NSQF QUALIFICATION FILE

Approved in 22nd NSQC, 19 December 2018

CONTACT DETAILS OF THE BODY SUBMITTING THE QUALIFICATION FILE

Name and address of submitting body:
IT-ITeS Sector Skills Council NASSCOM (SSC NASSCOM)
Plot No. – 7, 8, 9 & 10
Sector – 126, Noida
Uttar Pradesh - 201303

Name and contact details of individual dealing with the submission

Name: Ms Divya Gupta

Position in the organisation: Solutions & Partner Ecosystem lead

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List of documents submitted in support of the Qualifications File

1. Functional Analysis Document
2. Occupational Analysis Document
3. Qualification Pack
4. Occupational Map
5. Model Curriculum
6. Summary Sheet
7. Industry Validations

SUMMARY

1	**Qualification Title**	AI - Database Administrator
2	**Qualification Code, if any**	SSC/Q8109
3	**NCO code and occupation**	NCO - 2015/2522.0100

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4	**Nature and purpose of the qualification (Please specify whether qualification is short term or long term)**	- This is a Qualification Pack (QP) containing National Occupational Standards for the job role "AI - Database Administrator" - The purpose of the qualification is to help individuals at this job become responsible for performing different aspects of database administration and governance. The qualification will also help them become better organized and give them the skills to make appropriate decisions that pertain to the role.
5	**Body/bodies which will award the qualification**	SSC NASSCOM
6	**Body which will accredit providers to offer courses leading to the qualification**	IT-ITeS SSC Presently, Accreditation is not prescribed; affiliation is one of the models.
7	**Whether accreditation/affiliation norms are already in place or not, if applicable (if yes, attach a copy)**	Yes. SMART norms for accreditation and SSC norms are available for affiliation on SMART portals
8	**Occupation(s) to which the qualification gives access**	Artificial Intelligence and Big Data Analytics
9	**Job description of the occupation**	Individuals at this job will be responsible for storing data (public / private, consumer / enterprise) from a variety of internal and external sources in databases. They will be responsible for updating information and maintaining the database. They will be responsible for creating and administering access rules for the database based on the requirements of the team(s) using it. They will need to have strong communication skills to work with stakeholders and decision makers across multiple teams to ensure timely release of applications.
10	**Licensing requirements**	NA
11	**Statutory and Regulatory requirement of the relevant sector (documentary evidence to be provided)**	Though some standards for cyber security exist, currently no standards specific to Statutory and Regulatory exist for AI & BDA.
12	**Level of the qualification in the NSQF**	7

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13	**Anticipated volume of training/learning required to complete the qualification**	667 hours (219 hours theory, 448 hours practical)
14	**Indicative list of training tools required to deliver this qualification**	• Whiteboard and Markers • LCD Projector and Laptop for presentations • Lab equipped with the following: - • PCs/Laptops • Internet with Wi-Fi (Min 2 Mbps Dedicated) • Chart paper and sketch pens • Latest version of statistical software packages and IDEs • Chart paper, markers, picture magazines and old newspapers
15	**Entry requirements and/or recommendations and minimum age**	Graduate in any discipline preferably Science/Computer Science/Electronics and Engineering /Information Technology who is at least 21 years of age with industry experience of 2-5 years in data administration or related roles
16	**Progression from the qualification (Please show Professional and academic progression)**	This entry should refer to one or more of the following: - access to other qualifications at the same NSQF level – DevOps Engineer, Data Steward, Security Analyst - access to related qualification(s) at the next NSQF level – Senior Database Administrator, Senior DevOps Engineer, Senior Data Steward, Senior Security Analyst
17	**Arrangements for the Recognition of Prior learning (RPL)**	- Response to market forces for RPL. - RPL assessments will be the same as our normal assessments.
18	**International comparability where known (research evidence to be provided)**	Not Yet Established
19	**Date of planned review of the qualification.**	31st December 2019

