Top 15 Most Influential Data Scientist Certification List

IBM's implementation of this certification model was awarded a Silver Stevie Award in the Best Employers category in Sept. 2019

Today Data Scientists can go directly to The Open Group to certify

or

Companies can implement the certification model and become accredited by The Open Group as IBM did

IBM

Data Science Career Path, Career and Certification Model

Data Scientist

Senior
Data Scientist

Lead
Data Scientist

Asso. Principal
Data Scientist

Principal
Data Scientist

Distinguished
Engineer

IBM Fellow

IBM Data Scientist Profession

IBM

IBM Data Scientist Certification Career Journey

Level 1 Experienced	Level 2 Expert	Level 3 Thought Leader
< 3 years experience	3 years or more experience Can apply directly to Level 2	Level 2 Certification required before applying for Level 3

*Illustration only
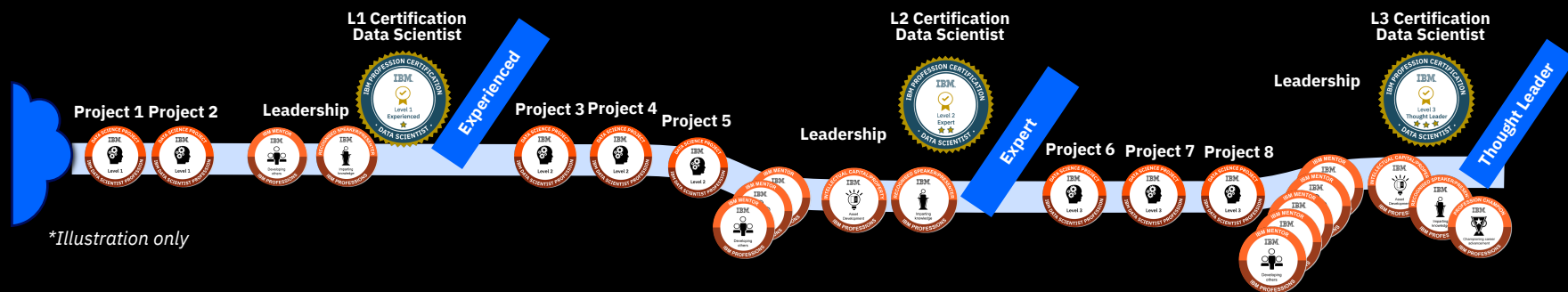
IBM Data Science Model – Certification Roadmap

L1 Experienced Level Certification

Data Scientist Skills
- *Applied level*
1. Characterize Business Problems
2. Formulate Research Question and Build Hypotheses
3. Tailor Method
4. Identify and Collect Data
5. Construct Usable Data
6. Using
7. Use Data Science Platforms Techniques and Collaboration Tools
8. Validate Model
9. Translate Insight to Business Value
10. Deploy Solutions

Project Badges (L1)
- Project #1
- Project #2

Leadership Badges
- IBM Mentor (1 req'd)

Plus 1 of the following:
- IC/IP
- Speaker/Presenter
- Teacher/Educator
- Profession Champion

Certification Badge
- Required badge set for L1
- L1 Certification Criteria

L2 Expert Level Certification

Data Scientist Skills
- Requirements from L1
- *Deep Level*
1. Characterize Business Problems
2. Formulate Research Question and Build Hypotheses
3. Tailor Method
4. Identify and Collect Data
5. Construct Usable Data
6. Using
7. Use Data Science Platforms Techniques and Collaboration Tools
8. Validate Model
9. Translate Insight to Business Value
10. Deploy Solutions

Project Badges (L2)
- Project #3
- Project #4
- Project #5

Leadership Badges
- IBM Mentor (3req'd)

Plus 2 of the following:
- IC/IP
- Speaker/Presenter
- Teacher/Educator
- Profession Champion

Certification Badge
- Required badge set for L2
- L2 Certification Criteria

L3 Thought Leader Certification

Data Scientist Skills
- Requirements from L2
- Continued education
1. Employ Collaborative Influence
2. Employ Cross Organizational Leadership
3. Manage Risks
4. Develop Strategic Plans
5. Manage Cross Organizational Projects
6. Communicate on an Executive Level
7. Advocate Stakeholders' Interests
8. Engage Thinking at Strategic Levels
9. Provide Solution Optimization
10. Innovate Breakthrough Solutions
11. Apply Governance Solutions
12. Set Metrics for Compliance

Project Badges (L3)
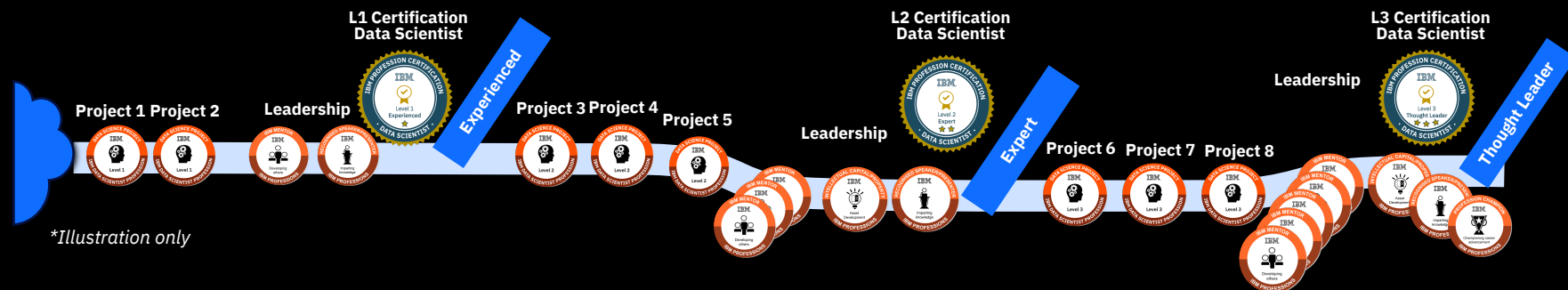- Project #6
- Project #7
- Project #8

Leadership Badges
- IBM Mentor (5 req'd)

Plus 3 of the following:
- IC/IP
- Speaker/Presenter
- Teacher/Educator
- Profession Champion

Certification Badge
- L2 certification
- Required badges for L3
- L3 Certification Criteria

Illustration only

Recertification Timeframe – every 3 years

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Top 15 data science certifications

- Certified Analytics Professional (CAP)
- Cloudera Certified Associate: Data Analyst
- Cloudera Certified Professional: CCP Data Engineer
- Data Science Council of America (DASCA) Senior Data Scientist (SDS)
- Data Science Council of America (DASCA) Principle Data Scientist (PDS)
- Dell EMC Data Science Track
- Google Certified Professional Data Engineer
- Google Data and Machine Learning
- IBM Data Science Professional Certificate
- Microsoft MCSE: Data Management and Analytics
- Microsoft Certified Azure Data Scientist Associate
- Open Certified Data Scientist (Open CDS)
- SAS Certified Advanced Analytics Professional
- SAS Certified Big Data Professional
- SAS Certified Data Scientist

TODAY'S TOP STORIES

15 data science certifications that will pay off

Looking to get ahead as a data scientist? Earning one of these data science certs will help you stand out in one of the hottest careers in IT.

By **Sarah K. White**
Senior Writer, CIO | DEC 5, 2019 3:00 AM PST

Open Certified Data Scientist (Open CDS)

The Open Group Certified Data Scientists Certification Link
https://certification.opengroup.org/opencds

IBM

Thank you!