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20	**Formal structure of the qualification** **Mandatory components**		
	Title of component and identification code/NOSs/Learning outcomes	**Estimated size (learning hours)**	**Level**
(i)	**Bridge Modules**	**67**	**-**
(ii)	**SSC/N8115 (Create new databases)**	**150**	**7**
(iii)	**SSC/N8116 (Maintain existing databases)**	**75**	**7**
(iv)	**SSC/N9001 (Manage your work to meet requirements)**	**50**	**6**
(v)	**SSC/N9002 (Work effectively with colleagues)**	**50**	**6**
(vi)	**SSC/N9004 (Provide data/information in standard formats)**	**50**	**6**
(vii)	**SSC/N9005 (Develop your knowledge, skills and competence)**	**25**	**6**
(viii)	**SSC/N9006 (Build and maintain relationships at the workplace)**	**25**	**6**
(ix)	**SSC/N9010 (Convince others to take appropriate action in different situations)**	**25**	**6**

	Sub Total (A)	517	
	Optional components		
	Title of component and identification code/NOSs/ Learning outcomes	**Estimated size (learning hours)**	**Level**
(i)	**SSC/N8117 (Manage database access and configuration)**	75	7

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(ii)	**SSC/N8118 (Manage computing cluster administration)**	75	7
	Sub Total (B)	150	
Total (A+B)		**667**	

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SECTION 1
ASSESSMENT

21	**Body/Bodies which will carry out assessment:** SSC NASSCOM will carry out the assessment along with the assessment partners.
22	**How will RPL assessment be managed and who will carry it out?** • *RPL assessment will be online, objective evaluation in a highly secure and proctored environment.* • *RPL assessments will be the same as our normal assessments.* • *All procedures followed will be similar to the normal assessment methodology.* • *Issuance of the qualification will be through the centralise SDMS (NSDC).* • *Quality assurance – By equating performance amongst the multiple affiliated assessment provider (AAP) and periodic analytical review and sensitivity analysis for the reliability and validity of all aspects of assessments.*

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23	**Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, reliable and fair and show that these are in line with the requirements of the NSQF.** • *SSC NASSCOM carries out online assessments through very robust platforms and proctoring methodology.* • *Conduct of assessment are through trained and certified proctors under the assessment agency, partnering with SSC NASSCOM* • *AAP affiliated to SSC NASSCOM come with strong industry references and long experience and analytical ability in assessment methodologies.* • *Periodic workshops are held with the vendors to bring them to a common understanding of the job role, its NSQF level, difficulty level as well as format and sample of assessment items.* • *Internal moderations further ensure the validity and reliability of the assessments and consistency of difficulty levels of the test questions across AAPs.* • *AAPs work with hirers on similar job roles, they use SMEs from their network to get industry relevant scenarios and assessment items aligned to the expected outcomes of the job role/QP.* • *Curriculum and real time scenarios facilitate further understanding the scope of the QP with reference to process knowledge and skills.* • *In addition, we conduct workshops with AAPs w.r.t. beta testing, review of the assessment analytics, performance of the test platform, moderation of NSQF levels, deployment and invigilation patterns and infrastructure requirements including malpractice avoidance.* • *Inferences from benchmarking and analytics patterns are taken into consideration in the development and revision of the assessment criteria and format of assessment items.* • *Reliability and validity of assessment items is standardised among AAPs.* • *Difficulty level of test items with reference to NSQF levels are ensured, so that the outcomes with reference to performance criteria of the constituent NOSs are in line with the NSQF level descriptors. This is achieved through the detailed test matrix design.*

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Please attach most relevant and recent documents giving further information about assessment and/or RPL.
Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.

ASSESSMENT EVIDENCE

Complete a grid for each component as listed in "Formal structure of the the qualification" in the Summary.

NOTE: this grid can be replaced by any part of the qualification documentation which shows the same information – ie Learning Outcomes to be assessed, assessment criteria and the means of assessment.

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24. Assessment evidences

Title of Component:

Job Role	AI – Database Administrator
Qualification Pack	SSC/Q8109
Sector Skill Council	IT-ITeS

Guidelines for Assessment:

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criterion.
6. To pass a QP, a trainee should score an average of 70% across generic NOS' and a minimum of 70% for each technical NOS.
7. In case of *unsuccessful completion*, the trainee may seek reassessment on the Qualification Pack.

Title of NOS/Unit/Component:

Assessment outcomes	Assessment Criteria for outcomes	Total Marks	Out Of	Theory	Skills Practical
1. SSC/N8115 Create new databases	PC1. identify the objectives to be addressed	100	10	3	7
	PC2. identify suitable data sources		20	7	13

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PC3. specify the storage requirements such as space and create a new database	30	10	20
PC4. import data from the identified sources (logs, files, different databases) into the database	30	10	20
PC5. create documentation on new databases for appropriate people	5	0	5

Assessment outcomes	Assessment Criteria for outcomes	Total Marks	Out Of	Theory	Skills Practical
	PC6. validate databases with appropriate people		5	0	5
	Total		**100**	**30**	**70**
2. SSC/N8116 Maintain existing databases	PC1. update and delete information from existing databases	100	20	5	15
	PC2. assist in the migration of existing databases to new environments		20	5	15
	PC3. update documentation on existing databases for appropriate people		5	0	5
	PC4. implement automated database maintenance plans and backup routines		20	5	15

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	PC5. perform manual and scheduled maintenance procedures for backup, optimization and indexing		20	5	15
	PC6. troubleshoot and resolve issues with database completeness and veracity		15	5	10
	Total		**100**	**25**	**75**
3. SSC/N9001 Manage your work to meet requirements	PC1. establish and agree your work requirements with appropriate people	100	6.25	0	6.25
	PC2. keep your immediate work area clean and tidy		12.5	6.25	6.25
	PC3. utilize your time effectively		12.5	6.25	6.25
	PC4. use resources correctly and efficiently		18.75	6.25	12.5
	PC5. treat confidential information correctly		6.25	0	6.25
	PC6. work in line with your organization's policies and procedures		12.5	0	12.5

Assessment outcomes	Assessment Criteria for outcomes	Total Marks	Out Of	Theory	Skills Practical
	PC7. work within the limits of your job role		6.25	0	6.25

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	PC8. obtain guidance from appropriate people, where necessary		6.25	0	6.25
	PC9. ensure your work meets the agreed requirements		18.75	6.25	12.5
	Total		**100**	**25**	**75**
4. SSC/N9002 Work effectively with colleagues	PC1. communicate with colleagues clearly, concisely and accurately	100	20	0	20
	PC2. work with colleagues to integrate your work effectively with them		10	0	10
	PC3. pass on essential information to colleagues in line with organizational requirements		10	10	0
	PC4. work in ways that show respect for colleagues		20	0	20
	PC5. carry out commitments you have made to colleagues		10	0	10
	PC6. let colleagues know in good time if you cannot carry out your commitments, explaining the reasons		10	10	0
	PC7. identify any problems you have working with colleagues and take the initiative to solve these problems		10	0	10

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	PC8. follow the organization's policies and procedures for working with colleagues		10	0	10

Assessment outcomes	Assessment Criteria for outcomes	Total Marks	Out Of	Theory	Skills Practical
	Total		**100**	**20**	**80**
5. SSC/N9004 Provide data/information in standard formats	PC1. establish and agree with appropriate people the data/information you need to provide, the formats in which you need to provide it, and when you need to provide it	100	12.5	12.5	0
	PC2. obtain the data/information from reliable sources		12.5	0	12.5
	PC3. check that the data/information is accurate, complete and upto-date		12.5	6.25	6.25
	PC4. obtain advice or guidance from appropriate people where there are problems with the data/information		6.25	0	6.25
	PC5. carry out rule-based analysis of the data/information, if required		25	0	25
	PC6. insert the data/information into the agreed formats		12.5	0	12.5

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	PC7. check the accuracy of your work, involving colleagues where required		6.25	0	6.25
	PC8. report any unresolved anomalies in the data/information to appropriate people		6.25	6.25	0
	PC9. provide complete, accurate and up-to-date data/information to the appropriate people in the required formats on time		6.25	0	6.25
	Total		**100**	**25**	**75**

Assessment outcomes	**Assessment Criteria for outcomes**	**Total Marks**	**Out Of**	**Theory**	**Skills Practical**
6. SSC/N9005 Develop your knowledge, skills and competence	PC1. obtain advice and guidance from appropriate people to develop your knowledge, skills and competence	100	10	0	10
	PC2. identify accurately the knowledge and skills you need for your job role		10	0	10
	PC3. identify accurately your current level of knowledge, skills and competence and any learning and development needs		20	10	10

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	PC4. agree with appropriate people a plan of learning and development activities to address your learning needs		10	0	10
	PC5. undertake learning and development activities in line with your plan		20	10	10
	PC6. apply your new knowledge and skills in the workplace, under supervision		10	0	10
	PC7. obtain feedback from appropriate people on your knowledge and skills and how effectively you apply them		10	0	10
	PC8. review your knowledge, skills and competence regularly and take appropriate action		10	0	10
	Total		**100**	**20**	**80**
7. SSC/N9006 Build and maintain relationships at the workplace	PC1. build rapport with appropriate people at the workplace	100	10	3	7
	PC2. develop new professional relationships		10	3	7

Assessment outcomes	Assessment Criteria for outcomes	Total Marks	Out Of	Theory	Skills Practical
	PC3. build alliances to establish mutually beneficial working arrangements		10	3	7

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	PC4. foster an environment where others feel respected		10	4	6
	PC5. identify and engage a diverse range of influential contacts		10	4	6
	PC6. obtain guidance from appropriate people, wherever necessary		10	3	7
	PC7. attentively listen to ideas and give constructive feedback		10	3	7
	PC8. promptly resolve conflicts between self or others		10	2	8
	PC9. work with colleagues to deliver shared goals		10	2	8
	PC10. recognize the contributions made by your colleagues		10	3	7
	Total		**100**	**30**	**70**
8. SSC/N9010 Convince others to take appropriate action in different situations	PC1. gather needs of concerned people	100	10	0	10
	PC2. adapt arguments to consider diverse needs		15	0	15
	PC3. use small wins as milestones to gain support for ideas		25	10	15
	PC4. persuade with the help of concrete examples or evidences		25	10	15

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	PC5. take structured actions to reach consensus on the course of action		25	10	15
	Total		**100**	**30**	**70**

Elective 1 – Traditional Databases **Total Marks: 100**				**Marks Allocation**	
Assessment outcomes	**Assessment Criteria for outcomes**	**Total Marks**	**Out Of**	**Theory**	**Skills Practical**
1. SSC/N8117 Manage database access and configuration	PC1. define and test user access rules for databases	100	15	5	10
	PC2. define encryption standards for the database		10	3	7
	PC3. perform load / stress testing to ensure the database does not crash in a DDoS (Distributed Denial of Service) attack		10	3	7
	PC4. ensure access to specific data and form of the data and provide deployment support to appropriate people using the databases		15	5	10
	PC5. monitor ongoing and forecasted workloads and determine consumption of data storage and compute resources		10	3	7

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	PC6. monitor logs, server usage, and performance metrics to ensure functionality and accessibility		10	3	7
	PC7. develop reports on database utilization, availability and performance metrics for relevant stakeholders		10	3	7
	PC8. troubleshoot database utilization, availability and performance issues and remediate known impacting vulnerabilities		10	2	8
	PC9. oversee the availability and disaster recovery strategy for the database environment		10	3	7
	Total		**100**	**30**	**70**

Elective 2 – Clusters **Total Marks: 100**				**Marks Allocation**	
Assessment outcomes	**Assessment Criteria for outcomes**	**Total Marks**	**Out Of**	**Theory**	**Skills Practical**
1. SSC/N8118 Manage computing cluster administration	PC1. define the size of the cluster based on data to be stored	100	10	3	7
	PC2. identify quicker ways to add or remove nodes using cluster monitoring tools		10	3	7

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	PC3. deploy and manage clusters		10	3	7
	PC4. setup cluster configurations using cookbooks, etc.		10	3	7
	PC5. define encryption standards at rest and in motion for data stored on the cluster		10	3	7
	PC6. create documentation on computing clusters		5	0	5
	PC7. validate computing clusters with appropriate people		5	0	5
	PC8. administer cluster access for appropriate people		10	3	7
	PC9. evaluate cluster requirement estimates through capacity planning		10	3	7
	PC10. monitor cluster connectivity and performance and		10	3	7
	recommend efficiencies				
	PC11. troubleshoot issues with cluster connectivity and performance with appropriate people		10	3	7
	Total		**100**	**27**	**73**

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Outcomes to be assessed/NOSs to be assessed	Assessment criteria for the outcome

Means of assessment 1

Proctored online assessments (LAN and Web based), carried out using a variety of question formats applicable for linear / adaptive methodologies; performance criteria being assessed via situation judgement tests, simulations, code writing, psychometrics and multiple-choice questions etc.

Means of assessment 2

NA

Pass/Fail

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criterion.
6. To pass a QP, a trainee should score an average of 70% across generic NOS' and a minimum of 70% for each technical NOS.
7. In case of *unsuccessful completion*, the trainee may seek reassessment on the Qualification Pack.

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SECTION 2

25. EVIDENCE OF LEVEL

Title/Name of qualification/component: AI - Database Administrator		**Level:** 7	
NSQF Domain	**Key requirements of the job role**	**How the job role relates to the NSQF level descriptors**	**NSQF Level**
Process	**Requires a command of wide-ranging specialised theoretical and practical skills, involving variable routine and nonroutine contexts.** • Identify the objectives to be addressed while creating and maintaining databases • Create documentation on new databases for appropriate people • Update and delete information from existing databases • Perform migration existing databases to new environments • Monitor logs, server usage, and performance metrics to ensure functionality and accessibility • Identify and refer anomalies to superiors • Deploy and manage clusters • Set up cluster configurations using	The individual in this role must work in a constantly changing environment where he/she needs to actively engage with other stakeholders within the company who wish to access databases and utilize relevant data. To perform his/her role effectively, the individual requires a vast understanding of the processes associated with providing access to data. The individual needs to combine a knowledge of the processes along with a solid understanding of the contexts where these processes can be performed.	7

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	cookbooks, etc.		
Professional knowledge	**Wide-ranging factual and theoretical knowledge in broad contexts within a field of work or study.** • The range of standard templates and tools available and how to use them • Different data sources and how to access documents and information from them	The individual in the role must have a vast amount of knowledge across organizational policies, database tools, databases, disaster recovery strategies and different computing platforms. This knowledge across various disciplines must be accompanied with an in-depth understanding of each discipline in order to	7

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NSQF Domain	Key requirements of the job role	How the job role relates to the NSQF level descriptors	NSQF Level
	• Knowledge of different databases, including relational and NoSQL • Knowledge of how to create new databases • Organizational policies, procedures and guidelines which relate to maintaining existing databases • Knowledge of disaster recovery strategies for the database environment • Different tools to repair or recover data from corrupted databases and to monitor clusters • Different capacity planning considerations such as data redundancy, overhead and compression, IOPS (Input/Output Operations per Second) • How to use different cloud or distributed computing platforms such as AWS, Azure, Hadoop and their affiliated services	perform this role effectively.	

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Professional skill	**Wide range of cognitive and practical skills required to generate solutions to specific problems in a field of work of study.** • Query and write scripts to acquire and understand the data • Work on various operating systems such as linux, ubuntu, or windows • Run and create different functions to update or delete data from the databases • Migrate a database to a new architecture	The role demands a skillset that allows the individual to create and maintain databases. This requires a wide range of skills across scripting, operating systems and architectures. The individual therefore needs a wide range of skills and must have the analytical ability to put these skills in practice.	7

Title/Name of qualification/component: AI - Database Administrator			**Level:** 7
NSQF Domain	**Key requirements of the job role**	**How the job role relates to the NSQF level descriptors**	**NSQF Level**
	• Perform load / stress testing on the database • Manage database capacity by monitoring filegroup sizes and growth rates • Identify database consumption and allocate storage and compute resources • Develop reports on database utilization, availability and performance metrics for		

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	relevant stakeholders • Define the size of computing cluster and administer its access for appropriate people		
Core skill	**Good logical and mathematical skill understanding of social political and natural environment and organising information, communication and presentation skill.** • Create new databases according to the company's storage requirements • Define encryption standards and user access rules for the database • Implement database maintenance plans and backup routines in line with industry standards • Perform manual and scheduled maintenance procedures for backup, optimization, and indexing of databases • Awareness of the regulatory data	The individual should possess in depth knowledge of the tools required to create and maintain databases. He/she must also understand larger business, technological and regulatory trends. This would enable him/her to put these skills into use to obtain appropriate and favourable outcomes.	7

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	frameworks across the world (such as GDPR)		

Title/Name of qualification/component: AI - Database Administrator		**Level:** 7	
NSQF Domain	**Key requirements of the job role**	**How the job role relates to the NSQF level descriptors**	**NSQF Level**

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Responsibility	**Full responsibility for output of group and development.** • Listen effectively and orally communicate information accurately with attention to details • Check your work is complete and free from errors • Make decisions on suitable courses of action • Apply balanced judgements to different situations • Ask for clarification and advice from appropriate people • Build and maintain positive and effective relationships with clients • Check that your own and/or your peers' work meets customer requirements • Plan and organize your own work to achieve targets and deadlines • Work with colleagues to deliver shared goals	The role demands working in a team to create and maintain databases. This may involve helping peers with their work from time to time and providing feedback and advice to help improve the quality of their work. Since this role is likely to have people reporting to it, the individual performing this role is supposed to take responsibility for the output and the development of the entire team.	7

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SECTION 3
EVIDENCE OF NEED

26	**What evidence is there that the qualification is needed? What is the estimated uptake of this qualification and what is the basis of this estimate?** AI and Big Data Analytics relies on timely, accurate data delivered within an insightful context to deliver value. To do so, companies require professionals who can step forward, take a leadership role, and move the enterprise to act. For this, they require Database Administrators who are expected to be stewards of customer information, transaction data and intellectual property. Database Administrators are expected to have the knowledge and education to secure sensitive data on behalf of companies and users. According to an article by ZDNet, Database Administrators are one of the 10 IT jobs that will the most in-demand in 2020. Database Administrators were also considered one of the 7 top in-demand IT jobs in 2018 by the CIO magazine. *Source: https://www.zdnet.com/article/the-10-it-jobs-that-will-be-most-in-demand-in-2020/ Source:https://www.cio.com/article/3235944/hiring-and-staffing/hiring-the-most-in-demand-techjobs-for-2018.html* The US Bureau of Labor Statistics also states that the number of Database Administrators in the US is increasing at an annual rate of 11%, which according to it, is faster than most occupation categories. *Source:https://www.bls.gov/ooh/computer-and-information-technology/database-administrators.htm* The increased demand for Database Administrators can be attributed to the fact that companies are moving towards more software offerings that include AI, and the ability to create AI-powered models. For AI and AI-powered products to work effectively, having databases maintained by competent professionals is key.
27	**Recommendation from the concerned Line Ministry of the Government/Regulatory Body. To be supported by documentary evidences** In place. MeitY has approved all the 19th QPs w.r.t. AI & BDA. Currently, there are no regulations on AI & Big data by the government or any other industrial body.

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	However, NASSCOM is working with NITI Aayog to build national policies.
28	**What steps were taken to ensure that the qualification(s) does (do) not duplicate already existing or planned qualifications in the NSQF? Give justification for presenting a duplicate qualification** *Cleared by QRC at NSDC. There is only no other qualification in the NQR with respect to the Artificial Intelligence and Big Data Analytics, which is – 'AI - Database Administrator.' This is a specific role that is responsible for performing different aspects of data quality management.*
29	**What arrangements are in place to monitor and review the qualification(s)? What data will be used and at what point will the qualification(s) be revised or updated? Specify the review process here** • *Monitoring and review of the qualifications is a project executed every two years.* • *While adoption by industry and academia is one good indicator for the usefulness of a qualification pack, we adopt multiple approaches for periodic review and maintenance of the qualifications.*
	1. *Sub-sector wise Industry council, headed by council chair is a formal part of our governing structure. The council participates and steers the qualifications creation and upkeep. This council is a body elected by over 1800 member companies of NASSCOM.* 2. *Special interest groups are formed for a more focused and detailed review of the qualifications in the light of emerging knowledge and skill areas.* 3. *Events and workshops are conducted periodically to validate, monitor and review the qualification.* 4. *As a part of due diligence process for affiliating Training providers, we do ask them for validation from their hirers – thus covering even medium, small and micro segment of the hiring companies.* 5. *Any institution / individual is welcome to send feedback, which is recorded and considered during next review cycle.* *The above data is used to update the Qualification and this revision is published annually. Nonetheless, if a major feedback is received prior to the planned review period, the change is considered in consultation with the industry council.*

Please attach most relevant and recent documents giving further information about any of the topics above. Give the titles and other relevant details of the

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document(s) here. Include page references showing where to find the relevant information.

- NASSCOM Talent Demand and Supply Report - AI and Big Data Analytics

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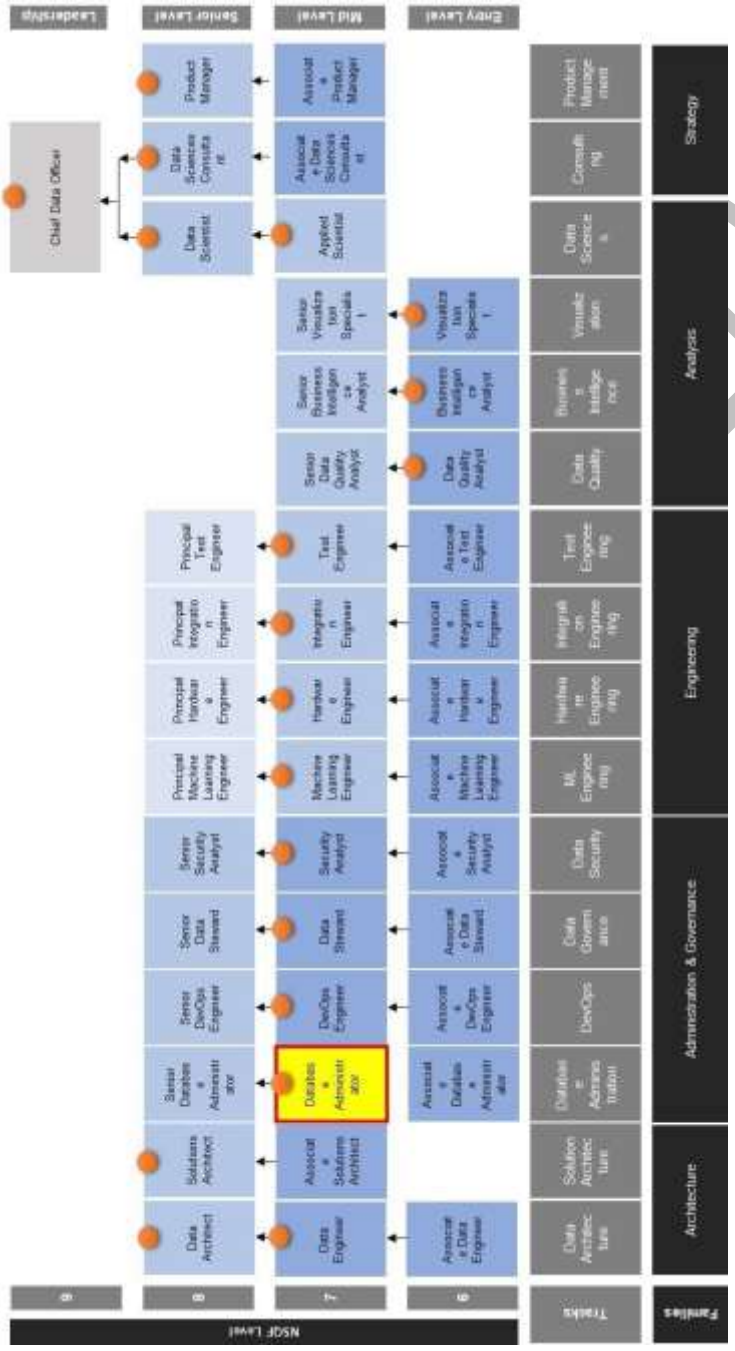
SECTION 4
EVIDENCE OF PROGRESSION

30	**What steps have been taken in the design of this or other qualifications to ensure that there is a clear path to other qualifications in this sector?** ***Show the career map here to reflect the clear progression***



The Career /Occupational Map reflects horizontal and vertical mobility emanating from 'Job Families' and 'Tracks' across NSQF and experience levels .

Presently 19 of the most popular job roles/ QPs in this AI& BDA Occupation have been articulated as per IT-ITeS industry's direction and aspirations.

NSQF QUALIFICATION FILE

Please attach most relevant and recent documents giving further information about any of the topics above. Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.

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